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Research Article

Exploring mental imagery: Targeted goals, strategies, and challenges of selected national coaches in the Philippines

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ABSTRACT

Mental imagery is the sense of "seeing with the mind's eye" in terms of mental images that are visible. Studies have shown that visualization can help people relax mentally and physically. Other advantages of envisioning things ahead, influenced by unfavorable vibes or feelings are managing despair, stress, and worry. Coaches can use a variety of strategies to successfully blend visualization with physical skills for national athletes. One of the first tasks is to teach the basics of visualization, such as how it works and how it might improve performance. Encouragement of athletes to picture their moves, tactics, and strategies during practice sessions might help them focus better and prepare mentally. Coaches also emphasize the need to relax the mind and body while concentrating on the goals. Athletes can evaluate themselves while visualizing. They can also evaluate their performance objectively, pinpoint their weaknesses, and picture themselves performing the skill with better form, accuracy, or efficiency. They can refine their approach and find the best way to perform the skill by mentally practicing several ways and imagining the possible results. National coaches identified family and financial concerns that were found to be the biggest barriers to achieving their goals. Consequently, it is difficult to achieve mental quiet through imagery intervention. The probability of unknown processes and results is one barrier to adopting imagery intervention. The chance that an athlete's planned goals will be realized is unpredictable because they cannot control all the factors. Their confidence and motivation may be impacted, necessitating the creation of uncertainty management and embracing measures. To overcome this challenge, it is necessary to educate athletes about the importance of imagery intervention and how it relates to their performance, as well as to foster communication and trust. Athletes should only be asked to select how they want to see themselves, according to coaches. Athletes should be deliberate and concentrated while employing visualization techniques, concentrating on specific movements or situations crucial to their sport. Athletes can picture themselves using specific moves, motions, or methods that are related to their position or role. Improved coordination, muscle memory, and general skill improvement are all benefits of this focused visualization. Through consistent practice and instruction, one can improve their ability to visualize. Athletes can enhance their visualization skills and get the most out of this training method by practicing consistently and with dedication.

Keywords: Challenges, Mental imagery, Sports psychology, Strategies, Targeted goals, Visualization

INTRODUCTION

Many of those Olympic competitors have tried to figure out how to win a medal at the 2016 Rio Olympics. Many athletes in corporate visualization in their training programs and their preparation for competition (Cohn, 2020). To improve people's motivation and self-assurance to achieve their goals and to teach people how to do this for them so they may remain inspired even in the face of difficulties, it employs imagery to visual symbolism that recalls a mental image or other sorts of sensory impressions (Carpentier and Mageau, 2017).

This researcher intended to add new knowledge to the body of knowledge in physical education and sports from a national perspective. In addition, this researcher has seen intentional physical harm being done to athletes in team sports as well as altercations, verbal altercations, heated arguments, finger-pointing, stressing out, making faces, cursing, and verbal confrontations that somehow go against the spirit of the sport. Despite having excelled in training, there are instances where athletes experience unwarranted and unnecessary feelings of guilt, shame, and low self-esteem, which may negatively impact

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their performance and the likelihood that they will succeed in sporting competitions (Carpentier and Mageau, 2017).

This researcher asserts that this is the first schoolwork in the Philippines that explores mental imagery on targeted goals, strategies, and challenges of national coaches. The tool can be used to avoid situations involving misconduct and a lack of confidence but they have been made worse by pressure, bewilderment, and mistakes in anger management, discipline, poor training quality, and orientations. In line with this, from a scientific standpoint, it is because of a lack of appropriate sensory input that we can mentally represent perceptual information through a process known as mental imagery.

Considering that mental imagery is a perceptual process (Cumming, n.d.; Quinton, 2021), the researcher was challenged to determine how this process is practiced in the Philippine sports setting, particularly to those who had participated, are participating, and will participate in international athletic competitions. Hence, a study on the challenges and strategies in imaging sports toward athletes' targeted goals and better sports behavior and performance.

This paper explored the targeted goals, strategies, and challenges in using mental imagery in the context and experiences of selected national coaches competing internationally and those who are participating in national collegiate tournaments such as competitions hosted by UAAP, NCAA, and SEA GAMES. Since locally, sports are more focused on the development of athletes' physical preparation rather than cognitive, emotional, and psychological aspects, the researcher believes that both physical and mental balance should be valued, especially in today's current situation. The understanding of the patterns of challenges and strategies of utilizing imagery to build self-confidence among national coaches and their athletes may give way to formulating programs for its adoption for lower levels of sporting events such as in the grassroots, school-based, district, division, and regional athletic tournaments.

Leading athletes and coaches frequently use imagery to hone their abilities and overcome weaknesses. Athletes can control their anxiety during competitions using imagery, but it also helps them stay confident, focused, and mentally tough. Studies have shown that imagery can promote relaxation in the body and mind. In addition, it can help with the control of depression, stress, and anxiety. As a result, the study hopes to contribute to a body of descriptive and scientific knowledge about mental imagery that targets goals, strategies, and challenges as a foundation for the Department of Education and the National Coaches in Sports Development coach intervention program for sports competition in the area of mental state.

The study's goal was to explore and discover the targeted goals, strategies, and challenges in the adoption of mental imagery in training practice especially on how coaches view coaching mental training for athletes in terms of targeted goals, strategies, and challenges to determine the outcomes of coaching mental training for athletes in terms of the variables listed above, as well as how coaches use coaching mental imagery interventions to help athletes achieve high levels of performance in the areas of physical, environmental, task, timing, learning, emotion, and perspective (PETTLEP). The study sought to answer the following questions:

1. What are the targeted goals and objectives being achieved in utilizing mental imagery?
2. What are the strategies employed by the coaches in the implementation of mental imagery intervention?
3. How do the challenges encountered by the coaches contribute significantly to the implementation of mental imagery?
4. How do the coaches implement visualization in their training program?

REVIEW OF LITERATURE

The Mental Imagery Practice

Athletes can utilize mental imagery as a strategy to supplement physical effort and increase their success in their particular sport. Visualization is a component of a mental workout program that may also include techniques such as self-talk, relaxation, and goal-setting, as explored by Abraham *et al*. (2018) and Lakhiani (2018).

Through the use of mental imagery on how national coaches and players interact with one another when using mental images from national coaches' narratives the process of the strategy and practices (Technique/Method) from their targeted goals, strategies, and challenges, the researcher of this study investigated and sought the targeted goals, strategies, and challenges of selected national coaches to consider the realization and success of coaches significantly in building sports confidence with the help of visualization to promote better performance in sports competition.

Other artists have frequently employed imagery, such as athletes, coaches, teachers, military personnel, doctors, and musicians. Regardless of age, gender, or degree of ability, anyone may utilize visualization to improve their cognitive, behavioral, and affective performance. Athletes employ images in sports for training, competition, and recovery (Lakhiani, 2018).

These attitudes had a significant impact on other fields, such as philosophy. Although the psychological study of imagery reemerged with the rise of cognitivism in the 1960s and 1970s, when new experimental techniques were introduced that allowed a genuinely experimental study of the phenomenon, mental imagery cannot be understood properly without an

understanding of this past, versions of which, to varying degrees of accuracy, current opinions and attitudes about (American Psychiatric Association, 2021).

On the other hand, the study of psychology in a sporting situation is known as sports psychology. It is an essential component in comprehending athletes' thought processes, as well as developing ways and tactics to improve sports people's general mental health and wellness, usually in a professional athletic setting to help in increasing athletic performance, confidence, focus, composure, intensity, and trust. These mental talents aid athletes in increasing their skills as well as other aspects of their lives.

Furthermore, Thorndike's theory is based on three primary laws: (1) The law of effect-responses to a situation that results in a rewarding state of affairs will be strengthened and become habitual responses to that situation, (2) the law of readiness – a series of responses can be chained together to satisfy some goal that will result in annoyance if blocked, and (3) law of exercise –connections become stronger with practice and weakened when practice is discontinued.

At present, different theories on motivation have been presented by psychologists, including drive theory, instinct theory, and humanistic theory (such as Maslow'shierarchy of needs). The truth is that our motivations are guided and directed by a variety of forces. Furthermore, behavioral psychology, commonly known as behaviorism, is a learning theory based on the concept that all behaviors are learned through conditioning. Interaction with the environment is how conditioning takes place. Our activities are shaped by our responses to external stimuli, according to behaviorists.

Synthesis of the Reviewed Literature and Studies

Mental imagery was defined and explained by many authors of literature and studies consulted for this investigation. In the area of sports, athletes use the imagery in preparation, competition, and recovery (Mindvalley, 2018) mental imagery cannot be properly understood without an understanding of the past, versions of which, of varying degrees of accuracy, current opinions about and attitudes (American Psychiatric Association, 2021).

The situation of having the tournaments in your mind can be referred to as internal imagery (Axelrod, 2016). Although mental rehearsal, mental imagery, and imagination are cognitive approaches, visual motor activity rehearsal and cognitive-behavior training (Dewey, 2018). It is also something that helps to recognize mental representation through the presence in the consciousness, soul, or brain of picture-like representations (mental images) (Beyer, 2019). The motor programs in the motor cortex, which are responsible for motion, are then enhanced due to the stimulation of the neuronal (brain) circuits during mental imaging (Robertson, 2019). Anuar *et al*. (2016) assumed that the control of emotions by athletes may be related to their ability to visualize, considering that emotions and memory are related to both imagery and emotion regulation. Athletes who adjust how they think about a specific circumstance scored higher on imagery ability and research examined individual characteristics and imagery is acceptable as a result (Munroe-Chandler and Guerrero, 2017). Learning to use imagination skillfully can be one of the biggest investments will ever make with time, whether it's for relaxation, problem-solving, healing, or self-development (Axelrod, 2017). Implicit attitudes toward exercise are additional benefits of utilizing imagery in an exercise domain (Markland and Halletal, 2015).

There were different narratives from successful athletes together with their coaches and how mental imagery helped them in their competition. The visualization skills that Michael Phelps used each night helped him stay focused and confident under immense pressure on his first Olympic appearance as a 15-year-old in Sydney, to that magical week in Beijing, to his final Olympic outing in 2016 (Poirier-Leroy, 2021). Using mental imagery, physical workouts, and constructive self-talk will boost their potential marginally and do well not only in practice but also in competition (Mokhtari *et al*., (n.d.).

The Self-Efficacy theory suggests that imaging increases an athlete's chance of successful results (Sandalis, 2017). Methods of imaging appear to decrease the level of anxiety and this helps to increase their efficiency (Simonsmeier, 2020). If you are a professional athlete, sports imagery can help to significantly improve your success (Eiring, 2021).

The situation of having the tournament in our mind can be referred to as internal imagery (Axelrod, 2016). Anuar *et al*. (2016). This assumed that the control of emotions by athletes may be related to their ability to visualize, considering that emotions and memory are related to both imagery and emotion regulation. In relation to that, imagery can be applied in pre-match, during the performance, or post-match, it can be used at any time. It might also be the last thing that you do before bed to integrate PETTLEP imagery into your sports routine for the advantages that are noticed (Buck *et al*., 2016). The visual imagery of the eyes and what you see, sound and what you hear for auditory imagery, smell for olfactory imagery, taste for gustatory imagery, touch for tactile imagery, motion and movement to kinesthetic imagery, and emotion for organic imagery (Udemy, 2021). Along with several psyching-up strategies that may have a huge effect on one's view of oneself, such as self-talk and imagination (Axelrod, 2017) using mental imagery regularly in an organized way is the best way to gain the advantages of mental imagery (Udemy, 2021).

Imagery sessions should be performed 3–4 times a week (DiCorrado *et al*., 2020). A journal of imagery helps an athlete

to see improvement in their imagery, making it more satisfying (Taylor, 2020). Sports followed by adequate planning and guidance in behavior and imaging are valuable guides to an individual's development (Majid and Cobra, 2015) The association between the use of images by young athletes and mental maturity both contributes to motivational effects in athletics, but less performance (Baykose *et al*., 2017). In mental games, sports psychologists and coaches simply structure mental rehearsal to get athletes the most out of it (Udemy, 2021). They reported and discovered previous studies and research on the relationship between styles of sports and the use of imagery (DiCorrado *et al*., 2020). Imagery intervention was useful enough in terms of the development of motivation and confidence of boxing players. With this, their performance can improve, and they can become a better athlete (Solanki, 2016). To incorporate in setting goals is one of the strategies that have been used to encourage engagement, perseverance, determination, and effort to build the long-term self-motivation of a person (DiCorrado *et al*., 2020).

Sports psychology practitioners have attempted to understand the mechanisms that allow imagery to work and to support the principle that visualization is a technique, which helps athletes prepare for motor activity physiologically and psychologically, the following views are adapted to frame the study. The Symbolic Learning Theory and Extrinsic Motivation Theory support that mental images are like pictures copying or resembling what they represent.

Literature acknowledged the confidence problems and performance issues of athletes and how imagery enters into the coaching of athletes. In a sense, fear, there lent less focus on images and thoughts of trouble, problems, and disasters waiting to occur in the most common use of the imagination (Axelrod, 2017). From fear, strength emerged. Out of shyness came aggressiveness. Thus, mental imagery became one of the approaches of coaches. In the boxing confidence of boxing players, imagery was utilized. With this, their performance can improve, and they can be a better athlete (Solanki, 2016). It motivates the mind and body to operate in greater harmony (Airing, 2021) The motivational role of imaging has acted as the marker of challenges, engagement, power, and confidence (Tyler and Geikie, 2016). A sample of adults recently explored the impact of mental imagery with video modeling on the intensity and self-efficacy of the front squat (Buck, Hutchinson, Winter, and Thompson, 2016). Numerous research studies have shown that visualization can improve efficiency by up to 45%. The more repetitions you do, the faster you will become a task. Therefore, in certain respects, we can conclude that the use of good self-handling with mental imagery would be a complete improvement in how we can improve ourselves (DiCorrado *et al*., 2020).

In contrast, the use of mental imagery resulted in no actual improvement in results (Munroe-Chandler and Guerrero, 2017). Literature are rich as far as mental imagery is concerned as its extrinsic motivating and symbolic learning purposes and efficacy. Furthermore, there were foreign experiences that were included in some studies of a qualitative nature. However, an inquiry as to the challenges and strategies of utilizing mental imagery by the coaches and athletes in the Philippine sports setting is essential to further understanding how this concept is locally actualized.

METHODOLOGY

The qualitative approach seeks to comprehend the environment, and collect experiences. Studies on understanding phenomena and sentiments are conducted in natural settings to make sense of prevents or life issues based on the meaning ascribed to them by social actors (Denzin and Lincoln, 1994). Qualitative research seeks to comprehend the environment, and collect experiences. Studies on understanding phenomena and sentiments are conducted in natural settings to make sense of or interpret events or life issues based on the meaning ascribed to them by social actors (Denzin and Lincoln, 1994). The information that was gathered to characterize occurrences was compiled, tabulated, illustrated, and explicated as part of the descriptive analysis (1984; Glass and Hopkins).

The purpose of this descriptive study is to investigate the targeted goals, strategies, and challenges of national coaches to define the challenges, effectively suggest strategies, and show substantial evidence for the issues concerning the informants' experiences to meet the demands of effective mental imagery to develop sports confidence and other positive properties.

Moreover, various sources of data or multiple techniques for interpreting data to improve the credibility of our search study were triangulated (Salkind, 2010).

Focus group discussion was utilized as well. It is a popular qualitative technique for gaining a deeper understanding of social issues. Using archival data gathered from sources that already exist, such as historical records in any format and the physical location where they are kept, the method seeks to obtain data from a specifically chosen group of people rather than a statistically representative sample of a larger population (Nyumba, 2018).

The researcher applied the design of qualitative-narrative analysis to perform the report. It aims, therefore, to create an important database from the answers and indications. To understand the expansions of the informant's answers, this analysis used open-ended interview guide questions with sub-questions validated by experts in the field.

The narrative inquiry that human behaviors and insight take over time plays in the relationship between the

experience of the person or community and the sense of culture (Domingo, 2018). The purpose of the descriptive narrative analysis is to reveal a target audience with a variety of interactions that have been absorbed from precise and problem responses.

In-depth interviews, a qualitative data collecting method, allow for their cording of rich, descriptive data on how individuals think and behave, as well as the unfolding of complicated processes. Depending on the research needs, they can be employed as a stand-alone research method or as part of a multi-method design Guion *et al*. (2011).

A qualitative study using open-ended questions enabled the researcher to take a comprehensive and in-depth look at the topics being studied. Interview guide questions with open-ended responses enable informants to provide more options and viewpoints than would be possible with a closed-question or forced-choice survey measure (Allen, 2017).

The narrative inquiry that human behaviors and insight take over time plays in the relationship between the experience of the person or community and the sense of culture (Domingo, 2018). The purpose of the descriptive narrative analysis is to reveal a target audience with a variety of interactions that have been absorbed from precise and problem responses.

The completion of the data collected determined the duration of data collection at the point at which its capacity was reached. Analysis using the theoretical saturation approach, in which no new concepts regarding the topic were developed (Morse, 2007), was followed. The attribute of having meaning in insight connected to analysis was utilized to provide importance to the acquired data, and theoretical sensitivity was used to refer to it (Corbin and Strauss, 2015).

The researcher prepared interview guide questions for data collection based on "a priori codes" (De Guzman, 2015).

The interviewer used various online and phone applications, and connectivity tools to use for the interviews. It was conducted through face-to-face, Google Meet, Zoom technology, or Facebook Messenger chat platform. The codes/password and interview guide questions were emailed to the participants individually. The searcher took note of the responses and narrative answers of the participants.

To ensure that the interview questions were answered easily by the informants, the researcher obtained written permission and approval to conduct the interview.

The interview was transcribed, evaluated, contrasted, and interpreted using Wolcott's (1994) "transforming qualitative data" by reducing data by (1) organizing, (2) familiarizing, (3) categorizing, and (4) coding that distinguishes research information, identification of mutually accepted properties.

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The researcher consolidated and analyzed the information gathered through phone notes, note-taking, emails, face-to-face follow-up, and interviews in the form of focus group discussions (FGD) that were deemed important in the data collection stage. The researcher diligently examined the shared views and experiences of the national and PSC coaches who participated in international and national competitions and who were exposed to the targeted goals, strategies, and challenges based on mental imagery.

The study procedure included a purposive system to ensure that the study has the minimum number of participants required and that national coaches are willing to participate in the study after receiving an informed consent form.

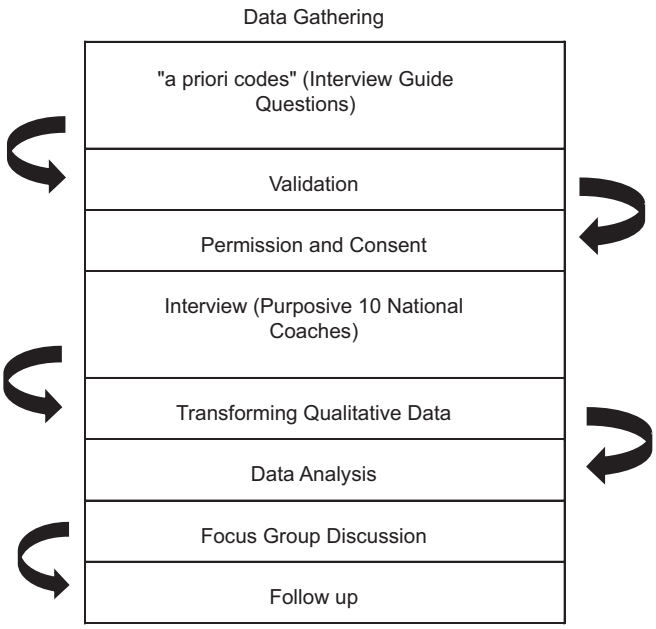
Since it was appropriate for online surveys and face-to-face procedures, interviews were conducted both online and in person based on availability (Bordens and Abbott, 2017). In addition, given the additional safety precautions in place at the time, follow-up communication was allowed as long as the researcher adhered to and followed safety rules in the engagement with informants.

At the beginning of the analysis, this sampling method was used to identify the key components, and the course of the overall process, to show how informants went through the mental imagery. This is to ensure that information from informants is correct.

Despite the researcher's limited resources, time, and money, renowned PSC national team sports coaches participated in the study.

The interviews were done on pre-determined dates in February and June 2023-remotely or in person.

The researcher collected and examined data from emails, interviews, and FGD that were crucial to the understanding of the current problem. The researcher conducted a scientific analysis of the experiences of national and PSC coaches who compete in international and domestic competitions. The researcher exposed the coaches to information on targeted



goals (motivational benchmarks), strategies, challenges, and motivation based on mental imagery. The data gathered were coded and analyzed.

Ten informants were included in this study who had either competed in or would be competing in international athletic or sporting events. The informants all lived in the National Capital Region (NCR) because face-to-face and online interviews were both considered due to the subject matter and the study's scope. The informants were 18 years of age or older. They were chosen based on their participation as national coaches in international sports tournaments or had engaged in national and international level tournaments and competitions, men and women were represented equally regardless of height and weight.

Located in the NCR, primarily in the area of individual, dual, and team sports, from November 2021 to June 2023, this study had ten informants who have participated or would participate in international athletic/sports events, and the informants live in the NCR, with recognition for face-to-face and online interviews as part of the procedure and availability.

Due to the voluntary nature of the data collection for this study, only those who had free time and were able to respond to the interview were selected. The voluntary involvement of national coaches as informants is made clear on the informed consent form. The said form was an agreement. It indicated the roles and responsibilities of both the researcher and the participants.

To provide the necessary, acceptable, and desirable answers for the study, a consent form was given to ensure the confidentiality of the identity of the participants. The form also ensures that they can withdraw their participation during the research process. The informants were made to understand the research objectives and that their participation is voluntary.

The study went through proper communication channels, following the guidelines and procedures of the PUP University Research Ethics Board. This also enabled the researcher to get an ethics clearance.

RESULTS AND DISCUSSION

The following are the findings based on the analysis and interpretation of data presented in the previous chapter.

1. The coaches prepare athletes for competitions by creating a plan for what to expect and how to handle the unforeseen. This is done to visualize and practice mentally what athletes want to do physically. By focusing on positive images and thoughts, individuals can enhance their overall attitude and well-being. It helps them prepare for various situations, thereby improving decision-making and performance. Similarly, reliving previous events through imagery can aid in emotions, learning from past experiences, and gaining insights for future actions, including foreseeing and realizing the potential outcomes, staying confident, mind pictures to improve performance, and practicing skills in mind.
2. The coaches provide athletes with a platform for contemplation, reflection, and critical thinking. They use "PETTELEP," this is a technique used to visualize different strategies, game plans, and scenarios, allowing them to analyze the potential outcomes and make informed decisions. The strategy is a popular approach used by athletes in mental imagery. It stands for physical, environment, task, timing, learning, emotion, and perspective. Athletes consider each of these factors in their mental imagery practice to create a comprehensive and holistic mental representation of their performance goals. For evaluation of previous games using prior knowledge and background experience to connect with a personal picture to allow them to form an anticipatory representation of strategies. Uses senses to enable athletes to picture and maintain a winning attitude with contemplation, reflection, and thinking.
3. Family and financial issues are cited by national coaches as the main obstacles to their success and objectives. Therefore, achieving mental calm through imagery intervention is challenging. One obstacle to using imagery intervention is the potential for uncertainty. Athletes may visualize their desired outcomes but cannot control all variables, leading to uncertainty about whether those outcomes will be achieved. This can affect their confidence and motivation, requiring them to develop strategies to manage and embrace the uncertainty. Overcoming this

Summary of Themes		
SOP	**Family theme**	**Axial codes**
1	Mental imagery in targeted goals	Foreseeing and realizing potential outcomes, staying confident, focused, and mentally tough. Mind picture to improve performance, positive thinking or attitude, and practice skills in mind.
2	Strategies through mental imagery	Evaluation of previous games using prior knowledge and background experience to connect with personal picture allows to form an anticipatory representation of strategies; uses senses to scene that athletes are picturing as possible, maintain a winning attitude, contemplation, reflection, and thinking using picture stimuli, concrete verbal stimuli, and imagery instruction.
3	Challenges using mental imagery	Imagery ability to contribute to its effectiveness, imagery speed (pacing), unfocused athletes and coaches, athletes not in the best condition mentally and physically, negative or uncooperative, unruly attitude, personal financial matters, personal emotions of coaches and athletes, imagery that incorporates performance errors, unwanted outcomes, and demotivation.
4	Mental imagery practice	Form images, reflect on a mental image, develop and elaborate the imagery, control emotional arousal and anxiety, sample videos and games of top-tier teams, skill-focused for better results, and game planning.

obstacle requires education, communication, and building trust to help athletes understand the value and relevance of imagery intervention to their performance. Including imagery's ability to contribute to its effectiveness, imagery speed (pacing), unfocused athletes and coaches, athletes not in the best condition mentally and physically, imagery incorporates performance errors and unwanted outcomes and demotivation, negative or uncooperative, unruly attitude, and personal emotions of coaches and athletes.

4. Coaches and athletes may be asked to decide how they want to see themselves. Athletes should be deliberate, focused, and planned when using visualization techniques, focusing on particular maneuvers or circumstances important to their sport. Athletes can visualize themselves executing precise movements, techniques, or plays associated with their position or role. This targeted visualization helps enhance muscle memory, coordination, and overall skill development. Visualization is a skill that can be developed through progressive training and practice. Consistent and dedicated practice helps athletes strengthen their visualization abilities and optimize the benefits of this training technique. Including forming images, reflecting on mental images, developing and elaborating the imagery, controlling emotional arousal and anxiety, and watching sample videos and games of top-tier teams.

The Table above shows the general or summary matrix that is divided into four family theme which are mental imagery in targeted goals, strategies through mental imagery, challenges using mental imagery, and mental imagery practice with axial codes that corresponds to the significant codes from the responses of the informants, see the table above.

CONCLUSION

Based on the analysis and interpretation of gathered data, the following conclusions were drawn:

1. Based on the results, mental imagery is a powerful cognitive tool that allows individuals to identify targeted goals as behavioral and performance outcomes to identify values, anxiety, and mistakes to recreate sensory experiences through visualization. It can serve different purposes such as enhancing memory, improving skills, reducing anxiety, and promoting relaxation. In general, mental imagery aims to create a vivid mental representation of a sensory experience that can simulate an experience and produce similar psychological and physiological effects as well as mental stamina, positive attitude, reactivation, and manipulation of external representation. Readiness to compete, and to avoid mistakes.
2. Coaches consider the following to be a best practice when it comes to using mental images: A clear connection can be made between the visualization and the desired result with the aid of precise and vivid mental images. It makes for a more engaging and realistic experience for the person who routinely practices mental imagery benefits from regular practice just like any other skill. To reap the full rewards, improvised training, and visualization exercises should be incorporated into the person's regular training regimen.
3. National coaches stated that financial concerns, uncooperative, unruly, unstable, low self-esteem, not receptive athletes with busy schedules, and lack of familiarity, including family and financial problems are the ones who hindered the goal of achieving their success and objectives. Hence, peace of mind is difficult to achieve with imagery intervention.
4. Athletes can practice visualization or mental imagery by watching sample videos and games, planning, drills and exercises, facilities and equipment, concentration and attention, and environment using the coaching techniques to summarize the entire response of the coaches. Creating consistency and streamlining the process can be achieved by establishing a mental imagery routine. Athletes can establish a dedicated time and location for mental training. Furthermore, when practicing visualization techniques,

athletes should be deliberate and focused, concentrating on specific techniques, or situations crucial to their sport. Finally, visualization of successful outcomes and positive experiences can help an athlete feel more motivated and confident and identify components of coaching to coping, emotion, alternatives, motivation, and the component of training which includes, skills program performance, motion, competitive condition, self-control, sportsmanship, and self-confidence.

RECOMMENDATIONS

Based on the conclusions the following are hereby recommended:

1. This study recommends that mental imagery plays a key role in training for sports with proper communication for both athletes and coaches. Mentally rehearsing the experience in the mind – the specific event or activity – is suggested. Moreover, to achieve effective mental imagery, it is suggested to seek help from the Philippine Sports Commission to take the therapists and other relevant professionals that they could experiment to find the best method for each athlete to achieve mental imagery because it needs a combination of approaches and strategies. Coaches and therapists can aid athletes in developing their mental imagery abilities and maximizing the efficacy of imagery intervention by promoting practice, employing illustrative language, and strategies, and leveraging technology to avoid problems and achieve the goals.
2. It is recommended that the creation of a mental imagery strategy based on the national Coach's responses suggest that the first goal must be decided; the use of self-talk and other mental imagery tools for mind training by sports stakeholders. Moreover, the use of social proof in addition to visualization assists athletes with their emotional experiences. Coaches end up imitating athletes due to psychological phenomena. Use social proof in athletes' content by including endorsements from social media, user reviews, and testimonials to give viewers a sense of connection and belonging that will enhance their emotional experience.
3. It is suggested that concentrating on one task at a time can yield the desired results. Providing coaches and athletes with the right training facility, setting, and equipment would enhance mental imagery as a powerful strategy that can put forward and boost an athlete's performance, confidence, and goal-achieving abilities. It is advised that athletes utilize mental visualization techniques during training sessions to strengthen their proper form and develop muscle memory
4. Since the selection of visualization techniques depends on the type of data and the narrative that coaches intend to tell, using a graphing method is the ideal option. Consider infographics, which are a type of visual information display that mixes text, pictures, and graphics to create a story. They are helpful for conveying complicated information in a clear and interesting manner. Moreover, it is recommended that institutions create a platform to intensify mental imagery in sports to make it an effective tool and method for performance improvement for all periods of the competition from the pre-, actual, and post-event-to evaluate its utilization and identify challenges to minimize mistakes in crucial points in any match.

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Research Article

Comparison of individual insight of workplace stress of male and female gymnasium fitness trainers of Mumbai city

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ABSTRACT

The purpose of the study was to compare the Individual Insight of Trainers working in various Gyms of Mumbai City. To achieve this purpose researcher selected a sample of 100 subjects randomly from Mumbai City South Zone Gyms in which 50 Male and 50 Female Gymnasium Fitness Trainers selected. To measure the Individual Insight among Male and Female Gymnasium Fitness Trainers, a standardized Individual Insight Scale was appropriately used to collect the data. The collected data were statistically analyzed by applying Independent Sample t-test. The findings of the study were directs that the psychological variable Individual Insight (Individual Insight) t-value was 3.24 which was significant at 0.05 level with df=98 among Male Trainers and Female Gymnasium Fitness Trainers. The mean scores of Individual Insight of Male Trainers Group were 31.68 ± 2.80 which was significantly lower than Female Gymnasium Fitness Trainers Group which was 34.19±3.39. Finding of this study shows that Male Trainers are lower into the Individual Insight than Female Gymnasium Fitness Trainers Group.

Keywords: Female, Gymnasium fitness trainers, Gyms, Individual insight, Male gymnasium fitness trainers, Psychological variable

INTRODUCTION

Dwelling in every occupation, humans have faced lots of problems and finding out the solution has been one of the mandatory tasks that most successful research has resulted in. Since Inception, humans have been working and working at an optimal stress level, which has produced wonders that the world has seen. The stress factor is highly inconsistent, where it may change either to increase or decrease and also make changes in the output of the work, respectively. Therefore, Individual Insight is one of the most important factors to be taken into consideration, especially in the teaching field, that is, in the field of education.

PURPOSE OF THE STUDY

The present study was conducted on the Individual Insight of Male Trainers and Female Gymnasium Fitness Trainers in Mumbai city. Many rumors were spread that the Individual Insight in the field of training is likely to be in disparity where some Trainers are more stressed than others. This issue needed to be addressed so that we can not only understand the differences between the stress levels suffered by the Trainers of different categories but also provide the government and other regulating authorities first-hand information and in turn they provide better grounds for the performance of Trainers and Field of Training at large.

Address for correspondence:

E-mail:

Definitions of Term Used

Stress

Stress is simply a fact of nature forces from the outside world affecting the individual.

Individual insight

Individual bring a number of differences to work, such as unique personalities, values, emotions, and moods. When new employees enter into organizations, their stable or transient characteristics affect how they behave companies hire people with the expectation that those individuals have certain skills, abilities, personalities, and values. Therefore, it is perform important to understand individual characteristics that matter for employee behaviors at work.

Objective of the study

The objective of the study was to compare mean scores of Individual Insight of Male and Female Gymnasium Fitness Trainers.

Hypothesis of the study

There is no significant difference in mean scores of Individual Insight of Male and Female Gymnasium Fitness Trainers.

METHODOLOGY

Design of the Study

The present study was descriptive in nature under the heading of descriptive research which provided comparison between Male and Female Gymnasium Fitness Trainers on Individual Insight of Workplace stress psychological variable. The Scores of Individual Insight of Trainers were collected through the standardized Questionnaire.

Population and Sample

A sample of 50 Male Gymnasium Fitness Trainers and 50 Female Gymnasium Fitness Trainers selected from Mumbai City South Zone Gyms.

Variable and Test

Individual insight

The tool used in the present study was standardized questionnaires, known as of Workplace Stress Scale by Dr. Ramandeep Kaur Sindhu and Dr. Manu Chadha filled by Male and Female Gymnasium Fitness Trainers of Mumbai City.

Tool used

The answers converted into scores through the following table:

Type of item	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

Statistical Procedure

As mentioned in the objectives of the study, data were analyzed with the help of Independent Sample t-Test method of statistical techniques.

RESULTS

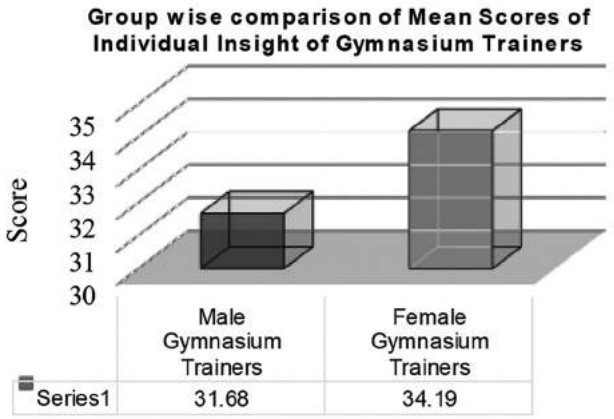
Result on Individual Insight between Male Trainers and Female Gymnasium Fitness Trainers objective of the present study was to compare the mean score of Individual Insight of Male Gymnasium Fitness Trainers' Group and Female Gymnasium Fitness Trainers' Groups. The data were analyzed with the help of t-Test and results are given in Table 1.

Table 1: Group-wise mean, SD, N and t-value of Individual Insight

Test	Mean	SD	N	t-value
Male Fitness Trainers	31.68	2.80	50	3.24*
Female Fitness Trainers	34.19	3.39	50	

*Significant at 0.01

From Table 1, it can be seen that the t-value is 3.24 which is significant at 0.01 level with df=98. It indicates that mean scores of Individual Insight of Male Trainers' Group and Female Gymnasium Fitness Trainers' Group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of Individual Insight of Male Trainers Group and Female Gymnasium Fitness Trainers Group is rejected. The mean scores of Individual Insight of Male Trainers Group are 31.68 which is significantly lower than Female Gymnasium Fitness Trainers Group which is 34.19. It may, therefore, be said that Male Gymnasium Fitness Trainers were found to believe significantly lower into the Individual Insight than their counterpart Female Gymnasium Fitness Trainers.



DISCUSSION

Individual Insight of Male and Female Gymnasium Fitness Trainers: The result shows that the mean scores of Individual Insight of Male and Female Gymnasium Fitness Trainers differ significantly. Thus, the null hypothesis that there is no significant difference between mean scores of Individual Insight of Male and Female Gymnasium Fitness Trainers is rejected. Further, the mean score of Individual Insight of Male Gymnasium Fitness Trainers which is significantly lower than that of Female Gymnasium Fitness Trainers whose mean score of Individual Insight.

CONCLUSION AND RECOMMENDATION

On the basis of the result, it can be concluded that:

- There is a difference between Male and Female Gymnasium Fitness Trainers, where Female Gymnasium

Fitness Trainers were found to believe significantly superior into Individual Insight than their counterpart Male Gymnasium Fitness Trainers.

- It may be recommended for other Aerobics Trainer, Yoga Trainers, Zumba Trainers,and Pilates Trainers to investigate the status of Occupation-related problems through workplace stress and job satisfaction.
- The study findings may inspire to physical education researchers for future study in the different area of physical education and sports.

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Research Article

A Comparative study of health-related physical fitness components of standard 8th and 9th students of SDA school of Navi Mumbai

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ABSTRACT

The purpose of the study was to compare the cardiovascular endurance of 8th and 9th grades/standard students in 7th-Day Adventist (SDA) schools of Navi Mumbai. To achieve this purpose, the researcher selected a sample of 100 boys randomly from SDA school Navi Mumbai. To measure the cardiovascular endurance between 8th and 9th grade boys, a standardized 9 min run and walk test was appropriately used to collect the data. The collected data were statistically analyzed by applying an independent sample t-test. The findings of the study were directs that the HRPF variable cardiovascular endurance t-value was 0.280 which was significant at 0.05 level with df=98 among 8th and 9th grade boys**.** The mean score of cardiovascular endurance of 9th-grade boys was 1455.58 which was significantly higher than 8th-grade boys which was 1441.90 finding of this study shows that 9th-grade boys are more cardiovascular endurance than 8th-grade boys.

Keywords: Cardiovascular endurance, Endurance test, Fitness activity of students/boys, HRPF variable, School students

INTRODUCTION

Physical fitness is an essential aspect of overall health, particularly during adolescence. During the transition from 8th and 9th grade, students undergo significant physical and psychological changes. This comparative study aims to assess and compare the health-related physical fitness components of 8th- and 9th-standard boys providing valuable insights into potential changes during this critical period. Cardiovascular endurance reflects the efficiency of the cardiovascular and respiratory system in delivering oxygen to working muscles during sustained physical activity. It is associated with a reduced risk of cardiovascular disease, improved energy levels, and enhanced overall endurance.

"This applies not only to children but to all of us."

RATIONALE OF THE STUDY

The present study was conducted on 8th- and 9th-class children of SDA School Navi Mumbai. School students are always rumored to be fit and healthy because (1) they are young (2) one PT period is enough for fitness throughout the week so they do not need physical fitness activities. We need to address this issue to understand the differences in fitness levels of school students and why their fitness levels are declining. Furthermore, with the changing times, children more and more are becoming more prevalent such as mobiles, computers, seating works, sedentary lifestyles due to excessive use of technology. Children physical and mental health of children is becoming weak and fragile. Come on for changes you first inform the government, organizing institution committee, or other regulatory authorities, and in return they provide good ground or indoor activity hall for sports and physical activities in the school so that the school can keep itself healthy and fit.

Address for correspondence:

E-mail:

Definitions of Term Used

Cardiovascular endurance

Is the ability of the heart and lungs to work together to provide the needed oxygen and fuel to the body during sustained workloads.

Eg – would be jogging, cycling, and swimming.

The Cooper run and walk test is used most often to test cardiovascular endurance.

Table 1: Group-wise Mean, SD, N, and t-value of cardiovascular endurance

Test	Mean	SD	N	t-value
8th-grade boys	1441.90	232.58	50	0.280
9th-grade boys	1455.58	255.12	50	

*Significant at 0.05

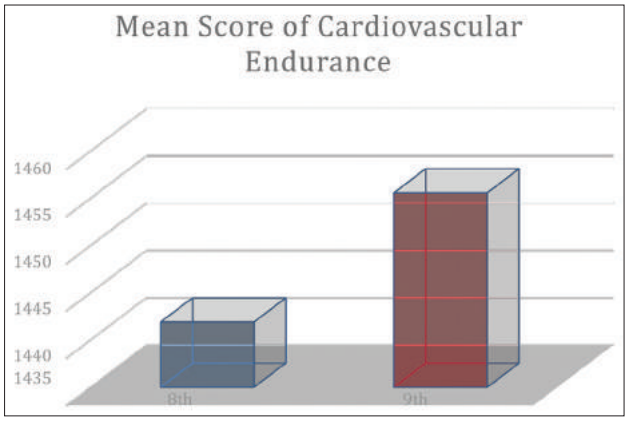

Figure 1: Mean score of 8th- and 9th-grade boys of cardiovascular endurance

Objective of the Study

The objectives of the study are as follows:

- To Compare mean scores of 8th- and 9th-grade boys
- Is no significant difference in mean scores of 8th- and 9th-grade boys.

METHODOLOGY

Design of the Study

The present study was descriptive in nature under the heading of descriptive research which provided a comparison between 8th- and 9th-grade boys on health related physical fitness variable. Scores of cardiovascular endurance were collected through the standardized physical test.

Population and Sample

A sample of 50 8th-grade boys and 50 9th-grade boys selected from SDA School Navi Mumbai.

Variable and Test

Cardiovascular endurance

The tool used in the present study was a standardized physical (9 min run and walk) test, known as of Cooper run and walk test filled by 8th- and 9th-grade boys of SDA School Navi Mumbai.

Statistical Procedure

As mentioned in the objectives of the study, data were analyzes with the help of independent sample t-test method of statistical techniques.

RESULTS OF THE STUDY

Result on cardiovascular endurance between 8th-grade boys and 9th-grade boys of SDA School The objective of the present study was to compare the Mean Score of 8th-grade boys and 9th-grade boys. The data were analyzed with the help of t-test and results are given in Table 1 below.

From the above table, it can be seen that the t-value is 0.280 which is significant at 0.05 level with df=98. It indicates that the mean scores of 8th-grade boys and 9th-grade boys differ significantly. Thus, the Null Hypothesis that there is no significant difference in mean score of cardiovascular endurance of 8th-grade boys and 9th-grade boys is rejected. The mean scores of cardiovascular of 9th-grade boys is 1455.58 which is significantly higher than 8th-grade boys which is 1441.90. It may therefore be said that 9th-grade boys are more cardiovascular endurance in their physical fitness than 8th-grade boys. The above result has been also graphically represented in Figure 1.

CONCLUSION AND RECOMMENDATION

On the basis of the result, it can be concluded that:

- 9th-grade boys cardiovascular endurance higher than 8th-grade boys.
- Every school should have a ground or at list indoor activity hall for maintain physical fitness through fitness activity.
- Guidelines and rules made by the government or organizing institution in the field of education should take such researches into consideration for better governance in physical Education.

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Research Article

A comparative study of blood lactate level of swimmers and sprinters of Thane

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ABSTRACT

Swimmers and sprinters frequently deal with great pressure, competition, and physical exhaustion. The capacity of an athlete to maintain composure, resilience, and performance under pressure is referred to as mental toughness. It calls for traits such as self- assurance, tenacity, and the capacity to deal with pressure and disappointments skillfully. Physiological parameters are essential markers of the body's physiological reaction to exercise and can offer insightful information about the training and performance of sprinters and swimmers. Coaches and players can learn more about an athlete's fitness level, training responses, and areas for development by tracking and evaluating the physiological markers like blood lactate level. It represents the balance between lactate production and lactate metabolism. Blood lactate levels essentially serve as an indirect marker for biochemical events such as fatigue within exercising muscle. The objective of the study was to compare the mean scores of blood lactate level of swimmers and sprinters of Thane. A sample of 25 swimmers and 25 sprinters were selected from starfish foundation, Thane city and Thane mahanagarpalika athletics club. Blood lactate levels are normally scored by measuring the blood's lactate concentration and analyzing the results in light of defined reference ranges. Depending on the environment in which the test is administered, such as exercise physiology, medical diagnostics, or metabolic assessment, the interpretation may change. Blood lactate levels in healthy people typically vary from 0.5 to 2.2 mmol/L of blood when they are at rest. The collected data were analyzed using Independent sample *t*-test using SPSS software. The *t*-value is 2.945 which is significant at 0.01 level with df = 48. It indicates that mean scores of blood lactate level of swimmers group and sprinters group differ significantly. Thus, the null hypothesis that there is no significant difference in mean scores of blood lactate level of swimmers group and sprinters' group is rejected. The mean scores of blood lactate level of sprinters group are which is 6.72 significantly higher than swimmers group which is 6.056. It may, therefore, be said that sprinters group has more lactic acid level than swimmers group.

Keywords: Blood lactate level, Sprinters, Swimmers

INTRODUCTION

Swimmers and sprinters frequently deal with great pressure, competition, and physical exhaustion. The capacity of an athlete to maintain composure, resilience, and performance under pressure is referred to as mental toughness. It calls for traits such as self- assurance, tenacity, and the capacity to deal with pressure and disappointments skillfully. Physiological parameters are essential markers of the body's physiological reaction to exercise and can offer insightful information about the training and performance of sprinters and swimmers. Coaches and players can learn more about an athlete's fitness level, training responses, and areas for development by tracking and evaluating the physiological markers like blood lactate level. It represents the balance between lactate production and lactate metabolism. Blood lactate levels essentially serve as an indirect marker for biochemical events such as fatigue within exercising muscle. In this piece of research, the researcher intends to see *"A Comparative Study of selected Psycho-Physiological Parameters of Swimmers and Sprinters of Thane."*

Address for correspondence:

Aim

This study is conducted to compare selected psycho-physiological parameters of swimmers and sprinters of Thane

Objectives

The objective of this study was to compare the mean scores of blood lactate level of swimmers and sprinters of Thane.

Hypotheses

H01: There is no significant difference between the mean scores of blood lactate level of swimmers and sprinters of Thane.

METHODOLOGY

Selection of Sample

A sample of 25 swimmers and 25 sprinters were selected from starfish foundation, Thane city and Thane Mahanagarpalika Athletics Club.

Research Design

This study is a comparative Study under the heading of descriptive research.

Physiological Variable

Blood lactate level.

Tools/instruments

- The following criterion measure was included to record the score of blood lactate level.
- Standard tool or instrument (LACTATE METER) was used to measure the blood lactate
- Level of the swimmers and sprinters.

S. No.	Variable	Tools	Score
1	Blood Lactate Level	Lactate Meter	mmol/L

PROCEDURE OF THE STUDY

Test was conducted at starfish foundation, Thane (West.) for swimmers and Thane Mahanagarpalika Athletics Club Sprinters. The purpose of the study was explained to the subjects in detail. Necessary instructions were given to all subjects aged 14–16 years. Warm up session was conducted, 100 m sprint was conducted for Sprinters after which immediately blood lactate level was tested by lacto meter. Similarly, sprint of 100 m freestyle was conducted for swimmers. After finishing 100 m freestyle swimming, lactate meter was used to test blood lactate level.

SCORING OF THE BLOOD LACTATE LEVEL

- Blood lactate levels are normally scored by measuring the blood's lactate concentration and analyzing the results in light of defined reference ranges.
- Depending on the environment in which the test is administered, such as exercise physiology, medical diagnostics, or metabolic assessment, the interpretation may change.
- Blood lactate levels in healthy people typically vary from 0.5 to 2.2 mmol/L of blood when they are at rest.

Statistics

The collected data were analyzed using Independent sample *t*-test using SPSS software.

RESULTS AND DISCUSSION OF THE STUDY

Results of Blood Lactate Level

Group-wise comparison of mean scores of blood lactate level

The objective was to compare the mean scores of blood lactate level of swimmer' group and sprinters groups. The data were analyzed with the help of *t*-test and results are given in Table 1.

From Table 1, it can be seen that the *t*-value is 2.945 which is significant at 0.01 level with df = 48. It indicates that mean scores of blood lactate level of swimmers group and sprinters group differ significantly. Thus, the null hypothesis that there is no significant difference in mean scores of blood lactate level of swimmers group and sprinters' group is rejected. The mean scores of blood lactate level of sprinters group are which is 6.72 significantly higher than swimmers group which is 6.056. It may therefore be said that sprinters group has more lactic acid level than swimmers group.

DISCUSSION ON BLOOD LACTATE LEVEL

In case of physiological parameter (blood lactate level) of swimmers and sprinters, the result shows that the mean scores of blood lactate level of swimmers and sprinters

Table 1: Group-wise Mean, SD, N and *t*-value of blood lactate level of swimmers and sprinters

Test	Mean	SD	N	*t*-value	Remarks
Swimmers	6.056	0.49	25	2.945	$P<0.01$
Sprinters	6.72	1.01	25		

**Significant at 0.01, SD: Standard deviation

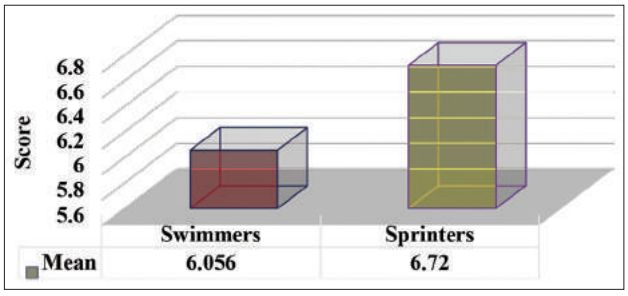

Figure 1: Group-Wise Comparison of Mean Scores of Physiological Parameter Blood Lactate Level of Swimmers and Sprinters

differ significantly. Thus, the null hypothesis that there is no significant difference between mean scores of blood lactate level of swimmers and sprinters is rejected. Further, the mean scores of blood lactate level of sprinters group are significantly higher than swimmers group. It may therefore be said that sprinters group has more blood lactate level than swimmers group.

CONCLUSIONS

Physiological Parameter (Blood Lactate Level)

- The result of the study helps to conclude that the sprinters blood lactate level is higher than swimmers of Thane.

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Research Article

Effectiveness of relaxation training program on the basis of physiological parameters of elite football players

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ABSTRACT

Introduction: Football is a game of relentless action that allows the team as a whole, as well as individual players, to react to shifting circumstances on a regular basis. Yoga is one of the best types of exercise for unwinding. A football team's strength, balance, and flexibility will grow with yoga, which also promotes control, attention, and recovery. Regular yoga practice will promote strength, balance, and flexibility, which will improve overall performance through the teaching of the concepts of body control, mental focus, and holistic healing. **Purpose:** The purpose of the study was to identify the effect of relaxation training program on fat percentage and blood pressure of elite football players. **Methods:** A total of 60 football players aged ranging from 13 to 14 years from B.S. Pasi Football Club were selected for the study. They were divided into two groups experimental group (n = 30) and control Group (n = 30). The experimental group was given a yoga training program to 12 weeks, whereas the control was not given any training. Body composition and blood pressure were measured before and after the yoga training program. A fat analyzer was used to measure the fat percentage and sphygmomanometer was used to measure blood pressure. Data were analyzed using two-way ANCOVA. **Results and Discussion:** The results revealed that there was no significant difference in the adjusted mean scores of fat percentage of elite football players of the relaxation training group and control group by taking pre-fat percentage as covariate. It also revealed that there was a significant difference in the adjusted mean scores of systolic blood pressure of elite football players of the stretching training group and control group by taking pre-systolic blood pressure as covariate. Further, it revealed that there was a significant difference in the adjusted mean scores of systolic blood pressure of elite football players of the stretching and relaxation training group and control group by taking pre-systolic blood pressure as covariate.

Keywords: Diastolic blood pressure, Fat percentage, Football, Systolic blood pressure, Yoga

INTRODUCTION

Yoga is one of the best types of exercise for unwinding. The importance of yoga for spiritual development has long been recognized. Yoga has undergone many stages, and new schools and a wide variety of practices have emerged over time. The emphasis in each yoga school varied, but the schools' common objectives –namely, the control of mental processes – were the same. Yoga is increasingly being included in football players' training regimens today. When it comes to increasing strength and flexibility while fostering a healthy balance between the body and mind, yoga for football players can be incredibly helpful.

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Purpose of the Study

The present study was conducted on elite football players with age ranging from 13 to 14 years. The fundamental purpose of Yoga is to foster harmony in the body. Yoga gives a complete system of physical, mental, social, and spiritual development. Soccer players who practice yoga are more likely to be more focused and have improved physiological parameters such as blood pressure and heart rate, and have good lung capacity.

Objective of the Study

For said study, the objectives of the study were as follows:

- To compare the adjusted mean scores of fat percentage of elite football players in relaxation training group and control group by taking pre-fat percentage as covariate.
- To compare the adjusted mean scores of systolic blood pressure of elite football players in relaxation training

group and control group by taking pre-blood pressure as covariate.
- To compare the adjusted mean scores of diastolic blood pressure of elite football players in relaxation training group and control group by taking pre-blood pressure as covariate.

Hypothesis of the Study
- H_{01}: There is no significant difference in the adjusted mean scores of fat percentage of elite football players of relaxation training group and control group by taking pre-fat percentage as covariate.
- H_{02}: There is no significant difference in the adjusted mean scores of systolic blood pressure of elite football players of the relaxation training group and control group by taking pre-systolic blood pressure as covariate.
- H_{03}: There is no significant difference in the adjusted mean scores of diastolic blood pressure of elite football players of relaxation training group and control group by taking pre-diastolic blood pressure as covariate.

METHODOLOGY

Sixty (n = 60) elite football players aged ranging from 13 to 14 years were identified as subjects from B.S. Pasi Football Club. The students were further divided into two groups, i.e., the experimental group and control group.

Design of the Study
The design of the study was non-equivalent control group design. Phase – I: Pre-test, Phase – II: Training or Treatment, and Phase – III: Post-test. The subjects were divided into two groups, i.e., Group "A" experimental group and group "B" control group; each group consisted of 30 subjects. The experimental group had undergone a yoga training program for 12 weeks.

Dependent Variable
Fat percentage, blood pressure.

Criterion Measures
The following criterion measures included the records of the various test items of selected physiological parameters.

Variable	Test	Unit
Body Composition	Fat Analyzer	Percentage
Blood Pressure	Sphygmomanometer	mmHg

Independent Variables
The specific yoga training was considered independent variable for the present study which includes the following aspects:
- Prayer
- Shavasana
- Asana (Utkatasana, Vrikshasana, Dhanurasana, Pachimotasana)
- Kriyas (Kapalbhati)
- Pranayam (Ujjayi)
- Meditation (Om Chanting).

Statistics
A comparison of group was done with the help of a one-way analysis of covariance ANCOVA.

RESULTS AND DISCUSSION

The mean achievement in fat percentage and blood pressure due to the Yoga training program, as obtained from ANCOVA test, revealed that –

As shown in Table 1, it can be seen that the adjusted F-value is 0.69 which is not significant at 0.05 level with df= 1/57 when pre-body composition was taken as covariate. It shows that adjusted mean scores of body composition of relaxation training group and control group did not differ significantly when pre-body composition was taken as covariate. Thus, the null hypothesis, H02 that there is no significant difference in adjusted mean scores of body composition of elite football players of the relaxation training group and control group by taking pre-body composition as covariate is accepted. Further, the adjusted mean score of body composition of the relaxation training group is 20.94 which is not significantly lower than that of the control group where the adjusted mean score of body composition is 21.23. It may, therefore, be said that relaxation training was not found to be effective in improving the body composition of elite football players.

From Table 2, it can be seen that the adjusted F-value is 5.55 which is significant at 0.05 level with df= 1/57 when pre-systolic blood pressure was taken as covariate. It shows that adjusted mean scores of systolic blood pressure of the relaxation training group and control group differ significantly when pre-systolic blood pressure was taken as covariate. Thus, the null hypothesis, H05 that there is no significant difference in adjusted mean scores of systolic blood pressure of elite football players of the relaxation training group and control group by taking pre-systolic Blood pressure as covariate is rejected. Further, the adjusted mean score of systolic blood pressure of relaxation training group is 127.53 which is significantly lower than that of the control group where the adjusted mean score of systolic blood pressure is 129.44. It may, therefore, be said that the relaxation training was found to be effective in improving systolic blood pressure of elite football players.

As shown in Table 3, it can be seen that the adjusted F-value is 5.86 which is significant at 0.05 level with df= 1/57 when pre-diastolic blood pressure was taken as covariate. It shows

Table 1: One-way ANCOVA of relaxation training group of fat percentage

Source of Variance	Df	SSy.x	MSSy.x	Fy.x	Remark	Mean
Treatment	1	1.17	1.17	0.69	$P>0.05$	
Error	57	97.24	1.71			
Total	59					
Relaxation Training Group						20.94
Control Group						21.23

Table 2: One-way ANCOVA of relaxation training group of systolic blood pressure

Source of Variance	Df	SSy.x	MSSy.x	Fy.x	Remark	Mean
Treatment	1	53.70	53.70	5.55	$P<0.05$	
Error	57	551.51	9.68			
Total	59					
Relaxation Training Group						127.53
Control Group						129.44

Table 3: One-way ANCOVA of relaxation training group of diastolic blood pressure

Source of Variance	Df	SSy.x	MSSy.x	Fy.x	Remark	Mean
Treatment	1	45.17	45.17	5.86	$P<0.05$	
Error	57	439.68	7.71			
Total	59					
Relaxation Training Group						76.46
Control Group						78.31

that adjusted mean scores of diastolic blood pressure of the relaxation training group and control group differ significantly when pre-diastolic blood pressure was taken as covariate. Thus, the null hypothesis, H08 that there is no significant difference in adjusted mean scores of diastolic blood pressure of elite football players of the relaxation training group and control group by taking pre-diastolic blood pressure as covariate is rejected. Further, the adjusted mean score of diastolic blood pressure of relaxation training group is 76.46 which is significantly lower than that of the control group where the adjusted mean score of diastolic blood pressure is 78.31. It may, therefore, be said that the relaxation training was found to be effective in improving the diastolic blood pressure of elite football players.

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Research Article

Effect of circuit training on balance, power, and performance of boys in football

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ABSTRACT

There is set of exercises performed one by one in a particular way; regular training of the exercise can be called as "Circuit Training." Circuit training involves high-intensity aerobics with the main aim of building muscle strength and endurance. It is an ideal form of exercise for footballers, as it combines resistance work with cardiovascular exercise for an all-round workout. To compare the adjusted mean scores of Balance of School Boys of Experimental Group and Control Group by considering Pre Balance as a Covariate and to compare the adjusted mean scores of Power of School Boys of Experimental Group and Control Group by considering Pre Power as a Covariate. Non-equivalent control group study had been taken for collection of data. The Circuit Training Group was known as Experimental Group and Non-Circuit Training Group was known as Control Group in the study. In methodology, before training pre and after training post-data were collected from students. The total score of score then was compared with one-way analysis of covariance analysis. The results of balance (Fy.x=5.557, df 1/49, $P < 0.05$) and power (Fy.x = 201.362, df 1/49, $P < 0.01$) were significant. The Circuit Training Program was useful for improving Balance and Power of District Level Football Players of Mumbai.

Keywords: Balance, Circuit training, Football players, Performance, Power

INTRODUCTION

Circuit training is an enduring and evolving training exercise format that was developed by R.E. Morgan and G.T. Anderson in 1953 at the university of Leeds in England (Kravitz 1996).

The term circuit refers to a number of carefully selected exercises arranged consecutively. In the original format, 9–12 stations comprised the circuit; this number may vary according to the circuit's design. Each circuit training participant moves from one place to the next with little (15–30 s) or no rest, performing a 15–45 s work about of 8–20 repetitions at each station. Circuit training program is one of the best ways to improve one's physical and mental potential. To get the best out of student, one should create and use balance and power as a drive to perform well. It may also help in improving in one's academic performance.

DEFINITION

Balance

Balance is the ability to stabilize your body, whether standing still or maintaining motion.

Power

Power is a combination of speed and muscular force. A football linebacker uses power to blast through a line of men. A gymnast uses power during a performance on the rings and uneven bars. Measure your power by throwing a heavy objects and lifting weights.

OBJECTIVE OF THE STUDY

- To compare the adjusted mean scores of Balance of the Circuit Training Group and Control Group by taking Pre-Balance as Covariate
- To compare the adjusted mean scores of Power of the Circuit Training Group and Control Group by taking Pre-Power as Covariate.

HYPOTHESIS OF THE STUDY

H_{01}: There is no significant difference in the adjusted Mean Scores of Balance of the Circuit Training Group and Control Group by taking pre-Balance as Covariate

H_{02}: There is no significant difference in the adjusted Mean Scores of Power of the Circuit Training Group and Control Group by taking pre-Power as Covariate.

METHODOLOGY

The present research was experimental types which provide pre and post-data quantitatively. The test scores of students were collected as per Pre training and Post Training.

Design of the Study

Non equivalent control group study had been taken for collection of data. The experimental design had two groups' experimental group and control group. The circuit training program was designed with the help of experts. After a study, certain changes were implemented with guide and experts. The training schedule was prepared and conducted for 6 weeks on students of age group 14–16 years. There were holiday on Sunday and holidays for training. During 6 weeks, training was conducted daily sixty (60) min.

Sample

A sample of fifty ($n = 50$) students with District Level Football was identified as subjects from Antonio De Souza High School**,** Byculla East Mumbai. The study was based on the Non-Equivalent Control Group Design. The subjects in the experiment were divided into two group's one in experimental group and other in control group; each group consisting of 25 subjects each. Experimental groups were given Circuit Training for the period of 6 weeks.

Independent variable (Circuit training)

The training was consisting of 6 week circuit training program

Dependent variable

- Balance
- Power.

Criterion Measures

- Variable - Balance and power
- Stork stand test
- Standing broad jump test.

Training Schedule

The 6-week training schedule was prepared with guidance by guide and expert. The following training was arranged step by step for 1 h.

Particulars	Time
Warm Up	10 min.
Circuit training	40 min.
Limbering down	10 min.
Total	60 min.

PROCEDURE OF THE STUDY

Pre-test

All the selected variables are tested and the data are presented.

Training Phase

The Circuit Training Program is provided to Experimental Group for 6 days except Sunday and Holiday for 6 weeks.

Post-test

After Circuit Training Program, post-test was conducted, and date was collected the same way as it was collected in pre-test.

Statistical Procedure

The collected data were analyzed by one-way analysis of covariance (ANCOVA) method of statistical technique.

RESULT OF THE STUDY

Treatment-wise comparison of adjusted mean scores of balance by taking pre-balance as covariate. The objective of the present study was to compare adjusted mean scores of Balance of Students of Circuit Training Group and Control Group by taking Pre-Balance as Covariate. The data were analyzed with the help of one-way ANCOVA and results are given in table below.

From above Table 1, it can be seen that the adjusted F-value was 5.557 which was significant at 0.05 level with df=1/49 when pre-balance was taken as covariate. It shows that adjusted mean scores of Balance of Experimental Group and Control Group differ significantly when pre-balance was taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of Balance of Students of Experimental Group and Control Group by taking Pre-Balance as covariate is rejected. Further, the adjusted mean score of Balance of Experimental Group is 21.17 which is significantly higher than that of Control Group where adjusted mean score of balance is 19.22. It may, therefore, be said that circuit training was found to be effective in improving balance of students than Control Group where Pre-Balance was taken as covariate. The result is also a graphically presented in Figure 1.

From above Table 2, it can be seen that the adjusted F-value was 201.362 which was significant at 0.01 level with df =

Table 1: Summary of one-way ANCOVA of balance by taking pre-balance as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	29.51	29.51	5.557	$P<0.05$
Error	47	249.57	5.31		
Total	49				

*Significant at 0.05. ANCOVA: Analysis of covariance

Table 2: Summary of one-way ANCOVA of power by taking Pre-Power as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	653.55	653.55	201.362	$P<0.01$
Error	47	152.55	3.25		
Total	49				

**Significant at 0.01. ANCOVA: Analysis of covariance

1/49 when Pre-Power was taken as covariate. It shows that adjusted mean scores of Power of Experimental Group and Control Group differ significantly when Pre- Power was taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of Power of Students of Experimental Group and Control Group by taking Pre-Power as covariate is rejected. Further, the adjusted mean score of Power of Experimental Group is 135.78 which is significantly higher than that of Control Group where adjusted mean score of Power is 126.29. It may, therefore, be said that Circuit Training was found to be effective in improving Power of students of Experimental Group than Control Group where Pre-Power was taken as covariate. The result is also a graphically presented in Figure 2.

CONCLUSION

The above result helps to conclude that the Circuit Training was helpful in increasing the Balance of School students where Pre-Balance was taken as covariate and increasing the Power of School students where Pre-Power was taken as covariate.

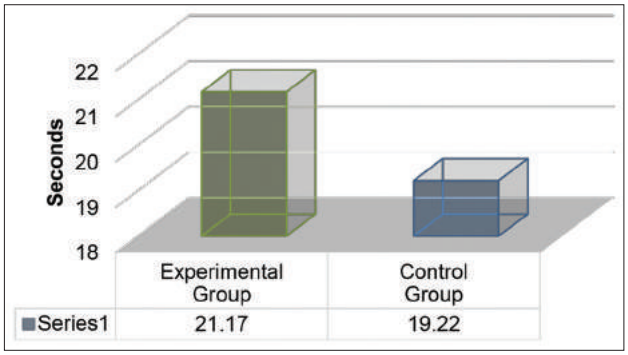

Figure 1: Comparison of adjusted mean scores of balance between experimental group and control group

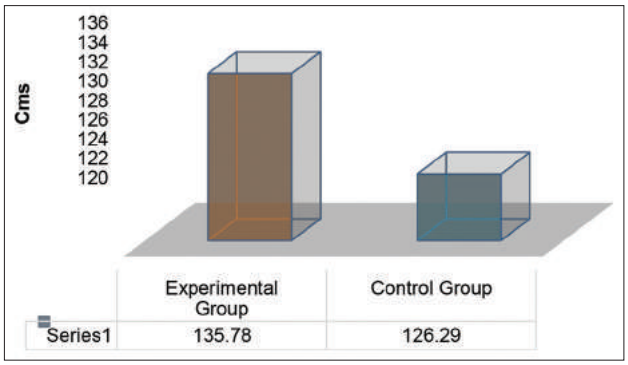

Figure 2: Comparison of adjusted mean scores of power between experimental group and control group

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Research Article

Karate training on power and flexibility of school students

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ABSTRACT

The Karate is derived from Japanese words "Kara" that means empty and "Te" that means hand. Karate is one of the fine sports which helps in the development of fitness. It increases power and flexibility among the various muscles of the body. The main objective of the study was to compare the adjusted mean scores of Power and Flexibility of the Karate Training Group and Control Group by taking Pre-Power and Flexibility as covariate. Non-equivalent control group study had been taken for collection of data. The Karate training group was known as experimental group and non-Karate training group was known as control group in the study. In methodology, before training pre and after training post-data were collected from students. The total score of score then compared with one-way analysis of covariance analysis. The results of Power (Fy.x = 9.31, df 1/49, $P < 0.05$) and the result of Flexibility (Fy.x = 31.57, df 1/49, $P < 0.01$) were significant. The Karate Training Program was useful for improving Power and Flexibility of School students aged 13–14 years.

Keywords: Karate training program, Karate, Power and flexibility, School students

INTRODUCTION

Principally, Karate is an individual competition in which the players are divided by gender and by weight category. It is a dynamic, physically demanding sport that requires complex skills and tactical excellence for success. The main principle of Karate is "maximum efficiency with minimum efforts." Karate training develops Power and Flexibility allowing for fast and effective techniques while also improving muscle tone and endurance. Working both hands and fit and left and right sides equally develops mental and physical coordination, as well as flexibility.

DEFINITIONS

Power

Muscular Power is one's ability to produce maximum muscular strength (force) in the shortest time. In other words, power means one's capacity of work output per unit of time (Kansal 2012)

Flexibility

Flexibility may be defined as "the range of motion around a joint as determined by the elasticity of in muscles, tendons, and ligaments associated with the joint under consideration." (Kansal, 2012).

OBJECTIVES OF THE STUDY

- To compare adjusted mean scores of Power as measured by standing broad jump test, of experimental and control group by taking pre-power as covariate.
- To compare adjusted mean scores of flexibility as measured by sit and reach test, of experimental and control group by taking pre-flexibility as covariate.

HYPOTHESIS OF THE STUDY

H_{01}: There is no significant difference in the mean scores of power as measured by the standing broad jump test, of experimental group and control group by taking pre-power as covariate.

H_{02}: There is no significant difference in the mean scores of flexibility as measured by sit and reach test, of experimental group and control group.

Design of the Study

Non-equivalent control group study was taken for collection of data. The experimental design had two groups' experimental group and control group. The 6-week training was given to experiment group except was Sunday and holidays.

Sample

The students were selected from school students aged 13–14 years. Students were selected from Dnyanpushpa Vidya Niketan and Jr. College, (Belapur). A total size of fifty (50) boy students were selected from the above school. Further, they were divided into two groups – experimental group (n = 25) and control group (n = 25).

Variable

A. Independent variable (Karate Training Program)

The training consisted of 6-week Karate training program

B. Dependent variable

- Power- Standing broad jump
- Flexibility- Sit and reach.

Training

Experimental group had received karate training for 6 weeks as per the planned program but the control group did not receive any karate training.

60 min of karate training program	
Training	**Time**
Warm up	15 min
Karate training	30 min
Limbering down	15 min

PROCEDURE OF THE STUDY

Pre-test

All the selected variables are tested and the data are presented.

Training Phase

The Karate training program is provided to experiment group for 6 days except Sunday and holiday for 6 weeks.

Post-test

After the training of karate, the post-test of the Power and Flexibility was conducted to collect the post-test data for future analysis.

STATISTICAL PROCEDURE

Since there were two groups for this experimental study, namely experimental group and control group, wherein the researcher decided to compare the change in mean scores of pre- and post-tests of Karate Training Group and Non-Karate Training group to see the efficacy of experimental treatment. One-way analysis of covariance (ANCOVA) was appropriately used for the data analysis. The data are presented, analyzed, and interpreted in the following manner.

RESULTS OF THE STUDY

Group wise comparison of adjusted mean scores of Power by taking Pre-Power as Covariate.

The first objective was to compare adjusted mean scores of Power of School Students of Karate Training Group and Non-Karate Training group by taking pre-Power as covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table below.

From Table 1, it can be seen that the adjusted F-value is 0.147 which is significant at 0.05 level with df = 1/49 when Pre-Power was taken as covariate. Thus, the Null Hypothesis that there is a significant difference in adjusted mean scores of Power of School Students of Karate Training Group and Non-Karate Training group by taking pre-Power as covariate is rejected. Further, the adjusted mean score of Power of Karate Training Group is 156.27 which is significantly greater than that of Non-Karate Training group where adjusted mean score of Karate is 148.60.

Group-wise comparison of adjusted mean scores of flexibility by taking pre-flexibility as Covariate.

The first objective was to compare adjusted mean scores of Flexibility of School Students of Karate Training Group and Non-Karate Training group by taking pre-Flexibility as covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table below.

From Table 2, it can be seen that the adjusted F-value is 31.57 which is significant at 0.01 level with df = 1/49 when Pre- Flexibility was taken as covariate. Thus, the Null Hypothesis that there is no significant difference in adjusted

Table 1: Summary of one-way ANCOVA of power by taking pre-power as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	640.98	640.98	9.31	P<0.05
Error	47	3234.31	68.81		
Total	49				

ANCOVA: Analysis of covariance

Table 2: Summary of one-way ANCOVA of flexibility by taking pre-flexibility as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Group	1	10.862	10.86	31.57	P<0.01
Error	47	16.169	0.34		
Total	49				

ANCOVA: Analysis of covariance

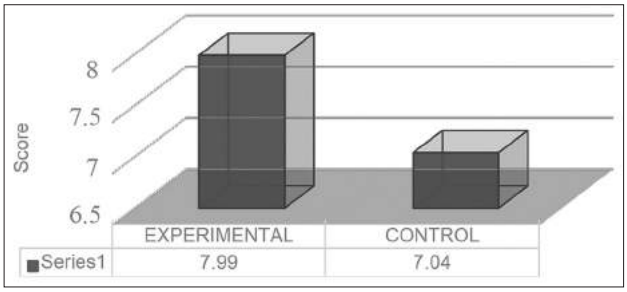

Figure 1: Mean scores of power

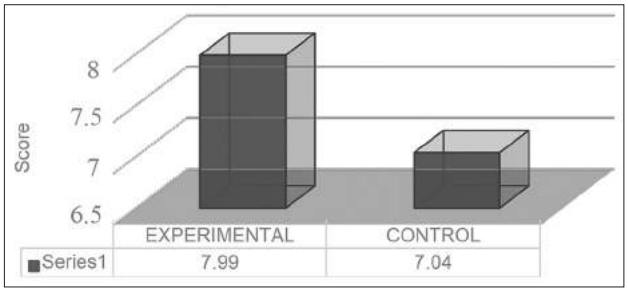

Figure 2: Mean scores of flexibility

mean scores of Flexibility of School Students of Karate Training Group and Non-Karate Training group by taking pre-Flexibility as covariate is rejected. Further, the adjusted mean score of Flexibility of Karate Training group is 7.99. which is significantly greater than that of Non-Karate Training group where adjusted mean score of flexibility is 7.04.

CONCLUSION

- The Karate Training Program was found to be helpful to improve Fitness parameters variables such as Power and Flexibility
- Karate training for the period of 6 weeks is effective to improve the Power and Flexibility variables of school boys.

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Research Article

Comparison of training attitude and group relationship of job satisfaction of male and female gymnasium fitness trainer of Mumbai city

Kishore J. Maru

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ABSTRACT

The purpose of the study was to compare the Training Attitude and Group Relationship of Job Satisfaction of Male and Female Gymnasium Fitness Trainer of Mumbai City. To achieve this purpose, researcher selected 100 subjects randomly from Mumbai City who working as a Gymnasium Fitness Trainer, in which 50 Male Fitness Trainer and 50 Female Fitness Trainer selected as a sample. To measure the Job Satisfaction among Gymnasium Fitness Trainer, standardized Job Satisfaction was appropriately used to collect the data. The collected data were statistically analyzed by applying the Independent Sample t-test. The findings of the study were directs that the first psychological variable Training Attitude of Job Satisfaction Stress t-value was 1.01 which was not significant at 0.05 level with df = 98 among Male and Female Gymnasium Fitness Trainer. The mean scores of Relationship Status of Workplace Stress of Male and Female Gymnasium Fitness Trainer were 32.38 ± 4.28 which was significantly higher than male and female gymnasium fitness trainer which was 33.62 ± 5.64. The second psychological variable Work Life Balance of Workplace Stress t-value was 1.01 which was not significant at 0.05 level with df = 98 among male and female gymnasium fitness trainer. The mean scores of Group Relationship of Job Satisfaction of Male and Female Gymnasium Fitness Trainer were 32.18 ± 3.96 which was significantly higher than Male and Female Gymnasium Fitness Trainer which was 35.14 ± 5.62. Finding of this study shows that there is a significant difference in Training Attitude and Group Relationship of Male and Female Gymnasium Fitness Trainer, where in Training Attitude Male Gymnasium Fitness Trainer found to be higher and in Job Satisfaction Female Gymnasium Fitness Trainer in compare to their counterpart Male Gymnasium Fitness Trainer.

Keywords: Group relationship, Job satisfaction, Male and female gymnasium fitness trainer, Training attitude

INTRODUCTION

The work environment is highly competitive; the job satisfaction of male and female gymnasium fitness trainers is influenced by a combination of factors including the quality of their work environment, compensation, opportunities for career advancement, client relationships, flexibility in scheduling, recognition and feedback, autonomy in decision-making, and the balance between work, social behavior, Observational Skill Quality of training, Innovative training, Responsibility of training, Cooperative Training behaviour, Training Attitude, Group Relationship, Job Acceptance, Gym behavior, and personal life. Gender dynamics within the industry may also play a role in shaping their experiences. Overall, individual preferences and the fulfillment derived from helping clients achieve their fitness goals contribute to the unique job satisfaction levels of both male and female fitness trainers.

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RATIONALE OF THE STUDY

The rationale behind investigating the job satisfaction of male and female gymnasium fitness trainers stems from the recognition of the fitness industry as a dynamic and diverse sector, where individuals' contentment with their roles can impact overall service quality. By examining the factors influencing job satisfaction - such as compensation, work environment, opportunities for growth, and gender-related dynamics - it becomes possible to tailor management strategies that foster a positive and inclusive atmosphere, ensuring trainers of all genders feel valued, motivated, and fulfilled in their roles. In addition, understanding the nuanced differences in how various elements contribute to satisfaction for male

and female trainers can lead to more targeted interventions that enhance both individual job experiences and the overall success of fitness establishments.

Objective of the Study

- To compare mean scores of training attitude of male and female gymnasium fitness trainers of Mumbai city
- To compare mean scores of group relationship of male and female gymnasium fitness trainers of Mumbai city.

Hypothesis of the Study

- There is no significance difference in mean scores of training attitude of male and female gymnasium fitness Trainers of Mumbai City
- There is no significance difference in mean scores of group relationship of male and female gymnasium Fitness Trainers of Mumbai City.

METHODOLOGY

Design of the Study

The present study was descriptive in nature under the heading of Descriptive Research which provided Comparison between Male and Female Gymnasium Fitness Trainers on psychological variables Training Attitude and Group Relationship of Job Satisfaction. The scores of the both variables of job satisfaction were collected through the custom-made questionnaire.

Population and Sample

A sample of 50 Male Gymnasium Fitness Trainers and 50 Female Gymnasium Fitness Trainers selected from Mumbai City who are working as Gymnasium Fitness Trainers.

Variable and Test

The tools used in the present study were modified questionnaire, known as of Job Satisfaction Questionnaire by Dr. Narsin and Dr. Afshan Anees and validate with of Cronbach's Alpha coefficient 0.83 reliability with the internal consistency of a set of survey items which was filled by Male and Female Gymnasium Fitness Trainers of Mumbai city.

Tools used

the answers converted into scores through the following:

The scheme of scoring response categories involved differential weighting such that the response category, "Strongly Agree" a weight of 5, "Agree" a weight of 4, "Undecided" a weight of 3, "Disagree" a weight of 2, and "Strongly Disagree " was given a weight of 1, in respect of response pertaining to positive statements.

Statistical Procedure

As mentioned in the objectives of the study, data were analyses with the help of Independent Sample t-Test method of statistical techniques.

RESULTS

Group-wise Comparison of Mean Scores of Training Attitude

The first objective was to compare mean scores of Training Attitude of Male and Female Gymnasium Fitness Trainers. There were two levels of gender type, namely, male and female. The data were analyzed with the help of t-test and the results are given in the following table.

From the Table 1, it is evident that the t-value is 1.99 which is significant at 0.05 level with df = 98. It shows that the mean scores of Training Attitude of Male and Female Gymnasium Fitness Trainers differ significantly. Thus, the null hypothesis that there is no significant difference between mean scores of Training Attitude of Male and Female Gymnasium Fitness Trainers is rejected. Further, the mean score of Training Attitude of Male Gymnasium Fitness Trainers is 20.74 which is significantly higher than that of Female Gymnasium Fitness Trainers whose mean score of Training Attitude is 18.95. It may, therefore, be said that Male Gymnasium Fitness Trainers were found to believe significantly higher into the Training Attitude than their counter part Female Gymnasium Fitness Trainers. The result also has been graphically presented in Figure 4.10.

Wise Comparison of Mean Scores of Group Relationship

The second objective was to compare mean scores of Group Relationship of Male and Female Gymnasium Fitness Trainers. There were two levels of Gender Type, namely, male and female. The data were analyzed with the help of t-Test and the results are given in following table.

From above Table 2, it is evident that the t-value is 3.12 which is significant at 0.01 level with df = 98. It shows that

Table 1: Group wise Mean, SD, N, and t-values of training attitude of male and female gymnasium fitness trainers

Gender	M	SD	N	t-value	Remark
Male gymnasium fitness trainers	20.74	2.39	50	1.99	$P<0.05$
Female gymnasium fitness trainers	18.95	3.65	50		

Table 2: Group wise Mean, SD, N, and t-values of group relationship of male and female gymnasium fitness trainers

Gender	M	SD	N	t-value	Remark
Male gymnasium fitness trainers	10.58	2.52	50	3.12	$P<0.01$
Female gymnasium fitness trainers	12.43	1.57	50		

the mean scores of Group Relationship of Male and Female Gymnasium Fitness Trainers differ significantly. Thus, the null hypothesis that there is no significant difference between mean scores of Group Relationship of Male and Female Gymnasium Fitness Trainers is rejected. Further, the mean score of Group Relationship of Male Gymnasium Fitness Trainers is 10.58 which is significantly lower than that of Female Gymnasium Fitness Trainers whose mean score of Group Relationship is 12.43. It may, therefore, be said that Male Gymnasium Fitness Trainers were found to believe significantly lower into the Group Relationship than their counter part Female Gymnasium Fitness Trainers. The result also has been graphically presented in the following figure.

Result of the Study

On the basis of the results finding are as follows:

- The mean scores of Training Attitude of Male and Female Gymnasium Fitness Trainers differ significantly. Where the mean score of Training Attitude of Male Gymnasium Fitness Trainers is significantly higher than that of Female Gymnasium Fitness Trainers.
- The mean scores of Group Relationship of Male and Female Gymnasium Fitness Trainers differ significantly. Where the mean score of Group Relationship of Male Gymnasium Fitness Trainers is significantly lower than that of Female Gymnasium Fitness Trainers.

CONCLUSION AND RECOMMENDATION

- Every Gymnasium should have an employ welfare programs for their Fitness Trainers for regular basis to keep high job satisfaction for more productivity and efficiency in their work.

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Research Article

Awareness and managing muscle loss associated with age through exercise

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ABSRTACT

The loss of muscle mass is considered to be a major determinant of strength loss in aging. However, large-scale longitudinal studies examining the association between the loss of mass and strength in older adults are lacking. Muscle weakness is consistently reported as an independent risk factor for high mortality in older adults.[1-5] Since muscle strength also appears to be a critical component in maintaining physical function, mobility, and vitality in old age, it is paramount to identify factors that contribute to the loss of strength in elderly persons. Sarcopenia, the age-associated loss of skeletal muscle mass,[10] has been postulated to be a major factor in the strength decline with aging.[9] Moreover, sarcopenia is related to functional impairment, disability, falls, and loss of independence in older adults. However, the prospective association between changes in muscle mass and changes in strength has not been extensively evaluated in older adults. Using modern imaging methods such as dual-energy X-ray absorptiometry and computed tomography, we can precisely measure the quantity and composition of muscle and detect small changes over time. We can thereby help elucidate whether the loss of strength depends primarily on the loss of muscle mass, or whether there is actually a loss of muscle *quality*, that is, a loss of strength per unit muscle mass. The Health, Aging, and Body Composition Health study was designed to prospectively determine the role of longitudinal changes in body composition in the risk of incident functional limitations in well-functioning community-dwelling older adults. This study aims to (i) describe the change in muscle strength, mass, and quality over 3 years and (ii) determine whether change in total and appendicular lean mass as well as body weight is related to change in muscle strength of older adults.

INTRODUCTION

As we grow, it is our common experience that we gradually lose strength and muscle mass, a condition associated with age-related muscle loss commonly known as sarcopenia.

The loss of muscle can have impact on mobility, balance, and overall functional independence. However, regular workout/ physical activity, specifically of strength training, can play a vital role in reducing risk and even reversing muscle loss associated with age.

UNDERSTANDING AGE-RELATED MUSCLE LOSS

The muscle loss associated with age is a natural consequence of the aging process.

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THE FACTORS CONTRIBUTING TO THIS CONDITION INCLUDE ABATEMENT IN ANABOLIC HORMONE LEVELS

As we grow, the production of anabolic hormones, namely testosterone, decreases. These hormones play a significant role in muscle protein synthesis and maintenance. The decline in hormone levels can impair muscle growth and contribute to muscle loss.

DECLINED PHYSICAL ACTIVITY

Many older adults become less physically active over a period of time, leading to muscle obsolescence. The physical inactivity and lack of exercise can stimulate muscle loss and of course decrease muscle strength and function.

IMPROPER OR NUTRITION

Insufficient protein intake and improper nutrition can intensify age-related muscle loss. Protein by default is essential for

muscle synthesis and repair. Insufficient protein intake can hamper muscle maintenance and growth.

INFLAMMATION AND OXIDATIVE STRESS

Chronic inflammation and oxidative stress, which increase as we grow older, can adversely affect muscle tissue. These processes can stimulate muscle breakdown and impede muscle regeneration.

THE ROLE OF EXERCISE IN MANAGING AGE-RELATED MUSCLE LOSS

Regularity in exercise, especially in strength or resistance, is a powerful tool to tackle age-related muscle loss associated with the age.

ADDRESSING ISSUE WITH EXERCISE

Stimulates Muscle Protein Synthesis

The resistance exercises are the one which activates the synthesis muscle protein, i.e., the process through which new muscle proteins are created. This enables to maintain and build muscle mass, counteracting the muscle loss associated with aging.

Improve Anabolic Hormone Production

The hormones such as testosterone and growth hormone are responsible for muscle growth, repair, and maintenance. The production of this can be done through high-intensity resistance training and strength training.

Intensify Muscle Fiber Replenishing

Fast-twitch muscle fibers responsible for generating power and strength can be targeted by strength training exercises and activate specific muscle fibers. Regularly exercising these fibers help in maintaining their strength and functionality.

Improves Insulin Sensitivity

Engaging in regular exercise stimulates the body's insulin utility efficiently. This may aid in nutrient uptake by muscle cells which ultimately promote muscle growth and repair.

Minimizing Inflammation and Oxidative Stress

Exercise has anti-inflammatory and prevents or delays some types of cell damage, helping to reduce the damaging effects of chronic inflammation and imbalance between production and accumulation of reactive oxygen species in cells and tissues. By reducing these processes, exercise facilitates muscle health and slows down muscle loss.

INCORPORATING EXERCISE INTO THE ROUTINE

To Manage Muscle Loss Associated with age effectively, the Following Exercise Recommended

Resistance training

Target major muscle groups with regular resistance training exercises. Use Resistance Bands Free Weights, Weight Machines, or Body Weight Exercises. Exercise at least twice or thrice sessions per week, and keep sufficient rest and recovery between the sessions.

Progressive overload

Progressively increase the duration, intensity, or resistance of your exercises over a period of time. This gradual overload facilitates muscle adaptation and growth. To design a proper and progressive exercise, program get help from fitness expert.

Variety in exercise selection

To stimulate muscle development, integrate a variety of exercises for different muscle groups. Include compound exercises, such as squats, lunges, bench presses, and rows, to engage multiple muscle groups concomitantly.

Proper form and technique

To ensure safety and effectiveness of exercise maintain proper form and method. Seek guidance from a qualified fitness expert if needed, especially when starting a new exercise program or using new equipment.

Proper nutrition

A well-balanced diet includes sufficient protein to support muscle growth and repair. Should support your exercise. Consultancy of registered dietitian or nutritionist for dietary recommendations may be taken.

Regular physical activity

To promote overall cardiovascular health and support an active lifestyle include aerobic exercises, such as walking, swimming, or cycling. In addition to strength training, incorporate the above mentioned of physical activity into your routine.

CONCLUSION

Muscle loss associated with age is a common concern for older people, but it is not a compulsory part of aging. Regular exercise, particularly strength training, can help in addressing and maintaining and even alter muscle loss associate with age.

By stimulating muscle protein synthesis, stimulating anabolic hormone production, increasing muscle fiber recruitment, facilitating insulin sensitivity, and minimizing inflammation

and oxidative stress, exercise elevates muscle growth and maintenance.

Inculcation of resistance training into your routine, progressive increase in intensity, and ensuring proper nutrition to support your muscle-building efforts.

Consult with health-care professionals or fitness professional to design a safe and effective exercise program customized to your individual needs.

With regular exercise, you can battle with muscle loss associated with age and maintain strength, mobility, and functional independence for a healthier and more active lifestyle.

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Research Article

Effect of beach training program on speed of boys Kho-Kho players

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ABSTRACT

The purpose of the study was to effect of the beach training program of Boys kho-kho players. A total of 50 players were selected as a sample for the study using. The objective of the study was to the adjusted mean scores of speed of the beach training group and control group by taking Pre-Speed as covariate. Non-equivalent control group study had been taken for collection of data. The beach training group was known as experimental group and non-beach training group was known as control group in the study. In methodology, before training pre and after training post data were collected from students. The total score of the score then was compared with One-way ANCOVA analysis. The results of speed (Fy.x= 14.869, df 1/49, $P < 0.01$) were significant. The beach training program was useful for improving speed of Kho-Kho players.

Keywords: Beach training, Kho-Kho players, Kho-Kho, Speed training

INTRODUCTION

Principally, Kho-Kho is a team competition in which the players are divided by gender and by age category. It is a dynamic, physically demanding sport that requires complex skills and tactical excellence for success. The main principle of the beach training program is improving speed. Beach training program is one of the best ways to improve speed. To get the best out of players, one should create and use speed as a drive to perform well. It may also help in improving in one's academic performance.

RATIONALE OF THE STUDY

The present study was conducted on players of aging 12–14. Nowadays, it is being observed that students are more involving in the digital world, thus to improve their physical abilities this research was conducted.

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OBJECTIVE OF THE STUDY

- The aim of this study was to compare the adjusted mean scores of speed of the beach training group and Control Group by taking Pre-Speed as covariate.

HYPOTHESIS OF THE STUDY

- H0: There is no significant difference in the adjusted mean scores of speed of the beach Training Group and Control Group by taking Pre-Speed as covariate.

METHODOLOGY

The present research was experimental types which provide pre and post data quantitatively. The test scores of students were collected as per pre-training and post-training.

Design of the Study

Non-equivalent control group study had been taken for collection of data. The experimental design had two groups' an experimental group and a control group. The beach training program was

designed with the help of experts. After a pilot study, certain changes were implemented with a guide and experts. The training schedule was prepared and conducted for 6 weeks on students of age group 12–14 years. There were holidays on Sunday and holidays for training. During 6 weeks, training was conducted daily for 60 min.

Sample

The students were selected for aged 12–14 years. Students were selected from Chetak Krida Mandal, Chinchani. Total size of 50 (50) boys students were selected from the above Krida Mandal. Further, they were divided into two groups, experimental group (n = 25) and control group (n = 25).

There were two types of variables for experimental design. Independent and dependent variables were required for conducting any experimental design. Independent variable was also known as discontinues and dependent variables known as continues variables. The present study was tested skill related physical fitness and speed components by various following reliable tests according to the standard. All the tests were used standardized; the test was for the data collection referred by the book entitled a practical approach to measurement and evaluation written by Kansal (2012).

In the following, Table was selected dependent variables and their tests as per reliability and validity for the present study.

A. Independent Variable (Beach Training Program)

The training was consisting of 6 week beach training program.

Training Schedule

The 6 week training schedule was prepared with guidance by the Guide and expert. The following training was arranged step by step for 1 h.

Pre-Test

Before the actual administration of the pre-test, the subject was oriented about the testing by giving a detailed explanation about the testing procedures as well as by explaining do's and do not's of the tests.

Training Phase

The total judo training program of the experimental group was of 6 weeks, 5 days in a week, that is, Monday to Friday except on holidays, in the afternoon session 1 h. The control group was not given any training in these 6 weeks.

Post-Test

After beach training program ended the post-test was scheduled, and the date was collected the same way as it was collected in pre-test, with the help of a reliable and valid tool.

Statistical Procedure

The collected data were analyzed by One-way analysis of covariance (ANCOVA) method of statistical technique.

RESULTS OF THE STUDY

Treatment-wise comparison of adjusted mean scores of speed by taking Pre-Speed as a covariate.

The objective of the present study was to compare the adjusted mean scores of speed of Students of beach training group and control group by taking Pre-Speed as covariate. The data were analyzed with the help of One-way ANCOVA and results are given in table.

From Table 1, it can be seen that the F-value is 14.869 which is significant at 0.01 level with df-1/49 when Pre-Speed was taken as covariate. It shows that adjusted mean scores of beach training group and control groups differ significantly when Pre-Speed was taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores

Table 1: Summary of one-way ANCOVA of speed by taking pre-speed as a covariate

Source of Variance	Df	SS	MSS	Fy	Remark
Treatment	1	3.75	3.75	14.869	P<0.01
Error	47	11.85	0.25		
Total	49				

Weeks	1–2		2–4		5–6		REST
Intensity of Load	50–60%		60–70%		70–80%		
	Repetition/Time	SET	Repetition/Time	SET	Repetition/Time	SET	
1. Zig Zag Run	10/2.30 Min	2	12/2.30 Min	2	14/2.30 Min	2	30 s
2. Free Squat	25/2.30 Min	2	30/2.30 Min	2	35/2.30 Min	2	30 s
3. Skip Jump	60/2.30 Min	2	70/2.30 Min	2	80/2.30 Min	2	30 s
4. Crunches	15/2.30 Min	2	18/2.30 Min	2	22/2.30 Min	2	30 s
5. Hop Kick	25/2.30 Min	2	32/2.30 Min	2	35/2.30 Min	2	30 s
6. Step Up	55/2.30 Min	2	60/2.30 Min	2	65/2.30 Min	2	30 s

of speed of kho-kho players of the beach training group and control group by taking Pre-Speed as a covariate is rejected.

Further, the adjusted mean score of speed of the beach training group is 9.42 which is significantly higher than that of control group where the adjusted mean score of speed 9.99. It may, therefore, be said that beach training was found to be effective in improving speed of kho-kho players than control group where Pre-Speed was taken as a covariate.

CONCLUSION

The above result helps to conclude that the beach training was helpful in increasing the speed level of kho-kho players where Pre-Speed was taken as a covariate.

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Research Article

Progressive muscular stretching for muscular strength and skill of volleyball players

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ABSTRACT

Volleyball contains repeated bouts of vigorous activity such as jumping, diving, lateral movements, and long durations of muscle movement, which are interspersed with short rest periods during the play. Volleyball players should therefore develop particular physical fitness traits through various trainings to be effective and achieve a great volleyball performance. The study's main objective was to compare adjusted mean scores of the muscular strength of the volleyball player with the experimental training group and control group by taking pre-muscular Strength as a covariate. Non-equivalent control group study had been taken for the collection of data. In methodology, before-training pre- and after-training post data were collected from students. The total score of the score was compared with one-way ANCOVA analysis. The results of muscular strength (Fy.x= 19.627, df 1/49, $P < 0.01$) were significant. The muscular stretching training program was useful for improving the muscular strength of students of Mumbai city.

Keywords: Muscular strength, Volleyball training program, Volleyball

INTRODUCTION

Principally, volleyball is not as simple as it appears, and it needs a high level of technical talent as well as athletic agility. Volleyball players must be proficient in all technical skills (Chittibabu, 2014). Volleyball players must therefore improve all technical skill levels. Volleyball requires a certain amount of explosive, dynamic movements regardless of competition level. The main principle of volleyball is to develop your physical fitness, increase your mental strength and develop better coordination. It may also help in improving one's academic performance.

OBJECTIVE OF THE STUDY

The objectives of the study are as follows:

- To compare adjusted mean scores of muscular strength of the volleyball player with the experimental training group and control group by taking pre-muscular strength as a covariate.
- To compare adjusted mean scores of the Russell Lange serving test of the volleyball player with the experimental training group and control group by taking pre Russell Lange serving test as a covariate.

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HYPOTHESIS OF THE STUDY

- There is no significant difference in the adjusted mean scores of muscular strength of the volleyball player with the experimental training group and control group by taking pre-muscular strength as a covariate.
- There is no significant difference in the adjusted mean scores of the Russell Lange serving test of the volleyball player with the experimental training group and control group by taking pre- Russell Lange serving test as a covariate.

METHODOLOGY

The present research was experimental types which provide pre and post data quantitatively. The test scores of students were collected as per pre-training and post-training.

Design of the Study

Non-equivalent control group study had been taken for the collection of data. The experimental design had two groups'

experimental group and a control group. The muscular stretching training program was designed with the help of experts. After a pilot study, certain changes were implemented with a guide and experts. The training schedule was prepared and conducted for 6 weeks on students of the age group 13–15 years. There were holidays on Sundays and holidays for training. During 6 weeks, training was conducted daily for 50 min.

Sample

The students were selected from Mumbai city aged 13–15 years. Students were selected from Podar International School, Nerul (CIE). A total size of 50 (50) girls students were selected from the above school. Further, they were divided into two groups, the experimental group (n = 25) and the control group (n = 25).

In the following, table was selected dependent variables and their tests as per reliability and validity for the present study.

Independent Variable

Serve, Test: Russel lunge Volleyball test, Score: Number's.

Dependent Variable

Muscular Strength: Test: Modified push-ups, Score: number in counts.

PROCEDURE OF THE STUDY

Pre-Test

All the selected variables were selected and the data are presented.

Training Phase

The muscular stretching training program is provided to the experimental group forSunday and holidays for 6 weeks.

Post-Test

After the muscular stretching training program, post-test was conducted, and the data were collected the same way as it was collected in the pre-test.

STATISTICAL PROCEDURE

The collected data were analyzed by the One-way Analysis of Covariance (ANCOVA) method of statistical technique.

RESULT OF THE STUDY

Treatment-wise comparison of adjusted mean scores of muscular strength by taking pre-muscular strength as a covariate.

The objective of the present study was to compare adjusted mean scores of the muscular strength of the volleyball player with the experimental training group and control group by taking pre-muscular strength as a covariate, the data were analyzed with the help of one-way ANCOVA and results are given in Table 1.

From the above Table 1, it can be seen that the adjusted F-value was 19.627 which was significant at 0.01 level with df= 1/49 when pre-muscular strength was taken as a covariate. It shows that adjusted mean scores. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of muscular strength of Students of the experimental training group and control group by taking Pre-muscular strength as a covariate is rejected. Further, the adjusted mean score of muscular strength of the experimental training group is 19.68 which is higher than that of the control group where an adjusted mean score of muscular strength is 17.73.

Treatment-wise comparison of adjusted mean scores Russell Lunge serve test by taking pre-serve test as a covariate.

The objective of the present study was to compare adjusted mean scores of the serve test of students in volleyball of the experimental group and control group by taking pre-muscular strength as a covariate. The data were analyzed with the help of one-way ANCOVA and results are given in table.

From the above Table 2, it can be seen that the adjusted F-value was 2.610 which was significant at 0.05 level with df = 1/49 when the pre-serve test was taken as a covariate. It shows that adjusted mean scores. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of the Russell Lunge test of Students of the experimental training group and control group by taking the pre-serve test as a covariate is rejected. Further, the adjusted mean score of the Rusell lunge test of the experimental training group is 24.41 which is higher than that of the control group where an adjusted mean score of the Rusell lunge test is 22.68.

Table 1: Summary of one-way ANCOVA of muscular strength by taking pre-muscular strength as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	19.87	19.87	19.627	<0.01
Error	47	47.57	1.012		
Total	49				

Table 2: Summary of one-way ANCOVA of Russell Lunge serve test by taking pre-serve test as a covariate

Source of Variance	df	Ssy.x	MSSy.x	Fy.x	Remark
Treatment	1	27.92	27.92	2.610	P<0.005
Error	47	489.60	10.42		
Total	49				

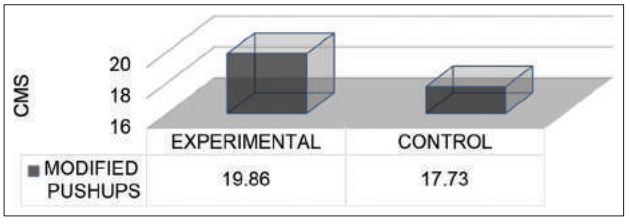

Figure 1: Comparison of adjusted mean scores of muscular strength between the experimental training group and control group

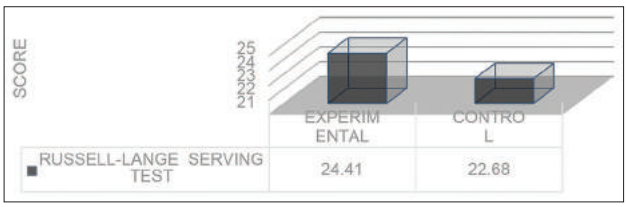

Figure 2: Comparison of adjusted mean scores of muscular strength between the experimental training group and control group

CONCLUSION

The above result helps to conclude that the experimental training was helpful in increasing the muscular strength level of school students where pre-muscular strength was taken as a covariate.

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Research Article

A study of personality of undergraduate students of BPEd of Mumbai and Goa region

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ABSTRACT

The purpose of the study was to compare the personality of undergraduate Bachelor of Physical Education Students of Mumbai and Goa. To achieve this purpose, the researcher selected a sample of 200 subjects randomly from Bachelor of Physical Education Program of Mumbai and Goa in which 100 students were from Goa and 100 students were from Mumbai. The purpose of the study was to check the personality among Bachelor of Physical Education students of Mumbai and Goa, standardized big five personality test was appropriately used to collect the data. The collected data were statistically analyzed by applying independent sample t-Test. Finding of the study shows that the openness and conscientiousness of BPEd Students of Mumbai is better than BPEd Students of Goa. The extraversion and agreeableness of BPEd Students of Goa and BPEd Students of Mumbai are equal. The neuroticism of BPEd Students of Goa is better than BPEd Students of Mumbai.

Keywords: Agreeableness, Conscientiousness, Extraversion, Neuroticism, Openness, Personality, Psychological variables, Undergraduate students

INTRODUCTION

The word personality is a Latin word taken from persona meaning "theatrical mask" which was worn by actors in theaters. Personality is difficult to define due to its complex nature; however, a definition is the literature is" the characterization of individual differences' (Wiggins, 1996). Personality is having difference in the pattern of thoughts, feelings and behaviors which make one human different from the other human. Although there are many definitions of personality, most focus on the characteristics and behavior that help in assuming the behavior of an individual.

Objective of the Study

The objectives of the study are as follows:

- To compare the mean scores of openness of undergraduate Students of BPEd program of Mumbai and Goa.
- To compare the mean scores of conscientiousness of undergraduate Students of BPEd program of Mumbai and Goa.
- To compare the mean scores of extraversion of undergraduate Students of BPEd program of Mumbai and Goa.
- To compare the mean scores of agreeableness of undergraduate Students of BPEd program of Mumbai and Goa.
- To compare the mean scores of neuroticism of undergraduate Students of BPEd program of Mumbai and Goa.

Hypothesis of the Study

- H01:- There is no significant difference between openness of undergraduate Students of BPEd program of Mumbai and Goa.
- H02:- There is no significant difference between conscientiousness of undergraduate Students of BPEd program of Mumbai and Goa.
- H03:- There is no significant difference between extraversion of undergraduate Students of BPEd program ofMumbai and Goa.
- H04:- There is no significant difference between agreeableness of undergraduate Students of BPEd program of Mumbai and Goa.
- H05:- There is no significant difference between neuroticism of undergraduate Students of BPEd program ofMumbai and Goa.

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METHODOLOGY

Design of the Study

The present study was a descriptive in nature under the heading of descriptive research which provided comparison between undergraduate Students of BPEd program of Mumbai and Goa on personality variables. The scores of personality were collected through standardized questionnaires.

Population and Sample

Samples of 100 undergraduate students of BPED program were from Goa and 100 undergraduate students of BPED program were from Mumbai.

Variable and Test

Personality

The tool used in the present study was standardized questionnaires, known as big five personality test by Oliver P. John and V. Benet Martinez filled by the subjects.

Statistical procedure

As mentioned in the objectives of the study, data were analyzed with help of the independent sample t-test method of statistical techniques.

RESULT OF THE STUDY

Result of Openness of Undergraduate Students of BPEd Program of Mumbai and Goa

The first objective was to compare the mean scores of openness of undergraduate students of BPEd program of Mumbai and Goa. The data were analyzed with the help of a t-test and results are given in Table 1.

From Table 1, it can be seen that the t-value is 3.98 which is significant at 0.01 level with df= 198. It indicates that mean scores of BPEd Students of Mumbai Group and BPEd Students of Goa Group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of openness of BPEd Students of Mumbai Group and BPEd Students of Goa Group is rejected. The mean score of openness of BPEd Students of Mumbai Group is 36.09 which is significantly higher than the BPEd Students of Goa Group which is 32.49. It may, therefore, be said that BPEd Students of Mumbai Group has better openness than BPEd Students of Goa Group.

Result of Conscientiousness of Undergraduate Students of BPEd Program of Mumbai and Goa

The second objective was to compare the mean scores of conscientiousness of undergraduate Students of BPEd program of Mumbai and Goa. The data were analyzed with the help of t-test and results are given in Table 2.

From Table 2, it can be seen that t-value is 8.74 which is significant at 0.01 level with df= 198. It indicates that mean scores of BPEd Students of Mumbai Group and BPEd Students of Goa Group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of conscientiousness of BPEd Students of Mumbai Group and BPEd Students of Goa Group is rejected. The mean score of conscientiousness of BPEd Students of Mumbai Group is 31.12 which is significantly higher than the BPEd Students of Goa Group which is 25.33. It may, therefore, be said that BPEd Students of Mumbai Group have better conscientiousness than BPEd Students of Goa Group.

Result of Extraversion of Undergraduate Students of BPEd Program of Mumbai and Goa

The third objective was to compare the mean scores of extraversion of undergraduate Students of BPEd program of Mumbai and Goa. The data were analyzed with the help of t-test and results are given in Table 3.

From Table 3, it can be seen that t-value is 2.06 which is significant at 0.05 level with df= 198. It indicates that mean scores of BPEd Students of Mumbai Group and BPEd Students of Goa Group not differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of extraversion of BPEd Students of Mumbai Group and BPEd Students of Goa Group is failed to reject. The mean score of extraversion of BPEd Students of Mumbai Group is 27.41

Table 1: Group-wise Mean, SD, N, and t-value of Openness

Group	Mean	SD	N	t-value	Remark
BPEd students of Mumbai Group	36.09	6.66	100	3.98	*P*<0.01
BPEd students of Goa Group	32.49	6.10	100		

**Significant at 0.01

Table 2: Group-wise Mean, SD, N, and t-value of conscientiousness

Group	Mean	SD	N	t-value	Remark
BPEd students of Mumbai Group	31.12	4.72	100	8.74	*P*<0.01
BPEd students of Goa Group	25.33	4.62	100		

**Significant at 0.01

Table 3: Group-wise Mean, SD, N, and t-value of Extraversion

Group	Mean	SD	N	t-value	Remark
BPEd students of Mumbai Group	27.41	4.29	100	2.06	*P*>0.05
BPEd students of Goa Group	28.81	5.23	100		

*Significant at 0.05

which is significantly lower than the BPEd Students of Goa Group which is 28.81. It may, therefore, be said that BPEd Students of Goa Group and BPEd Students of Mumbai Group are equal in Extraversion.

Result of Agreeableness of Undergraduate Students of BPEd Program of Mumbai and Goa

The forth objective was to compare the mean scores of agreeableness of undergraduate Students of BPEd program of Mumbai and Goa. The data were analyzed with the help of t-test and results are given in Table 4.

From Table 4, it can be seen that t-value is 1.98 which is significant at 0.05 level with df= 198. It indicates that mean scores of BPEd Students of Mumbai Group and BPEd Students of Goa Group not differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of agreeableness of BPEd Students of Mumbai Group and BPEd Students of Goa Group is failed to reject. The mean score of agreeableness of BPEd Students of Mumbai Group is 28.52 which is significantly lower than the BPEd Students of Goa Group which is 29.75. It may, therefore, be said that BPEd Students of Goa Group and BPEd Students of Mumbai Group are equal in Agreeableness.

Result of Neuroticism of Undergraduate Students of BPEd Program of Mumbai and Goa

The fifth objective was to compare the mean scores of neuroticism of undergraduate Students of BPEd program of Mumbai and Goa. The data were analyzed with the help of t-test and results are given in Table 5.

Table 4: Group-wise Mean, SD, N, and t-value of Agreeableness

Group	Mean	SD	N	t-value	Remark
BPEd students of Mumbai Group	28.52	4.61	100	1.98	*P*>0.05
BPEd students of Goa Group	29.75	4.14	100		

*Significant at 0.05

Table 5: Group-wise Mean, SD, N, and t-value of Neuroticism

Group	Mean	SD	N	t-value	Remark
BPEd students of Mumbai Group	26.07	4.50	100	3.19	*P*<0.05
BPEd students of Goa Group	28.75	6.39	100		

*Significant at 0.05

From Table 5, it can be seen that t-value is 3.19 which is significant at 0.05 level with df= 198. It indicates that mean scores of BPEd Students of Mumbai Group and BPEd Students of Goa Group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of neuroticism of BPEd Students of Mumbai Group and BPEd Students of Goa Group is rejected. The mean score of neuroticism of BPEd Students of Mumbai Group is 26.07 which is significantly higher than the BPEd Students of Goa Group which is 28.75. It may, therefore, be said that BPEd Students of Goa Group have better neuroticism than BPEd Students of Mumbai Group.

DISCUSSION

- In the case of Openness, there is a significant difference between BPEd Students of Goa and BPEd Students of Mumbai.
- In the case of conscientiousness, there is a significant difference between BPEd Students of Goa and BPEd Students of Mumbai.
- In the case of Extraversion, there is no significant difference between BPEd Students of Goa and BPEd Students of Mumbai.
- In the case of Agreeableness, there is no significant difference between BPEd Students of Goa and BPEd Students of Mumbai.
- In the case of Neuroticism, there is a significant difference between BPEd Students of Goa and BPEd Students of Mumbai.

CONCLUSION

On the basis of the result, it can be concluded that there is no significant difference in the level of extraversion and agreeableness whereas there is a significant difference in the level of openness, conscientiousness, and neuroticism between the BPEd Students of Goa and BPEd Students of Mumbai.

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Research Article

Effect of circuit training program on muscular strength and muscular endurance

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ABSTRACT

There are sets of exercises performed one by one in a particular way regular training of the exercise can be called as "Circuit Training." Circuit training involves high-intensity aerobics with the main aim of building muscle strength and endurance. It is an ideal form of exercise for footballers, as it combines resistance work with cardiovascular exercise for an all-round workout. To compare the adjusted mean scores of balance of school boys of experimental group and control group by considering prebalance as a covariate and to compare the adjusted mean scores of power of school boys of experimental group and control group by considering pre-power as a covariate. Non-equivalent control group study had been taken for collection of data. The circuit training group was known as experimental group and non-circuit training group was known as control group in the study. In methodology, before training pre and after training post data were collected from students. The total score of score then was compared with one-way ANCOVA analysis. The results of balance (Fy.x = 5.557, df 1/49, $P < 0.05$) and power (Fy.x = 201.362, df 1/49, $P < 0.01$) were significant. The circuit training program was useful for improving balance and power of district level football players of Mumbai.

Keywords: Band knee sit-ups, Circuit training, Push-ups

INTRODUCTION

What is circuit training and examples of circuit training workouts use circuit training exercises to improve all-round fitness and prevent sports injury. By Brad Walker|first published March 25, 2003, | updated February 14, 2023 circuit training is one of my favorite training workouts, whether for myself personally, or for clients. I use circuit training for injury rehabilitation programs, for sports conditioning of elite-level athletes, for improving cardiovascular fitness, for increasing strength, and to help clients lose weight. In fact, you can use circuit training for just about anything related to health, fitness, or sport. Circuit training exercises who else uses circuit training? was introduced to circuit training by an exceptional sports coach by the name of Col Stewart. Col is one of those rare coaches who can take just about any sport, and devise a specific training program that always produces outstanding improvements for his athletes.

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DEFINITION

Circuit Training

Circuit training is a form of body conditioning that involves endurance training resistance training, high-intensity aerobics and exercise performance in a circuit, similar to high-intencity interval training. It targets strength-building and muscular endurance.

MUSCULAR STRENGTH

Muscular strength is the ability to exert force against a resistance enabling you and I to push, move or lift object creater muscular strength means; we can lift push or pull more.

Muscular Endurance

Muscular endurance is the ability of a muscle to repeatedly exert force against resistance. Performing multiple repetitions of an exercise is a form of muscular endurance as are running and swimming.

OBJECTIVE OF THE STUDY

The objective of this study was to compare the adjusted means scores of muscular strength of circuit training program boys group and control group by taking pre-muscular strength as covariate. To compare the adjusted means scores of muscular endurance of circuit training program boys group and control group by taking pre-muscular endurance as a covariate.

HYPOTHESIS OF THE STUDY

- Ho1: There is no significant difference between in the adjusted mean scores of muscular strength of NCC senior wing boys of Kalyan. Training program boys group and control group by taking pre-muscular strength as a covariate.
- Ho2: There is no significant difference between in the adjusted mean scores muscular endurance of circuit training program boys group and control group by taking pre-muscular endurance as a covariate.

METHODOLOGY

The present research was experimental types which provide pre and post data quantitatively. The test scores of students were collected as per pre-training and post-training.

Design of the Study

Non-equivalent control group study had been taken for collection of data. The experimental design had two groups' experimental group and control group. The Circuit training program was designed with the help of experts. After a study, certain changes were implemented with a guide and experts. The training schedule was prepared and conducted for 6 weeks on students of age group 14–16 years. There were holidays on Sunday and holidays for training. During 6 weeks, training was conducted daily 60 min.

Sample

A sample of 50 (n = 50) NCC senior wing boys of Kalyan Students identified as subjects from B.K. Birla College of Kalyan The study was based on the non-equivalent control group design. The subjects in the experiment were divided into two group's one in the experimental group and the other in the control group; each group consisting of 25 subjects. Experimental groups were given circuit training for the period of 6 weeks.

A. Independent Variable (Circuit Training)

The training was consisting of 6 week circuit training program.

B. Dependent Variable
   - Muscular strength
   - Muscular Endurance.

Criterion Measures

- Variable – Muscular Strength, Muscular Endurance
- Push-ups
- Band knee sit-ups

Training Schedule

The 6-week training schedule was prepared with guidance by the guide and expert. The following training was arranged step by step for 1 h.

Particulars	Time
Warm Up	10 min
Circuit training	40 min
Limbering Down	10 min
Total	60 min

PROCEDURE OF THE STUDY

- Pre-test: All the selected variables are tested and the data is presented
- Training phase: The circuit training program is provided to experimental group for 6 days except Sunday and Holiday for 6 weeks
- Post-test: After circuit training program, post-test was conducted, and date were collected the same way as it was collected in pre-test.

STATISTICAL PROCEDURE

- Comparison of the group was done with the help of one-way Analysis of covariance (ANCOVA)

RESULT OF THE STUDY

Treatment-wise comparison of adjusted mean scores of balance by taking pre-muscular endurance as covariate the objective of the present study was to compare adjusted mean scores of NCC Students of circuit training group and control group by taking muscular endurance pre as a covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table 1 below.

From Table, it can be seen that the adjusted F-value is 64.98 which is significant at 0.01 level with df= 1/47 when pre-muscular strength was taken as a covariate. It shows that adjusted mean scores of muscular strength of Students of the NCC senior wing of circuit training group and non-circuit training group differ significantly when pre-muscular strength was taken as a covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of muscular strength of Students of NCC Senior Wing of circuit training group and non-circuit training group by taking pre muscular

Table 1: Summary of one-way ANCOVA of muscular endurance by taking PreMuscular Endurance as Covariate

Source of Variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	439.21	439.21		*P*<0.01
Error	47	232.35	9.35	24.87	
Total	50				

*Significant at 0.01

Table 2: Summary of one-way ANCOVA of muscular endurance by taking PreMuscular Endurance as Covariate

Source of Variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	221.85	221.85		
Error	47	195.65	4.17	53.30	*P*<0.01
Total	50	2645.78	·		

**Significant at 0.01

strength as a covariate is rejected. Further, the adjusted mean score of muscular strength of circuit training group is 24.94 which is significantly higher than that of non-circuit training group where the adjusted mean score of muscular strength is 20.90. It may, therefore, be said that circuit training group was found to be effective in improving muscular strength of Students of NCC senior wing than that of non-circuit Training group where pre-muscular strength was taken as a covariate.

From Table 2, it can be seen that the adjusted F-value is 85.61 which is significant at 0.01 level with df = 1/47 when pre-muscular endurance was taken asa covariate. It shows that adjusted mean scores of muscular endurance of Students of the NCC senior wing of circuit training group and non-circuit training group differ significantly when pre-muscular endurance was taken as a covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of muscular endurance of Students of NCC senior wing of circuit training group and non-circuit training group by taking pre-muscular endurance as a covariate is rejected. Further, the adjusted mean score of muscular endurance of circuit training.

CONCLUSION

The above results of the study help to conclude that the specific training program was found helpful to improve the selected skill performance in the circuit training program.

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Research Article

An investigation of job satisfaction of Kho-Kho officials of Mumbai city

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ABSTRACT

Job satisfaction has wide-ranging benefits for individuals and organizations. It leads to higher productivity, better employee retention, improved well-being, increased engagement, positive work culture, enhanced customer satisfaction, and a strong organizational reputation. Fostering job satisfaction is therefore crucial for achieving success and sustainable growth in today's competitive work environment. The objective of the study, in this piece of research, the researcher intends to see *"An Investigation of Job Satisfaction of Kho-Kho Officials of Mumbai City."* The objective of the study is to study the status of job satisfaction of Kho-Kho officials in Mumbai City. Seventy-three Kho-Kho officials from different Kho-Kho clubs/institutions of Mumbai City were selected as samples for the study using the Convenience Sampling Technique. A custom-made questionnaire was used for the study. To see the status of Occupational Stress and Job Satisfaction, Standardization of Scores and Percentage of Scores were taken. In the case of job satisfaction from the findings, we can say that none of the officials fall under extremely high job satisfaction but maximum Kho-Kho officials fall under above-average job satisfaction. The number of Kho-Kho officials who have extremely low and low job satisfaction is very low compared to above-average job satisfaction.

Keywords: Job satisfaction

INTRODUCTION

Job satisfaction is a term used to describe the level of contentment and fulfillment an individual experiences in their job or occupation. It refers to the overall attitude and emotional state a person has toward their work, encompassing various aspects such as the nature of the job, the work environment, relationships with colleagues, opportunities for growth, compensation, and the organization's culture and values.

Job satisfaction has wide-ranging benefits for individuals and organizations. It leads to higher productivity, better employee retention, improved well-being, increased engagement, positive work culture, enhanced customer satisfaction, and a strong organizational reputation. Fostering job satisfaction is therefore crucial for achieving success and sustainable growth in today's competitive work environment. In this piece of research, the researcher intends to see **"***An Investigation Of Job Satisfaction Of Kho-Kho Officials Of Mumbai City*."

Aim

This study is conducted to investigate the job satisfaction of Kho-Kho officials in Mumbai City.

Objective

To study the status of job satisfaction of Kho-Kho officials in Mumbai City.

Assumption

A1: It is assumed that there is a high level of job satisfaction among Kho-Kho officials of Mumbai City.

METHODOLOGY

Selection of Sample

Seventy-three Kho-Kho officials from different Kho-Kho clubs/institutions of Mumbai City were selected as samples for the study using the Convenience Sampling Technique.

Research Design

This is a survey study under the heading of descriptive research.

- Variable: Job satisfaction
- Tools/instruments

Table 1: Scoring system

S. No	Type of Items	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1	True	1	2	3	4	5
2	False	5	4	3	2	1

Table 2: Score-wise and percentage-wise status of job

Level of Job Satisfaction	Scores	Percentage
Extremely High Satisfaction	0	0.00
High Satisfaction	6	8.22
Above Average Satisfaction	12	16.44
Average Satisfaction	35	47.95
Below Average Satisfaction	8	10.96
Low Satisfaction	5	6.85
Extremely Low Satisfaction	7	9.59

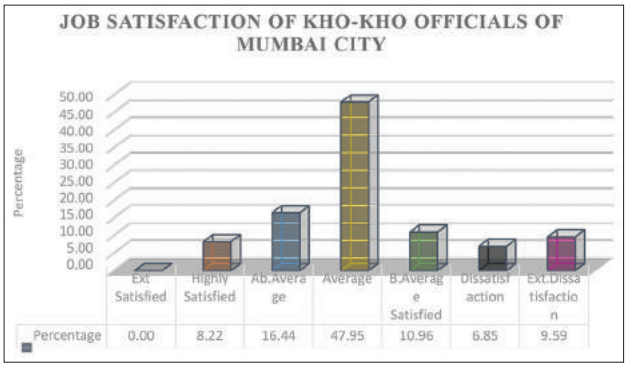

Figure 1: Score-wise and percentage-wise status of job satisfaction of Kho-Kho officials of Mumbai city

S. No	Variable	Tools	Score
1	Job satisfaction	Custom made questionnaire	Scores

PROCEDURE OF THE STUDY

The researcher visited the selected clubs and institutions to get the questionnaires filled out by the officials and when it was not possible in the club and institution then visited them personally, of selected Kho-Kho officials with self-explanatory instructions to fill and submit the questionnaire.

Statistics

To see the status of occupational stress and job satisfaction standardization of scores and percentage of scores were taken.

RESULT AND DISCUSSION OF THE STUDY

Results of Job Satisfaction

Score-wise and percentage-wise status of job satisfaction of Kho-Kho officials in Mumbai city

The objective was to study the status of job satisfaction of Kho-Kho officials in Mumbai City.

From Table 2, it can be seen that 8.22% of officials have high job satisfaction, 16.44% have above-average job satisfaction, 47.95% have average job satisfaction, 10.96% have below-average job satisfaction, 6.85% have low job satisfaction, and 9.59% have extremely low satisfaction. Hence, it can be seen that none of the officials fall under extremely high job satisfaction while officiating.

CONCLUSION

In the case of job satisfaction from the findings, we can say that none of the officials fall under extremely high job satisfaction but maximum Kho-Kho officials fall under above-average job satisfaction. The number of Kho-Kho officials who have extremely low and low job satisfaction is very low as compared to above-average job satisfaction.

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Research Article

Effect of complex training for power and performance program in hockey for school boys

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ABSTRACT

The first version of modern-day field hockey was developed by the British sometime between the late 18th and early 19th century. It was introduced as a popular school game then and made its way to the Indian army during British rule in the 1850s. The main objective of the study was to compare the adjusted mean scores of power of hockey players of complex training group and control group by considering pre-power as a covariate. Non-equivalent control group study had been taken for collection of data. The complex training group was known as the experimental group and non-complex training group was known as a control group in the study. In methodology, before training pre and after training, post data were collected from students. The total score of score then was compared with one-way ANCOVA analysis. The results of power (Fy.x= 48.80, df 1/49, $P < 0.01$) were significant and the results of moving with ball test (Fy.x= 1.70, df 1/49, $P < 0.01$) were not significant. The complex training program was useful for improving the power of students.

Keywords: Complex training program, Field hockey, Hockey players, Power

INTRODUCTION

Complex training synergistically pairs strength exercises with explosive plyometric movements, aiming to leverage post-activation potentiation. By strategically alternating between a high-load strength exercise and a related plyometric movement with minimal rest, athletes can tap into heightened neuromuscular function for improved power output. This method enhances both strength and explosiveness, making it valuable for athletes seeking multifaceted gains.

OBJECTIVE OF THE STUDY

The objectives of the study are as follows:

- To compare the adjusted mean scores of standing broad jump of the complex training group and control group by taking pre-jump as a covariate
- To compare the adjusted mean scores of moving with the ball test of the complex training group and control group by taking pre-moving with the ball test.

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HYPOTHESIS OF THE STUDY

H01: There is no significant difference in adjusted mean scores of power of hockey players of complex training group & control group by considering pre-Power as a covariate.

H02: There is no significant difference in adjusted mean scores of moving with ball of hockey players of complex training group and control group by considering pre-moving with ball as a covariate.

METHODOLOGY

Design of the Study

Non-equivalent control group study had been taken for collection of data. The experimental design had two groups' experimental group and control group. The complex training program was designed with the help of experts. After a pilot study, certain changes were implemented with a guide and experts. The training schedule was prepared and conducted for 6 weeks on students of the experimental group.

A. Independent Variable (Complex Training Program)
The training was consisting of 6 week Complex training program.

B. Dependent Variable
- Power – Test: Standing Broad Jump, Criterion Measures: Centimeters
- Moving with ball – SAI Hockey skill test: Criterion Measures: Seconds.

Training Schedule

The 6 week training schedule was prepared with guidance by the guide and expert. The following training was arranged step by step for 1 h.

Morning session 11.30 am. to 12.30 pm	
Training program	**Time**
warm up and stretching	10 min
Complex training exercises	40 min
Limbering down	10 min
Total	60 min

Pre-test: All the selected variables are tested and data are presented.

Training phase: The total complex training program is provided to experimental group for 6 days except for Sunday and holidays for 6 weeks.

Post-test: After the complex training program ended the post-test was conducted, and date were collected the same way as it was collected in pre-test.

Statistical Procedure

The collected data was analyzed by one-way analysis of covariance (ANCOVA) of statistical technique.

RESULT OF THE STUDIES

Treatment-Wise Comparison of Adjusted Mean Scores Power by Taking Pre-Power as Covariate

The objective was to compare the adjusted mean scores of power of hockey players of the complex training group and control group by considering pre-power as a covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table 1.

From Table: 1 it can be seen that the adjusted F-value is 48.80 which is significant at 0.01 level with df= 1/49 when pre-power was taken as a covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of power of hockey players of the complex training group and control group by taking pre- power as covariate is rejected. Further, the adjusted mean score of power of hockey players of complex training Group is 35.32 which is significantly higher than that of control group where the adjusted mean score of Power is 30.25.

Comparison of Adjusted Mean Scores SAI Hockey Skill Test of Moving with the Ball by Taking Pre SAI Hockey Test of Moving with the Ball as Covariate

The objective was to compare the adjusted mean scores of Sai hockey test of moving with the ball of complex training group and control group by considering pre-SAI hockey test of moving with the ball as a covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table 2.

Table 1: Summary of one-way ANCOVA of power by taking pre-power as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	297.24	297.24	48.80	$P<0.01$
Error	47	286.25	6.09		
Total	49				

Table 2: Summary of one-way ANCOVA of SAI hockey test of moving with the ball by taking pre- SAI hockey test of moving with the ball as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	0.018	0.018	1.70	$P>0.05$
Error	47	0.494	0.011		
Total	49				

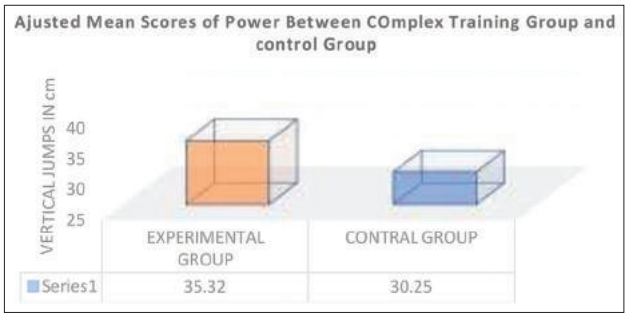

Figure 1: Adjusted mean scores of power

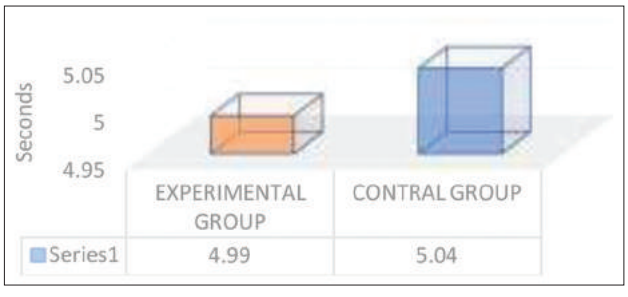

Figure 2: Comparison of adjusted mean scores of SAI hockey test of moving with the ball between complex training group and control group

From Tables 2 and 3, it can be seen that the adjusted F-value is 1.70 which is not significant at 0.05 level with df= 1/49 when Pre- SAI hockey test of moving with the ball was taken as a covariate. Thus, the null hypothesis that there is a significant difference in adjusted mean scores of SAI hockey test of moving with the ball of hockey players of complex training group and control group by taking Pre-Speed as covariate is fail rejected. Further, the adjusted mean score of SAI hockey test of moving with the ball of hockey players of complex training group is 4.99 which is significantly lower than that of control group where the adjusted mean score of reaction time is 5.04.

CONCLUSION

- The above result helps to conclude that the complex training was helpful in increasing the power of school students where pre-power was taken as a covariate.
- The above result helps to conclude that the complex training was not helpful in increasing the moving with ball ability of School students where pre-moving with ball scores was taken as covariate.

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Review Article

Comparison of sports achievement motivation of badminton players of junior college and badminton clubs of Mumbai

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ABSTRACT

The purpose of the study was to compare the sports achievement motivation of junior college badminton players and club badminton players of Mumbai and to achieve this purpose researcher selected the samples of 51 badminton players from junior college and 51 badminton players from badminton clubs of Mumbai as per his convenience. Hence, the researcher took samples under the heading of non-probability sampling as convenient sampling. To measure the sports achievement motivation among junior college badminton players and club badminton players, standardized sports achievement motivation test questionnaire by Dr. M. L. Kamlesh (1990) was appropriately used to collect the data. The collected data were statistically analyzed by applying independent sample t-test. The findings of the study were directs that the psychological variable sports achievement motivation. The t-value was 5.18 which was significant at 0.01 level with df = 100 among junior college badminton players and club badminton players. The mean scores of sports achievement motivation of junior college badminton players group were 24.35 ± 4.71 which were significantly lower than club badminton players group which was 30.39 ± 6.87. The finding of this study shows that club badminton players have higher sports achievement motivation than junior college badminton players.

Keywords: Badminton clubs, Badminton players, Badminton, Junior college, Psychological variable, Sports achievement motivation

INTRODUCTION

Sports achievement motivation is a psychological concept that refers to the drive or desire of athletes to achieve success in their sport to provide players with a clear direction and purpose, allowing them to focus their efforts and channel their motivation toward specific outcomes. Sports achievement motivation helps athletes set and pursue challenging goals. It provides them with the drive and determination to work hard, overcome obstacles, and strive for excellence. Achievement motivation helps athletes maintain focus, cope with pressure, and perform at their best in high stakes situations. Sports achievement motivation can be related to individual performance, team success, or skill development, and they should be realistic, measurable, and time-bound. Therefore, sports achievement motivation is one of the most important factors to be taken into consideration, especially in the field of physical education and sports.

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Rationale of the Study

The rationale behind exploring the sports achievement motivation of badminton players lies in the understanding that this motivation is a critical driver of their performance, development, and overall success in the sport. Investigating the factors that ignite and sustain badminton players' intrinsic desire to excel can provide valuable insights for sports coaches, trainers, and sports psychologists. By identifying the specific elements, such as competition, skill mastery, and recognition, that influence players' motivation, strategies can be tailored to enhance training programs, psychological support, and goal-setting mechanisms. This, in turn, can contribute to fostering a positive and growth-oriented environment that nurtures players' commitment, resilience, and determination, ultimately shaping their journey toward achieving their highest potential in the realm of badminton.

Objective of the Study

The objective of this study was to compare mean scores of sports achievement motivation of badminton players of junior college and badminton clubs of Mumbai.

Hypothesis of the Study

There is no significant difference in mean scores of sports achievement motivation of badminton players of junior college and badminton clubs of Mumbai.

METHODOLOGY

Design of the Study

The present study was descriptive in nature under the heading of descriptive research which provided comparison between junior college badminton players and club badminton players on sports achievement motivation psychological variable. The scores of sports achievement motivation of players were collected through the standardized questionnaire.

Population and Sample

A sample of 51 junior college badminton players and 51 club badminton players aged between 17 and 25 years selected from Mumbai.

Variable and Test

Sports achievement motivation

Sports achievement motivation test (SAMT) questionnaire by Dr. M. L. Kamlesh filled by badminton players of junior college and badminton players of badminton clubs of Mumbai.

Tool Used

Standard SAMT questionnaire by Dr. M. L. Kamlesh (1990) is used to collect data of badminton players.

Statistical Procedure

As mentioned in the objectives of the study, data were analyses with help of independent sample t-test method of statistical techniques.

RESULTS

Result on Sports Achievement Motivation between Junior College Badminton Players and Club Badminton Players

The objective of the present study was to compare the mean score of sports achievement motivation of junior college badminton players' group and club badminton players' groups. The data were analyzed with the help of t-test and results are given in Table 1 below.

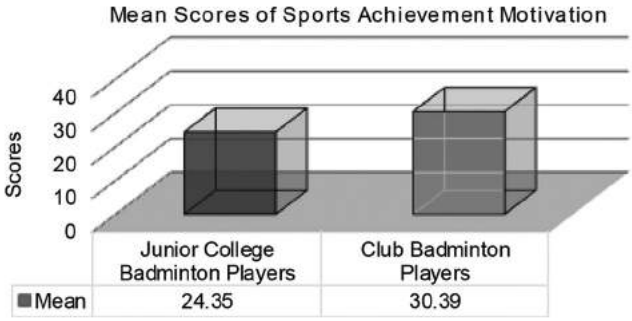
Table 1: Group-wise mean, SD, N, and t-value of sports achievement motivation

Group	M	SD	N	t-value	Remark
Junior College badminton players	24.35	4.71	51	5.18**	$P<0.01$
Club badminton players	30.39	6.87	51		

**Significant at 0.01. SD: Standard deviation

From the above table, it can be seen that the t-value is 5.18 which is significant at 0.01 level with df = 100. It indicates that mean scores of sports achievement motivation of junior college badminton players' group and club badminton players' group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of sports achievement motivation of junior college badminton players group and club badminton players is rejected. The mean scores of sports achievement motivation of junior college badminton players group is 24.35 which is significantly lower than club badminton players group which is 30.39.

Mean Scores of Sports Achievement Motivation



DISCUSSION

Group-Wise Comparison of Mean Score of Sports Achievement Motivation

In case of sports achievement motivation of junior college badminton players' group and club badminton players', the result shows that the mean scores of sports achievement motivation of junior college badminton players' group and club badminton players' group differ significantly. Thus, the null hypothesis that there is no significant difference in mean score of sports achievement motivation of junior college badminton players' group and club badminton players' group is rejected. Further, the mean score of club badminton players' group has higher sports achievement motivation than junior college badminton players' group.

CONCLUSION

On the basis of the result, it can be concluded that: There is difference between junior college badminton players' and club badminton players', where club badminton players' were found

to believe significantly superior into the sports achievement motivation than their counterpart junior college badminton players'.

RECOMMENDATIONS

- Similar study can be conducted on different athletes of schools or colleges.
- Similar study can be conducted on athletes of different clubs or academies of Badminton.
- Similar studies can also be undertaken to compare other psychological parameters.
- A similar comparative study may be undertaken by selecting female badminton players.
- Similar study can be conducted on other sports and games professionals.
- A similar study can also be conducted on different age groups of players.

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Research Article

Effectiveness of aerobic dance training program on muscular endurance and flexibility of housewives of Mumbai

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ABSTRACT

The purpose of the study was to determine the effect of aerobic dance training program on muscular endurance and flexibility of housewives of Mumbai. To achieve this purpose, 40 housewives were selected from MB stayfit fitness hub, Charkop, Kandivali (W), Mumbai; further, they were randomly divided into two equal groups: Group "A" experimental group (n = 20) and Group "B" control group (n = 20). The main objective of the study was to compare the mean gain score of muscular endurance as measured by 1 min sit-ups, of experimental and control groups and to compare the mean gain score of flexibility as measured by flexomeasure board, of experimental group and control group. The experimental group was given aerobic dance training for a period of 6 weeks. The control group has not undergone any training program. In methodology, before training pre and after training post-data were collected of the subjects. The total score then was compared with one-way analysis of covariance (ANCOVA) analysis. Muscular endurance and flexibility (Fy.x = 4.069, df = 1/39, $P < 0.05$ and Fy.x = 12.44, df = 1/37, $P < 0.01$) were significant, respectively. The aerobic dance training program was useful for improving the muscular endurance and flexibility of housewives of Mumbai.

Keywords: Aerobics, Flexibility, Muscular endurance

INTRODUCTION

It goes without saying that a healthy society and a strong educational system are essential. A nation cannot overlook its health, education, and physical education if it wants to develop and meet the opportunities and challenges of the next millennium. Aerobic dance can best be defined as continuous movement exercise, locomotor movement, and dance steps performed to music. The variety and style of the movement and the musical accompaniment provide as many forms of aerobic dance program as there are interests and tastes of people performing them. In contrast to a competitive or solitary fitness program, aerobic dance provides an opportunity for people of widely different levels of physical ability to participate together in the same facility, with the same musical accompaniment engaging in exercises and skills which have been choreographed according to the needs of each individual. Aerobic dance, when planned appropriately for individual participants, can be very effective in building cardiovascular endurance and skeletal muscles effectively.

One of the best methods for weight control is aerobic exercise. In fact, it might be the most effective approach to shed pounds. Burning between 30 and 60 min of daily aerobic exercise at a slightly elevated heart rate or energy intensity level will result in a large calorie burn. A weak heart is the most frequent cause of high blood pressure.

Objective of the Study

- To compare the mean gain score of muscular endurance as measured by 1 min sit ups, of experimental and control groups.
- To compare the mean gain score of flexibility as measured by flexomeasure board, of experimental group and control group.

Hypothesis of the Study

The hypothesis of the study was as follows:

- There is no significant difference in the adjusted mean scores of muscular endurance of aerobics dance of experimental group and control group of housewives where pre-muscular endurance is taken as covariate.

- There is no significant difference in the adjusted mean scores of flexibility of aerobic dance of experimental group and control group of housewives where pre-flexibility is taken as covariate.

METHODOLOGY

Forty (n = 40) housewives were chosen at random basis and their age between 30 and 50 years from MB stayfit fitness hub, Charkop, Kandivali (W), Mumbai; further, they were randomly divided into two equal groups – Group "A" experimental group (n = 20) and Group "B" control group (n = 20).

Design of the Study

The design of the study was non-equivalent control group design. Phase – I: Pre-test, phase – II: Training or treatment, and phase – III: Post-test. The subjects were divided into two groups: Experimental group and control group; each group consisted of 20 subjects. Experimental group had undergone aerobic training program for the period of 6 weeks.

Dependent Variables of the Study

Muscular endurance and flexibility.

Criterion measures

The following criterion measures included the records of the various tests.

Variable	Test	Unit
Muscular endurance	Bent knee sit ups	Counts/min
Flexibility	Sit and reach	Counts/min

Independent Variables

The specific aerobic training was considered as independent variable for the present study.

Statistics

Comparison on group was done with the help of one-way ANCOVA.

RESULTS AND DISCUSSION

The mean achievement in muscular endurance and flexibility due to aerobic training program, as obtained from ANCOVA test, revealed that –

From Table 1, it can be seen that the adjusted F-value is 4.069 which is significant at 0.01 level with df = 1/37 when pre-muscular endurance was taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of muscular endurance of housewives of Mumbai of aerobic dance of experimental group and control group by taking pre-muscular endurance as covariate is rejected. Further,

Table 1: Summary of one-way analysis of covariance by taking pre-muscular strength as covariate

Source of variance	df	SSy.x	MSSy.x	Fy.x	Remark
Group	1	80.45	80.45	4.069	P<0.05
Error	37	731.50	19.77		
Total	39				

Table 2: Summary of one-way analysis of covariance of flexibility by taking pre flexibility as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Group	1	20.880	20.880	12.44	P<0.01
Error	37	62.112	1.679		
Total	39				

the adjusted mean scores of muscular endurance of aerobic dance of experimental group are 25.27 which is significantly higher than that of control group where adjusted mean scores of muscular endurance are 22.38. It may, therefore, be said that aerobic dance of experimental group was found to be effective in improving muscular endurance of housewives of Mumbai than that of control group where pre-muscular endurance was taken as covariate.

From Table 2, it can be seen that the adjusted F-value is 12.44 which is significant at 0.01 level with df = 1/37 when pre-flexibility was taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of flexibility housewives of Mumbai of aerobic dance training of experimental group and control group by taking pre-flexibility as covariate is rejected. Further, the adjusted mean scores of flexibility of aerobic dance training of experimental group are 10.80 which is significantly higher than that of control group where adjusted mean scores of flexibility are 9.36. It may, therefore, be said that aerobic training of experimental group was found to be effective in improving flexibility of housewives of Mumbai than that of control group where pre-flexibility was taken as covariate.

CONCLUSION

The 6-week aerobic training program intervention has potential benefits to improve muscular endurance and flexibility of housewives of Mumbai.

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Research Article

A comparative study of agility and stress of basketball players of Navi Mumbai

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ABSTRACT

The purpose of the study was to compare the agility and stress of basketball players at Navi Mumbai School. A total of 60 players were selected as a sample for the study using convenient sampling. The objective of the researcher was to compare the mean scores of Ryan International Sanpada and Ryan International School Kharghar basketball players. The collected data were statistically analyzed by applying an independent sample *t*-test. The findings of the study was directed that the psychological variable stress ($t = 0.80$) was significant at the 0.05 level with a df = 58 among Ryan International School Kharghar and Ryan International School Sanpada. The main score of stress at Ryan International School Kharghar is 19.13, and the main score of stress at Ryan International School Sanpada is 17.53. Is significantly higher than the Ryan International School Sanpada. The findings of this study show that Ryan International School Kharghar is more stressed than Ryan International School Sanpada. And the findings of the study directs that the agility ($t = 0.75$) was significant at the 0.05 level with a df = 58 among Ryan International School Kharghar and Ryan International School Sanpada. The main score of agility at Ryan International School Khargher is 12.83, and the main score of agility at Ryan International School Sanpada is 13.02, which is significantly lower than the Ryan International School Sanpada. The findings of this study show that Ryan International School Sanpada is more agility than Ryan International School Kharghar.

Keywords: Agility, Psychological Variable, Stress

INTRODUCTION

A Motor fitness is a term that describes an athlete's ability to perform effectively during sports or other physical activity. An athlete's motor fitness is a combination of six different components, each of which is essential for high levels of performance. Improving fitness involves a training regimen in all six components. There are many different manifestations of fitness. Some examples include strength, stamina, speed, and flexibility. Stress is the way human beings react both physically and mentally to changes, events, and situations in their lives. People experience stress in different ways and for different reasons. The reaction is based on the perception of an event or situation. Stress is the feeling of being overwhelmed or unable to cope with mental or emotional pressure.

Definitions of Terms Used

Stress

Stress is simply a fact of nature—forces from the outside world affecting the individual.

Agility

Ability to change the direction of the entire place with speed and accuracy.

OBJECTIVE OF THE STUDY

- To compare the mean scores of agility of school basketball players at Ryan International School Sanpada and Ryan International School Kharghar.
- To compare the mean scores at Stress of school basketball players at Ryan International School Sanpada and Ryan International School Khargha.

HYPOTHESIS OF THE STUDY

- H_{01}: There is no significant difference in the mean scores of agility of school basketball players at Ryan International School, Sanpada, and Ryan International School, Kharghar.
- H_{02}: There is no significant difference in the mean scores of stress of school basketball players at Ryan

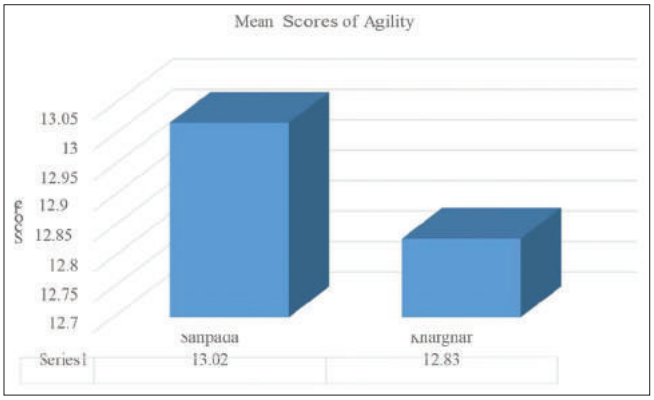

Figure 1: Comparison of the Mean of Agility of Ryan International School, Sanpada, and Ryan International School, Kharghar

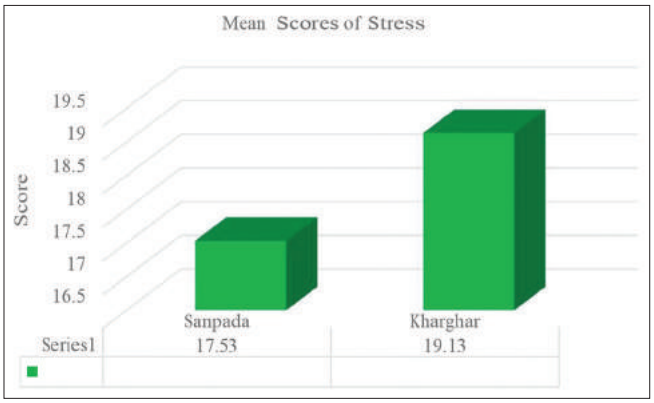

Figure 2: Comparison of the Mean Stress of Ryan International School, Sanpada, and Ryan International School, Kharghar

International School, Sanpada, and Ryan International School, Kharghar.

METHODOLOGY

Design of the Study

Basically, the study was survey-oriented in nature under the heading of descriptive research. The researcher personally visited the selected academies with assistance and collect the data by using the stress questionnaire of Dr. Vijaya Lakshmi and Dr. Shruti Naraln.

RESULTS OF THE STUDIES

Group-wise Comparison of Mean Scores of Agility

The first objective was to compare the mean score of agility between the Ryan International School, Sanpada, and Ryan International School, Kharghar groups. The data were analyzed with the help of a *t*-test, and the results are given in Table 1.

From Table 1, it can be seen that the $t = 0.75$ is not significant at the 0.05 level with a df = 58. It indicates that the mean scores

Table 1: Treatment wise mean, SD, *n* and *t*-value of agility

Test	Mean	SD	N	t-value		Remarks
Sanpada	13.02	0.93	30	0.75	OR	*P*>0.05
Kharghar	12.83	1.07	30			

SD: Standard deviation

Table 2: Treatment wise mean, SD, *n* and *t*-value of stress

Test	Mean	SD	*n*	*t*-value		Remarks
Sanpada	17.53	8.27	30	0.80*	OR	*P*>0.05
Kharghar	19.13	7.27	30			

SD: Standard deviation

of agility at Ryan International School, Sanpada, and Ryan International School, Kharghar, differ significantly. Thus, the null hypothesis HO_1 that there is no significant difference in the mean score of agility between Ryan International School, Sanpada, and Ryan International School, Kharghar, is fail to rejected. The mean scores of agility at Ryan International School, Sanpada, were 13.02, which is significantly lower than at Ryan International School, Kharghar, which is 12.83. It may therefore be said that the agility of Ryan International School Sanpada students is superior to that of Ryan International School Kharghar students.

Group-wise Comparison of Mean Scores of Stress

The seventh objective was to compare the mean stress scores of Ryan International School, Sanpada, and Ryan International School, Kharghar, groups. The data were analyzed with the help of a *t*-test, and the results are given in Table 2.

From Table 2, it can be seen that the $t = 0.80$, which is not significant at the 0.05 level, has a df = 58. It indicates that the mean scores of stress at Ryan International School, Sanpada, and Ryan International School, Kharghar, differ significantly. Thus, the null hypothesis HO_7 that there is no significant difference in the mean score of stress between Ryan International School, Sanpada, and Ryan International School, Kharghar, is fail to rejected. The mean score of stress at Ryan International School, Kharghar, is 19.13, which is significantly lower than that of Ryan International School, Sanpada, which is 17.53. It may therefore be said that the stress of Ryan International School's, Sanpada students is superior to that of Ryan International School's, Kharghar students.

CONCLUSION

On the basis of the result that can be concluded, there is no significant difference in agility or stress between students at Ryan International School, Sanpada, and Ryan International School, Kharghar.

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Research Article

Effect of pranayama on lungs ability of working women

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ABSTRACT

Prana is the vital force; without Prana, there is no life. Prana is not oxygen, but it needs oxygen. If this force is brought under control, which means ayam, it works wonders, whereas it leads to pranayama. The aim of pranayama is to strengthen the connection between your body and mind to promote relaxation and mindfulness. It also supports multiple aspects of physical health, including lung function, blood pressure, and brain function. The main objective of the study was to compare the mean score of the force volume capacity of the control group and the experimental group as covariates, respectively. They were divided into two groups, namely the experimental group and the control group. In methodology, before and after training, data were collected from working women. The total score was compared with one-way analysis of covariance. Force volume capacity ($f = 2.289$, $Df = 1/47$, $P > 0.05$) was not significant, respectively. Pranayama training was not found to be useful for improving force volume capacity in working women.

Keywords: Pranayama, Lungs Ability, Force volume capacity, Working women

INTRODUCTION

Place of Pranayama in Yoga: The course of Yogic study is divided into eight parts. Asana constitutes the third part. A student of yoga passes on to pranayama after mastering asana. In the present, we propose to treat this fourth item of the yogic curriculum in general as a detail of the different types of pranayama, which means a pause in the movement of breath. In Sanskrit, prana means breath, and ayama means a pause. In modern literature on yoga prana, even in the compound Pranayama has often been interpreted to mean a subtle psychic force or a subtle cosmic element.

RATIONALE OF THE STUDY

The present study was conducted on working women in Mumbai District. The aim was to strengthen the connection between your body and mind to promote relaxation and mindfulness while supporting multiple aspects of physical health, including lung function, blood pressure, and brain function.

OBJECTIVE OF THE STUDY

To compare the mean scores of the force volume capacity of the control group and the experimental group.

HYPOTHESIS OF THE STUDY

HO_1: There is no significant difference between the mean score of the force volume capacity of the control group and the experimental group. By taking pre-force volume capacity as a covariate, this hypothesis is rejected.

METHODOLOGY

The research conducted was of an experimental nature, involving the collection of quantitative data through pre-training and post-training assessments. Working women's test scores were gathered as per pre- and post-training.

Design of the Study

The present study was conducted by adopting the experimental method of research. The experiment design of the study was the pre-test and post-test control group design. The training scheduled was prepared and conducted for 4 weeks for working women. There was a holiday on Sunday for training. During our weeks, training was conducted daily for 60 min.

Sample

The working women were selected from Kurla and Mumbai City. A total of 50 working women were selected and further

divided into two groups: the experimental group (25) and the control group (25).

There were two types of variables for the experimental design. Independent and dependent variables were basically required for conducting any experimental design.

A. Independent variable (pranayama training)

The training was conducted as a 4-week training program.

B. Dependent variable

Force volume capacity.

Criterion Measures

Variable: force volume capacity

Training Schedule

The following training was arranged step by step for 1 h.

Training programme	Duration
Pranayama	40 min
Breathing Awareness	10 min
Shavasana	10 min
Total	60 min

PROCEDURE OF THE STUDY

Pre-test: All the selected variables are testes and the data is presented.

Training phase: The total pranayama training program is provided to the experimental group for 6 days, except Sunday and holidays for 6 weeks.

Post-test: After the pranayama training program ended, the post-test was conducted, and data were collected the same way as it was collected in the pre-test.

STATISTICAL PROCEDURE

The collected data were analyzed by the one-way analysis of covariance (ANCOVA) method of statistical technique.

RESULT OF THE STUDY

Treatment-wise comparison of adjusted mean scores of the alternate push test by taking force volume consumption as a covariate.

The objective of the present study was to compare the adjusted mean score of the force volume capaity of the students in the experimental group and the control group by taking pre-force volume capacity as a covariate. The data were analyzed with the help of one-way ANCOVA, and results are given

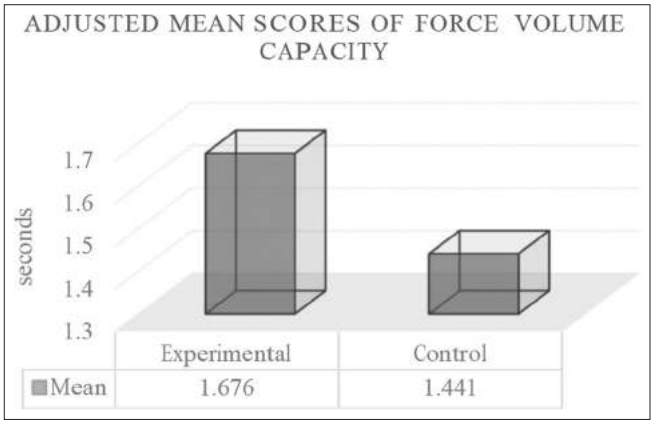

Figure 1: Comparison of force volume capacity between the experimental group and the control group

Summary of one-way ANCOVA of force volume capacity by taking pre-force volume capacity as a covariate.

Source of variance	Df	SS	MSS	*f*	Remark
Treatment	1	0.593	0.593	2.289	*P*>0.05
Error	47	12.182	0.259		
Total	50				

Df: Degrees of freedom, SS: Sum of squares, MSS: Mean sum of squares

From Table, it can be seen that the adjusted *f*-value is 2.289, which is significant at the 0.05 level with df=1/47 when pre-force volume capacity was taken as a covariate. It shows that the adjusted mean scores of the force volume capacity of the Pranayam group and the control group differ significantly when pre-force volume capacity is taken as covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of the force volume capacity of students in the Pranayam group and the control group by taking pre-force volume capacity as a covariate is rejected. Further, the adjusted mean score of the force volume capacity of the Pranayam group is 1.676. This is significantly higher than that of the control group, where the adjusted mean score of force volume capacity is 1.441. It may, therefore, be said that Pranayam was found to be more effective in improving the force volume capacity of students than the control group, where pre-force volume capacity was taken as a covariate. The same result has been graphically represented in Figure 1.

CONCLUSION

The above result helps to conclude that the pranayama training was not helpful in increasing the force volume capacity of working women, where pre-force volume capacity and post-force volume test scores were taken as a covariate, respectively.

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Research Article

Investigation into sports person ethics and moral behavior of professional Kabaddi players of Mumbai

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ABSTRACT

The purpose of the study was to investigate sports person ethics and moral behavior of professional kabaddi players in Mumbai and to achieve this purpose, researcher chose a sample of 204 Mumbai City-based kabaddi players who had been hired under the sports quota recruitment and were currently serving as representatives of their companies. A standardized manual of sports person ethics and moral behavior scale was used to gather the data. The collected data were analyzed using percentile methods. According to the players' responses to questions score of morality and ethics of professional kabaddi players in Mumbai. By total sample selected which comes to score of 25.30. Finding of this study shows that professional kabaddi players in Mumbai have high ethics and moral behavior.

Keywords: Investigate, Moral behavior, Mumbai City, Percentile method, Professional Kabaddi players, Sports person ethics

INTRODUCTION

Dwelling Ethics focuses on the process of choosing between good and wrong, which occasionally involves assessing the advantages and disadvantages or the conflicting interests and values. Morality is a set of rules for conduct that is typically founded on religious principles, which frequently guide our moral judgments. The reason the Kabaddi squad succeeds so regularly is that the government and private businesses provide the best players from different states of the country with work possibilities from their sports quota. This ensures the financial security of the kabaddi players, most of whom are from low-income families. Several public and commercial firms employ Maharashtra State Kabaddi Players. They must strike a balance between their professional work, practices, and competitions. They experience a lot of stress connected to work pressure. Growth at work is also difficult since it takes time to prepare for competitions and practice.

RATIONALE OF THE STUDY

The present study was conducted on investigation into sports person ethics and moral behavior of professional kabaddi players in Mumbai. This has a very broad wide scope since it was designed in a way that research academics, sports scientists, and physical education teachers may utilize it to perform more research. I chose this topic because I believe that the findings from these studies would be useful in understanding and assessing the moral character of professional kabaddi players in Mumbai their ethics, values, moral, and behavior in competition as these players are icons and role model for young generation and people who love and follow kabaddi.

Definitions of Term Used Ethics

Ethics is based on well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues.

Moral

To act according to one's moral values and standards, children demonstrate prosocial and moral behavior when they share, help, co-operate, communicate, sympathize, or otherwise, they demonstrate the ability to care about others.

Objective of the Study

- To investigate sports person ethics and moral behavior of professional kabaddi players in Mumbai

Hypothesis of the Study

- It is hypothesized that Mumbai-based professional teams' players uphold high standards of morality and ethics

METHODOLOGY

Design of the Study

The present study was descriptive in nature under the heading of descriptive research which provided an investigation into sports person ethics and moral behavior of professional kabaddi players. Sports person ethics and moral behavior were psychological variables. The scores of sports person ethics and moral behavior of professional kabaddi player were collected through the standardized questionnaire.

Population and Sample

A sample of 204 professional kabaddi players was selected from Mumbai working in bank, railways, police, and companies.

Variable and Test

Workplace stress

The tool used in the present study was standardized questionnaires, known as sports person ethics and moral behavior scale by Dr. Ghansham K. Dhokrat filled by Professional kabaddi players of Mumbai.

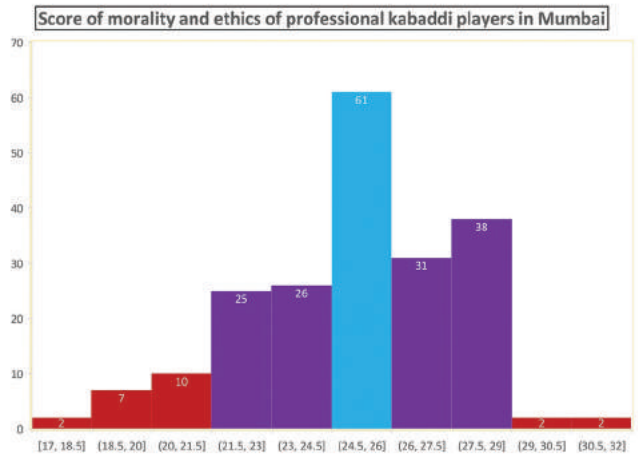
Statistical Procedure

As mentioned in the objectives of the study, the data were analyzed using percentile methods of statistical techniques.

RESULT OF THE STUDY

Result on the score of morality and ethics of professional kabaddi players in Mumbai.

- The objective of the study was to investigate sports person ethics and moral behavior of professional kabaddi players in Mumbai and was analyzed using percentile method and result is given below:-



The players' responses to the questions resulted in a total sample score of 5170 points out of a possible 6528, or a score of 25.30, which is consistent with high ethics and moral behavior according to the scoring scale for sports person ethics and moral behavior.

CONCLUSION AND RECOMMENDATION

On the basis of the result, it can be concluded that:

- Professional kabaddi players in Mumbai uphold high ethics and moral behavior
- Researchers in physical education may be inspired by the study's findings to do more research in a variety of sports and physical education fields.

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Research Article

Pickleball training for skills of table tennis for the children in orphanages

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ABSTRACT

Pickleball, originating as a recreational game in the mid-20th century, has evolved into a modern paddle sport that amalgamates elements of tennis, badminton, and table tennis. It is characterized by its unique blend of physical activity and strategic gameplay, making it both a sport and a leisure activity. Beyond its competitive aspect, pickleball offers participants not only a means of enhancing their physical fitness and coordination but also a platform for fostering social connections and promoting a balanced lifestyle. The main objective of the study was to compare the adjusted mean scores of the Alternate Push Test and Alternate Counter Test of the Pickleball Training Group and Non-Pickleball Training Group by taking Pre-Alternate Push Test and Pre-Alternate Counter Test as covariates, respectively. Non-equivalent control group study was taken for the collection of data. The pickleball training group was known as the experimental group and non-pickleball training group was known as the control group in the study. In methodology, before training pre and after training post-data were collected from the children. The total score of score then was compared with one-way ANCOVA analysis. Alternate Push Test and Alternate Counter Test ($Fy.x = 11.12$, df 1/47, $P < 0.05$ and $Fy.x = 62.60$, df 1/47, $P < 0.01$) were significant, respectively. The Pickleball Training Program was useful for improving Alternate Push Test and Alternate Counter Test scores of children in orphanage of Mumbai district.

Keywords: Alternate counter test, Alternate push test, Orphanage children, Pickleball training program, Pickleball, Table tennis

INTRODUCTION

As a relatively novel paddle sport that amalgamates elements from tennis, badminton, and table tennis, pickleball offers a unique platform for individuals seeking an engaging and effective means of exercise and recreation. Pickleball demands a combination of physical attributes, including quick reflexes, agility, and hand-eye coordination. Pickleball training holds the potential to synergistically enhance table tennis skills due to shared elements of gameplay such as hand-eye coordination, racket control, and court positioning. The paddle techniques, reflex development, and strategic thinking cultivated through pickleball can effectively translate to improve performance in table tennis, offering a complementary training approach that bridges the gap between these two sports.

RATIONALE OF THE STUDY

The present study was conducted on children in an orphanage in Mumbai District. The aim was to provide underprivileged youth access to a structured physical activity program that not only promotes skill development but also offers a holistic avenue for personal growth and engagement.

OBJECTIVE OF THE STUDY

- To compare the adjusted mean scores of the alternate push test of students in the pickleball training group and the non-pickleball training group by taking the pre-alternate push test as a covariate.
- To compare the adjusted mean scores of the alternate counter test of students in the pickleball training group and the non-pickleball training group by taking the pre-alternate counter test as a covariate.

HYPOTHESIS OF THE STUDY

- H01: There is no significant difference in the adjusted mean scores of the Alternate Push Test of Pickleball training

group and Non-Pickleball Training group students where the pre- Alternate Push Test is taken as a covariate.
- H02: There is no significant difference in the adjusted mean scores of the alternate counter test of pickleball training group and non-pickleball training group students where the pre-alternate counter test is taken as a covariate.

METHODOLOGY

The research conducted was of an experimental nature, involving the collection of quantitative data through pre-training and post-training assessments. Children's test scores were gathered as per pre- and post-raining.

Design of the Study

A non-equivalent control group study had been taken for the collection of data. The experimental design had two groups: Experimental group and the control group. The training schedule was prepared and conducted for 6 weeks with orphanage children. There was a holiday on Sunday for training. During 6 weeks, training was conducted daily for 60 min.

Sample

The children were selected from the Mumbai district. Students were selected from the Aditya Birla Centre for Welfare of Children, Chembur (E). A total of fifty (50) boys were selected from the above school. Further, they were divided into two groups: The experimental group (n = 25) and the control group (n = 25).

There were two types of variables in the experimental design. Independent and dependent variables were basically required for conducting any experimental design. Independent variable was also known as discontinues and dependent variables were known as continues variables.

In the following table were selected dependent variables and their tests as per reliability and validity for the present study.

A. Independent Variable (Pickleball Training Program)
   The training consisted of a 6-week pickleball training program.
B. Dependent Variable
   - Alternate Push Test
   - Alternate Counter Test.

Criterion Measures

- Variable – Alternate Push Test
- Variable – Alternate Counter Test

Training Schedule

The following training was arranged step by step for 1 h.

Training program	Duration
Warm up	10 min
Serve	8 min
Drive	8 min
Lob	8 min
Drop Shot	8 min
Slice	8 min
Limbering down	10 min

PROCEDURE OF THE STUDY

Pre-Test

All the selected variables are tested and the data are presented.

Training Phase

The total pickleball training program is provided to experimental group for 6 days except.

Sunday and Holiday for 6 weeks.

Post-Test

After the pickleball training program ended, the post-test was conducted, and dates were collected the same way as it was collected in the pre-test.

STATISTICAL PROCEDURE

The collected data were analyzed by the one-way analysis of covariance (ANCOVA) method of statistical technique.

RESULT OF THE STUDY

Treatment-wise comparison of adjusted mean scores of alternate push tests by taking alternate push test as covariates.

The objective of the present study was to compare the adjusted mean scores of the Alternate Push Test of Childrens in the Orphanage of Mumbai District of the Pickleball Training Group and Non-Pickleball Training Group by the taking pre-Alternate Push Test as a covariate. The data were analyzed with the help of the one-way ANCOVA, and the results are given in Table 1 below.

From the above table, it can be seen that the adjusted F-value was 11.12, which was significant at the 0.05 level with df= 1/47 when the pre-alternate push test was taken as a covariate. Thus, the null hypothesis that there is no significant difference in adjusted mean scores of the Alternate Push Test of Childrens in Orphanage of Mumbai District of Pickleball Training Group and Non-Pickleball Training Group by taking the pre-Alternate Push Test as a covariate is rejected. Further, the adjusted mean

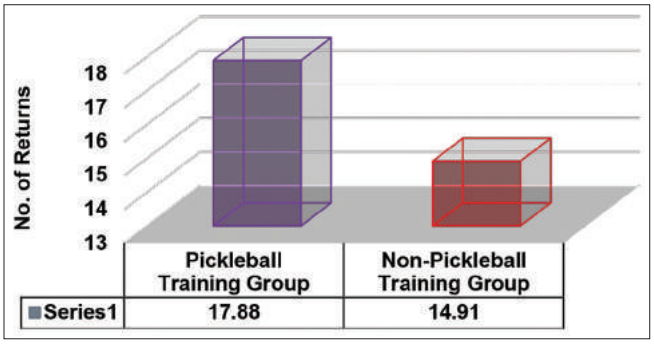

Figure 1: Comparison of adjusted mean scores of the alternate push test between pickleball training group and non-pickleball training group.

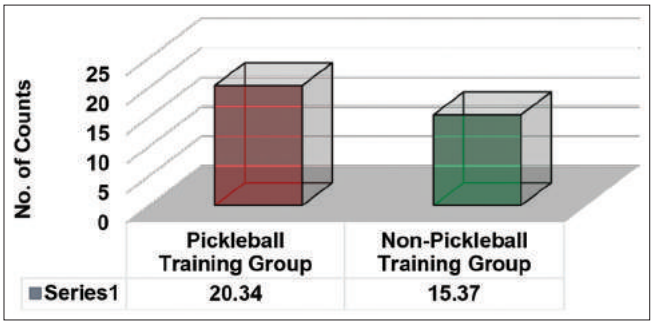

Figure 2: Comparison of adjusted mean scores of alternate counter tests between the pickleball training group and the non-pickleball training group.

scores of the Alternate Push Test of Pickleball Training Group are 17.88, which are significantly higher than those of the non-Pickleball Training Group, where the adjusted mean scores of the Alternate Push Test are 14.91.

Treatment-wise comparisons of adjusted mean scores of the alternate counter test by taking alternate counter test as covariate.

The objective of the present study was to compare the adjusted mean scores of the Alternate Counter Test of Childrens in Orphanage of the Mumbai District of Pickleball Training Group and Non-Pickleball Training Group by taking pre-Alternate Counter Test as a covariate. The data were analyzed with the help of one-way ANCOVA and results are given in Table 2 below.

From the above table, it can be seen that the adjusted F-value is 62.60, which is significant at the 0.01 level with df= 1/47 when the pre-alternate counter test was taken as a covariate. Thus, the null hypothesis that there is no significant difference

Table 1: Summary of one-way ANCOVA of alternate push test by taking pre-alternate push test as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	109.64	109.64	11.12	$P<0.05$
Error	47	463.43	9.86		
Total	49	1108.00			

Table 2: Summary of one-way ANCOVA of alternate counter test by taking pre-alternate counter test as covariate

Source of Variance	df	SSy.x	MSSy.x	Fy.x	Remark
Group	1	308.34	308.34	62.60	$P<0.01$
Error	47	231.49	4.92		
Total	49	774.02			

in adjusted mean scores between alternate counter test childrens in the orphanages in the Mumbai district of pickleball training group and non-pickleball training group by taking pre-alternate counter test as a covariate is rejected. Further, the adjusted mean scores of alternate counter test of pickleball training group are 20.34, which is significantly higher than those of the non-pickleball training group where the adjusted mean scores of the alternate counter test are 15.37

CONCLUSION

The above result helps to conclude that the pickleball training was helpful in increasing the Alternate Push Test score and Alternate Counter Test score of Orphanage Childrens where Pre-Alternate Push Test and Pre-Alternate Counter Test scores were taken as covariates, respectively.

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Research Article

Effectiveness of Zumba and aerobics training program on the basis of selected health-related physical fitness components of secondary school children of Mumbai

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ABSTRACT

Introduction: Health is an important input in any process of development. An unhealthy society cannot be a society of high achievers and cannot make a nation great. The need for a healthy society and an education system to support it is beyond doubt and discussion. **Purpose:** The purpose of the study was to identify the effect of Zumba and Aerobics Training Program on Muscular Strength and Muscular Endurance of Secondary School children of Mumbai. **Method:** 150 subjects were divided into three groups: two experimental (n = 50) and one control (n = 50) groups. One experimental group was given Zumba training program for the period of 12 weeks and the second experimental group was given Aerobics Training Program. The control group has not undergone any training program. At the baseline and after training intervention, muscular strength and muscular endurance were used to assess the levels of Health-Related Physical Fitness. Data were analyzed using One-Way ANCOVA test. **Results and Discussion:** The results revealed that there was a significant difference in the adjusted mean scores of muscular strength of school students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Strength as Covariate. It also revealed that there was a significant difference in the adjusted mean scores of Muscular Endurance of School Students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Endurance as Covariate.

Keywords: Aerobics, Muscular endurance, Muscular strength, Zumba

INTRODUCTION

The need for a healthy society and an education system to support it is beyond doubt and discussion. If a nation has to prosper and face the opportunities and challenges of the next millennium, it cannot neglect health, education, and physical education. Zumba is an exercise fitness program created by Colombian dancer and choreographer Alberto "Beto" Perez during the 1990s. A Zumba class combines fast and slow rhythms that tone and sculpt the body using principles from aerobic and fitness to achieve cardio and muscle-toning benefits. Zumba reduces the levels of cortisol (the stress hormone) in your body, which is why you feel so good after grooving to some music. Zumba does not require you to be an exceptionally talented dancer to make the best of the activity. As long as you are moving your feet (and your hips and glutes too!) in time with the music, your enthusiasm will be just enough! Spend 60 min in a Zumba class and you'd be burning approximately 370 calories while having a ball of a time.

Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines with the goal of improving all elements of fitness (flexibility, muscular strength, and cardio-vascular fitness). It is usually performed to music and may be practiced in a group setting led by an instructor (fitness professional), although it can be done solo and without musical accompaniment. Aerobic exercise is that it can greatly affect your mental health. There is a large percentage of the population that suffers from things such as anxiety, depression, and even low self-confidence. It was previously thought that all of these things could only be fixed with drugs or psychiatric help, but that does not seem to

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be the case. Aerobic exercise is one of the most effective ways of controlling your weight. In fact, it may be the very best way to lose weight. Daily aerobic exercise at a slightly increased heart rate or energy exertion level, for a period of 30–60 min per day, will burn a significant number of calories. High blood pressure is most often caused by a weak heart.

Purpose of the Study

The present study was conducted on the secondary school student age ranging from 13 to 15 years to understand the effect of Zumba and Aerobics Training program. The assessment can help the students to realize that Zumba and Aerobics both are an important therapeutic and fitness training modality, in which dance exercises are performed with lively music. It is the important link between the sedentary life and the active life.

Objective of the Study

For said study, the objectives of the study were as follows;

1. To compare the adjusted mean scores of muscular strength of secondary school children of experimental group and control group by considering pre-muscular strength as a covariate.
2. To compare the adjusted mean scores of muscular endurance of secondary school children of experimental group and control group by considering pre-muscular endurance as a covariate.

Hypothesis of the Study

For said study, the hypothesis of the study was as follows;

- H_{01}: There is no significant difference in the adjusted mean scores of muscular strength of secondary school students of experimental group and control group by taking pre-muscular strength as covariate.
- H_{02}: There is no significant difference in the adjusted mean scores of muscular endurance of secondary school students of experimental group and control group by taking pre-muscular endurance as covariate.

METHODOLOGY

One Hundred and Fifty (n = 150) secondary school students age ranging from 13 to 15 years were identified as subjects from Saraswati Mandir High School Mahim and Balmohan Vidyamandir School, Mumbai. The students were further divided into three groups, out of which two were experimental groups of Zumba and Aerobics and the third group was the control group.

Design of the Study

The design of the study was Non-Equivalent Control Group Design. Phase – I: Pre-test, Phase – II: Training or Treatment, and Phase – III: Post-test. The subjects were divided into three groups, two experimental groups and one control group; each group consisted of 50 subjects. Experimental group had undergone Zumba training program and another experimental group had undergone Aerobics training program for the period of 12 weeks.

Dependent Variables of the Study

Muscular strength and muscular endurance.

Criterion Measures

The following criterion measures included the records of the various test items of Selected HRPF Components.

Variable	Test	Unit
Muscular strength	Push ups	Counts/Min
Muscular endurance	Bent knee sit ups	Counts/Min

Independent Variables

The specific Zumba and Aerobics training was considered independent variable for the present study.

Statistics

Comparison of group was done with the help of One-Way Analysis of Covariance ANCOVA.

RESULTS AND DISCUSSION

The mean achievement in muscular strength and muscular endurance due to Zumba and Aerobics Training Programme, as obtained from ANCOVA test, revealed that.

From Table 1, it can be seen that the adjusted F-value is 104.78 which is significant at 0.01 level with df= 2/146 when Pre-Muscular Strength was taken as covariate. It shows that the adjusted mean Scores of Muscular Strength of School Students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Strength as Covariate. Thus, the Null Hypothesis that there is no significance difference in adjusted mean scores of Muscular Strength of School Students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Strength as Covariate is rejected. Further, the adjusted mean score of Muscular Strength of Zumba Training Group is 20.40 which is significantly higher than that of Aerobic Training Group is 18.85 and no change in the adjusted mean score of Control Group which is 16.08. It may, therefore,

Table 1: Summary of one way ANCOVA of comprehension by taking pre-muscular strength as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	2	474.61	237.31	104.78	P<0.01
Error	146	330.67	2.27		
Total	149				

Table 2: Summary of one way ANCOVA of comprehension by taking pre-muscular endurance as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	2	380.83	190.41	118.29	*P*<0.01
Error	146	235.01	1.61		
Total	149				

be said that Zumba Training is useful in improving Muscular Strength of School Students compare to Aerobics and Control Groups where Pre-Muscular Strength was taken as covariate.

From Table 2, it can be seen that the adjusted F-value is 118.29 which is significant at 0.01 level with df= 2/146 when Pre-Muscular Endurance was taken as covariate. It shows that the adjusted Mean Scores of Muscular Endurance of School Students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Endurance as Covariate. Thus, the Null Hypothesis that there is no significance difference in adjusted mean scores of Muscular Endurance of School Students belonging to Zumba Training Group, Aerobics Training Group, and Control Group by taking Pre-Muscular Endurance as Covariate is rejected. Further, the adjusted mean score of Muscular Endurance of Zumba Training Group is 22.05 which is significantly higher than that of Aerobic Training Group is 21.12 and no change in the adjusted mean score of Control Group which is 17.69. It may, therefore, be said that Zumba Training is useful in improving Muscular Endurance of School Students compare to Aerobics and Control Groups where Pre-Muscular Endurance was taken as covariate.

CONCLUSION

Effect of 12-week Zumba and Aerobics Training Programme intervention has potential benefits to improve Muscular Strength and Muscular Endurance of students of Mumbai City.

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Research Article

A study of effect of specific self-defense training program on psychophysical parameters of girls of secondary schools of Thane district

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ABSTRACT

Introduction: It is imperative that girls feel empowered in all aspects of their lives – physically, emotionally, and mentally. To achieve this goal, a comprehensive self-defense approach is necessary to address both physical safety concerns and the social pressures that adolescents face. **Purpose:** The purpose of the study was to identify the effect of the Specific Self-defense Training Program on Muscular Strength and Muscular Endurance of Secondary School Girls of Thane District. **Methods:** One hundred subjects were divided into two groups, experimental ($n = 50$) and control ($n = 50$) groups. The experimental group was given a specific self-defense training program for the period of 12 weeks. The control group has not undergone any training program. At the baseline and after training intervention, muscular strength and muscular endurance were used to assess the levels of health-related physical fitness. Data were analyzed using one-way ANCOVA test. **Results and Discussion:** The results revealed that there was a significant difference in the adjusted mean scores of Muscular Strength of Secondary School Girls belonging to the specific self-defense training group and control group by taking pre-muscular strength as a covariate. It also revealed that there was a significant difference in the adjusted mean scores of Muscular Endurance of Secondary School Girls belonging to the specific self-defense training group and control group by taking pre-muscular endurance as a covariate.

Keywords: Muscular endurance, Muscular strength, Self-defense

INTRODUCTION

Self-defense classes teach systematic knowledge, methods, and appropriate behavior for assault situations. While martial arts training may have some self-defense applications, self-defense classes are marketed toward real-world efficacy. Girls can feel powerful physically, emotionally, and intellectually with a multidimensional self-defense strategy that addresses both physical safety and social pressures.

Young women today are pressured to interact in ways that weaken their ability to connect with each other. This gap between a girl's authentic self and society's expectations can lead to self-concept loss. Bullying is not the only issue for adolescent well-being; parents, teachers, and officials also worry about keeping daughters safe in an unsafe world. Every woman should be attentive and aware of her surroundings.

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The definition of physical fitness involves living a complete and balanced life, encompassing both a healthy attitude and body. It is essential for self-sufficiency and cognitive alertness and allows for successful adaptation to one's environment. While physical fitness is widely recognized as an important aspect of a child's growth, there is no consistent definition of its precise nature.

Purpose of the Study

The present study was conducted on Secondary school girls age ranging from 14 to 16 years to understand the effect of the specific self-defense training program. The assessment can help the students to realize that self-defense not only teaches physical defense but also important values such as hard work, devotion, perseverance, and sustaining personal relationships.

Objective of the Study

For said study, the objectives of the study were as follows;

1. To compare the adjusted mean scores of muscular strength of school girls of specific training group and non-specific training group by taking their pre-muscular strength as a covariate
2. To compare the adjusted mean scores of muscular endurance of school girls of specific training group and non-specific training group by taking their premuscular endurance as a covariate.

Hypothesis of the Study

For the said study, the hypothesis of the study was as follows;

- H_{01}: There is no significant difference in the adjusted mean scores of muscular strength of school girls of the specific training group and non-specific training group by taking pre-muscular strength as a covariate.
- H_{02}: There is no significant difference in the adjusted mean scores of muscular endurance of school girls of specific training group and non-specific training group by taking pre-muscular endurance as a covariate.

METHODOLOGY

One hundred (n = 100) secondary school girls age ranging from 14 to 16 years were identified as subjects from Ravindra Vidyalaya, Titwala. The students were further divided into two groups out of which one was experimental group of specific self-defense training and the other group was a control group.

Design of the Study

The design of the study was non-equivalent control group design. Phase – I: Pre-test, Phase – II: Training or treatment, and Phase – III: Post-test. The subjects were divided into two groups, one experimental group and one control group; each group consisted of 50 subjects. Experimental group had undergone specific self-defense training program for the period of 12 weeks.

Dependent Variables of the Study

Muscular Strength and Muscular Endurance.

Criterion Measures

The following criterion measures included the records of the various tests.

Items of selected physical fitness components.

Variable	Test	Unit
Muscular strength	Modified push ups	Counts/min
Muscular endurance	Bent knee sit-ups	Counts/min

Independent Variables

The specific self-defense training was considered as independent variable for the present study.

Statistical Analysis

Comparison of the group was done with the help of one-way analysis of covariance ANCOVA.

RESULTS AND DISCUSSION

The mean achievement in muscular strength and muscular endurance due to the specific self-defense training program, as obtained from the ANCOVA test, revealed that –

From Table 1, it can be seen that the adjusted F-value is 176.27 which is significant at 0.01 level with df= 1/97 when pre-muscular strength was taken as a covariate. It shows the adjusted mean scores of muscular strength of school girls of specific training group and non-specific training group by taking their pre-muscular strength as a covariate. Thus, the null hypothesis that there is no significant difference in the adjusted mean scores of muscular strength of school girls of specific training group and nonspecific training group by taking pre-muscular strength as a covariate is rejected. Further, the adjusted mean score of muscular strength of the specific self-defense training group is 24.04 which is significantly higher than the adjusted mean score of control group which is 20.32. It may, therefore, be said that specific self-defense training is useful in improving muscular strength of school girls compared to the control group where pre-muscular strength was taken as a covariate.

From Table 2 it can be seen that the adjusted F-value is 66.21 which is significant at 0.01 level with df= 1/97 when pre-muscular endurance was taken as covariate. It shows the adjusted mean scores of muscular endurance of school girls of specific training group and non-specific training group by

Table 1: Summary of one-way ANCOVA of comprehension by taking pre-muscular strength as covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	437.883	437.883	176.271	P<0.01
Error	97	240.962	2.484		
Total	100				

Table 2: Summary of one-way ANCOVA of comprehension by taking pre-muscular endurance as a covariate

Source of variance	Df	SSy.x	MSSy.x	Fy.x	Remark
Treatment	1	361.049	361.049	66.214	P<0.01
Error	97	528.920	5.453		
Total	100				

taking their pre-muscular endurance as a covariate. Thus, the null hypothesis that there is no significant difference in the adjusted mean scores of muscular endurance of school girls of specific training group and non-specific training group by taking pre-muscular endurance as covariate is rejected. Further, the adjusted mean score of muscular endurance of the specific self-defense training group is 23.64 which is significantly higher than the adjusted mean score of control group which is 19.83. It may, therefore, be said that specific self-defense training is useful in improving muscular endurance of school girls compared to the control group where pre-muscular endurance was taken as a covariate.

CONCLUSION

Effect of 12 weeks specific self-defense training program intervention has potential benefits to improve muscular strength and muscular endurance of secondary school girls.

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Research Article

A comparative study of blood lactate level of swimmers and sprinters of Thane

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ABSTRACT

Swimmers and sprinters frequently deal with great pressure, competition, and physical exhaustion. The capacity of an athlete to maintain composure, resilience, and performance under pressure is referred to as mental toughness. It calls for traits like self-assurance, tenacity, and the capacity to deal with pressure and disappointments skillfully. Physiological parameters are essential markers of the body's physiological reaction to exercise and can offer insightful information about the training and performance of sprinters and swimmers. Coaches and players can learn more about an athlete's fitness level, training responses, and areas for development by tracking and evaluating physiological markers like blood lactate level. It represents the balance between lactate production and lactate metabolism. Blood lactate levels essentially serve as an indirect marker for biochemical events such as fatigue within exercising muscles. The objective of the study was to compare the mean scores of blood lactate levels of swimmers and sprinters in Thane. A sample of 25 swimmers and 25 sprinters were selected from the Starfish Foundation, Thane City, and Thane Mahanagarpalika Athletics Club. Blood lactate levels are normally scored by measuring the blood's lactate concentration and analyzing the results in light of defined reference ranges. Depending on the environment in which the test is administered, such as exercise physiology, medical diagnostics, or metabolic assessment, the interpretation may change. Blood lactate levels in healthy people typically vary from 0.5 to 2.2 mmol/L of blood when they are at rest. The collected data was analyzed using an independent sample t-test using SPSS software. The t-value is 2.945, which is significant at the 0.01 level with df = 48. It indicates that the mean scores of blood lactate levels in the swimmers group and the sprinters group differ significantly. Thus, the null hypothesis that there is no significant difference in mean scores of blood lactate level between the swimmers group and the sprinters' group is rejected. The mean scores of blood lactate levels in the sprinters group are 6.72, which is significantly higher than the Swimmers Group's score of 6.056. It may therefore be said that the Sprinters Group has more lactic acid level than the Swimmers Group.

Keywords: Blood lactate level, Sprinters, Swimmers

INTRODUCTION

Swimmers and sprinters frequently deal with great pressure, competition, and physical exhaustion. The capacity of an athlete to maintain composure, resilience, and performance under pressure is referred to as mental toughness. It calls for traits like self-assurance, tenacity, and the capacity to deal with pressure and disappointments skillfully. Physiological parameters are essential markers of the body's physiological reaction to exercise and can offer insightful information about the training and performance of sprinters and swimmers. Coaches and players can learn more about an athlete's fitness level, training responses, and areas for development by tracking and evaluating physiological markers like blood lactate level. It represents the balance between lactate production and lactate metabolism. Blood lactate levels essentially serve as an indirect marker for biochemical events such as fatigue within exercising muscles. In this piece of research, the researcher intends to see *"A Comparative Study of Selected Psycho-Physiological Parameters of Swimmers and Sprinters of Thane.*"

Aim

This study is conducted to *Compare selected Psycho-Physiological Parameters of Swimmers and Sprinters in Thane*

Objectives

To compare the mean scores of blood lactate levels of swimmers and sprinters in Thane.

Hypotheses

H_{01}: There is no significant difference between the mean scores of blood lactate levels of swimmers and sprinters in Thane.

METHODOLOGY

Selection of Sample

A sample of 25 swimmers and 25 sprinters were selected from the Starfish Foundation, Thane City, and Thane Mahanagarpalika Athletics Club.

Research Design

This study is a comparative study under the heading of descriptive research.

Physiological Variable: Blood Lactate Level

Tools/instruments

The following criterion measure was included to record the score of blood lactate level: A standard tool or instrument (a lactate meter) was used to measure the blood lactate level of the swimmers and sprinters.

S. No.	Variable	Tools	Score
1	Blood lactate level	Lactate meter	mmol/L

Procedure of the Study

Tests were conducted at Starfish Foundation, Thane (West) for swimmers, and Thane Mahanagarpalika Athletics Club Sprinters. The purpose of the study was explained to the subjects in detail. Necessary instructions were given to all subjects aged 14–16 years. A warm-up session was conducted, and a 100-meter sprint was conducted for sprinters, after which the blood lactate level was immediately tested by the lacto meter. Similarly, a 100-meter freestyle sprint was conducted for swimmers. After finishing 100-meter of freestyle swimming, a lactate meter was used to test the blood lactate level.

Scoring of the Blood Lactate Level

- Blood lactate levels are normally scored by measuring the blood's lactate concentration and analyzing the results in light of defined reference ranges
- Depending on the environment in which the test is administered, such as exercise physiology, medical diagnostics, or metabolic assessment, the interpretation may change
- Blood lactate levels in healthy people typically vary from 0.5 to 2.2 millimoles per liter (mmol/L) of blood when they are at rest.

Statistics

The collected data was analyzed using an independent sample t-test using SPSS software.

RESULTS AND DISCUSSION

Results of Blood Lactate Level

Group-wise comparison of mean scores of blood lactate level

The objective was to compare the mean scores of blood lactate level in the swimmer's group and sprinters groups. The data were analyzed with the help of a t-test, and the results are given in Table 1.

From Table 1, it can be seen that the t-value is 2.945, which is significant at the 0.01 level with df = 48. It indicates that the mean scores of blood lactate levels in the swimmer group and the sprinter group differ significantly. Thus, the null hypothesis that there is no significant difference in the mean scores of blood lactate levels between the swimmers group and the sprinters' group is rejected. The mean scores of blood lactate level of sprinters group which is 6.72 significantly higher than the swimmers group which is 6.056, it may therefore be said that Sprinters Group has more lactic acid level than Swimmers Group.

Discussion on Blood Lactate Level

In the case of the physiological parameter (blood lactate level) of swimmers and sprinters, the result shows that the mean scores of the blood lactate level of swimmers and sprinters differ significantly. Thus, the null hypothesis that there is no significant difference between the mean scores of blood lactate levels of swimmers and sprinters is rejected. Further, the mean scores of blood lactate level of Sprinters Group is significantly

Table 1: Group wise mean, SD, N and t-value of blood lactate level of swimmers and sprinters

Test	Mean	SD	N	t-value	Remarks
Swimmers	6.056	0.49	25	2.945	$P<0.01$
Sprinters	6.72	1.01	25		

**Significant at 0.01, SD: Standard deviation

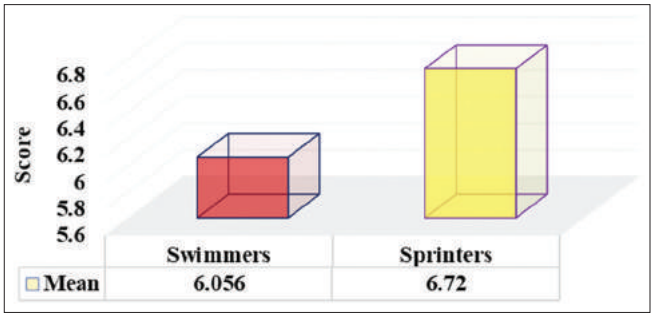

Figure 1: Group wise comparison of mean scores of physiological parameter blood lactate level of swimmers and sprinters

higher than the Swimmers Group. It may therefore be said that Sprinters Group has more blood lactate level than the Swimmers Group.

CONCLUSION

Physiological Parameter (Blood Lactate Level)

- The result of the study helps to conclude that the sprinters blood lactate level is higher than the swimmers of Thane.

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Research Article

Gross motor activities for children to develop physical and mental well-being

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ABSTRACT

Background: The reason for the study is to discover the development of physical and mental well-being of the children while performing gross motor activities and stress-busting activities. **Concept:** Acquiring motor skills is an important part of child development that allows children to participate in physical activities and achieve age-appropriate developmental milestones. These skills also require motor planning, that is, the ability to think through and act upon a plan in motion. To develop gross motor skills, kids need to have certain abilities and master certain concepts these include muscle strength/tone, balance, coordination, stability and posture, and motor learning. If the child seems to be struggling with gross motor skills, it could be a sign of a problem that requires intervention and treatment. **Conclusion:** This study has given a solution to develop gross motor skills through structured and unstructured physical activities. The physical and mental well-being were significantly improved after this training.

Keywords: Agility, Arm power, Balance, Cognitive, Gross motor skills, Leg power, Speed, Structured physical activities and unstructured physical activities

INTRODUCTION

Gross motor coordination simply states that it is the use of large muscle groups in controlled movement patterns that include all extremities. Gross motor coordination is needed for children to engage in coordinated and free play, navigation in their environments, and overall self-care. If a child struggles with core strength, balance, body awareness, coordination, crossing midline, and posture they could struggle with attention, focus, and overall engagement in school. They need to be able to manage themselves in their academic environment to be able to learn and grow in their development. Some gross motor movement is all about mindfulness or developing self-control.

Playgrounds offer many benefits and childhood opportunities for learning. Playground equipment and child development are closely linked. Children can work on their mental and emotional development by building confidence as they master play equipment such as swings and slides. They can also build social skills as they learn to share, take turns, and play together. Physical play and exercise can help children build physical growth and strength, essential parts of how children develop balance and coordination. Playing on the playground can help ensure children develop their coordination, balance, and fine motor skills.

Balance is the ability of a child to keep a controlled position or posture during a specific task. Walking, climbing, or even sitting all require balance and coordination. There are two types of balance, dynamic, and static. Dynamic balance refers to the ability to stay in position during activities that require movement, such as walking. Static balance refers to the ability to maintain position during stationary tasks such as standing or sitting.

Coordination in child development refers to whether a child can get their body parts to work in a coordinated and functional manner. More broadly, coordination refers to the ability of a child to correctly interpret multiple signals to do more complex physical tasks. Hand-eye coordination, for example, requires children to correctly interpret visual information in a way that allows them to catch a ball. This seemingly simple task involves neurological activity, physical control, and reflexes, among other abilities.

Purpose of the Study

The study's purpose is to find the physical and mental well-being of kindergarten children after the interventions of structured and unstructured physical activities.

MATERIALS AND METHODS

This study is an experimental research with two groups receiving different interventions. One group obtained training in a structured physical activity (SPA) program and the other group received training in unstructured physical activity (USPA). The number of samples used in this study was 68 children aged 4–5 years, with 28 females and 40 males. After the initial test, a rank was used to divide the participants into two groups. After conducting the initial test by doing a 20 m sprint, throwing a tennis ball, jumping long without a start, walking on a beam, and agility with the illinois test, they were ranked and paired to be divided into two groups. There were two interventions for each experimental group. The first experimental group is structured physical activity training by carrying out a series of activities in one activity unit sequentially including: Elements of a road, running, jumping, throwing, kicking, and climbing as a series of movements. The unstructured PA is the training of unstructured intervention physical activities by doing activities such as walking, running, jumping, throwing, kicking, crawling, and climbing not in a series of movements (according to the child's will). The instruments used to measure the gross motor skills consist of a 20 m running speed, arm power by throwing a tennis ball, leg power through of broad jump, balance by walking on 4 m long beam, and agility using Illinois tests. In addition, cognitive abilities such as attention, memory, language, and academic achievement were evaluated through the Inhibition Scale (NEPSY-II), working memory test battery-C, trail-making test, and Prosociality Scale.

The data analysis technique used in this study is using the two-way analysis of variance at a significance level of 5% with the help of the program SPSS 20.

Structured PA and Unstructured PA Program

Structured PA is planned with objectives in mind, whereas unstructured PA is commonly known as free-time or leisure play. Intervention ideas for a training session can include many of the gross motor coordination activities above that are easy to do without much equipment. The activities which are involved for the children are following the leader, obstacle course, dance moves, jump rope moves, ball dribbling, target toss, rolling, climbing, tightrope balance beam, crawling, Ball rolling on a tape maze, ball rolling on a wall, clapping activities, balloon volley, crab walk soccer, mirror image, zoom ball, resistive band or handee, band exercises, heavy work movements, animal walks and other types of movement patterns, themed exercises, rhythm games, and gross motor coordination exercises.

RESULTS AND DISCUSSION

The results of the study state that the structured PA program and unstructured PA program can improve gross motor abilities from early childhood and are proven at the significant level of $P < 0.05$. The test results of the structured PA program and unstructured PA program are shown in Table 1.

In Table 2 above, it can be seen that the treatment of a structured PA program is very influential on running speed, the agility to throw the ball, standing broad jump, balance, and agility. All of them indicate a significant difference of $P < 0.05$.

In Table 3 above, it can be seen that the treatment of an unstructured PA program is very influential on running speed, the ability to throw the ball, standing broad jump, balance, and agility, and all of them indicate a significant difference in $P < 0.05$.

Table 4 shows the influence of structured PA and unstructured physical activity on cognitive development, and four (80%) showed significant and positive changes in response inhibition, working memory, cognitive flexibility, and prosocial behavior.

DISCUSSION

Discussion on Structured PA and Unstructured PA on Physical Variables

Physical activity has an important role in assisting growth and development. Children need energy and when they are hungry, growth hormones are mostly secreted. Sekarpurborini (2018) states that physical activity in the form of traditional games can affect the creativity of children, especially in the learning process on a regular, planned, and systematic basis. Suherman (2017) states that systematic physical activity can form a person as a whole, not only the matter of increasing his/her motor skills but also functional values, and intellectual, optional, social, and moral abilities. In this study, it was proven that kinesthetic-based physical activity is better for increasing the element of running, balance, and agility with $P < 0.05$ (Benjamin, 2008), Leta and Rosa (2012).

Discussion on Structured PA and Unstructured PA on Mental well-being

A growing body of literature suggests that physical activity has beneficial effects on cognitive development, such as attention, working memory, classroom behavior, and academic achievement among children and youth (Fedewa and Ahn, 2011; Sibley and Etnier 2003; Timmons *et al*., 2007, Khan and Hillman, 2014). In addition, it is believed that motor skills and cognitive

Table 1: The test results post-structured PA and unstructured PA program

No.	Variable	F	Sig	T	Df	Sig (2 tailed)
1.	Equal variances assumed	3.564	0.063	6.537	66	0.000
2.	Equal variances not assumed			6.637	62.674	0.000

Table 2: The results before and after the structured PA program

No.	Variable	F	Sig	t	df	Sig (2 tailed)
1.	Running speed	0.13	0.911	3.748	66	0.000
2.	Throwing ball	3.556	0.064	7.638	66	0.000
3.	Broad jump	2.95	0.135	−11.875	66	0.000
4.	Balance	0.14	−0.906	8.535	66	0.000
5.	Agility	75	0.785	8.634	66	0.000

development are closely related as both motor and cognitive skills have several common underlying processes including sequencing, monitoring, and planning (Roebers and Kauer, 2009).

CONCLUSION

The SPA and USPA are very appropriate for training all muscles in early childhood. Carrying out a series of activities of walking, running, jumping, leaping, throwing, kicking, crawling, and climbing is capable of increasing gross motor skills. These activities provide stimulation of sensitivity to the nervous system and muscles. The impact of these stimuli causes an increase in the ability of the nerves to coordinate muscle movements, causing an increase in gross motor skills. The present study opens up a new research direction to address the search for the most effective characteristics of PA to promote motor development, as well as positive and healthy development in general.

Table 3: The results before and after the unstructured PA program

No.	Variable	F	Sig	T	df	Sig (2 tailed)
1.	Running speed	3.93	0.533	4.767	66	0.000
2.	Throwing ball	0.48	0.827	−12.468	66	0.000
3.	Broad jump	12.523	0.001	−11.394	66	0.000
4.	Balance	0.483	0.489	9.932	66	0.000
5.	Agility	26.554	0.000	10.180	66	0.000

Table 4: Gross motor skills influence on cognitive development (mental well-being)

Gross motor skills	Mean difference between SPA and USPA	t	Sig.	β
Response inhibition	0.40	2.475	0.015	0.20
Working memory	0.07	2.457	0.016	0.24
Cognitive flexibility	0.32	4.374	<0.001	0.40
Prosocial behavior	0.78	7.244	<0.001	0.53

SPA: Structured physical activity, USPA: Unstructured physical activity

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Research Article

Impact of yogic practices on physiological variables on pre-adolescence school girls

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ABSTRACT

The purpose of this study was to find the impact of yogic practices on physiological variables in pre-adolescence schoolgirls. Randomly 30 schoolgirls were selected from Z.P.H.S Girls School, Dhanwada, and Z.P.H.S Girls School, Jajapur, Mahabubnagar (Dist), Telangana, India, and were selected as subjects and their ages ranged from 12 to 14 years. They were divided into two equal groups and each group consisted of 15 subjects. Group-I was performed yogic practice, and Group-II was acted as a control group. The selected criterion variables resting pulse rate and vital capacity were selected and measured by manual pulse test and digital spirometer for this study. The data were analyzed by the use of paired "t" test. The obtained "t" ratio was tested for significance at 0.05 level of confidence. The analysis of the data revealed that there was a significant improvement on resting pulse rate and vital capacity by the application of yogic practices.

Keywords: Resting pulse rates, Vital capacity, Yogic practice

INTRODUCTION

Yoga is believed to be one of the most vital and important parts of the Indian culture. Even before 2000 years ago, our forefathers developed it to bind the body, mind, and spirit, as a harmonious whole. Nowadays, the whole world is looking toward yoga for answers to various problems of human beings. Yoga means the experience of oneness or unity with the inner being. It is not a religion but a good method by which one can obtain control over one's latent power and attain complete self-realization; it is a re-education of one's mental processes, along with the physical. In the age of modern science and information technology, and the changing world scenario with global warming with its attendant factors, our lifestyle becomes complicated and it becomes difficult to lead a normal and natural life.

Yoga is an ancient art based on a twin juicing system of development for the body mind and spirit. It is a practical aid. Moreover, the continued practice of yoga will lead one to a sense of peace and also a feeling of harmony with one's environment. The word Yoga comes from the Sanskrit root "Yuj" which means, "To join" or "to yoke"? Yoga is one of the six systems of Indian philosophy the classical form of yoga, based on the text described to Patanjali and became known in the middle ages as raja yoga or "royal yoga". Other forms of yoga also developed, which might be followed together with, or independently of the classical yoga. Among theses, the practices of hatha yoga have become famous throughout the world, and the term yoga is often used to denote them. Hatha yoga seems to be an Inca development in Hinduism, and the earliest texts on the subject date from little before foe Muslim invasion. (Chandrasekaran, 2003).

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Yoga Physiology

According to a story in the pureness, lord shiva was instructing parfait into the secret sedans of yoga while standing on the seashore. A large fish overheard all that said and from this fish, all-knowing Matsyendranath was born. Hence, his name is Masaya-India or "Lord of fish." There are also many stories concerning the birth of Goraknath. It is said that when Matsyendranath was begging for food as a parivrajaka, he met a woman who lamented to him her woe of not having a son. Matsyendranath gave her some siddha vibhooti and told her that if she eats it, she would obtain a son. The woman did not eat that substance but cast it upon a pile of crowding. 12 years later, when Matsyendranath was passing through the same village, he called her to see the child. The woman told the yogi what she had done and he asked to be taken to the spot where

she had thrown the vibhooti. He called the name "Gorkhnath" and immediately a radiant 12-year-old lad emerged from the pile of cow dung. Gorkhnath became the dutiful disciple of Matsyendranath and later became an expounder of hatha yoga and the founder of the Nate sect. He was an accomplished guru credited with the performance of many miracles. Gorkhantha, who was probably the guru of Swatmarama, belonged to a very popular yoga sect called the Nathpanth. Neath is a general term meaning "master." Members of these are Kanphata yogis. Kanphata means "split-eared" and refers to the yogis unique practice of having the cartilage of the ears pierced for the insertion of huge earrings. (Bhavanani *et al*., 2012).

Yogic Practices

Yoga is considered as a full-fledged science. The science of yoga consists of acquiring knowledge through observation and experiment. It is a science, which deals with the body and mind controlling the body through the practice of yoga to achieve the rhythm of mind. The health and strength of the body and the mind are acquired, only when a state of equilibrium is attained whereby the body and the mind are balanced. Like all other arts, yoga is a science as well as a philosophy too. As science is concerned with analysis yoga too is bent on analysis. Yoga analyses the turbulent mind and shows the way and means of reaching the ultimate goal of freedom. As any other science, yoga too conveys truth. On a practical level, yoga keeps the body healthy, the mind quiet and pure, and self in attitude. The practical aspect of yoga dracaena conveys the artistic aspect of yoga with its precision and beauty. The science of yoga works on physical, mental, emotional, psychic, and spiritual aspects of a person, when imbalance is experienced at this level, the organs, muscles, and nerves no longer function in harmony, rather they act in opposition to one another. Therefore, yoga aims at bringing the different bodily functions into perfect coordination so that they work for the good of the whole body and yoga develops the personality of an individual mentally, morally, spiritually, and intellectually (Iyengar, 2008).

METHODOLOGY

For this study, thirty (n = 30) schoolgirls were selected from Z.P.H.S Girls School, Dhanwada, and Z.P.H.S Girls School, Jajapur, Mahabubnagar (Dist), Telangana, India, and were selected as subjects and their ages were ranged from 12 to 14 years. They were divided into two equal groups and each group consisted of 15 subjects. Experimental group was given 12 weeks (Duration – 12 weeks, Session – 3 days/week, Duration of one session – 1 h) of yogic practices and control group was not participated any specific training. Experimental Group-I (yogic practices) was given to the experimental group. The subjects were tested in the selected criterion variables resting pulse rate and vital capacity were selected and measured manual pulse test in minute and digital spirometer for this

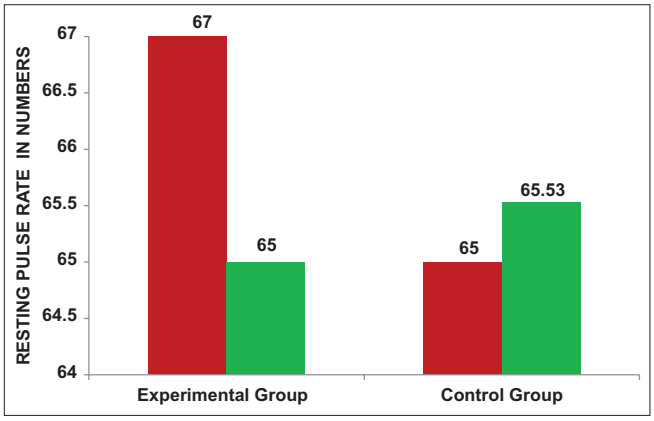

Figure 1: The mean scores on resting pulse rate of experimental group and control group

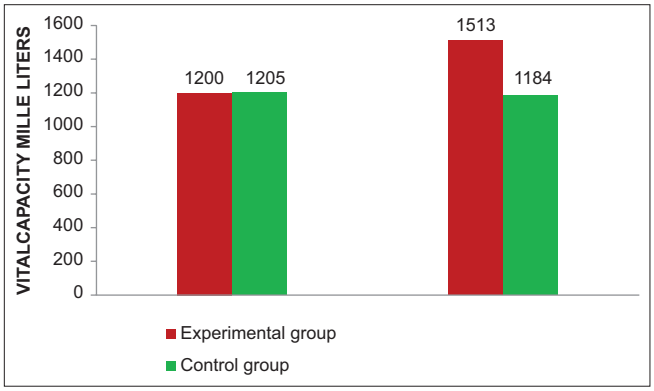

Figure 2: The mean scores on vital capacity of experimental group and control group

study. Before and after the training period, the data were collected. The collected data were treated using paired t-test. The level of confidence was fixed at 0.05 level.

RESULTS OF THE STUDY

An examination of Table 1 indicates that the experimental group mean value of pre-test and post-test was 67.00 and 65.00. The obtained "t" ratio was for resting pulse rate of experimental group. The obtained "t" ratio on resting pulse rate was found to be greater than the required table value of 2.14 at 0.05 level of significance for 14° of freedom. Hence, it was found to be significant. The results of this study showed that 12 weeks of yogic practice produced a significant in resting pulse rate.

Furthermore, Table 1 indicates that the control group's mean value of pre-test and post-test was 65.00 and 65.53. The obtained "t" ratio was 0.76 for resting pulse rate of control group. The obtained "t" ratio on resting pulse rate was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. Hence, it was found to be insignificant.

Table 1: Computation of "t" ratio between the pre-test and post-test means on resting pulse rate of experiment group and control group

Group	Mean	SD	DM	σDM	"t"
Experimental group					
Pre-test	67.00	2.29	2.00	0.58	3.44*
Post-test	65.00	1.19			
Control group					
Pre-test	65.00	2.18	0.53	0.69	0.76
Post-test	65.53	1.68			

SD: Standard deviation, *Significant at 0.05 level with table value 2.14

Table 2: Computation of "t" ratio between the pre-test and post-test means on vital capacity of experiment group and control group

Group	Mean	SD	DM	σDM	"t"
Experimental group					
Pre-test	1200	350.5	313	30.65	10.2*
Post-test	1513	381.4			
Control group					
Pre-test	1205	166.7	21.0	12.5	1.68
Post-test	1184	163.3			

SD: Standard deviation,*Significant at 0.05 level with table value 2.14

An examination of Table 2 indicates that the experimental group mean value of pre-test and post-test was 1200 and 1513. The obtained "t" ratio was 10.2 for vital capacity of experimental group. The obtained "t" ratio on vital capacity was found to be greater than the required table value of 2.14 at 0.05 level of significance for 14° of freedom. Hence, it was found to be significant. The results of this study showed that 12 weeks of yogic practice produced a significant improvement in respiratory rate.

Furthermore, Table 2 indicates that the control group's mean value of pre-test and post-test was 1205 and 1184. The obtained "t" ratio was 1.68, for vital capacity of control group. The obtained' ratio of vital capacity was found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14° of freedom. Hence, it was found to be insignificant.

DISCUSSION ON FINDINGS

The result of the study reveals that the 8 weeks of yogic practices on selected dependent variables. There was a significant improvement in resting pulse rate through yogic practices. In experimental group, the obtained "t" ratio of 3.44 was greater than the table value of 2.14 so it was found to be significant. In control group, the obtained "t" ratio 0.76 was lesser than the table value of 2.14 so it was found to be insignificant. Hence, the result indicates that the significant improvement on resting pulse rate was due to the yogic practices alone.

The result of the study reveals that the 8 weeks of yogic practices on selected dependent variables. There was a significant improvement in vital capacity through yogic practices. In experimental group, the obtained "t" ratio 10.20 was greater than the table value of 2.14 so it was found to be significant. In control group, the obtained "t" ratio 1.68 was lesser than the table value of 2.14 so it was found to be insignificant. Hence, the result indicates that the significant improvement in vital capacity was due to the yogic practices alone.

CONCLUSION

1. It was concluded that there was a significant improvement in resting pulse rate by the application of yogic practices program.
2. It was concluded that there was a significant improvement in vital capacity by the application of yogic practices program.

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Research Article

A comparative study of injuries between girls and boys fastpitch softball players of Andhra Pradesh state

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ABSTRACT

Today, softball is the most admired game in the world. The intention to bring game was to develop team play, physical fitness, etc. As softball is the fastest game, consequently, there is more probability of injuries. There are also a number of internal and external causes such as environment, natural factors, and mechanical which may eventually lead to injury few common injuries in softball, overuse injuries in softball, protection equipment used in softball for avoid injuries, and importance of stretching and warming up, and softball injury risk factors are explained along with their avoidance strategy. Furthermore, how to minimize injuries in softball is highlighted. Few important histories of injured softball players are also mentioned. In game of softball, there is supreme possibility of getting injured even after the use of various safety equipments, even if the players are playing in dissimilar position in the field. Furthermore, maximum players are new entrants. Data were interpreted that 14.39% boy players got injured in field while running, 13.58% injured in catching position, 11.05% boy players got injured in batting, 14.18% boy players got injured while pitching, 9.86% boy players got injured in the third base position, 8.21% boy players got injured in shortstop position,7.83% boy players got injured in the second base, 4.98 injured in center out position, 3.93 boy players got injured in right out position, and number of players got injured while playing in any position in the field. Hence, hypothesis is proved positive in scenery which states that in players, hence accepted. The second base is 7.83%; third base is 8.86%; shortstop is 8.21%; and left out is 3.93% in game of softball; there is a maximum possibility of getting injured different safety equipments, even if the players are playing in different positions in the field.

Keywords: Batting, Injuries, Running, Softball

INTRODUCTION

The word sport is derived from disport dis and portare to carry away from work. A sport is distinct as a more or less energetic bodily exertion pursued because of the enjoyment and recreation of the activity itself. The approach of sports in play attitude joy in experience not only in results although satisfying sports may be practiced alone with or without opposition merely because of the sensuous pleasure of the experience.

Games are played at times as a distraction or part time without much concern for the quality of performance. The main objective may be a comforting social experience or morally a beat of recreation so that one will be fit and more willing to go back to work. However, there is also another type of sports where competitive component is introduced this adds to the interest and introduced additional inducement and motivation for improved performance. In competitive sports, one needs to considerably skillful and mentally stable competitive participation demands.

Strenuous, excruciating physical effort, absolute concentration and absorption, supreme emotional control, willpower and high motivation, man tested his at most ability in competitions and at times drive himself to the limit of human attempts to achieve success or brilliance. Whatever the type of participation be it recreational or competitive the ultimate gain is the pleasure either in the result of the activity or just the activity/ participation itself.

It is important to discuss sports injuries in the context of children because the highest rate of injuries is recorded in age group of players between 12 and 18 years. There is a significant relationship between age and sports injuries.

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Post-pubertal players suffer more injuries than pre-pubertal players. Soft-tissue injuries have greater rate than other injuries. Later, there are strains and sprains injuries, contusions and fracture injures, placed in descending order, according to its slope of injury rate.

Qualitative and quantitative approach has been used to do research for this study. Qualitative researches are concerned with context because of the supposition that human behavior is significantly influenced by the setting in which it occurs. Therefore, qualitative researchers prefer to go to the location of the subject of their research. As the actual findings of the study may be beyond anticipation of the researcher, qualitative approach for this study will try to find the answer to the research questions. This research focuses on the existing problems of sports injuries in softball and is expected to be inductive and exploratory in nature.

In qualitative study, there is flexibility where the researcher enjoys freedom in using the hypothesis to change as event unfurl. As the survey was related to softball player, scholar has taken large efforts to collect maximum opinions, personal observations, and views collected on "A Comparative Study Of Injuries Between Girls And Boys Fastpitch Softball Players Of Andhra Pradesh State".

METHODOLOGY

For drawing conclusions from the research work, it is important to analyze the collected data using proper statistical methods. For the present research work, the data were scrutinized, classified, compiled, and analyzed. Researcher presented the description in figures and tables with total respondents brought into percentage and then analyzed the outcome of the result. The data were analyzed to validate the information provided by the respondent.

The mere collection or gathering of more data is not the only aim of the investigator but also proper tabulation, analysis, presentation, and interpretation are essential parts of research work. Furthermore, it has become important for investigator to seek the reasons behind this cause and to present statistical data in such a way that gives enough consideration to the dissemination of information. From the data collected, the results and discussions are presented. The responses were presented according to the questionnaire taken from the coaches. The responses of each coach demonstrated the experiences that they perceived.

INTERPRETATION

In game of softball, there is maximum possibility of getting injured even after the use of various safety equipment, even if the players are playing in various positions on the field. Furthermore, maximum players are new entrants [Table 1].

Table 2 scholar interpreted that 14.39% boy players got injured in field while running, 13.58% injured in catching position, 11.06% boy players got injured in batting position, 14.18% boy players got injured while pitching, 8.86% boy players got injured in the third base position, 8.21% boy place got injured in shortstop position, 7.83% boy players got injured in second base, 4.98% injured in center out position, and 3.93% boy players got injured in the right out position. Verification of hypothesis number of players got injured while playing in any position in the field. Hence, hypothesis proved positive in nature which states that in players, hence accepted. Second base is 7.56%, third base is 8.56%, shortstop is 8.21, and left out is 3.93% in game of softball; there is maximum possibility of getting injured various safety equipments, even if the players are playing in various positions in the field.

Table 1: Playing position when injured occurred (boys)

No. of respondents	Playing position	Respondents percentage
69	Batting	11.05
87	Running	14.39
63	Pitching	13.58
85	Catching	14.18
69	First base	9.86
52	Second base	7.83
65	Third base	8.56
44	Short stopper	8.21
29	Left out	2.93
36	Center out	4.98
11	Right out	1.75

Table 2: Playing position when injury occurred (girls)

No. of respondents	Playing position	Respondents percentage
65	65 batting	8.68
95	95 running	15.97
66	66 pitching	11.85
92	92 catching	15.99
54	54 first base	7.73
32	second base	6.03
58	58 third base	9.98
40	short stopper	6.94
35	35 left out	4.52
26	26 center out	3.75
16	16 right out	2.53

Table 2 scholar interpreted that 15.97% girl players got injured in field while running, 15.99% girl players got injured in catching position, 8.69% girl players got injured in the field of batting position, 11.85% girls boy players got injured while pitching, 7.73% girl players got injured in first base position, 9.98% girl players got injured in third base position, 6.94% girl players got injured in shortstop position, 6.03% girl players got injured in second base, 3.75% girl players got injured in center out position, 4.52% girl players got injured in left out position, and only 2.53% girl players got injured in right out position.

Recommendations

1. Player must be related with other games also to diminish various injuries occurred in softball.
2. Maximum participants have participated in state-level tourney softball only. Hence, other tourneys of softball should be organized by Indian softball Federation.
3. Consciousness must create related to injuries among players coming from rural area.
4. Maximum players must use protective/safety equipments in winter season to avoid injuries while playing softball in winter season.
5. Maximum players must use protective/safety equipments while playing infield position in the game of softball.
6. The play field must be properly maintained to avoid injuries for playing in softball game.
7. Women players generally avoid non-seafood as per their family tradition which can be helpful in reducing injuries.
8. In the game of softball, proper warm-up exercise must be made compulsory as maximum boys getting injured in morning session whereas maximum injuries occurred to girls in the evening session.

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Research Article

Selected asanas and pranayama effects on leg strength and shoulder strength of male adolescents

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ABSTRACT

The purpose of the present investigation was to elicit the effects of yogasana and pranayama practice on leg strength and shoulder strength parameters of male adolescents. The subjects for the study were adolescent boys between 14 and 15 years. A total of 80 subjects studying at a private school were selected through a simple random sampling technique for the present investigation. 40 subjects each were placed in treatment as well as control group. All the subjects selected for this study were tested twice before treatment (pre-test) and at the conclusion of treatment (post-test) with a time gap of 24 weeks. Selected physical capability parameters and testing tools were used in the present investigation. Treatment in the form of selected yogic asana along with pranayama was given to selected subjects in the specified treatment group. 24 weeks of training included systematic yogasana and pranayama training for 6 days in a week. To examine the hypothesis of the study, paired sample "*t*" test was used. There were significant differences in pre and post-test scores of experimental group and such a difference was not found in control group. In case of relative shoulder strength and leg strength, there were significant differences in pre and post-test scores of experimental group, and significant differences were also observed in control group results. On the basis of the results obtained from the present investigation, it is concluded that 24-week yogasana training improves physical capabilities including leg strength and relative shoulder strength in adolescent boys. Hence, yoga should be practiced regularly to improve physical dimension of the health.

INTRODUCTION

The nature of children's recreational pursuit has changed significantly over the past few decades. The emergence of television, computer games, and the internet has tremendously reduced the time stipulated for outdoor recreational activities. The present-day children are now spending much of their free time engaged in sedentary pursuits. Regular physical activity is associated with health and longevity.[1,2] However, the majority of adults and young people around the globe are insufficiently physically active for health benefits. The situation is similar in both developed and developing countries, with a large body of research evidence indicating declining levels of physical activity and physical fitness within all age groups. Physical inactivity is widely recognized as a major risk factor for chronic diseases and ranks between the second and sixth most important risk factor in contributing to the population burden of disease in society.[3-5] Its prevalence is higher than that of all other modifiable risk factors.[5] Physical inactivity during the early years of life is currently indicated as a major contributor to the increasing levels of obesity, and other serious medical conditions, being seen in children and adolescents in Europe and elsewhere.[6,7] The increase in political, media, and scientific interest in obesity since the late 1990's has placed physical activity on top among current public health issues. The word "yoga" comes from a Sanskrit root "yuj" which means union, or yoke, to join, and to direct and concentrate one's attention.[8,9] Regular practice of yoga promotes strength, endurance, and flexibility and facilitates characteristics of friendliness, compassion, and greater self-control while cultivating a sense of calmness and well-being.[10,11] Sustained practice also leads to important outcomes such as changes in life perspective, self-awareness, and an improved sense of energy to live life fully and with genuine enjoyment.[12-14] Yoga has been practiced for thousands of years. It is based on ancient theories,

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observations, and principles of the mind–body connections. Substantial research has been conducted to look at the health benefits of yoga – yoga postures (asanas), yoga breathing (pranayama), and meditation. Adolescence is a Latin word which means "to grow up" that is a transitional stage of physical and mental human development generally occurring between 12 and 19 years. Adolescence is a transitional stage of physical and mental human development generally occurring between puberty and legal adulthood. Dramatic changes in the body, a development in a person's psychology and transitions through one's academic career, being occurs in this period. It is generally regarded as an emotionally intense and often stressful period. Yoga physiology is the study of how the body reacts and adapts to yogic exercise, in both the long and short term to a routine (Smith, 2007). The present application of yoga as a therapeutic intervention takes advantage of the various psycho-physiological benefits of the component practices. Numerous scientific studies have reported beneficial physical and physiological changes after yoga training. Yogic techniques produce consistent physiological changes and have a sound scientific basis.[15,16] In philosophical terms, yoga refers to the union of the individual self with the universal self.[17] Numerous studies have indicated improvement in physical and physiological functions due to regular practice of yoga. Yoga and pranayama may be as effective as or better than exercise at improving a variety of health-related outcome measures.[18] Despite a growing body of clinical research studies and some systematic reviews on the therapeutic effects of yoga, there is still a lack of solid evidence regarding its physical benefits. There is inconsistent evidence with several studies reporting positive effects of the yoga interventions, but other studies are less conclusive. The discrepancies might have been resulted from differences between the study populations (e.g., age, gender, and health status) and the details of the yoga interventions. The purpose of the present investigation was to elicit the effects of yogasana and pranayama practice on leg strength and relative shoulder strength of male adolescents.

METHODOLOGY

The subjects for the study were adolescent boys studying in 7th to 10th standard and their age ranged between 13 and 16 years. A total of 80 subjects studying at a private school in Mysore were selected through simple random sampling technique for the present investigation. 40 subjects each were placed in treatment as well as control group. All the subjects selected for this study were tested twice before treatment (pre-test) and at the conclusion of treatment (post-test) with a time gap of 24 weeks.

The details on shoulder and leg strength and testing tools are given in Table 1.

S. No	Physical parameters	Testing tools
1	Shoulder strength	Standing vertical arm press test
2	Leg strength	Leg dynamometer

Treatment in the form of selected yogic asana along with pranayama was given to selected subjects in the specified treatment group. Control group did not take part in any form of training and observed normal daily routine. 24 weeks of training included systematic yogasana and pranayama training for 6 days a week. The training was scheduled in the morning 80 min which included 10 min for warm up, 60 min for pre-planned treatment, and another 10 min for cool down. To examine the hypothesis of the study, paired sample "*t*" test was used.

RESULTS

The results on pre and post-test situations of experimental and controlled groups are given in Tables 2 and 3, respectively.

Table 4 depicts that the mean of leg strength on pre-test and post-test of experimental group was 64 and 85, respectively, whereas the mean of leg strength on pre-test and post-test

Table 2: Summary of results on physical capabilities at pre and post-test situations of experimental group

	Relative shoulder strength		Leg strength	
	Pre-test	Post-test	Pre-test	Post-test
Sample size	40	40	40	40
Arithmetic mean	4238	5313	64	85
Standard deviation	0.09	0.10	13.15	21.55
Standard error of the mean	0.0135	0.0157	2.0786	3.4068
Paired sample *t*-mean difference	−1075		−21.6000	
Standers deviation	0.89		17.0907	
"*t*" valve	7.639		7.993	
Degrees of freedom	39		39	
Two-tailed probability	*P*=000		*P*=000	

Table 3: Summary of results on physical capabilities at pre and post-test situations of control group

	Relative shoulder strength		Leg strength	
	Pre-test	Post-test	Pre-test	Post-test
Sample size	40	40	40	40
Arithmetic mean	4483	0.4203	64	64
Standard deviation	0.13	0.12	15.38	15.22
Standard error of the mean	0.0207	0.0186	2.4315	3.4059
Paired sample *t*-mean difference	0.0280		−3650	
Standers deviation	0.353		6.7555	
"*t*" valve	5.014		0.342	
Degrees of freedom	39		39	
Two-tailed probability	*P*=000		*P*=734	

Table 4: Summary of '*t*' test results on physical capabilities at pre and post-test situations of both groups

		Mean+SD	SEM	"*t*" value
Relative shoulder strength	Experiment (pre-test	4238±09	0135	7.639
	Experiment (post-test	5313±	0157	
	Control (pre-test	4483±13	0207	5.014
	Control (post-test	4203±12	0186	
Leg strength	Experiment (pre-test	64±1315	2.0786	7.993
	Experiment (post-test	85±2155	3.4068	
	Control (pre-test	64±1538	2.4315	342
	Control (post-test	64±1522	2.4059	

of control group was 64 and 64, respectively. The "*t*" value in the case of experimental group was 7.993 and for control group, it was 342, respectively. In these cases, null hypothesis is rejected at 0.05 level of significance. In case of relative shoulder strength, although there were significant differences in pre and post-test scores of experimental group, significant differences were also observed in control group results.

DISCUSSION

Yogasana and pranayama practices have innumerable health benefits. Its regular practice enhances the quality of life. Results from study by Woodyard [19] show that yogic practices enhance muscular strength and body flexibility. The present investigation exhibited significant differences in leg strength and relative shoulder strength among adolescent boys receiving 24-week yogasana and pranayama training.

CONCLUSION

Regular practice of yogasana and pranayama enhances physical capabilities. On the basis of the results obtained from the present investigation, it is concluded that 24-week yogasana training improves physical capabilities including relative shoulder strength and leg strength in adolescent boys. Hence, yoga should be practiced regularly to improve the physical dimension of the health.

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