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CONTENTS

Research Articles

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Research Article

Innovation in testing and assessing method oriented toward competence development for students majoring in physical education at Thai Nguyen University of Education

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ABSTRACT

Competence development-oriented training is a training method that is oriented toward the needs of the labor market and output-oriented for students. Attached to that is the method of teaching, testing, and assessing learners' ability according to professional standards. On the basis of research on Physical Education (PE) theory and the practice of teaching, testing, and assessing students majoring in PE at the University of Education – Thai Nguyen University, through using the methods of document analysis and synthesis, interview, pedagogical observation, and mathematical statistics, the study focused on understanding the fundamental innovation issues of teaching, testing, and assessment oriented toward competence development for students majoring in PE at the University of Education – Thai Nguyen University. On that basis, a number of teaching, testing, and assessment methods were proposed for students majoring in PE at the University.

Keywords: Teaching method, Innovation, Testing and assessment, Students, Major in Physical Education, Competence, University of Education – Thai Nguyen University

STATEMENT OF THE PROBLEM

Applied career-oriented university training started to be piloted in Vietnam in 2008, within the scope of the Vietnam – Netherlands Higher Education Project called Professional Oriented Higher Education (POHE program). The goal of the program was to train students, so that after graduation, they were able to adapt immediately in the professional working environment. The quality of the pilot training programs met the sector's requirements, national (and international) higher education regulations, and professional practice and internationally recognized. This transformation of training model mainly focused on developing students' professional competencies and skills. Therefore, it is necessary that educational institutions make fundamental changes, first of all in terms of traditional teaching and testing and assessment methods.

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The capacity of lecturers and students of pedagogical universities will affect the quality of training according to the output standards of the current sectors. A lecturer is defined as an expert qualified to conduct in-depth analysis of education-related phenomena in the process of teaching the subjects that he/she is in charge of. The research on capacity of lecturers and students of pedagogical universities has attracted attention of many domestic and foreign projects.[1,2] In 2004, a research group at Zilina University in the Czech Republic, through a survey on teachers and students at pedagogical universities, showed that assessing teachers' competence can be done through the assessment of students' capacity;[3] therefore, a proper assessment of student's ability contributes to understanding the professional level and working attitude of the lecturers in universities of pedagogy. There have been studies on methods and models for assessing students in universities, Berestneva *et al.* developed a technique for assessing student competence at Tomsk University in Russia.[4] However, the development of test criteria for the degree of students' achievement of the competencies at pedagogical universities has not received much attention. Therefore, we

focused on studying the practice of testing and assessment of students majoring in Physical Education (PE) with the desire to contribute to improving the quality of teaching and learning at the University of Education – Thai Nguyen University.

PARTICIPANTS AND METHODS

Participants

Methods of teaching, testing, and assessment in the direction of competence development for students majoring in PE at University of Education – Thai Nguyen University.

Methods

We used the research methods: pedagogical observation, investigation – interview, analysis, and synthesis of document.

RESEARCH FINDINGS AND DISCUSSION

Brief of Higher Education-Oriented toward Competence Development

Competency-oriented higher education, also known as applied career development (Professional Oriented Higher Education), is a type of higher education that focuses on developing professional competencies and skills, which are typical of this type of training is the close connection between the training institution, the lecturers participating in the teaching, and the business community in that training field. The outstanding advantage of this training program is the high rate of students finding jobs right after graduation; the business community can immediately use this human resource without a need for additional training or retraining, thereby saving resources for the society.

The basic tenet of the oriented education program is to focus on training learners at the same time three aspects: (i) Providing knowledge; (ii) developing professional competence and skills, and (iii) cultivating attitudes toward the profession that they study. It can be seen that the traditional higher education programs of Vietnam today, mostly only meet the demand of providing knowledge to learners, but cannot well develop the competencies and skills, especially attitudes toward the chosen profession due to the lack of appropriate teaching methods. This defect in the training program is the explanation for the existence of a large "gap" between training institutions and the labor market. With the above orientations, the applied career-oriented higher education program will be a potential type of training and suitable to the requirements of Vietnamese society in the coming time.

Competencies of Students Majoring in PE

Professional standards of the labor market are one of the important bases for building higher education goals. Labor market standard of profession for occupational situations can be expressed in terms of job duties, but for purposes related to education and training, it should be in terms of behavior. Thus, competence, here, is understood as the ability to perform practical professional behavior. This behavior is based on an integration of knowledge, skills, and attitudes, in addition to personal motivation and personality.

In education-oriented toward learners' competence development, it is important to clearly define the competencies that are required and can be developed in the teaching of each subject; including "common competence" that can be developed in different subjects and "professional competence" that can be developed in each subject.

According to the teacher's duties specified in the Education Law, based on professional standards of secondary school teachers (Circular 20/2018/TT-BGDĐT dated August 22, 2018).[8] Based on the results of the survey on teacher capacity in high schools, based on the training goals and output standards of students majoring in PE at the University of Education, we synthesized the competencies that students majoring in PE at Thai Nguyen University of Education need to achieve on graduation.

The main competencies and component competencies are presented in detail as follows:

Competence to understand the objects and the educational environment

It is demonstrated in skills to approach students, skills to deal with and solve educational situations, skills to mobilize other educational components, skills to comment and evaluate students in all aspects, as well as understanding of the educational environment.

Teaching competence

1. Competence to prepare: Shown in the process of developing school year plans, monthly plans, weekly plans, and lesson plans.
2. Competence to carry out teaching activities in class: Including the following component competencies.
    - Competence to appropriately use teaching methods: promoting students' active learning, building a cooperative and friendly learning environment; monitoring the class; promoting confidence for students; and developing students' self-study ability.
    - Competence to use teaching equipment and facilities: Using equipment and facilities for effective class time; knowing how to exploit available conditions to serve teaching or applying teaching software; and teaching aids of high practical value.
    - Competence to use language: PE teachers must speak clearly, without mispronunciation in teaching and communication.
    - Competence to build and manage records: Teachers need to build and manage records and effectively

implement them, which is reflected in the arrangement of teaching records, records of students' learning process scientifically, realistically, and with a high practical value.
- Competence to assess student's learning outcomes.

Educational competence

It is shown in the following component competencies:
- Develop a feasible plan: Including the homeroom plan and the extracurricular activity plan.
- Ability to organize activities outside of class time: Organize and conduct extracurricular activities or visit, study, and group activities appropriate to the Secretary of the Youth Union, the General Secretary of Ho Chi Minh Young Pioneer Team. Ability to mobilize resources to participate in activities.
- Support, guidance, on career, and employment for students.
- The ability to assess student learning outcomes: This is reflected in the flexible use of methods of assessing learning outcomes and the use of software in assessment. Accurate judgment by scores or by comments.
- Scientific research competence: Able to do scientific research in the field of sport and PE, know how to analyze, and solve problems in the sector, know how to draw experiences to form creative thinking skills.
- Curriculum development competence: PE teachers must have the capacity to participate in the evaluation and development of specialized PE programs in the direction of educational innovation; able to explore; and apply knowledge to educational programs and contents.

Social and political competence

It includes the following component competencies:
- Competence to coordinate educational activities between teachers and students: Regularly exchange and give advice to students, participate in educational activities outside of class time, and take measures to improve quality of student learning after each term.
- Competence to coordinate educational activities with other teachers: Observe colleagues' lessons, take part in teaching competitions at all levels and in professional group activities; giving advice on building strong and united professional groups and blocks; give experiences and initiatives in education; and behave in a standard way with colleagues, keeping the teacher's style.
- Competence to coordinate educational activities with parents: Organize and conduct parent-teacher conferences in accordance with regulations, give invitations to parents, and keep contact books notifying each student's learning results.

Professional development competence

This is a necessary competence of PE teachers to meet the requirements of education and society through self-assessment, self-study, and training as well as detecting and solving practical problems.

Specialized competence

It includes the following component competencies:
- Practice sports.
- Prevent injury and first aid.
- Train sports.
- Organize competitions and being sport referees.

Schnug and Converse identified eight essential competencies for teachers: (1) Working collaboratively with school members; (2) good communication by various means; (3) have an understanding of human resource development, cultural diversity, sociocultural influences, and learning differences; (4) ability to conduct research on learning and teaching methods; (5) use a variety of assessment techniques to promote learning; (6) deep understanding of the covered subjects; (7) using educational technology in teaching; and (8) responsible for academic, professional and personal development. Nelms and Thomas proposed six output standards of teacher training programs, including: (1) Forecast of learning needs; (2) make a study plan for students; (3) facilitating student learning; (4) have appropriate professional knowledge; (5) motivate students to do well in their studies; and (6) take on the role of an educator. Generalized from the above studies, pedagogical students' competencies include six components, which are as follows: Teaching competence; educational competence; motivational competence; communication competence; personal competence, and scientific research competence.

Innovating Testing and Assessment Methods in the Direction of Competence Development for Students Majoring in PE at University of Education - TNU

Innovation of teaching methods oriented toward competence development for students majoring in PE at University of Education – TNU

Competencies are formed and developed through activities of applying learned knowledge and skills to solve situations in professional practice. Therefore, to form and develop students' capacity, TNUE has clearly identified: Teaching method is a decisive factor in the difference between the new program and the traditional training program; Each lecturer in the university needs to apply diverse, flexible, and creative forms of teaching organization and teaching methods. The following Table 1 presents in detail the innovation of the competence development-oriented teaching method in comparison with the traditional teaching method for students majoring in PE.

Innovation of testing and assessment methods

Testing and assessment in the direction of developing learners' competence

From the point of view of competence development, the assessment of learning outcomes does not take the test of

Table 1: Comparison of competence development teaching methods and knowledge and skills-based teaching methods for students majoring in physical education

Criteria	Traditional method	Competence development method
1. Theoretical modules		
Teaching contents	Contents given in the coursebook	Combine given contents in the coursebook with other practical knowledge
Organization forms and teaching methods	- Listen to lectures - Students answer lecturer's questions - Mainly explanation, presentation; Seldom use other methods especially visual aids.	- Listen to lectures - Lecturer gives guidance on students' self- study, and lecturer gives assignments - Combine explanation, presentation; with visual aids, information technology, group discussion, essay, exchange, talk show, group presentation, and student research
Requirements for students	- Listening, remembering, understanding - Answer lecturer's question - Taking notes	- Study the materials before going to class, take notes, group discussion, presentation, write essay, exchange, seminar, and do research
2. Practical modules		
Teaching contents	Contents given in the coursebook	Combine given contents in the coursebook with other practical knowledge
Organization forms and teaching methods	- Lecturer explains technical theories, models, correct mistakes - Group work - Mainly explanation, presentation, analyzing and modeling	- Lecturer explains technical theories, models, correct mistakes, introduces basic exercises, and websites or videos for students to practice - Combine professional skills with pedagogical skills. May divide the class into groups. With the teacher's instructions, the group plans and implement exercises during as well as outside of class time - Send students to sports competitions to experience real life practice. Organize competitions in the classroom, exchange competitions, and observations of official sports competitions. Use a variety of methods such as using visual aids, games, and competitions
Requirements for students	- Listen to lectures, remember and understand lessons - Answer questions, do assignments, practice with the lecturer's instructions	- Study the materials before going to class - Actively practice in groups. Agile and vivacious, a sense of discipline, a collective spirit to help each other in practice, a will to overcome difficulties and hardships

the ability to reproduce learned knowledge as the center of the assessment. Assessment of learning outcomes oriented toward competence development should focus on the ability to creatively apply knowledge in different application situations. In essence, there is no contradiction between the assessment of competence and the assessment of knowledge and skills, but the assessment of competence is considered a higher development step than the assessment of knowledge and skills. To demonstrate that students are competent to some extent, opportunities must be given to students to solve problems in real-life situations. At that time, students have to both apply the knowledge and skills learned at school, and use their own experiences gained from outside of school. Thus, through the completion of a task in a real context, teachers can simultaneously assess the cognitive skills, performance skills and values and emotions of learners. On the other hand, competence assessment does not have to be based entirely on the subject education program such as knowledge and skills assessment, because competence is a synthesis and crystallization of knowledge, skills, attitudes, feelings, values, ethical standards, etc., which are formed from many fields of study and from the natural social development of a person.

Innovation of testing and assessment methods in the direction of competence development for students majoring in PE at University of Education – TNU

To effectively teach, form, and develop capacity for students majoring in PE, TNUE has defined that evaluation is to develop learning competence, assessment is for the progress of learners. It is testing and assessment throughout the teaching process that helps students compare and detect their own progress. When it comes to assessment for the progress of students, assessment must be done so that they are not afraid to promote their learning efforts. Thereby, the process of testing and evaluation

of students majoring in PE at the university has been renewed in the direction of competence development. That change is shown in detail in the following Table 2.

From the above table, we can see:

- Methods of teaching, testing, and assessment based on knowledge and skills: The lecturer plays the leading role, imparting knowledge in one direction, combining question, and answer (closed questions); heavy on professional theory and lack of evocativeness, failing to promote students' experiences with reality, not creating opportunities or somewhat limiting learners' creativity. Methods of testing and assessment are still poor, lacking practicality, and creativity, mainly focusing on evaluating the results of practice tests, or periodic assessment, not paying attention to regular assessment for individuals. Consider assessment as an end product of the teaching process. The assessment results are classified among students, not paying attention to the orientation of learners' competence.
- Methods of teaching, testing, and assessment in the direction of competence development: The lecturer is the organizer and guide helping students to learn through activities, to train and develop awareness and applied

Table 2: Comparison between testing and assessment methods in the direction of competence development and of knowledge and skills for students majoring in PE at TNUE

Purposes and weight	Method of testing knowledge and skills	Method of testing competence
Attendance: Assess students' active learning, participating in activities during class time	Through checking class size, checking at the beginning of every class	Through observing, taking attendance, monitoring students' progress in building lessons at class time, preparing lessons at home. Weight is 5%
Individual assignment: Assess the ability to identify and solve problems, the level of completion of the learning tasks set by the lecturer	Through the test at the beginning of the lesson (testing old knowledge for theoretical subjects).	Through studying the products of the students' work in class. Lecturers regularly give exercises to assess students' progress in terms of professional competence, methodological competence, social competence and personal competence. Weight is 5%
Group work: Assess the level of group's task completion, teamwork skills, communication skills, interaction, sharing among students	Observe and evaluate group activities through the process of testing, exams and practicing pedagogical skills.	Evaluation through joint product research, through observation of group activities and product demonstrations. Shown through the solidarity and coordination of knowledge, skills and techniques, and tactics of each team member. The form of group work is often used in the teaching process of teachers. Weight is 5%
Essay/Practice: - Assess students' skills of synthesizing, generalizing, systematizing, and problem-solving skills in written language. - Assess students' mastery of motor skills and techniques, and evaluate the results of performing those skills and techniques.	Assessment through the process of taking a test, essay or practice examination of students	Essay: Evaluate through a writing of 7 to 15 pages, ways to argue, solve problems Practice: Evaluation through observation and research on the implementation process and results of students' performance of motor skills and techniques. Through observing the capacity of teaching, training, capacity of organizing sports competitions. Weight is 15%
Periodic test: Assessing the achievement of students' knowledge, skills, attitudes, knowledge representation skills, knowledge application skills, and problem solving skills	Assessment mainly through written exams (80% of the lecturers use this) and practice exam. Weight is 30%	Through the form of written tests, multiple-choice tests, oral tests (theoretical contents) and action practice (practical contents) to assess the progress of the competencies that students of PE need to achieve. Weight is 20%
End-of-course examination: Assessing students' attainment of knowledge, skills, attitudes, knowledge application, and problem solving.	Assessment mainly through essays and practical examinations. Assess the level of achievement of knowledge, skills, and ability to reproduce knowledge Weight is 70%	Through the form of written tests, multiple-choice tests, oral tests (theoretical contents) and action practice (practical contents) to assess the progress of the competencies that students of physical education need to achieve. Weight is 50%
Final score	Progress score: 30% Examination result: 70%	Progress score: 50% Examination result: 50%

skills in learning and real life. Flexible coordination of active teaching methods and forms in classroom teaching. Focus on directing learners to discover and solve problems in learning, sticking to reality. Students are subjects in the learning process with a sense of initiative, positivity, and creativity. Testing and assessment aimed at the development of individual capacity. Focusing on the ability to apply knowledge and experience to different situations in learning and practice. Test and evaluation results are based on competency-based goals and are not comparable among students. The rating scale is based on the ability level and development level of each student (not based on specific knowledge content), divided into three levels: Level 1 (remember and know); Level 2 (understand and apply); and Level 3 (analyze, synthesize, and evaluate).

Possible Solutions to Further Strengthen the Innovation of Teaching, Testing, and Assessment Methods in the Direction of Competence Development for Students Majoring in PE at TNUE

To choose scientific, reasonable, and feasible solutions, in addition to basing on the actual situation of teaching methods, testing, and assessment in the direction of developing major student's capacity at TNUE, based on the theoretical and practical basis as presented in sections 3.1, 3.2, the study consulted research works on innovation of teaching methods, testing, and assessment toward student's capacity development. Some solutions were suggested as follows:

First, it is necessary to determine lecturers' capacity, each lecturer must improve their self-study capacity, arouse their inherent potential, know how to promote their own internal strength.

Second, lecturers must be able to participate in themed fostering courses, scientific seminars, and participate in projects aimed at improving the necessary pedagogical capacity for teachers.

Third, there should be a plan to foster professional skills for lecturers such as organizing professional activities, observing lessons, drawing experience, and going on field trips to some neighboring universities.

Fourth, train teachers on the contents and forms of assessment such as building oral tests and methods of assessing learners.

Thus, to the assessment of the capacity of pedagogical students, it is necessary to consider progressive new educational trends, such as problem-solving methods, student-centered teaching and learning, which are an increasingly popular method adopted recently. This is considered as the main approach of assessment of learning outcomes today. Assessments are combined with the teaching process on the basis of information about student learning obtained in a variety of ways and using different tools to orient students to meet competency standards.

CONCLUSION

The competence of pedagogical students majoring in PE is of particular importance mainly because teachers are the basis for the creation of new knowledge for universities as well as students, and then employers, able to rationally use and systematically develop the competencies of workers. The research results focused on identifying the competencies of pedagogical lecturers and students, focusing on clarifying the characteristics of knowledge, skills, and values that students of PE need to have. Assessing the competence of students majoring in PE based on key competencies, goals, and learning contents to determine the extent to which the competencies are formed in learners through a certain process. The results of the assessment of the specific levels of competence can be the basis for evaluating the results of the training process of pedagogical students, adjusting the program, and organizing the training to improve the quality of teachers in the current period.

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Research Article

Planning for a well-being future: Emerging insights for and from an empowered future leadership volunteer program

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ABSTRACT

The second BRICS (Brazil, Russia, India, China, and South Africa) Council of Exercise and Sport Science (BRICSCESS) Conference and the first World Congress of the Future Leader/Volunteer (WCFLV 2019) with 200 delegates from more than 50 countries presenting new research and best practice experiences are presented in this manuscript. The description of conference events provides an approach that is useful in guiding the development of health and well-being policies with consideration given to local and global contingencies. Insights generated from a qualitative analysis of focused group discussions are addressed in the broader framework of the United Nations (UN) sustainable development goals (SDGs). Using this framework allowed the formulation and refinement of strategies useful for developing broad wider health policies. The BRICSCESS and WCFLV 2019 conferences gathered global experts with interdisciplinary expertise in health and well-being. The conference structure serves as a model for the future forums and conferences. This gathering of diverse individuals who presented different health and well-being perspectives serves as a platform for highlighting future leadership programming and the promotion of emerging new evidence-based information with practical actionable steps that are useful for developing health and well-being policy.

Keywords: Well-being, SDG goals, Health, Physical activity, Technology nexus, Future leaders

INTRODUCTION

The BRICS (Brazil, Russia, India, China, and South Africa) Council of Exercise and Sport Science (BRICSCESS) is a professional organization established in recognition of the BRICS countries' effort to support and improve the health, well-being, and quality of life of citizens in times of rapid and turbulent social change. BRICSCESS was conceived during the 18th International Scientific Congress in Kazakhstan in 2014 and was formally established in 2015 during the seventh Asia Pacific Conference on Exercise and Sport Science in India (Chin *et al.* 2019). Influencing the formation of BRICSCESS were several global symposia and conferences (USA, 2010; Germany, 2012; South Africa. 2014; and Turkey, 2016) organized, supported, and implemented by the Global Forum for Physical Education Pedagogy (GoFPEP). GoFPEP is a

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series of global meetings first established in 2010 to reform and renew ways school PE and health programs are offered. Both GoFPEP and BRICSCESS were established to bring together professionals such as scientists, professors, academics, junior scholars, and institutions representing the field of physical activity (PA), exercise, and sport sciences. While GoFPEP was a series of meeting, BRICSCESS is a professional organization fostering an interdisciplinary approach for promoting health and wellness in academic institutions, public and private schools, and community settings. The expertise within BRICSCESS encompasses the following scientific areas: Exercise physiology, health and fitness, biomechanics, psychology, nutrition, medicine, kinanthropometry, rehabilitation sciences, pedagogy, management, social science, history, PA, adaptive physical activity (APA), PE, leisure and wellness, sports training, technology, and dance. BRICSCESS is built on core pillars: (i) An interdisciplinary approach to PA and exercise sciences, (ii) sport science and well-being; (iii) networking between established professors and junior scholars; and (iv) establishing links between educational institutions and other relevant areas of PA and exercise science, sport science, and health science organizations (Uvinha *et al.* 2018; Chin *et al.* 2019).

GoFPEP and the first BRICSCESS conferences used prioritized interdisciplinary approaches with greatest success achieved by the BRICSCESS inaugural conference in Sao Paulo, Brazil 2017. Individuals from 30 countries were present and shared science and best practice experiences (Uvinha *et al.* 2018). This model was replicated in 2019 during the second BRICSCESS conference as well as the first World Congress of Future Leaders/Volunteers (WCFLV 2019) and was organized by North-west University and held in conjunction with the 2019 South African Sports Medicine Association (SASMA) Conference, Cape Town, South Africa. These cosponsored meetings were significant in promoting holistic health through PA and sport, and health. MA most important outcome was the establishing of a conference for the future leader volunteer program (FLV) which is one of the core pillars of BRICSCESS.

PURPOSE

This paper presents a useful approach for policy makers developing health and well-being practices and policies with consideration given to both local and global contingencies. Insights generated from a qualitative analysis are addressed in the broader framework proposed by the United Nations (UN) sustainable development goals (SDGs) (UNESCO, 2022). Use of this framework allows the formulation and refinement of strategies useful for wider policy objectives.

With these conceptualizations in mind, this article has a dual purpose. The first purpose is to provide background information regarding the role of the FLV program in establishing a healthy active lifestyle by drawing on the UN SDGs, specifically Goals 3 and 4. This information provides insights regarding policy development for the future initiatives might be considered and enacted in local and global context. The second purpose is to briefly discuss the qualitative findings of the second BRICSCESS Conference (2019) and the first World Congress of Future Leaders/Volunteers (WCFLV 2019) held in conjunction with the 2019 SASMA Conference (2019). Specifically, this second purpose is to report on data collection and analyzed from discussion groups focusing on five major topics. Each topic is potentially worthy of consideration for wider policy development and the bridging of the health and PA/technology nexus (link or connection). The five major topics are:

1. Individualized technology supported processes for the measurable performance-based goals tied to UN SDG 3.
2. Use of technology to accentuate learning opportunities linking practice with theory.
3. Promotion and implementation of a holistic approach to health programs that advocates, educates, and develops healthy and active lifestyles.
4. Promotion of an active students-centered learning orientation in school and university curricula that will empower individuals to develop healthy lifestyles.
5. Identification of the next steps to encourage effective implementation of UN SDG 3 holistic health and well-being.

Backgrounding the Future Leader Volunteer Program (FLV)

FLV program was created in 2013 during the sixth Asia-Pacific Conference on Exercise and Sports Science (APCESS 2013) held at the Chinese Culture University, Taipei. The broad vision for this program is to provide junior scientists and scholars with a platform to develop their fullest potential, learn and collaborate with experienced scientists, share and exchange scientific information and ideas, and contribute to making global and local change. Program aims are to empower junior professionals to act within a scholarly network, advocate and be ambassadors for healthy and active lifestyles, and to educate and empower children, adults, and individuals having special needs with evidence-based actionable knowledge (Chin *et al.* 2019). Junior scholars participating in the FLV program engage with a designated professional mentor, initiate, lead, and participate in collaborative projects, make professional decisions, solve problems, and gain experience in their communities by promoting holistic learning through active healthy lifestyles. A prime focus of FLV's activities is the promotion of holistic learning through active healthy lifestyles which strongly aligns with UN SDGs especially Goals 3 and 4: Good health, well-being, and quality education.

The UN SDGs provide direction to BRICSCESS activities, specifically in establishing links between educational

institutions and other organizations working in the areas of PE, PA, and sport sciences. To enhance BRICSCESS's effectiveness, a partnership was established with the Foundation for Global Community Health (GCH) which evolved from GoFPEP. The GCH is a public charity created to develop best practices based on research evidence for school well-being programs. These programs are accessed through http://www.gchfoundation.org/index.html#intro).

FLVs were involved in two projects with BRICSCESS and GCH p that specifically evolved from the UN SDGs. The first project is in collaboration with the United States Center for Disease Control and Prevention (CDC) with a focus on UN SDG 3. This project utilizes the whole school, whole community, and whole child framework (CDC, 2022) which has a primary goal of designing model schools based on holistic and active learning.

The second project aligning with the UN SDGs is the HOPSport® Active Break project. PA is considered an essential factor for improving quality of life, adding to a healthy lifestyle, and reducing chronic disease risk such as obesity, hypertension, and diabetes (Anderson and Durstine, 2019; Zhou *et al.* 2021). The brain break physical activity solution is a classroom-based technology supported intervention combining movement, technology, music, dance, and sport in short 3–5 min active video breaks. With this specific project, FLVs have the role of creating videos, sharing the project activities across their communities, and developing scientifically design research studies to determine the scientific evidence regarding the impact of this intervention. (Bakasekaran *et al.* 2021; Bonnema *et al.* 2020; Glapa *et al.*2018; Hajar *et al.* 2020; Popeska *et al.* 2018; Rizal *et al.* 2020). FLVs also serve as national ambassadors for their respective country, especially considering that each video contains traditional and cultural sports, games, and dances.

A key aspect of both FLV collaborative projects involves the utilization of technology which is an important motivating mechanism in promoting children daily activity, facilitating learning, and is an effective means for measuring and monitoring student progress. Technology supported PA to promote healthy living is a question for discussion at BRICSCESS, GCH, and previous GoFPEP conferences.

Reporting on the Second BRICSESS (2019) and First WCFLV (2019)

BRICSCESS and WCFLV (2019) combined conference is characterized by sharing innovative approaches and actionable strategies to promote and advance health enhancing practices that are conducive to achieve UN SDG 3 across diverse physically active groups. This conference achieving these actions through formal presentations, moderated group discussions, formal and informal delegate dialogue, and group interactions/reflections. This approach and these procedures align with the work of Menne *et al.* (2020) and are supported by evidence-based approaches and practices using interdisciplinary approaches. Group discussions in particular sought to gain an in-depth understanding of factors that influence implementation strategies (Allen, 2017; Morgan 1997; Nyumba *et al.* 2018). This conference brought together 52 delegates from 20 countries/regions representing 35 different universities, schools, government, cultural centers, and academic institutions (shown in Table 1). Areas of participant expertise and experience included community-building, cultural studies, PA and exercise science, health, international relations, leisure studies, pedagogy, PE, sociology, sustainability, technology, and tourism.

After expert speaker presentations, nine discussion groups were established. Each group had at least one FLV and one invited international expert. Individual groups were led by an FLV, who were responsible for chairing the discussion, facilitating data collection, data analysis, and participation in compiling a final report. Each FLV was supported by an FLV supervisor/mentor, usually a university professor or established professional who assisted in data collection and analysis. Groups were given questions based on the topics outlined above before the conference. The topics and corresponding focused questions were pre-prepared and cocreated by the invited conference speakers (Allen, 2017) based on expertise and previous global forum involvement (Edginton *et al.* 2011; 2012; 2014; 2016; Naul *et al.* 2012), past research, and the book Physical Education and Health: Global Perspectives and Best Practice (Chin and Edginton, 2014). Groups spent 3 h discussing and exploring potential evidence-based strategies on the following five questions.

1. Can we use technology to support individualized processes and assessment based on appropriate measurable performance-based goals tied to the UN SDG 3 objectives related to physical activity and holistic health and well-being which promote accountability?
2. Can we use technology to accentuate learning opportunities which link practice to theory to promote physical activity and holistic health and well-being?
3. Can we promote a holistic approach to implement a holistic

Table 1: Distribution of participants per country

Geographic area	Countries
Africa	Zimbabwe and South Africa
Asia	Philippines, Hong Kong, and Singapore
Europe	Czech Republic, Macedonia, Slovakia, Luxembourg, Bulgaria, Romania, Poland, Turkey, and Spain
North America	USA
Oceania	New Zealand
South America	Brazil

health program within your community which serves to advocate, educate, and develop individuals to incorporate physical activities into their daily live through formal and informal education which promotes cultural competence and role modeling?
4. Can we redesign our holistic health and well-being in university curriculum to promote an active student-centered learning orientation which empowers individuals to develop healthy active lifestyles, and which requires the integration of skill development, physical fitness, health literacy, nutrition, and leisure processes to support the implementation of UN SDG 3?
5. What should the next steps be taken from the world community to encourage more effective implementation in UN SDG 3 holistic health and well-being?

At the conclusion of group discussions, each group prepared a report that was presented to all delegates in a plenary session. Following the plenary session, each group prepared a formal report, group reports were collected, a joint data file created, and analyzed using qualitative methodologies. The analysis was completed separately for each question. All qualitative data were coded and sorted into coherent themes that were analyzed and discussed by the researchers. In addition, a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) was made for each question (Gurel and Tat, 2017). Analyzed answers were further supplemented with best practice examples and experiences as recorded in each group's report. Emerging from this process was a catalogue of strategies and corresponding specific action steps for each question. This catalogue was used to identify emerging insights which will be briefly discussed.

Emerging Insights

Emerging insights from the data analyzed are offered for brief discussion.

Technology, active lifestyles, and UN SDG 3

Arising from the qualitative analysis is four key aspects related to the above emerging insights. These insights are: Advantages in the use of technology; limitations in the use of technology; technology and UN SDG 3; and how to make technology more applicable.

The use of technology as a tool for learning and assessment is strongly supported for personal health awareness and enhancement in both formal and informal settings, tracking movement patterns, daily PA levels, and as a mechanism for PA motivation. These insights align with Edginton *et al.* (2014) who reported that technology used for assessment and measurement of PA and for promoting health is identified as best practice in sport pedagogy by GoFPEP (2014) delegates. Furthermore, the present research literature has documented that interactive video games, smartphone movement applications, and smart watches increase adults and youth interest in daily PA (Gao *et al.* 2019; Gonzales *et al.* 2016; Hall *et al.* 2015). Edginton (2014) further argues that the employment of such devices is an effective pedagogical tool.

Examples presented by conference delegates provide evidence of best practice using technology to promote PA. China, for instance, makes use of pedometers in schools to measure PA levels and have found that PA levels increase as the school week progresses. In Russia, subway ticket machines give away free tickets if an individual performs physical exercises in front of the monitoring camera. United Kingdom school students are required to walk outside for a stipulated time before being allowed to take recess. In Poland and New Zealand, technology is firmly integrated into the health and PE curricula. For example, the New Zealand PE curriculum has an achievement standard required for each age range (5–17) that specially is focused on science and technology relating to movement concepts and motor skill.

When focusing on the school environment, delegates highlighted the best practice promoted by the use of videos such as Brain Break platform. International studies conducted in eight countries (Croatia, Lithuania, Macedonia, Poland, Romania, Serbia, South Africa, and Turkey) confirm the benefits of technology supported and classroom based active breaks and video effects for promoting movement habits, PA level, holistic learning, and self-efficiency (Mok *et al.* 2020). These results are also confirmed in studies evaluating the effects of brain break PA classroom videos of children in Turkey (Uzunoz *et al.* 2017), Poland (Glapa *et al.* 2018), Macedonia (Popeska *et al.* 2018), Malaysia (Hajar *et al.* 2020; Hidrus *et al.* 2020; Rizal *et al.* 2019), South Africa (Bonnema *et al.* 2020), and China (Zhou *et al.* 2021).

In reference to the limitations experienced with technology to promote active lifestyles, conference delegates identified a range of diverse constraints. These limitations include geographical locations (rural and urban environments), limited access to information technology tools, lack of skills and knowledge, different cultural, economic, societal settings and needs, limited resources, and escalating financial costs. Furthermore, delegates highlighted constraints related to low accuracy in measurement and the lack of an information technology tool that can measure cognitive function. In addition, some delegates identified the administrative difficulty and additional work required of teachers to obtain permissions from and beyond school authorities.

Specific examples that conference delegates highlighted were many Brazil PE teachers refuse to use technology as these teachers are more oriented toward traditional forms of pedagogy. In Bulgaria, most teachers do not use technology to enhance learning as permission to use this technology that is too difficult to obtain because of the skepticism that exists

over the pedagogical/technology nexus. In many rural areas of South Africa, Zimbabwe, and Turkey, internet access and reliable sources of electric power for using the technology have created significant challenges.

The coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus that swept the world in January 2020. The pandemic has amplified the importance of developing a strong and well-organized program aimed at the health and well-being of adults and children throughout the world and has impacted the populations in all countries. Using technology can have a significant impact on one's health and well-being (Ammar *et al*. 2021; Orben and Przybylski. 2019). To illustrate, the recent COVID-19 pandemic has necessitated global use of school online learning or virtual learning. Online learning has now become a reality and attitudes and competence have moved in a positive direction. Notwithstanding, the changes brought about by COVID-19, Korcz *et al.* (2021) involving six European countries (Poland, Macedonia, Croatia, Turkey, Bulgaria, and Kosovo) found the use of technology in PE classes still encounter difficulties related mainly to lack of proper technology training, lack of equipment, and the adequacy of resources.

One most important aspect emerging from data analysis is the relationship that technology has with the UN SDG 3 - health and well-being. While all delegates were not overly familiar with the UNs 17 SDGs, discussion emphasized the importance of governmental commitment to well-being and implementation of the SDGs. Delegates also stressed the importance of acknowledging national culture diversity, and the need for taking actions in diverse ways, and in a culturally sensitive manner. Observing cultural sensitivities and actively engaging with diverse populations on well-being, as promoted by UN SDG 3, require in-depth cultural knowledge. Understanding holistic well-being is deeply rooted in the interconnectedness of the past to the present, the spiritual with the temporal, and the land with its people. The importance of the land extends to all cultural practices, including health, PA, games, and sport (Culpan *et al.* 2008). For some, the land is a source of spiritual sustenance, and consequently, the land, along with the environment, spirituality, language, traditional customs, and practices is essential parts of individual and collective well-being (Bishop *et al.*2007). These circumstances are particularly so in New Zealand where the national government consults widely on well-being and the implementation strategies to ensure that all individuals are included in this important SDG.

Making the technology/health nexus more user-friendly and applicable requires the identification of actionable steps that are accessible while being innovative. Many of the points emerging in this analysis are applicable to overcoming the limitations highlighted above. However, a key dimension highlighted was the UN SDG 4 relating specifically to education. Understanding, accepting, and implementing a coherent strategy focused on the technology/health nexus requires innovative/futuristic education. In this regard, the future actions should involve education focusing on the benefits and advantages of technology to enhance lifestyle. Lifestyle programming focusing on the use of information technology for skill development was identified as a clear need. Ethical and responsibility issues were also pinpointed in the discussion, and soon became clear that ethical aspects, when using technology, should be emphasized. Especially, the right of personal data protection, intellectual property protection, and issues surround risk of technology dehumanizing users. This point of dehumanizing was a recurrent issue. The need for human-to-human engagement and the consequential forming of relationships are important determinants of health and are foundational in any health, well-being initiative (Sadeghi and Heshmati, 2019). Drawing on Lawson's (1992) socio-ecological perspective, mindfulness needs are given to broader social, cultural, physical, emotional, political, and economic influences in the way people gain a better understanding for health and PA related behaviors. By acknowledging these dimensions of "being human," the use of technology is enhanced in the quest for promoting well-being. Furthermore, recognizing and making use of this socioecological appreciation often leads to the acceptance of appropriate accountability, monitoring, and assessment of performance goals (Lawson, 1992). In the context of young people, delegates suggested that technology is best utilized when traditional games, pastimes, and outdoor activities have a focus on fun and enjoyment. Furthermore, evidence from behavioral sciences indicates that changing behaviors to ensure PA adherence are often more easily achieved when a reward system is in place (Ahn *et al.* 2019).

While the analysis identified technology, PE, active lifestyle, and UN SDG 3 as an emerging insight, delegates agreed that positive and enabling practices throughout the world are occurring. However, in some instances, caution surfaced around matters which required detailed and in-depth pedagogical thought. Such caution expressed in recognizing cultural sensitivities, increased pedagogical/technology professional development, and ethical matters focused on ensuring that technology does not supersede the humanness of learning (O'Neill and Jolley, 2004) to lead an active lifestyle.

Learning, technology, and the practice theory nexus

While all delegates agreed that technology is an important mechanism to enhance learning opportunities, emphasis was given to the complexities associated with learning. Furthermore, the analysis revealed that technology cannot drive learning alone – what drives learning is the human. The connection with the machine or technology is but the facilitator (O'Neill and Jolley, 2004). Delegates agreed that using technology to enhance PA and well-being behaviors and

practices necessitated the technology/well-being/PA nexus and is conceptualized as continuous human learning encounters that required careful pedagogical navigation (Tinning, 2010). In particular, emerging insight is founded in the argument that to change people's mind-sets, beliefs, and practices, a knowledge of learning theory(ies) and associated pedagogies is mandatory. Human learning is seen as a strategic challenge. Emerging insights suggested that contemporary knowledge of learning and effective approaches to utilize this knowledge (pedagogy) has much to offer. In this regard, two theoretical positions, behavioral and constructivism, were identified as being relevant and helpful (Olson and Hergenhahn, 2009). Both positions identify actionable steps that facilitate the learning process. These steps include: The learner actively responding to stimuli, actions being observable, the learner self-paces, the learner is held accountable through testing, the learner receives immediate feedback, the learning content is structured into small, scaffolded progressions, learning content is repetitious, and the learner constructs a schema for content and interacts with the social and physical environment (Culpan and Scott, 2005). From these important principles, the learning process focuses on achieving a change in behavior and a change in personal meaning. From these actionable learning principles, the learning/technology/practice/theory/nexus is accentuated. Clearly, contemporary technology learning apps have built into their programming many of the above steps. A key point in developing learning a physical active lifestyle, the learner must make sense of the learning through meaning making and interactions with the environment (Olson and Hergenhahn, 2009). Meaning making is facilitated through fun and enjoyment (Stevens, 2017). In this regard, the delegates highlighted examples such as using cartoon apps, gaming programs, apps with appropriate role models, facetime calls, and programs that set realistic challenges and goals. All of which assist in both intrinsic and extrinsic motivation.

While the above has highlighted the bridging of the learning/technology/practice/theory nexus, the overriding consideration emerging from the analysis was the importance of the teacher/learner relationship. Here, delegates identified the teacher's attitude toward the learner, the technology, their skill, and ability to engage with students in meaningful and positive ways. These humanistic traits are deemed as important facilitators of learning by the delegates.

Holistic health

Delegates argued that the concept of holistic health is encapsulated in the term well-being and when conceptualizing well-being, appreciation is given to the multiple dimensions that contribute to this concept (Tasker, 2004). Consideration is given to the physical, social, mental, emotional, and spiritual dimensions. The well-being dimension of the land also needs attention (Bishop *et al.* 2007). Such positioning of well-being aligns with the WHO's (2017) conceptualization and to the corresponding health determinants of: Culture; education; employment and working conditions; gender; health services; income and social status; personal behavior and coping skills; physical environment; and social support. This insight emphasized the need to move beyond dominant deficit models of health and well-being practices to a holistic growth and development approach advocated by the WHO (2017). Such a move reinforces Lawson's (1992) argument for a socioecological perspective of modeling, and emphasizing the fun aspects of PA and games, in efforts to change behaviors. The fun, enjoyment, creativity, spontaneity, and interactive engagement dimension to healthy active lifestyles are deemed a key in developing momentum within community initiatives (Stevens, 2017). Both advocacies align with the United States Center for Disease Control and Prevention's Whole School, Whole Community, and Whole Child framework (Centre for Disease Control and Prevention, 2021).

Emerging from our analysis was the recognition that community life often determines individual and community health behaviors and needs. Community environments are allied with disparate well-being outcomes. Attention to local and regional factors, such as cultural practices, housing, living arrangements and ethnic demographics, is important considerations when implementing effective community programs to promote successful holistic well-being (Machado, 2017). Schultz (2018) posited that an advantage is gained when the community's ability to prioritize problems is understood, implement action plans, develop community leaders and role models, and constantly monitor and evaluate community progress. Aligning with the above, delegates gave importance to the need for the formation of networks, and the compiling of comprehensive data to generate practical information for the planning and monitoring of well-being programs. These suggestions align with Soril (2018) who argued the need for evidence-based policy decisions so that a practical user-friendly approach to using low-cost technologies to improve the quality of health care would eventuate.

In providing actionable and pragmatic steps to implement best practice in achieving holistic well-being, delegates identified the importance of common actions of educational institutions, local communities, government, and non-government bodies, and religious organizations. In Macedonia, for example, green and open spaces provided by the government and corporates are utilized by community groups and schools on a coordinated basis. Similarly, in New Zealand after devastating earthquakes, urban renewals have seen road and rail rebuilt with specific ways that encourage PA. Another example is found in the city Christchurch New Zealand. Here after, earthquakes, numerous plots of land, and previously zoned for commercial high-rise buildings are now dedicated to open green space for recreation such as children's playgrounds, dance squares, climbing apparatus, and community gardens. The New Zealand

government is working alongside numerous organizations and institutes to implement a comprehensive well-being policy, aligning with several UN SDGs. New Zealand's stated that aim is to be the best place in the world for young people to grow. Other examples include the United States, who have developed a National Physical Activity Health Plan and complemented this plan with an across the country safe cycle track. Delegates argued that such a coordinated approach is influential and provided good strategic coherence and aligns with Lawson's (1992) socioecological perspective. Role modeling was also identified as an important advocacy tool for holistic health. To maximize this strategy, the social learning work of Bandura (2006) used parents, family members, significant others, and recognized community members plays an important part in setting a "good" example.

Data analysis clearly support that clear coherent and coordinated initiatives for developing holistic well-being on a large scale, require documented, and agreed on strategies. Such strategies necessitated comprehensive training of health promoters with on-going funding to address operational costs.

Role of the university

A very clear emerging insight from this analysis is that universities have a critically important role in promoting well-being. Delegates highlighted that while universities have multiple functions, primacy is given to student education and to new knowledge creation. Thomas (2012) argued that as educational establishments, a university's function is to develop able and self-directed learners that are independent and confident, and who will go out into society and give to back to society by providing leadership that facilitates the delivery of civic duties. As knowledge generators, major universities are research institutions existing to provide new knowledge, to change paradigms, to aid society in developing, and in meeting new challenges as universities and cultures move forward.

The specifics of "aiding society are in its development and in meeting new challenges as they come along" (Thomas, 2012). Many delegates argued that universities are not completing these functions. Delegates felt that universities need to be more responsive to new realities and challenges that are presently confronting immediate, local, regional, and national communities. Of relevance here is the development of student and community well-being with particular emphasis on the development of healthy active lifestyles. Delegates stressed that health and well-being practices must be at the core of the university experience if universities are to maximize their stated functions. While acknowledging the complexities associated with keeping pace with rapid change, many delegates argued that some university culture and academic practices generally struggled to keep abreast of societal needs. This issue is also an example of universities possibly losing touch with the realities of a contemporary world.

To rectify this problem, delegates argued for systemic change. Bawa (2017) posits, to facilitate change, an open and explicit agenda would necessitate the establishment of enduring connections within the local context. However, given the sensitivities associated with health and well-being, humanistic understanding is needed as the under-pinning driver. For universities to address change in this manner, Bawa (2017) argues a need for more responsiveness to new realities and challenges within local contexts. Aligning the role of the university to contemporary issues of holistic health, converging with the current transformations in the ways of life, the labor market, and the new professional skills and competences necessary for a sustainable world are a fundamental needed action albeit a complex one. Consequently, contemporizing the university curricula to prepare skillful graduates, acting in a sustainable manner, and avoiding future economic, social, and health crises are required. However, change is not straightforward and requires a collective effort between students, teachers, and administrators giving attention to academic, technical, cultural, social, and political factors (Menne *et al.* 2020). The emergent argument stresses that if well-being and active healthy lifestyle habits are not effectively incorporated into university life, all potential community leaders cannot be expected to integrate well-being practices in life. In more practical terms, delegates identified several key approaches that would enhance active lifestyles within university settings. University personnel must role model for active healthy lifestyles, and university curricula need to integrate health enhancing practices into course offerings, extra-curricular sport, and physically active programs. Another component is the integration of holistic well-being practices as part of every student experience. In suggesting these approaches, delegates provided some specific examples. These included were compulsory academic, well-being and PE courses, extra credits for PA-related courses, free access to gym and recreation facilities, wholesome foods in university cafes, integrated health services that move beyond the medical model of health, and open green spaces across the university campus to encourage PA. Delegates urged universities to accept this challenge and systematically work toward addressing the present local health-related concerns.

Practical application

One emerging insight was for practical application highlights the need to bridge the chasm between rhetoric and action. Shared professional experience from international delegates gives practical direction to the implementation of well-being enhancing technologies, the promotion of holistic health, and how universities can participate in these processes. Emerging from this process is a blueprint for the development of contextual guidelines or starting points for the creation of evidence-based policy. Implementation strategies for UN SDG 3 give some direction and provide a baseline for effective

future work. A most important consideration emerging from these gathering is the modeling of a functioning FLV program. The development of this model is timely given recent global events involving the voice of the junior faculty. The support and empowerment of coming generation of junior scholars are becoming a global movement. Empowering junior scholars to bridge the practice-theory abyss and challenge orthodox thinking and practice is revolutionary. Most important is the development of the next generation of professionals and training these individuals to participate in social action at local, regional, national, and global levels. The FLV program focuses on preparing the next generation of professional scientists and educators by enhancing their health behaviors in the development of policy initiatives.

CONCLUSION

BRICSCESS and WCFLV 2019 programming provided unique opportunities for mentoring junior scholars/professionals working in holistic well-being settings to come together for discussions, sharing of knowledge, and experience on issues that are globally concerning. These issues are framed within the parameters of the UN's 17 SDGs with emphasis on SDG 3 health and well-being. Formal and informal dialogues regarding global concerns and differences were used to identify emerging insights, characterized by practical implementation strategies to bridge the theory to practice nexus. Evolving from this process was the identification of following considerations. First, the need for a sociological perspective where governments take the lead in embodying the UN SDGs into policy with in collaborations involving schools, universities, local community groups, corporates, organizational groups, non-government organizations, and governmental institutions to ensure personal and collective well-being issues such as of person-to-person interrelatedness, natural and social environments, technology, and specific health related needs are addressed. A second consideration was the identification of a nexus that underscores the need for policy makers to draw on contemporary understandings of human learning principles and pedagogical learning approaches. The need for policy and programs to be culturally responsive and competent cannot be over stressed.

Another unique aspect of the BRICSCESS and WCFLV 2019 programming is the role that the FLV played in leading the above processes. By empowering these junior scholars to perform on a global stage, a succession plan for global well-being in the future that is worthy of dissemination must be established. This plan is based on evidence-based healthy active lifestyles and involves the use of technology relationships to PA, culture, and education gives the program relevancy and currency. All nations are being forced to cope with the COVID-19 pandemic in varying degrees (Bond, 2020). This virus is malignant, stealthy, elusive, and highly infectious. The pandemic has tested our resilience, created fear, caused panic, and uncertainty (Hansbrough, 2021). As in any epidemic, people worry about self, family, and neighbors developing symptoms and increasing the likelihood of disease transmission (Wahl, 2020). Without question the COVID-19, virus has disrupted all major life events. We are confined to our homes, in some cases resulting in a loss of livelihood, and changes in livability. COVID-19 are having a significant impact on social, physical, psychological, economic health, and the well-being of individuals while creating great amounts of stress (Brose, 2020; Behar-Zusman, 2020; Ding *et al.* 2021a; Ding *et al.* 2021b; Mjali and Alghazo, 2021; Zenkar *et al.* 2020).

The insights emerging from BRICSCESS and WCFLV do have the risk of being disruptive to present policy. A need for universities to have health and well-being as a core for student learning experiences and for the university to be more responsive to the realities and complexities of contemporary living was identified.

In closing, it is important to reiterate that the integration of the UN SDGs framework with an innovative FLV program collaborating with experienced experts is worthy of replication. The replication could serve as a useful scaffold for effective policy development and enactment.

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Research Article

Strategies to overcome anxiety for athletes

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INTRODUCTION

Barlow (2002) defines anxiety as an unpleasant inner state, in which we are anticipating something dreadful happening that is not entirely predictable from our actual circumstances. Anxiety is therefore a complex blend of physiological, behavioral, and cognitive components. Anxiety is an emotional response stimulated by the anticipation of a real or potential threat. In sports, competition can be considered a source of threats as the athlete's image is usually associated with his or her performance, the final result is always uncertain, there is exposure to public opinion and judgment by third parties, among others.

The common characteristics of anxiety, such as physical tension, a high degree of bodily arousal, and persistent feelings of worry are not accidental symptoms, but they are the result of our "fight or flight mechanism." These symptoms are crucial indicators to help us to prepare for either "fight" or "flight." Despite the lack of "threat to survival" in sport, the mechanism is the same, although the threat is more likely to be toward your "self-concept."

Sports anxiety occurs when individuals view competitive situations as threatening and respond to these situations with apprehension and tension. Pressure causes our motor skills that are usually automatic to become impaired due to the additional tension. In the latest research on sports, anxiety revealed that the terms competitive state anxiety, competitive trait anxiety, somatic anxiety, cognitive anxiety, behavioral anxiety, performance anxiety, facilitative anxiety, debilitative anxiety, competition anxiety, and pre- and post-competition anxiety have also been used to describe as highly sport-related.

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Types of Anxiety

The followings are the important types of anxiety:

- State anxiety is short-term anxiety. It is the state of emotional arousal following a perceived threat or other particular reason or circumstance and links to the fight or flight reaction. In short, state anxiety is a temporary condition in response to some perceived threat, such as anxiety before speaking in public.
- Trait anxiety is long-term anxiety and means the individual has anxiety as a personality trait. This trait refers to individual differences in responding to a situation with state anxiety, which means producing an arousal response. For example, people with higher trait anxiety are more likely to be aroused in certain situations than others.
- Somatic anxiety refers to athletes' changes in their physiology, such as increased perspiration, difficulty in breathing, increased heart-beat, changes in the brain wave, elevated blood pressure, increased urination, butterflies in the stomach, less saliva in the mouth, and muscle tension.
    - Athletes can develop cognitive anxiety due to their inability to perform or fear of performance failure. Athletes also have the tendency to worry the negative evaluation of their schoolmate, teachers, friends, and fans, which can cause the level of cognitive anxiety increase.
    - The symptoms of excess anxiety stress are broken into three categories: Physiological – increased heart rate, sweaty hands, and muscle tension. Cognitive – perceptual changes, decision making, memory, and response selection. Emotional – violence, withdrawal from the sporting situation, and anger.

Signs of Anxiety

Common physical signs of sports anxiety include:

- Tremors: Maybe your hands shake when you are holding a tennis racket, or your foot twitches when you need to stand still.

- Racing heart: Hormones such as adrenaline and cortisol can make your heart beat faster.
- Hyperventilation: You might feel as if you're choking or can't catch your breath.
- Muscle tension: Your muscles may feel so tight they become painful, and you might also notice tension and pain in your head.
- Bathroom troubles: When you go into fight-or-flight mode, your body may rush through digestion so it can focus all its resources on survival. You might notice cramping and a sudden, strong urge to visit the toilet.

Common mental signs of sports anxiety include:

- Intense fear of failure: When you imagine losing, your mind may leap to the worst-case scenario. You might worry about letting your team down or others laughing at you.
- Disrupted focus: You might have trouble concentrating on the game, instead getting absorbed in how others react to your performance.
- Overthinking: You may temporarily "forget" how to do actions you used to do automatically, like swinging a baseball bat or catching a ball.
- Reduced self-confidence: You could start doubting your abilities and wonder whether you can really win.

Strategies for Anxiety Management

Some ways to manage anxiety disorders include learning about anxiety, mindfulness, relaxation techniques, correct breathing techniques, dietary adjustments, exercise, learning to be assertive, building self-esteem, cognitive therapy, exposure therapy, structured problem solving, medication, and support groups. The followings are the important strategies to manage anxiety symptoms.

- Learn how to interpret arousal during the competition as positive or acceptable rather than negative (self-help books on acceptance and commitment therapy will help with this).
- Reduce negative thought patterns that contribute to anxiety through cognitive restructuring (self-help books on cognitive-behavioral therapy will help with this).
- Perfect practice makes perfect, whether you are playing individual or with a team. Nothing will build your confidence and skills like consistent training. A good coach will help you and your team set goals, develop an action plan, and ensure you get enough practice, building your confidence before the game or competition.
- Instead of thinking of anxiety as negative, realize that you are anxious because you have invested a significant amount of energy and time into preparation. Realize that you are prepared beyond every stretch of the imagination.
- Slow breathing. When you are anxious, your breathing becomes faster and shallower. Try deliberately slowing down your breathing. Count to three as you breathe in slowly – then count to three as you breathe out slowly.
- Progressive muscle relaxation. Find a quiet location. Close your eyes and slowly tense and then relax each of your muscle groups from your toes to your head. Hold the tension for 3 s and then release quickly. This can help reduce the feelings of muscle tension that often comes with anxiety.
- Stay in the present moment. Anxiety can make your thoughts live in a terrible future that has not happened yet. Try to bring yourself back to where you are. Practicing meditation can help.
- Healthy lifestyle. Keeping active, eating well, going out into nature, spending time with family and friends, reducing stress, and doing the activities you enjoy are all effective in reducing anxiety and improving your wellbeing.
- Take small acts of bravery. Avoiding what makes you anxious provides some relief in the short-term, but can make you more anxious in the long-term. Try approaching something that makes you anxious – even in a small way. The way through anxiety is by learning that what you fear is not likely to happen – and if it does, you'll be able to cope with it.
- Challenge your-self-talk. How you think affects how you feel. Anxiety can make you overestimate the danger in a situation and underestimate your ability to handle it. Try to think of different interpretations to a situation, that is, making you anxious, rather than jumping to the worst-case scenario. Look at the facts for and against your thought being true.
- Plan worry time. It is hard to stop worrying entirely so set aside some time to indulge your worries. Even 10 min each evening to write them down or go over them in your head can help stop your worries from taking over at other times.
- Get to know your anxiety. Keep a diary of when it's at it's best – and worst. Find the patterns and plan your week – or day – to proactively manage your anxiety.
- Learn from others. Talking with others who also experience anxiety – or are going through something similar – can help you feel less alone. Visit our Online Forums to connect with others.
- Be kind to yourself. Remember that you are not your anxiety. You are not weak. You are not inferior. You have a mental health condition. It is called anxiety.
- In the hours leading up to the competition, restrict interaction with outside individuals to a bare minimum. For the athletes I train, only the most essential team members are allowed in the inner sanctum. This helps them keep focused and relaxed.
- Thirty minutes before the competition, try moving into a silent zone. Use visualization, mindfulness, and other techniques to channel energy and focus, which will help you keep calm and mentally prepared for the upcoming event.

- Ten minutes before the competition, gradually make the switch in your energy from calm to enthusiastic. Start building excitement about the competition. Get in the zone: That mental place where you are confident, energetic, and ready to give it your best.

Meditation

Research studies suggest that meditation can decrease sports anxiety. When it comes to meditation, you have plenty of types to choose from. One quick method you can try right now is focused attention meditation.

To give it a try:

1. Grab a nearby object. This can be anything, even a sock.
2. Focus your entire mind on the sock. Examine the color, texture, even its smell (if you are brave enough).
3. Aim to keep your attention on the sock and the sock alone. This might prove more challenging than it sounds, since anxious minds can easily wander.
4. If you catch your thoughts drifting, do not give yourself a hard time. Just gently shift your thoughts back to the sock.

When your mind tries to jump ahead into an anxious future, this approach can help reset your focus and return your mind to a calm present. To put it another way: Where worries once flooded your mind; now, there is only sock.

CONCLUSION

Anxiety is what motivates us to plan for the future, and in this sense, anxiety is actually a good thing. It is that nagging feeling that motivates us to study for that test, practice harder for that game, or be at our very best on that date. However, some people experience anxiety so intensely that it is no longer helpful or useful. They may become so overwhelmed and distracted by anxiety that they actually fail their test, fumble the ball, or spend the whole date fidgeting and avoiding eye contact. If anxiety begins to interfere in the person's life in a significant way, it is considered a disorder. Therefore, it is concluded that with proper psychological counseling and guidance athletes can manage their anxiety in sports.

Anxiety disorders differ considerably, so therapy should be tailored to your specific symptoms and diagnosis. If you have obsessive-compulsive disorder (OCD), for example, your treatment will be different from someone who needs help for anxiety attacks. The length of therapy will also depend on the type and severity of your anxiety disorder. However, many anxiety therapies are relatively short-term. In elite level research, it is proved that due to psychological therapy many people improve significantly within 8–10 therapy sessions.

While many different types of therapy are used to treat anxiety, the leading approaches are cognitive behavioral therapy and exposure therapy. Each anxiety therapy may be used alone, or combined with other types of therapy. Anxiety therapy may be conducted individually, or it may take place in a group of people with similar anxiety problems. However, the goal is the same to lower your anxiety levels, calm your mind, and overcome your fears.

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Research Article

Graduates specialized in physical education of Thai Nguyen University Education with employment's problem after graduation

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ABSTRACT

By reference method, interview method, and mathematical statistical method, the topic has found out the wishes and aspirations of student majoring in physical education of Thai Nguyen University education about employment after graduation, as a basis for proposing a number of measures the help the school have the basis to adjust training process appropriately, meeting the employment needs after graduation.

Keywords: Student, Graduation, Measures, Training process, Physical education

THE ISSUE

Getting a job right after graduation is always a dream not only for graduates but also of students still studying in university. In currently, many university graduates cannot find a job when they graduate or have to work in jobs that are contrary to their trained professions, jobs that are not related to qualifications are no longer a rare occurrence. According to statistic on the post-graduation employment situation of students majoring in physical education, University of Education – Thai Nguyen University in recent years, the reality of graduates who do not apply for getting a job or having to do a job contrary to the industry is quite large. This issue has had a significant impact on the general psychology of students studying and the psychology of students who are preparing to choose a major or career. In our country, there have been many scientific research works in the field of employment: Dong Van Tuan (2011) and Bui Quang Hai (2015. Those results play an important role as the basis for building solutions. However, these scientific works are mainly research on rural laborers or research on the actual employment of graduates. All of these issues raise the need to find out the desires and aspirations of employment after graduation, help students orientate the career that they will choose, as a basis for proposing some measures to help students achieve their career goals. The school's training meets the job demand after graduation of students in the current period.

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Research Purpose

The purpose of the research topic is to find out the problem of employment with students majoring in physical education, University of Education – Thai Nguyen University after graduation as a basis to propose a number of measures to help the school's training meet the job needs of students after graduation.

RESEARCH OBJECTS AND METHOD

Object and Scope of Research

The object of the research is to find out the wishes and aspirations of students majoring in physical education, University of Education – Thai Nguyen University about employment after graduation. With a research sample of 147 students majoring in physical education, University of Education – Thai Nguyen University.

Research Method

To solve the research objectives and tasks, the research method has been used throughout the research process, referring

to scientific works, and related documents. The method of interviewing is in the form of an interview form to collect information about employment issues. Statistical mathematical methods analyze and process the data collected in the research process.

RESEARCH RESULTS AND DISCUSSION

To find out the students' wishes and aspirations about employment after graduation, the topic has investigated and collected information by interviewing 147 students majoring in physical education, University of Education – Thai Nguyen University, the obtained results are analyzed according to the following criteria.

According to the results obtained in Table 1, students' views on the situation of applying for jobs in recent years can be seen that the choice is the most difficult to apply for a job, which reflects relatively well the current situation of applying for a job. The current job of fresh graduates is not only for sports majors but also for other majors.

The necessary factors to get a job is one of the important bases, on which students can equip themselves with necessary and prerequisite skills, properly assess themselves, and make a suitable roadmap. Perfecting themselves, helping students quickly get a job in a harsh competitive environment. The factor of having good capacity and skills accounted for a relatively high proportion (42.8%) and higher than the survey results of the previous years. This result shows that the students have highly appreciated their own factors.

Choosing where to apply for a job and applying for a job is an important part of future career planning, depending on many factors that affect students' decision to choose a job application after graduation: Environment, affection, level of compensation in terms of policies, and salary. Most of the students have the desire to work in big cities (42.9%) and apply to the office with a job position. In accordance with the field of training, in which they are trained. Compared with the survey results on the employment situation of students after graduating in the past few years, the students chose mainly to return to their hometown to apply for a job.

The job application agency and the job position have similarity between the above survey results and the survey results in the last few years; most of the graduates are applying to be sports teachers at high schools.

Through the interview results obtained in Table 5 about job characteristics, most of them choose jobs with stable income and develop their professional capacity. Only a few choose jobs that challenge themselves and have pressure. Income is always the concern of most people when looking for a job, job characteristics, and income have a close relationship with each other, a stable income that ensures a good life will encourage people to work. Employees are active with work and achieve high efficiency. The topic of finding out the expected income of students on graduation is presented in Table 6.

Table 1: Student's views on the current job application situation

Number	Job application	Choice	Percent
1	Easy	0	0
2	Normal	10	14.7
3	Hard	137	85.3

Table 2: Student's views on the current job application requirements

Number	Element	Number of choices	Percent
1	Have an advanced degree	30	20.4
2	Competent, good skills	63	42.8
3	Relationship	31	21.1
4	Have economic conditions	23	15.6

Table 3: Expectation about the workplace and job position after graduation of students

Number	Places and jobs	Quantity	Percent
1	Big city	63	42.9
2	Hometown	37	25.1
3	Anywhere	47	32
4	University-college	12	8.2
5	High school	69	46.9
6	Department of education	18	12.2
7	Sports researcher	3	2.1
8	Sports clubs	10	6.8
9	Any agency	35	23.8
10	PE teacher	100	68.0
11	Coach	28	19.0
12	Expert and employee	5	3.5
13	Self-employment	14	9.5

Table 4: Perspectives on job characteristics after graduation of students

Number	Specific work	Number of choices	Percent
1	Develop self-efficacy	50	34.0
2	Stable income job	73	49.7
3	Challenge and pressure	10	6.8
4	Comfortable and no pressure	14	9.5

Table 5: Desired income level of students with jobs after graduation

Number	Income	Number of choices	Percent
1	From 2 million to less than 4 million	45	30.6
2	From 4 million to less than 6 million	63	42.9
3	More than 6 million	39	26.5

Table 6: How students choose to apply for jobs

Number	Method	Number of choices	Percent
1	The agency invited to work	4	2.7
2	Through relationship	26	17.7
3	Introduced by the school	30	20.4
4	Examination	80	54.4
5	Others option	7	4.8

It is always very difficult for fresh graduates to get a job, but if you know many methods and methods, it will help a lot while looking for a job. That is the fastest way to help students access jobs, as well as being successful as the first step in the job search process of students. To learn about the method and method of applying for a job, the topic will be interviewed, the results obtained:

The agency that invites you to work accounts for 2.7%, learns information through relationships accounts for 17.7%, is recommended by the school 20.4%, participates in entrance examinations chosen by the majority of students, accounting for 54.4. The remaining 4.8% choose to apply for a job in other forms.

Through the collected results, we can see the jobs, positions, places to apply for jobs, and income levels that the students after graduation want. Especially, the factor to get a job is one of the important issues, from which the Faculty and the University can calculate in building training programs, innovating teaching methods to be suitable and meet the needs of students. With the demanding needs of society, helping students after graduation to easily find a job that matches their training profession.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Employment after graduation is always a concern and is very important for fresh graduates, most students want to get a job right after their training after graduate.

Students' views about the situation of applying for a job after graduation is very difficult to apply, it reflects relatively accurately the current job application situation of recent graduates. The need for a workplace and job position after graduation is an important part of future plans, but it is also influenced by a few factors, students need to overcome difficulties, which choose be given a place to apply for a job and a job position that is suitable for you without being influenced by circumstances.

The essential factors that make it easy to get a job today: Advanced degrees, professional capacity, and good skills which make applying for a job faster and easier. The way students choose to apply for a job, most students choose by way of an entrance examination, but there are also those who want to be invited by the recruitment agency to work or be introduced by the school. This issue requires close cooperation between students, schools, faculties, recruitment agencies, and social organizations to understand human resource needs as well as create relationships, strengthen forms provide information on labor – employment, career guidance for students so that they can grasp the necessary information as well as raise awareness and have orientation in learning and training.

Recommendations

- For students: Actively study, practice, acquire professional knowledge, participate in skill training classes, and social activities. At the same time, improve the ability to self-study, self-research to enrich their own knowledge, form sharp thinking, and logical reasoning to solve problems. In addition, it is necessary to have a clear career orientation to strive to study, practice, and promote their abilities in the professional field, expand relationships with recruitment agencies, and create strengths when job seeking.
- For schools and sport faculty: It is necessary to review, update, and rebuild the content of the training program to be close to the reality of social needs, reduce theory, and need to focus on competencies and skills for practical application of occupations. Create conditions for students to have many opportunities to exchange, practice, apprentice with agencies to learn experience, and professional knowledge. In addition, the Youth Union needs to strengthen the organization of soft skills training classes, strengthen the forms of providing information on labor – employment and career guidance for students. There should be a link between schools, faculties, recruitment agencies, and social organizations to understand human resource needs.
- For employers: It is necessary to have a method of recruiting in a fair, democratic way, and accurately assess the capacity of graduate.

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Research Article

Effect of circuit training and weight training on selected physical variables among volleyball players of Vishakhapatnam Region Andhra Pradesh

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ABSTRACT

The purpose of the study was to find out the effect of circuit training and weight training on selected physical variables among volleyball players of Vishakhapatnam Region AP. To achieve this purpose, 45 volleyball players in the age group of 18–22 years those who have participated in the intercollege tournaments taken as subjects. The selected 45 subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which Group – I (n = 15) underwent weight training for 3 days/week for 12 weeks, Group – II (n = 15) underwent the Circuit Training for 3 days/week for 12 weeks, and Group – III (n = 15) acted as control who are not participate any training apart from their regular activities. The selected physical variables such as abdominal strength, speed, and leg explosive power were assessed before and after the training period. Sit up test, 50-meter dash, and standing broad jump are the tests which were used to conduct the pre-test and post for measuring the physical variables such as abdominal strength, speed, and explosive power of legs. The results of the study was found that there was a significant difference of performance due to circuit training and weight training when compared with the control group.

Key words: Volleyball players, Weight training, Circuit training

INTRODUCTION

Circuit training is developed by the Scientist Morgan R.E. and Adamson G.T. at University of Leeds in the year 1957. This is resistance to develop the motor abilities such as strength, speed, and endurance. Circuit training is an exercise "circuit" which consists of prescribed exercises which include for the upper body, lower back, abdomen, and lower body. It can be done with own body weight and using the resistance exercises such as Barbells and medicine balls. Circuit training improves all round physical fitness, as opposed to fitness for a specific sport.

Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It uses the force of gravity in the form of weighted bars, dumbbells, or weight stacks to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement. Sports include bodybuilding, weightlifting, powerlifting, strongman, highland games, hammer throw, shot put, discus throw, and javelin throw. Many other sports require strength training as part of their training notably, American football, judo, weight lifting, volleyball, basketball, power lifting, etc.

Resistance training involves the performance of physical exercises that are designed to improve strength and endurance. It is, often, associated with the lifting of weights. It can also incorporate a variety of training techniques such as calisthenics, isometrics, and plyometrics. When properly performed, strength training can provide significant functional benefits and improvement in overall health.

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Review of Literature

Jadhav (2020) study was to find out the effect of circuit training on selected physical fitness variables among sports persons.

Table 1: Analysis of covariance with means and "f" ratio for sit ups, standing broad jump, and 50-meter dash for circuit training, weight training, and control group

Variable Name	Group name	Control group	Group weight training	Circuit training group	'F' ratio
Sit ups (in numbers)	Pre-test Mean ± S.D.	37.13 ± 1.15	37.2 ± 1.25	37.3 ± 1.21	0.001
	Post-test Mean ± S.D.	37.34 ± 1.16	39.16 ± 1.31	41.22 ± 1.36	3.935*
Standing broad jump (in meters)	Pre-test Mean ± S.D.	1.916 ± 0.12	1.918 ± 0.135	1.922 ± 0.13	0.003
	Post-test Mean ± S.D.	1.919 ± 0.12	2.066 ± 0.22	2.140 ± 0.31	3.034*
50-meter dash (in seconds)	Pre-test Mean ± S.D.	6.90 ± 0.008	6.89 ± 0.0089	6.90 ± 0.0083	0.006
	Post-test Mean ± S.D.	6.88 ± 0.0081	6.59 ± 0.0092	6.48 ± 0.0097	6.766*

*Significant at 0.05 level of confidence

For the present study, 40 male college sports persons ($n = 40$) of Rajarshishahu College Pathri were randomly selected as a subject and their age ranged between 18 and 25 years. The selected subjects were randomly assigned into two equal groups such as circuit training group (CTG) and control group (CG) with 20 subjects each ($n = 20$). The experimental (circuit training) group underwent their respective experimental training for 6 weeks and a session on every day. Control group was not undergone any specific training apart from their regular activities. The data were collected before and after 6 weeks of training period. Independent *t*-test was applied for calculate the differences between both groups. The level of significance was set at 0.05 levels. It was concluded on the basis of results that circuit training has significant effect on all selected physical fitness variables.

Research Objectives

The objective of this study was to find out the effect of circuit training and weight training selected physical variables among volleyball players of Vishakhapatnam Region Andhra Pradesh.

Hypothesis

It was hypothesized that there would be a significant difference in the effect of circuit training and weight training selected physical variables among volleyball players of Vishakhapatnam Region Andhra Pradesh.

METHODOLOGY

To achieve this purpose, 45 volleyball players in the age group of 19–22 years those who have participated in the in the intercollege tournaments taken as subjects. The selected 45 subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which Group – I ($n = 15$) underwent circuit training for 3 days/week for 12 weeks, Group – II ($n = 15$) underwent the weight training for 3 days/week for 6 weeks, and Group – III ($n = 15$) acted as control who are not participate any training apart from their regular activities. The selected physical variables such as abdominal strength, speed, and leg explosive power were assessed before and after the training period.

Tools

The following tests were conducted at in pre-test and post-test for measuring the physical variables.

- Sit ups – Abdominal muscular strength.
- Standing broad jump – Explosive power of legs.
- 50-meter dash – Acceleration and speed.

Analysis of Data

The data collected before and after the experimental periods on abdominal strength, leg explosive power and speed, circuit training, weight training, and control group were analyzed and presented in the following Table 1.

RESULTS

The results of the study also shown circuit training group has significantly improved in Setup's from pre-test mean score of 37.30–41.22 compare to the weight training group which is 37.20–39.16 and control group is 37.13–37.34. Hence, circuit training is effective for development of abdominal strength. The results of the study also shown circuit training group which has significantly improved in standing broad jump from pre-test mean score of 1.922–2.140 compare to the weight training group which is 1.918–2.066 and control group is 1.916–1.919. Hence, circuit training is effective for development of explosive power in the legs. The results of the study also shown circuit training group which has significantly improved in 50-meter dash from pre-test mean score of 6.90–6.49 compare to the weight training group which is 6.89–6.59 and control group is 6.90–6.88. Hence, circuit training is effective for development of speed.

CONCLUSIONS

From the analysis of the data, the following conclusions were drawn.

1. There was a significant improvement due to the circuit training and weight training on abdominal strength, explosive power, and speed when compared with the control group.
2. There was a significant improvement due to the circuit training compare to the weight training for development of abdominal strength, explosive power and speed.

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Research Article

To Study the Relationship between Reaction Time and Selected Psychophysiological Variables among Table Tennis Players

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ABSTRACT

Purpose: The first purpose of the study was to find out the relationship between Independent Variables (heart rate and respiration rate) and Dependent Variable (total reaction time [RT]). The second purpose of the research was to study the joint contribution of two independent variables in estimating the dependent variable. The third purpose was to establish a regression equation for predicting the dependent variable based on the independent variable's outcomes.

Methodology: Ninety-four moderately physically active students were selected randomly from Delhi city. The mean age of the subjects was 21.45 ± 2.47. The selected variables were measured with the help of suitable standardized tools and apparatus. Multiple linear regression was being used as a statistical measure to study the joint contribution of independent variables in estimating dependent variable. Regression equation was established for predicting the dependent variable based on two independent variables.

Findings: The R square value showed that 29.2% (not very high but satisfactorily sufficient) of the variance in the group's total RT can be explained by both heart rate and respiration rate. The changes in total RT resulted significantly from the heart rate and respiration rate changes. The null hypothesis, therefore, was rejected, and the alternate hypothesis was accepted. Regression equation: Y (Total RT) = 308.461 + 0.460 × Heart rate) + (0.554 × Respiration rate).

Keywords: Heart rate, Reaction time, Relationship, Respiration rate

INTRODUCTION

Yoga and sports training techniques, which aim at performance enhancement through physical and mental self-culture, have convincing scientific bases and produce consistent physiological changes (Udupa and Singh, 1972; Wallace, 1970; and Wallace *et al*., 1971). Table tennis is no exception, where it is imperative to have those skills developed that lead to winning championships. Reaction time (RT), eye-hand coordination, anticipation time, etc., play an essential role with varying degrees in almost all the ball games. RT is dependent on genetics and training factor 4s both. There is limited research on which one translates into actual performance. No doubt there are several studies involving interventions to improve focus, strength, endurance, and footwork to predict the successful performance to a greater degree in table – tennis. Table tennis is one of the fastest ball games globally, and the player's performance depends on many complex factors. Ball speed, spin, surface material, etc., has changed drastically as compared to the past, besides changes in the rules, techniques, and table tennis equipment that has resulted in a shortening of point rallies (Li *et al*., 2007). Sports scientists (Djokić,

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2009; Kordi *et al*., 2009; and Suchomel, 2010) have found a significant positive relationship between the level of the player at which he/she plays and his/her heart rate responses. A player's table tennis skill level is a significant factor in the level of their exercise intensity, especially in singles matches. It is an established physiological response that when heart rate increases, the respiration rate also increases to keep up with the demand of oxygen supply and circulation. The psychophysiological aspects of heart rate, respiration rate, and RT are being studied and proven to be important indicators of performance and training at all levels.

RT is a measure of the quickness with which the table tennis player responds to the stimulus (TT ball). In other words, it is the interval of time between the presentation of the stimulus (ball) and the appearance of appropriate voluntary response in the subject (seeing and reacting) (Jain *et al*., 2015). The accepted figures for mean simple RTs for college-age individuals have been about 190 ms for light stimuli and about 160 ms for sound stimuli (Welford, 1980). Fast RTs are necessary for winning in sports and life-threatening conditions, whereas slow RT can produce grave consequences while driving, jumping, etc. Various factors affecting RT are age, gender, left or right-handedness, central versus peripheral vision, practice, fatigue, fasting, breathing cycle, heart rate, personality types, exercise, the intelligence of the subject, etc. (Karia *et al*. 2012).

The present study was being therefore undertaken with one of the main objectives of predicting the RT of the table tennis players from heart rate and respiration rate variables.

PROCEDURE

A total of 94 moderately physically active students were selected randomly from Delhi city. The mean age of the subjects was 21.45 ± 2.47. RT was measured using a RT in milliseconds, heart rate in beats per minute using a heart rate monitor, and respiration rate in breaths per minute using respiration biofeedback apparatus.

OBJECTIVES OF THE STUDY

a. The objectives of this study were as follows: To find out the relationship between Independent Variables (heart rate and respiration rate) and Dependent Variable (total RT)
b. To study the joint contribution of two independent variables in estimating the dependent variable and
c. To establish a regression equation for predicting dependent variable based on independent variables' outcomes.

The phenomenon (RT) is often associated with multiple factors. It is more effective and realistic to have the optimal combination of multiple independent variables working together to predict or estimate the RT variable than to use only one independent variable for the prediction or estimation of the all-important RT variable in a fast sport like table tennis.

RESEARCH DESIGN

- Step-1: Online form of consent generated and consent taken ($n = 94$)
- Step-2: Basic demographic variables were measured using appropriate tools and self-reported ones
- Step-3: Audio and visual RT was measured using a RT machine
- Step-4: Heart rate was measured using a heart rate monitor
- Step-5: Respiration rate measured using a respiration biofeedback machine
- Step-6: Multiple linear regression was applied using the SPSS-25 version for data analysis and plotting graphs.

RESULTS AND DISCUSSION

The null hypothesis (H_0) was that there will not be a statistically significant relationship between an individual's total RT and that person's heart rate and respiration rate.

The alternate hypothesis (H_a) will then be the opposite of the null hypothesis above that there will be a statistically significant relationship between an individual's total RT and that person's heart rate and respiration rate. Therefore, the research question in the present study involves two independent scale variables, heart rate, and respiration rate, and one dependent variable, and total RT. We are attempting to estimate one's RT based on the knowledge of his/her heart rate and respiration rate.

The normal probability plot, as shown in the Figure 1, shows that the data markers are close to the diagonal line, which provides evidence that the residuals (error terms) are normally

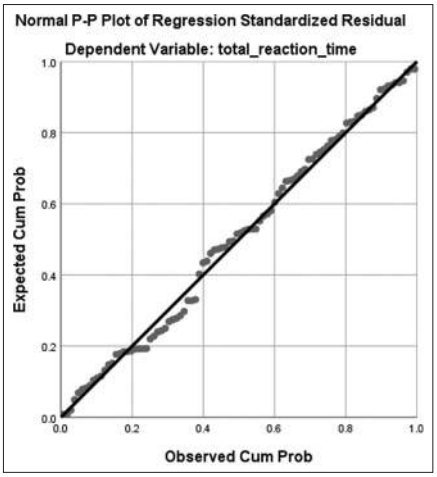

Figure 1: The normal probability plot of regression standardized residual (Error terms for total reaction time)

distributed and that fulfills our essential assumption of linear regression procedure.

Table 1: Demographic variables of the participants

Descriptive Statistics			
	n	Mean	Std. Deviation
Age (in years)	94	21.45	2.47
Body Mass Index (kg per square meters)	94	25.15	3.98
Heart rate (beats per minute)	94	69.15	5.18
Height (in centimeters)	94	169.34	7.83
Audio reaction time (in milliseconds)	94	160.32	3.81
Visual reaction time (in milliseconds)	94	188.37	4.66
Respiration Rate (number of breaths per minute)	94	15.15	2.78
Total reaction time (a sum total of audio and visual reaction time)	94	348.69	6.85
Weight (in kilograms)	94	71.64	8.82
Valid N (list wise)	94		

Table 2: Model summary for multiple linear regression

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.540[a]	0.292	0.276	5.835

[a]Predictors: (Constant), respiration_rate, heart_rate, [b]Dependent Variable: total_reaction_time

Table 3: ANOVA table showing a significant relationship between the variables

ANOVA[aa]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1275.363	2	637.681	18.727	0.000[b]
	Residual	3098.690	91	34.052		
	Total	4374.053	93			

[a]Dependent Variable: total_reaction_time, [b]Predictors: (Constant), respiration_rate, heart_rate

The Scatter plot shows the distribution of standardized predicted values (ZPRED) with the values for the standardized residuals (ZRESID). It is seen that the data markers are dispersed randomly and do not clog or follow a set pattern. Therefore, we assume equality of variances, yet another assumption that is fulfilled before applying the linear regression.

Table 2 shows the model summary informing the strength of the relationship between the entire three variables, namely, total RT, heart rate, and respiration rate. The value of R = 0.540 represents fairly good strength when both the independent variables are taken together and compared with the dependent variable (total RT). The R square value in the next column shows that 29.2% (not very high but satisfactorily sufficient) of the variance in the group's total RT can be explained by both heart rate and respiration rate to a certain extent, though. The coefficients table next could display some more light on the reason for the low R square value. Interpretation of the ANOVA table is presented next.

The ANOVA Table 3 indicates the regression equation for explaining the variation in the dependent variable (total RT) nearly accurately. $P < 0.05$ provides evidence that there is a low probability that the variation explained by the model is due to chance. Hence, we can say that the changes in total RT resulted significantly from the changes in the heart rate and respiration rate. The null hypothesis, therefore, is rejected and the alternate hypothesis is accepted.

The prediction equation based on the above table of coefficients for this study is as follows:
Y (Total RT) = 308.461 + (0.460 × Heart rate) + (0.554 × Respiration rate). The independent variables are positively correlated with the dependent variable in the present study. This means that the RT shall decrease significantly with a reduction in the heart rate ($P < 0.05$). The respiration rate does not have significant effect. The study by Poels *et al*., in 2008, concluded that more blood flow allowed the brain to have better cognitive functioning, leading to improved RT. The studies that have looked at the connection between RT, heart rate, and respiration rate have studied the effect of different types of physical activities on RT. RT, defined as being the time between

Table 4: The coefficients table showing prediction equation values

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	308.461	9.228		33.427	0.000
	Heart Rate in beats per minute	0.460	0.181	0.348	2.549	0.012
	Respiration Rate in number of breaths per minute	0.554	0.336	0.225	1.648	0.103

[a]Dependent Variable: Total Reaction Time

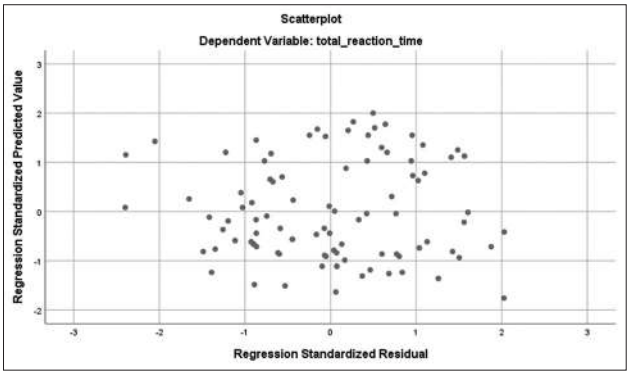

Figure 2: Scatter plot showing residuals for total reaction time (dependent variable)

the application of a stimulus and the beginning of an organism's response to it, has been shown to be a valid indicator of the central nervous system's ability to receive and synchronize movement expressed through the peripheral nervous system (Garg *et al*., 2013). Mixed results have been seen in the current studies that have explored the relationship between RT and psychophysiological responses, due variation in methods and strategies of measuring RT as technology and the procedure keep on changing. Further, RT experiments are conducted in three ways. First, a simple RT test utilizes one stimulus (either audio or visual) and measures one response. Next, a recognition RT test employs symbols to either ignore ("distracters") or react to with only one correct stimulus, thus eliciting one correct response. Finally, in the choice RT tests, there are multiple audio or visual stimuli and multiple responses and the reaction must correspond to the correct stimulus (Kosinski, 2013).

CONCLUSION

It can be concluded that, generally, we see the more the person relaxes, the lower will be heart rate and the respiration rate. The more excited or stressed or anxious a person is, the more will be the heart rate and the respiration rate. Hence, we can say that lowered heart rate can result in better performance on the RT variable in the present study. In the study, we found a significant relationship ($P < 0.001$) between heart rate and total RT ($R2 = 0.460 \pm 0.181$). For every additional score increase in reported heart rate, the total RT increased by 0.460. There is a dearth of associated literature in predicting RT on the basis of heart rate and respiration rate in ball games, so some related studies on heart rate and respiration rate have been mentioned in the introduction section.

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Research Article

Effect of yogic practices and physical fitness exercise on selected physiological variable among high school girls in Andhra Pradesh

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ABSTRACT

The aim of the study is to find out the effect of yogic exercise and physical fitness exercise on o on selected physiological variable among high school girls in Anantapur District. The subject was chosen at random from a group of high school girls between the ages of 15 and 17 years old. *N* = 25 Experimental Group I and *N* = 25 Control Group II are included in the study's sample. Harvard step test and breath holding test were utilized in the study as a pre-test and post-test to determine physiological variables in both groups Experiment Group, I received yogic exercise and physical fitness exercise training on alternate days for 8 weeks, while Control Group II received general warm-up training. The experimental group's performance on the Harvard step test and breath holding improved from pre-test to post-test. It is concluded that significant effect in Experimental Group I *t* whereas the control group exhibits a reduction in their performance.

INTRODUCTION

However, the widely practiced Yoga Sadhanas (Practices) are: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana (Meditation), Samadhi/Samyama, Bandhas and Mudras, Shat-karmas, Yukta-ahara, Yukta karma, Mantra japa, etc. Yama's are restraints and Niyama's are observances. These are considered to be pre-requisite for the Yoga Sadhanas (Practices).

Asanas, capable of bringing about stability of body and mind, consist in adopting various psycho-physical body patterns, giving ability to maintain a stable awareness of one's structural existence for a considerable length and period of time as well. Pranayama consists in developing awareness of one's breathing followed by willful regulation of respiration as the functional or vital basis of one's existence. It helps in developing awareness of one's mind and helps to establish control over the mind. In the initial stages, this is done by developing awareness of the "flow of in-breath and out-breath" through nostrils, mouth, and other body openings, its internal and external pathways and destinations. Later, this phenomenon is modified, through regulated, controlled, and monitored inhalation leading to the awareness of the body space/s getting filled (puraka), the space/s remaining in a filled state (kumbhaka) and it is getting emptied (rechaka) during regulated, controlled, and monitored exhalation. Pratyhara indicates dissociation of one's consciousness (withdrawal) from the sense organs which helps one to remain connected with the external objects. Dharana indicates broad based field of attetion, inside the body and mind which is usually understood as concentration. Dhyana (Meditation) is contemplation (focused attention inside the body and mind) and Samadhi – integration.

Bandhas and Mudras are practices associated with pranayama. They are viewed as the higher yogic practices mainly consisting on adopting certain psycho-physical body patterns along with control over respiration. This further facilitates control

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over mind and paves way for higher yogic attainment. Shat-karmas are detoxification procedures, help to remove the toxins accumulated in the body, and are clinical in nature. Yuktahara (Right Food and other inputs) advocates appropriate food and food habits for healthy living. However, practice of Dhyana (Meditation) helping in self-realization leading to transcendence is considered as the essence of Yoga Sadhana (The Practice of Yoga).

Physical Fitness

The physical fitness and wellness are inter-related to each other, physical fitness is the sum speed endurance, flexibility, and coordinative abilities. The most and maintain the physical fitness and wellness of the human achievement and maintenance of physical fitness and wellness organic fitness as an individual. The main components of physical agility, cardiovascular fitness, and cocoordinative ability.

Physiology

Homan physiology is the science of the mechanical, physical, and biochemical functions of the cells of which they are composed. The principal level of focus systems. Most aspects of human physiology are closely and animal experimentation has provided much of the and physiology are closely related fields of study: Anatomy and the function are intrinsically tied and are studied in tandem as part of a discipline of physiology views the body as a collection of of functions and purposes

REVIEW OF LITRATURE

Ssivasankar *et al.* (2019) study was to find out the effect of yogic practices and physical exercises on selected physical and physiological variables among information technology professional. To achieve these purpose, 30 obese women were selected as subjects randomly from information technology companies in Chennai, Tamil Nadu. The selected subjects were divided into three equal groups of ten subjects each, namely, yogic practices group, physical exercises group, and control group. Experimental groups were trained for three alternative days in a week for 12 weeks with their specific training. Physical and physiological variables such as endurance and resting pulse rate were selected as criterion variables and they were tested prior to and immediately after the 12 weeks of yogic practices and physical exercises using Coopers 9 min run/walk test and radial pulse method. The ANCOVA was applied to find out the significant difference in each criterion variables, if any, among the groups. Since, three groups were compared, whenever, they obtained "F' ratio for the adjusted post-test means was found to be significant, the Scheffe's *post hoc* test was applied to determine the paired mean differences, if any, was used. The results of the study revealed that there was a significant improvement on selected physical and physiological variables due to yogic practices and physical exercises groups as compared to control group.

Objective of the Study

The objective of the study is to find out the effect of yogic exercise and physical fitness exercise on selected physiological variable among high school girls in AP.

Hypothesis

It was hypothesized that there would be a significant difference in yogic exercise and physical fitness exercise on selected physiological variable among high school girls in AP.

METHOD

The purpose of the present study is to find out the effect of yogic exercise and physical fitness exercise on selected physiological variable among high school girls in AP. The subject was chosen at random from a group of boys between the ages of 15 and 17 years old. $N = 25$ Experimental Group I and $N = 25$ Control Group II are included in the study's sample.

Tool Used

The following physiological variables were administered on selected physiological variable among high school girls in AP.

Physiological Variables

1. The Harvard step test (pulse rate-1 min)
2. Breath holding time 1 min.

RESULTS AND DISCUSSION

Table 1 showing the mean values, SD, df, *t* value, and *p* value between pre-test and post-test on selected physiological variable among high school girls in AP in relation to pulse rest.

The analysis of Table 1 in relation with pulse rate on selected physiological variable among high school girl showing pre-test mean (100.89) post-test (122.55) showing the improvement in the Harvard step test.

Table 2 showing the mean values, SD, df, *t* value, and *p* value between pre-test and post-test on selected physiological variable among high school girls in AP in relation to *p*.

Table 1

S. No	Subject	N	Mean	SD	df	T ratio
1	Pre-test	25	100.89	1.32	48	2.462
2	Post-test	25	122.55	2.12		

Table 2

S. No	Subject	N	Mean	SD	df	T ratio
1	Pre-test	25	33.98	3.77	48	2.688
2	Post-test	25	31.67	1.62		

The analysis of Table 1 in relation with breath holding on selected physiological variable among high school girl showing pre-test mean (33.98) post-test (31.67) showing the improvement in the Harvard step test.

CONCLUSIONS

After the 8 weeks of yogic exercise and physical fitness exercise training, there is improvement in experiment group, as it was analyzed in the results mention that the yogic exercise and physical fitness exercise training has shown excellent effect in the improvement in pulse rate and breath holding test. The aim of formulating the effect of yogic exercise and physical fitness exercise training to the betterment and enhance their performance.

RECOMMENDATIONS

The following suggestions are made for the benefit of players, coach's academicians, and sports scientists. The researcher suggests the part of the coach to use the above-said development of the yogic exercise and physical fitness exercise training program for both school boys and girls the study helps the physical educationist and coaches for selecting the athletes.

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Research Article

Effect of selected yogic exercises on holistic health among male volleyball players of Medak district

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ABSTRACT

The purpose of the study was to find out the effect of selected yogic exercises on holistic health among male volleyball players of Medak district. It was hypothesized that there would be significant differences on selected health-related variable due to the effect of yogic exercises among male volleyball players of Medak district. For the present study, the 30 male volleyball players from Medak district, Telangana were selected at randomly and their age ranged from 18 to 21 years. For the present study, pre-test–post-test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of 15 each and named as Group "I" and Group "II." Group "I" underwent yogic exercises and Group "II" has not underwent any training. The data were collected before and after 9 weeks of training. The data were analyzed by applying dependent "*t*"-test. The level of significance was set at 0.05. The results of the study showed that the experimental group that practiced yogic exercises improved the selected health-related variable and their holistic health than the control group.

Keywords: Yoga, Health-related variable, Holistic health

INTRODUCTION

Volleyball game played by two teams, usually of six players on a side, in which the players use their hands to bat a ball back and forth over a high net, trying to make the ball touch the court within the opponents' playing area before it can be returned. To prevent this a player on the opposing team bats the ball up and toward a teammate, before it touches the court surface that teammate may then volley it back across the net or bat it to a third teammate who volleys it across the net. A team is allowed only three touches of the ball before it must be returned over the net.

YOGA

The word yoga comes from Sanskrit word. Its meaning "yoke" or "union." It is a group of physical, mental, and spiritual practice or disciplines. Yoga has all kinds of benefits for volleyball athletes, which is so many players who have reached the highest level of the game work it into their routine, whether it is in the morning after they wake up, before or after practice or as a part of meditation in the evening.

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HOLISTIC HEALTH

The World Health Organization defines health (at any age) as a state of physical, mental, and social well-being, rather than merely the absence of disease or infirmity. This definition is consistent with the holistic approach to health and well-being, which focuses on the whole person. Holistic health and wellbeing are now regarded as including physical, mental, social, and spiritual dimensions by an increasing number of practitioners, Aldwin and Gilmer proposed that spiritual well-being is also important in healthy aging. The practice of yoga is traditionally considered to be beneficial to holistic health and well-being.

Table 1: Analysis of "*t*" ratio for the pre-tests and post-tests of control and experimental group on 30 m run test score

Variables	Group	Mean		SD		"*t*" ratio	Significant*
		Pre	Post	Pre	Post		
30 meters run	Control	5.767	5.752	0.324	0.320	1.51	0.153
	Experimental	5.620	5.353	0.485	0.469	7.72	0.000

*Significance at 0.05 level of confidence

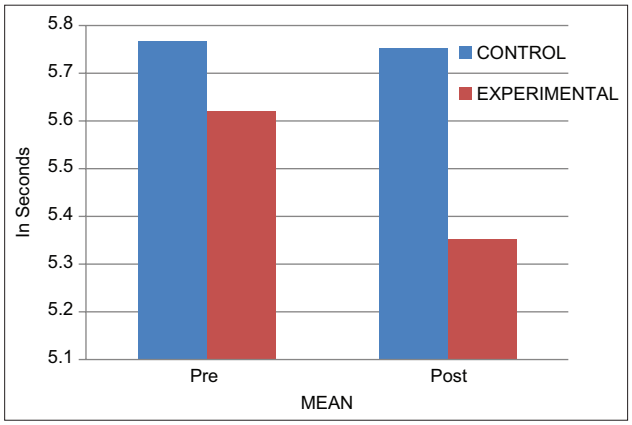
METHODOLOGY

The purpose of the study was to find out the effect of selected yogic exercises on holistic health among male volleyball players of Medak district. To achieve the purpose of the study, 30 male volleyball players randomly selected from Medak District, Telangana state, India were selected as subject for this study. They play volleyball at inter-district competitions. Their age ranged between 18 and 21 years. They were, further, divided into two equal groups of 15, namely, Group I yogic exercises Group II control group. The Group I underwent yogic exercises and Group II underwent control group. The experiment or yogic exercises group participated the training for 9 weeks to find out the outcome of the training exercises and the control group did not participate in any training program. The variable to be used in the present study was collected from all subjects before they have to treat with the respective treatments. After completion of treatment, they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Paired "*t*"-test was applied to test the significance of mean gains made in each of the variables by the experimental groups to test the experimental groups. To test the obtained results on variables, level of significance 0.05 was chosen and considered as suffering for the study.

The bar diagram showing the mean difference between the pre-test and post-test of the control and experimental groups on 30 m run test for male volleyball players of Medak district.

Table 1 shows that the mean values of pre-test and post-test of control group on 30 meters run score were 5.767 and 5.752, respectively. The obtain "*t*" ratio was 1.51 that less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant.

The mean value of pre-test and post-test of experimental group on 30 meters run score was 5.620 and 5.353, respectively. The obtained "*t*" ratio was 7.72 since the obtained "*t*" ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14° of freedom, it was found to be statistically significant. The results of the study showed that there was a significant difference between pre-test and post-test in 30 m run score for experimental group.



Graph 1: The bar diagram showing the mean difference between the pre-test and post-test

CONCLUSION

The results of the study showed that the experimental group improved in 30 meters run score and their holistic health significantly after the 9 weeks' yogic exercises among male volleyball players of Medak district.

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Research Article

Significance of height in shot put performance

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ABSTRACT

The present study finds the relationship between height and performance of state level shot put players. For the purpose of the study, 16 shot put players were selected as subjects with the age range between 17 and 22 years from Bhim stadium Bhiwani. The height was selected for the testing of the hypothesis. The selected anthropometric measurement was taken with the help of Stadiometer. Shot put throw performance of the subjects was taken by measuring the range covered by subjects by throwing the shot put. Pearson's product moment (zero order) for correlation between dependent variable (Shot put throw performance) and independent variable was applied for analysis of data. The anthropometric variable height has been found to possess positive and significant correlation with the shot put performance at 0.05. It can be concluded from the findings of the present study that height contributes significantly in shot put performance.

Keywords: Anthropometry, Variable, Height, Performance and shot put

INTRODUCTION

Sports play a very prominent role in the modern society. It is important to individuals, a group, a nation and indeed the world. Throughout the world, sports have a popular appeal among people of all ages and both sexes (Uppal, 1992).[6]

The throws are field events in athletics. They are measure for explosive strength in a human being from ancient time to modern time. The throwers of shot put differed greatly in physique from the other athletes. The better development of the lean body mass will help them to provide the great strength required in the throwing events.

Shot put event was included in first Modern Olympic Games (1896) in Athens. The shot is put from a circle 2.135 meter (7 feet) in diameter. A curved stop board is fixed in the middle of the circumference of the front half of the circle. The shot has to be put from the shoulder with one hand. When the athlete had taken a stance in the ring for stance in the ring for starting his put, the shot has to be in the proximity of the chin. One of the earliest forms of shot putting was an event, in which a huge erode stone was used as the implement. The stone was "put" as a test of strength among the warriors of peacetime armed forces of the previous century. This form of shot putting is said to have originated in Scotland (Dayal, 2007).[2]

Anthropometric measurements were central concern of the scientific era of measurement, which began in the 1860's. The current interest in anthropometric measurements focuses on three areas growth measures, body type, and body composition. The use of such measures includes classification, prediction of growth pattern, and prediction of success in motor activities as well as assessment of obesity (Kishore,1992).[4]

Anthropometry as a study is a technique of expressing quantitatively the different forms of the human body. In other words, anthropometry means the measurements of human beings (Barreto and Mathog, 1999).[1]

Anthropometric measurements are widely used to assess and predict performance in various sports. Anthropometric measurements and morphological characteristics play an important role in determining the success of a sportsperson (Wilmore and Costill, 1999; Keogh, 1999).[7]

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An athlete's anthropometric and physical characteristic may represent important prerequisites for successful participation in any given sport. Indeed, it can be assumed that an athlete's anthropometric characteristics can in some way influence his/her level of performance, at the same time helping to determine a suitable physique for a certain sport (Singh, 2011).[5]

Statement of the Problem
A study was on correlation between height and shot put performance.

Purpose of the Study
The purpose of the study was to find out the relationship of height of shot put throwers.

Significance of the Study
The study will examine the degree of relationship between height and shot put performance.

The study would develop new concepts in improving shot put performance.

Hypothesis
There would be significant relationship between height with respect to shot put performance.

METHODOLOGY

Selection of Subjects
Sixteen state level male shot put players of Bhim Stadium Bhiwani were selected as subjects. The age of the subjects ranged between 17 and 22 years.

Criterion Measures
The criterion measures of selected variable adopted in this study are as below:

Height: To measure height, stadiometer was used and the measurement was taken in centimeter.

Collection of Data
The necessary data on the selected variables of shot put throwers were collected during evening session at Bhim Stadium Bhiwani in the presence of concerned athletic coach during march 2017.

Statistical Analysis
To determine the relationships, Pearson Product Moment Method for correlation was applied.

Level of Significance
The level of significance was set at 0.05.

Findings
The results of the study are given in following Table 1:

Table 1: Descriptive statistics of height of shot put throwers

S. No.	Variables	Mean	Maximum score	Minimum score	Range
1	Height (cm)	179.6	187.4	172	15.4

N=16 (Shot Put Throwers)

Table 2: Relationship of height to shot put performance

Variables correlated	Obtained "*r*" value	Required "*r*" value
Height and shot put performance	0.505*	0.49

*Significant at 0.05 level of confidence. N=16; r=0.05 (14) =0 0.497

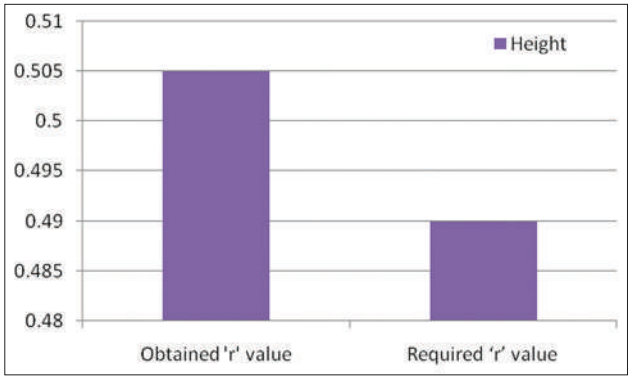

Figure 1: Graphical representation of the coefficient of correlation values between shot put

Table 2 show the correlation between the shot put performance and height. The above table point out that the shot put performance of throwers has been found to possess positive and significant correlations as the value obtained with height ($r = 0.505$) was much higher than the tabulated value (0.497) required to be significant at 0.05 level with 14° of freedom.

DISCUSSION ON HYPOTHESIS

It was hypothesized that there will be significant correlation between height and shot put performance. The result reveals that there was significant correlation between shot put performance and height, so the hypothesis was accepted this variable.

CONCLUSION AND RECOMMENDATIONS

- Through the review of the results of the study, it can be concluded that height contributes significantly in the improvement of shot put performance.
- While selecting players for shot put, physical education teacher and coaches should give more attention to select tall student.

- The result of this study can help the physical education teacher, trainer, and coach in screening and selection of potential shot putters.

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Research Article

Factors leading to athletes burnout

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ABSTRACT

The study used a qualitative research methodology aimed at an established of in-depth understanding of the respondents' narratives of their experiences toward their coach's poor behavior. Six student-athletes participated in the study. As a result of the study, it was found that poor coaching behavior really had a great effect on burnout of every student-athletes. It also found that there are different factors in coaching behavior that leads to their burnout such as, difficulties in the training given by their coach, some verbal and physical abuse, and bad attitude of coaches during training. Issues that being raised by the respondents can be addressed through conferences and seminars, with a goal to help both student-athletes and coaches to prevent burnout and understand problems. The study recommended that to hone the mental, psychological, behavioral, lifestyle, and physical behaviors that could aid them in their holistic growth as coaches and athletes, coaches, as well as student-athletes must undergo sports psychology. To find out more, the cause of future studies into athlete burnout should look at the other variables that include, but are not limited to parenting and teammate actions/behavior. Moreover, researchers suggest re-studying the research but make sure that more respondents are used to enhance the formulated program using a mixed-method approach.

Keywords: Athletes, Burnout, Sports, Athletics

INTRODUCTION

Coaches play significant role in every participation of sports. The athletic environment is an area, in which a coach can have a powerful effect on the athletic experience that their athletes have. In youth sports, coaches play an important role in developing an emotional atmosphere (Keegan *et al*., 2014). As players respond in various ways, it is also important for coaches to use different styles. Coaching styles have a significant impact on athlete's motivation and performance (Michael, 2017). The coaching style developed or embraced by a coach may have a positive or negative effect on his or her athletes, and it is important to consider the impact on athletes that attitude, personality, and overall leadership style has. Pressure may also affect the performance of an athlete. However, the greatest effect on athlete motivation was perceptions of coach-athlete contact, particularly verbal communication (Buning and Thompson, 2015).

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The behavior, standards, and goals of a coach have a large contribution to the development and performance of the athlete. Research has shown that athletes are influenced by the actions of their coaches, motivation strategies (both positive and negative), and athlete perfectionism factors (Buning and Thompson, 2015). Mental toughness is one of the aspects of psychological development. The ability to avoid, handle and resolve doubts, fears, fears, and circumstances that keep you from achieving or excelling in a mission or against a goal or a success result that you have set out to accomplish is mental strength.

Athletes with high levels of mental strength have greater power over conditions, loyalty to the squad, challenge the situation (think situations are changeable), and are more optimistic (Nicholls, *et al*., 2016). However, athletes may certainly feel inevitable burnout. An individual cannot escape

physical and mental exhaustion, especially when more than they can handle is needed by the environment. In sports, where athletes experience persistent stress or the feeling of being stuck by conditions, leading to athlete burnout, the same goes.

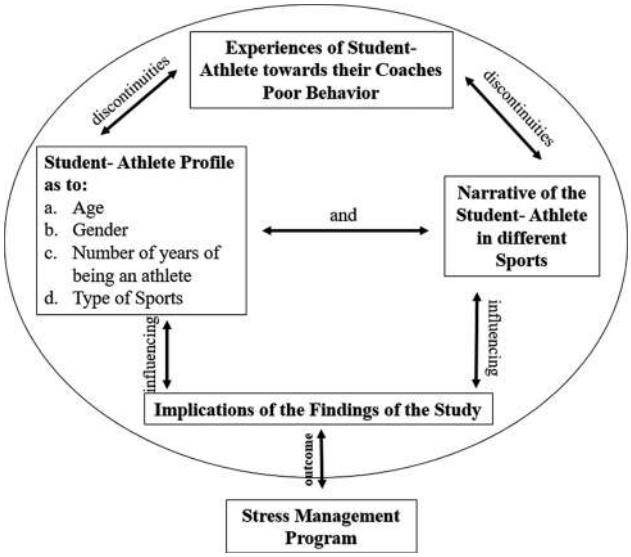
Coaches and practitioners should be mindful of what signs and factors inclining an athlete to burnout (Henrik, *et al*., 2018). According to the research of Monell, 2018, coach behaviors may cause athletic burnout and his recommendations stated that future studies must provide large number size that focuses on a more specific age group, because the topic is very important in today's society. Athlete burnout is a cognitive condition of being in absolute emotional and physical fatigue as well as experiencing an absence of motivation, according to the National Collegiate Athletic Association (NCAA).

Athlete burnout, also known as overtraining syndrome, occurs when an athlete experiences a decline in their results despite continuing training, a decline in their achievements, as well as a decrease in interest in their sport. This may result in emotional problems such as disinterest, irritability, and moodiness. Among other factors, it also affects self-esteem and raises anxiety and depression. Burnout also encourages loss of strength and agility and chronic exhaustion, which in the long-term may be harmful to the athlete. However, athletes can fight off burnout through awareness.

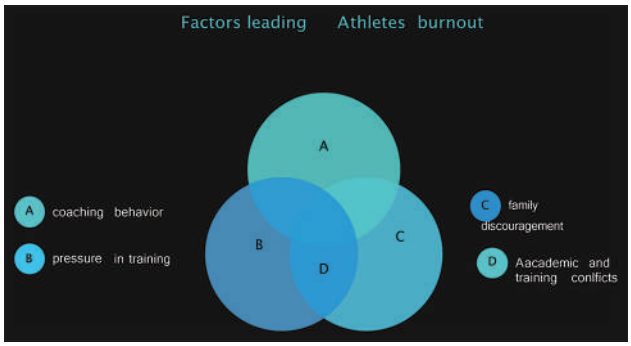
The purpose of this study is to synthesis and to review the related literature of coaching behavior and their effects on burnout of high school athletes. And also, coaches should be aware of the impact that they have on their athletes concerning their behaviors that occur during stress-induced situations. Various influences, negative effects, negative behaviors, and positive behaviors are reviewed in the literature. As athletes may or may not be directly impacted by their coaches' behaviors, actions, controlling behaviors, and/or situations, more research needs to be conducted to evaluate the direct correlation between the coaches' behaviors and the short-term and/or long-term effects on their athletes. This study is important and related to other literature because not only athletes reported their stress to be influenced by the behavior and actions of coaches, but coaches themselves also acknowledge how their negative reactions to stress can affect athletes.

METHODS AND TECHNIQUES OF THE STUDY

This study uses a qualitative approach (case study) that identifies the effects of coaching behavior on student-athletes burnout. For the use of data gathering techniques, the researchers conducted a structured interview with the use of an open-ended questionnaire to determine the effects of coaching behavior on student-athletes burnout.



RESULTS



DISCUSSION

Based on the data obtained by the researchers, there are many factors to be considered as reasons why student-athlete feels burnout, such as difficulties in training, coaching styles and teammates, and family discouragement. To face it, they use different ways to control their pressure. Even they are in different sports, they have the same experience with poor coaching behavior resulted in burnout. It also found out that two out of six respondents experience physical and verbal abuse as a factor of being poor coaching behavior that leads to burnout.

Researchers have discovered that poor coaching behavior has greatly affected the burnout of student-athlete. The researcher also found out that student-athlete l tend to react to their coach's

poor coaching behavior in different ways such as respecting their coaches by doing what is being told, even though they feel offended at times, feel pressure at times, and lose their confidence as student-athlete. Furthermore, one of the student-athlete stated in his interview that he does quit in his first sports due to his coach's poor coaching behavior. Coaches should focus on these results and determine how the student-athlete reacts both verbally and non-verbally to athletes experiencing burnout. One of the first steps of behavior management, being conscious of the actions (Miltenbeger, 2012). Coaches and practitioners should be mindful of what signs and factors inclining an athlete to burnout (Henrik, *et al*., 2018). Coaches should be aware of the impact they have on their athletes concerning their behaviors that occur during stress-induced situations.

RECOMMENDATIONS

With the gathered information and research results, researchers would like to recommend the following:

1. To hone the mental, psychological, behavioral, lifestyle, and physical behaviors that could aid them in their holistic growth as coaches and athletes, coaches, as well as student-athletes must undergo sports psychology.
2. To find out more, the cause of future studies into athlete burnout should look at the other variables that include, but are not limited to parenting and teammate actions/behavior.
3. Researchers suggest re-studying the research but make sure that more respondents are used to enhance the formulated program using a mixed-method approach.

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Research Article

A comparative study on effect of isotonic exercises on muscular strength among Z. P. High School Boys of Jagitial District, Telangana State

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INTRODUCTION

The main tasks for any of coach to construct training program that will ensure continue progress. Strength and strength training for general health good posture and for preventing form injuries is usually overlook, in which in the long, we can avoid injury run that can be harmful. Strength training is an important part to the most training programs and is often seen in many injury that can be overcome rehabilitation. There are different types of school thoughts training that can be utilized to increase muscular strength, and many of them are legitimate and effective. Resistance training is an important tool in the prevention and maintenance of health-related quality of life. Resistance training is the most effective method available for improving muscle strength.

Many of the physical activities of our daily life require muscular strength. Muscles support the skeleton and enable movement. Strong muscles in the legs, buttocks, back, abdomen, chest, and shoulder provide a person with the strength to stand up straight and maintain good posture. Strong muscles enable functional movements associated with everyone. Many sports and recreational activities require strength in particular muscle groups. Strength training can increase flexibility and range of motion among children. Muscular strength is component of physical fitness. Along with cardiovascular fitness, muscular endurance, flexibility and body composition, and muscular strength can be provide several health benefits. Muscular strength is recognized as an important component of health and it may be important for the performance of functional activities and quality of life. Muscular strength refers to the amount of force a muscle that can produce and is usually measured by the maximum amount of force a muscle which can produce in a single effort (maximal effort). The amount of muscle strength which can be achieved depends on gender, age, and inherited physical attributes. While strong muscles are essential for any athletic endeavor, strong muscles can benefit everyone in some way.

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Significance of the Study

The study may also profound a training methodology and loading procedure for the 14–16 years boys. The results may prove helpful to establish training system for the 14–16 years boys.

Objectives of the Study

The objectives of this study were as follows:

1. To find out the development in muscular strength among the 14–16 years boys using specific isotonic exercises.
2. To compare the rate of development of muscular strength among the 14–16 years boys using specific isotonic exercises.
3. To understand various parameters of muscular strength, which will be beneficial for age group of 14–16 years boys.
4. To observe and evaluate if isotonic exercises is applicable and useful for 14–16 years boys.

Hypothesis

1. There would be no significant difference in the development of the upper back muscles strength between experimental group and control group of 14–16 years boys.

2. There would be no significant difference in the development of the lower back muscles strength between experimental group and control group of 14–16 years boys.

METHODOLOGY

In the present study, the researcher care was taken point the variables for health related physical fitness aspects, that is, muscular strength, which were not only relevant but also closely related to the purpose of this study Therefore, best on literature evidence, correspondence with the expert, and scholars own understanding as well as keeping the feasibility aspects. The following variables were selected for the purpose of this study.

Selection of Sample

The population of the study was for the all 14 to 16 years boys of Jagitial district. The sample of the study was randomly selected from Z. P. High School, Jagitial. In all, 120 subjects were for tests for this study. Every subject was allotted with a code and a separate self-contained form for test results. The tests were selected in the aspect of development. In development, the research scholar selected the standard test of muscular strength. The test was administrating individually under standard condition applicable for specific test and the time period required between two tests was amply considered.

S. No.	Code/Group	Subjects
1.	Experimental Group 1	40
2.	Experimental Group 2	40
3.	Control Group	40

Tests and Tools

Tests: Kraus–Weber muscular strength test.

Tools: Equipment needed for conducting the initial and final test of Kraus–Weber test are the following 1) measuring tape, 2) pad and paper sheet, and 3) stopwatch and pillow.

Analysis and Interpretation

Table 1 shows the computation of analysis of covariance for strength of upper back muscle test between Experimental group 1, Experimental group 2, and Control group.

1. The pre-test mean of Experimental group – 1, Experimental group – 2, and Control group was 3.60, 3.92, and 4.02, respectively. The obtained f-value 0.905 for 2.117° of freedom was not significant at 0.05 level of significance. This confirms that there was no difference in the strength of upper back muscle of the boys of the said three groups at pre-test.
2. The post-test mean of Experimental group – 1, Experimental group – 2, and Control group was 7.92, 9.80, and 4.27, respectively. The obtained f-value 131.40. for 2.117° of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the strength of upper back muscle of the boys of the said three groups at post-test.
3. The adjusted post-test mean of Experimental group – 1, Experimental group – 2, and Control group was 8.00, 9.77, and 4.21, respectively. The obtained f-value for adjusted post-test mean is 147.14 at 2.116° of freedom, which was significant at 0.05 level of significance. This confirms that significant difference exists in the adjusted post-test mean for strength of upper back muscle ability of the boys of the said three groups.

Table 2 shows the computation of analysis of covariance for strength of lower back muscle test between Experimental group 1, Experimental group 2, and Control group.

1. The pre-test mean of Experimental group – 1, Experimental group – 2, and Control group was 4.47, 4.85, and 4.07, respectively. The obtained f-value 1.17 for 2.117° of freedom was not significant at 0.05 level of significance. This confirms that there was no difference in the strength of lower back muscle of the boys of the said three groups at pre-test.
2. The post-test mean of Experimental group – 1, Experimental group – 2, and Control group was 7.67, 9.92, and 4.60, respectively. The obtained f-value 114.07 for 2.117° of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the strength of lower back muscle of the boys of the said three groups at post-test.
3. The adjusted post-test mean of Experimental group – 1, Experimental group – 2, and Control group was 7.67, 9.83, and 4.69, respectively. The obtained f-value for adjusted post-test mean was 117.45 at 2.116° of freedom

Table 1

Means	E.G. 1	E.G. 2	Control group		S.S	Df	M.S	f-value
Pre-test	3.60	3.92	4.02	Between	3.95	2	1.97	0.905
				With in	255.35	117	2.18	
Post-test	7.92	9.80	4.27	Between	631.51	2	315.75	131.40*
				With in	281.15	117	2.40	
Adjusted post-test	8.00	9.77	4.21	Between	643.30	2	321.65	147.14*
				With in	253.56	116	2.18	

Table 2

Means	E.G. 1	E.G. 2	Control group		S.S	df	M.S	f-value
Pre-test	4.47	4.85	4.07	Between	12.01	2	6.00	1.17
				With in	599.85	117	5.12	
Post-test	7.67	9.92	4.60	Between	571.65	2	285.82	114.07*
				With in	293.15	117	2.50	
Adjusted post-test	7.67	9.83	4.69	Between	521.74	2	260.87	117.45*
				With in	257.65	116	2.22	

was significant at 0.05 level of significance. This confirms that significant difference exists in the adjusted post-test mean for strength of lower back muscle ability of the boys of the said three groups.

CONCLUSION

It is concluded that there would be significant difference between pre- and post-test of upper back muscle strength between experimental group and control group of 14–16 years boys. There are significant effects of theraband exercise on muscular strength with respect to development of strength upper back muscle among 14–16 years boys. There are significant effects of body weight exercise on muscular strength with respect to development of strength upper back muscle among 14–16 years boys. There would be significant difference between pre- and post-test of lower back muscle strength between experimental group and control group of 14–16 years boys. There are significant effects of theraband exercise on muscular strength with respect to development of the lower back muscle strength among 14–16 years boys. There are significant effects of body weight exercise on muscular strength with respect to development of the lower back muscle strength among 14–16 years boys.

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Research Article

An analytical study on speed and endurance among Kabaddi and Kho-Kho players of KGBV Schools in Hanumakonda District Telangana State

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INTRODUCTION

Physical fitness is a multifaceted continuum extending from birth to death, affected by physical activity. Physical fitness is an important component of health. Physical fitness is the ability to function efficiently and effectively is to enjoy leisure, to be healthy, to resist disease, and to cope with emergency situations. The importance of Physical fitness is linked to a higher quality of life as well as academic achievements. It is well documented that regular physical activity in childhood and adolescence improve speed, strength, and endurance, not only that but also health build, strong bones, muscles, and control weights, reduce anxiety, stress, and increases self-esteem. Health-related components of physical fitness include body composition, cardiovascular fitness, flexibility, muscular endurance, and strength. Skill-related components include agility, balance, coordination, power reaction time, and speed.

The relative importance of each of the components varies for each sport. Physical fitness is not only sport specific it may also be position specific, combined good health and physical development. The object of any program of physical fitness is to maximize any individual's health, speed, strength, endurance and skill relative to age, sex, body build, and physiology. These ends can only be realized through conscientious regulation of exercise, rest, diet, and periodic medical examinations. Exercise should be regular and vigorous, but begun slowly and only gradually increased in strenuousness. Proper exercise methods include jogging, cycling, and the use of body building machines. It is more important that periods of sleep be regular and restful than that they extend any fixed number of hours.

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Significance of the Study

The study is to determine the speed and endurance among Kabaddi and Kho-Kho players of KGBV Schools in Hanumakonda District, Telangana State.

Hypotheses

1. There may not be any significant difference among Kabaddi and Kho-Kho players of KGBV Schools in relation to their Speed.
2. There may not be any significant difference among Kabaddi and Kho-Kho players of KGBV Schools in relation to their Endurance.

Selection of Sample

The study was formulated based on the simple random sampling. The samples were collected from the girls 50 Kabaddi players and 50 Kho-Kho players from KGBV Schools in Hanumakonda District, Telangana State. Moreover, their age ranged from 12 to 16 years.

S. No.	Category of the subjects	No. of subjects
1.	Kabaddi players	50
2.	Kho-Kho players	50

Table 1: The mean values, standard deviation, t value, and P value among Kabaddi and Kho-Kho players of KGBV Schools in Hanumakonda in relation to their speed (50 m run test)

S. No.	Subjects	N	Mean	S.D.	't' ratio	p value
1.	Kabaddi players	50	7.00	0.46	2.601	0.01
2.	Kho-Kho players	50	6.11	0.34		

Table 2: The mean values, standard deviation, t value, and P value among Kabaddi and Kho-Kho players of KGBV Schools in Hanumakonda in relation to their Endurance (Cooper 12 min run or walk test)

S. No.	Subjects	N	Mean	S.D.	't' ratio	p value
1.	Kabaddi players	50	2016	296.76	4.01	0.01
2.	Kho-Kho players	50	2264	238.62		

Criterion Measures

S. No.	Variables	Tests	Unit of measurement
1.	Speed	50 m run test	In seconds
2.	Endurance	Cooper 12 min run or walk test	Distance covered in meters

Analysis and Interpretation of Data

The statistical analysis of the results obtained from the collected data of kabaddi and Kho-Kho players of KGBV Schools in Hanumakonda district and to find out the statistical difference among Kabaddi and Kho-Kho players [Table 1].

The mean of the Kabaddi and Kho-Kho players are 7.00 and 6.11, respectively. Moreover, the standard deviation score of the Kabaddi and Kho-Kho players is 0.46 and 0.34, respectively. Moreover, calculated "t" value is 2.601. It reveals that there was significant difference found on speed among Kabaddi and Kho-Kho players [Table 2].

The mean of the Kabaddi and Kho-Kho players are 2016 and 2264, respectively. Moreover, the standard deviation score of the Kabaddi and Kho-Kho players is 296.76 and 238.62, respectively. Moreover, calculated "t" value is 4.01. It reveals that there was significant difference found on Endurance among Kabaddi and Kho-Kho players.

CONCLUSION

The study under report has scientifically examined the physical fitness variables pertinent to speed and endurance. A trained individual is in a better state of physical fitness than the person who follows a sedentary, inactive life. It is concluded that the physical fitness plays a key role on the performance of the players. Physical activity can act as an antidote to some kinds of fatigue. Youngsters will be harmed through sustained exercise – if they are fit, their physical endurance is great, and the exercise will be conductive to good health. The study concluded that Kho-Kho players have higher speed and endurance than the Kabaddi players of KGBV Schools in Hanumakonda District.

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Research Article

Investigation on arm length measurement in relation to players performance in volleyball

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ABSTRACT

The purpose of the study was to investigate the relationship between arm length measurement in relation to the players performance in volleyball. The arm length is the utmost important quality that a player must possess with. As mentioned above, anthropometrical variables are some of the ideal indicators of the player's sports performance, which are prerequisite to find sports personality identification. The results of this study indicate that those who are good in anthropometrical terms specially in arm length perform exceptionally well as junior level volleyball play. Reviews of the any other games straight away depend on whether you are anthropometrically suitable for the respective games.

Keywords: Anthropometrical, Arm length, Performance, Physical fitness

INTRODUCTION

Human personality has done some fantastic things and has made an extraordinary improvement for the welfare of humanity since the present transformation in science and its applications has progressed tangibly. The most recent six decades specifically have seen a gigantic advancement in science and innovation. Inquires about in electronics and as of late in bio-science have tackled numerous issues. All these were conceivable in light of the fact that science and logical techniques were brought into training framework in schools and universities. We have delivered enough nourishment and different necessities that have made our present life liberated from yearning and illnesses.

Volleyball has formed into an exceptionally focused game which requires an elevated level of physical, physiological, and anthropometric fitness. The game at an elevated level of rivalry requires speedier abrupt developments and quick response. Volleyball matches have no time point of confinement and matches can keep going for a few hours, if the groups are uniformly coordinated.

Anthropometric estimations have been a piece of physical training exploration and assessment since its initiation. The previous research in the region of anthropometry was with the accentuation on changes in muscle size, realized through exercises. "(Clarke and Clarke, 1989)"

MATERIALS AND METHODS

This study was conducted on 75 students from the Junior Level Volleyball players from Jangaon district, Telangana. Subjects were randomly selected and divided in to various categories, that is, spikers = 25, setters = 25, and all-rounders = 25. Thus, a total number of 75 junior level players from Jangaon district whose age ranged between 15 and <18 selected for this study. Anthropometrical variable like arm length is one of the ideal indicators of the player's sports performance. High level of sports performances are merely the product of these variables,

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the measurements were taken using the correct testing procedure to get that he was well versed with the technique of conducting tests or not, using the test and re-test methods, the tester's reliability was established.

Selection of Tests

S. No	Selected Component	Criterion Variable	Testing Equipment	Unit of Measurement
1	Anthropometrical variable	Arm length	Measuring tape	Centimeters

Statistical Analysis

Pearson's coefficient of correlation was applied to the establishment of the relationship among the variables, between criterion variables with dependent variables measured at 0.05 level. Probability and ANOVA also used to indicate statistical significance. Scheffe's *post-hoc* test was applied to the test the significance differences between the ordered paired means.

ANALYSIS ON DATA AND DISCUSSION ON RESULTS

Summary of Data Sample on Arm Lengt

	Spikers	Setters	All-rounders	Total
N	25	25	25	75
ΣX	2122	2034	2082	6238
Mean	84.88	81.36	83.28	83.17
ΣX^2	180446	165924	174072	520442
Variance	13.7767	18.24	28.46	21.71
SD	3.71	4.27	5.3	4.65
SE	0.7423	0.854	1.067	0.5381

According to the table, each group of spikers, setters, and all-rounders received 25 samples. The values of ΣX for spikers, setters, and all-rounders are 2122, 2034, and 2082, respectively. The mean values for these three groups are 84.88, 81.36, and 83.28, respectively. The ΣX^2values of these three groups are 180,446, 165,924, and 174,072, respectively. The variance between the groups followed as 13.7767, 18.24, and 28.46. The values of Standard Deviation for spikers, setters, and all-rounders on arm length are 3.71, 4.27, and 5.3, respectively. The standard errors of the three experimental groups are 0.7423, 0.854, and 1.067 among junior level volleyball players.

Source of variance	SS	Df	MS	obtained f value	p
Between	155.3067	2	77.653	3.85	0.025
Within	1451.44	72	20.1589		
Total	1606.7467	74			

Analysis of Variance on Arm Length of Spikers, Setters, and All-rounders of Junior Level Volleyball Players

The sum-of-square values of arm length between the group and within the group groups followed as 155.3067 and 1451.144, respectively. The mean square error values of between and within the groups are 77.653 and 20.1589, respectively.

The obtained F ratio value among spikers, setters, and all-rounders of Junior level Volleyball players on arm length is 3.85. The obtained F value was significant when compared to the table value of 3.12 with df = 2 and 74 required for significant at 0.05 levels.

The scheffe's *post hoc* test was used to determine which of the four paired means had a significant difference and the findings are shown in Table 9.

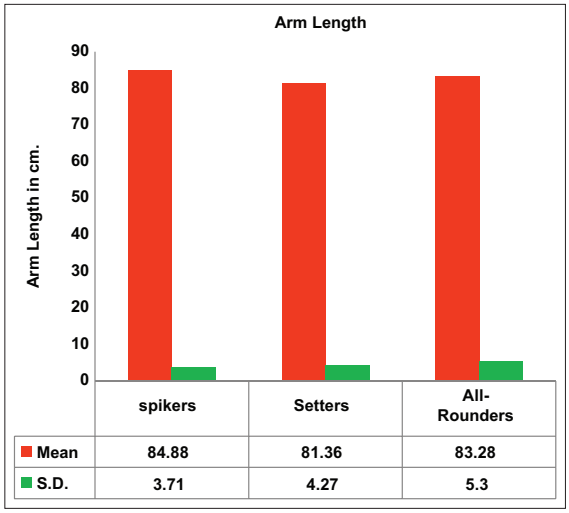
Scheffe's *Post hoc* Test for the Differences in the Paired Means of Spikers, Setters, and All-rounders of Junior Level Volleyball Players on Arm Length

Mean values			Mean difference	CI
Spikers	Setters	All-rounders		
84.88	81.36		3.0*	0.816
84.88		83.28	1.6*	0.816
	81.36	83.28	1.92*	0.816

The mean difference between the spikers and setters is 3.0, spikers and all-rounders are 1.6 and setters, and all-rounder is 1.92. The mean difference value on arm length is greater than the confidence interval value 0.816 in all three groups.

The summary of the table depicts that spikers are having long in arm length when compared to setters and all-rounders. Further, the researcher found that, all-rounders of volleyball game are having more in length of the arm when compared to setters.

Graphical Presentation on Arm Length



DISCUSSION ON FINDINGS

The findings show a positive and significant relationship between volleyball playing ability and arm length among junior level volleyball players.

Arm Length: The relevance of arm length among junior level volleyball players is revealed in this study's discussion of arm length, which shows that spikers arm length is more when compared to setters and all-rounders.

Discussion on Game Performance

The significance of game performance among junior level volleyball players, the spikers are showing better game performance when compared to setters and all-rounders. Second, all-rounders has showed better significance when compared to setters.

CONCLUSIONS

- There was a substantial connection between volleyball playing ability and selected anthropometrical variables, that is, arm length have a strong association with volleyball playing skill in junior level volleyball players.
- The spikers have shown a significant difference in arm length, when compared to setters and all-rounders among junior level boys volleyball players.

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Research Article

Comparison of self-esteem and anxiety between rural and urban degree college students

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ABSTRACT

The intention of this article is to compare the self-esteem and anxiety between degree college students from rural and urban background in Bengaluru District, Karnataka. To achieve the purpose of the study, 200 degree college students pursuing B.A., B.Sc., and B.Com degree who had urban and rural background with the age ranging 18–23 years were randomly selected. Sinha's comprehensive anxiety test constructed and standardized by Sinha and Sinha was utilized and brief self-esteem inventory developed by Ken illiams (2000) was used to assess the anxiety and self-esteem of college students. The statistical technique such as independent "*t*"-test was utilized to test the hypotheses and the level of significance was fixed at 0.05 level of significance. The statistical procedure was done with the help of SPSS Package version 20 and Microsoft Excel 2013. The result found that there was significant difference in the level of self-esteem and anxiety between urban and rural college students. The urban degree college students had higher self-esteem and less anxiety when compared with rural degree college students. These are the indications from the research that the environment acting a influential role in self-esteem and anxiety of students.

Key words: Anxiety, Self-esteem, Degree college, Students, Urban, Rural

INTRODUCTION

Today numerous outlets and Coaches hope for sport psychology for a focused edge by looking for psychological training program, keeping in mind, the end goal to study among the rest things, is to approach to competitive stress manage, improve confidence, central concentration, and increase communication skill and team harmony.

The study on the analysis of psychological concepts of college students is most important criteria for recognizing health of children at adolescent age. Anxiety is the most common psychiatric disorder. The incidence of anxiety disorder is increasing. Life style is also a contributing factor and it is of essential importance to know the events that derail our life. Distress is the result of experiencing anxiety that manifests in the entire psychophysical being. The onset is usually unexpected, without warning, cause, and reason.

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Anxiety is a generalized mood condition that can often occur without an identifiable triggering stimulus. Anxiety symptoms are common to children, with 10–20% of school-aged children experiencing anxiety symptoms. A larger number of children experience stress that does not qualify as an anxiety disorder.

Self-esteem can be defined as a form of self-acceptance, personal appreciation, and subjective respect of one's own (Morganett, 2005). The definition of self-esteem evolved through a long history. In 1890, William James defined "self-esteem as an affective phenomenon and a dynamic process affected by successes and failures and thus opens to enhancement, or a comparison between ideal-self and actual-self (James, 1983). Self-esteem as an attitude (either positive or negative) that individuals have about themselves, and that it is a product of the influences of culture, society, family, and interpersonal relationships (Rosenberg, 1979). In this manner, the self-esteem is a perspective that should be improved and the investment in recreations and games have to be a motivation in the evaluation. Reddy *et al.* (2015) compared self-esteem among secondary school students of urban and rural locality and insignificant difference in the self-esteem of urban and

rural students. Sridevi (2013) contrasted anxiety between the urban and rural kids and infers that rural students were more in anxiety than urban students in both general and test anxiety.

By understanding of the quality of motor and cognitive development and psychological fitness, one can get the basic information for formulations and implementations of physical education and sports training programmers, thus, optimize the performance ability at a given age and prevent the possible harmful effects of training at urban and rural settings. Hence, the present study was intended to know the psychological fitness between urban and rural degree college students from Bengaluru District in Karnataka, India.

Purpose and Objective

The intention of this article is to compare the self-esteem and anxiety between degree college students from rural and urban background in Bengaluru District, Karnataka

Hypotheses

It was hypothesized that there is no significant difference in the level of self-esteem and anxiety level among degree college students of Bangalore District Karnataka.

METHODOLOGY

Selection of Subjects

To achieve the purpose of the study, 200 degree college students pursuing B.A., B.Sc., and B.Com degree who had urban and rural background with the age ranging 18–23 years were randomly selected.

Selection of Variables and Criterion Measures

The following variables were selected for the purpose of the study:

Sinha's comprehensive anxiety test

This test was developed by Sinha and Sinha and utilized to find out the level of anxiety among Degree College students. This scale contains 90 items and the validity was examined by computing coefficient of correlation and it was found a value of 0.62 and the reliability was examined by test-retest method and it was found value of 0.92. This scale was highly reliable to test the anxiety level among students.

Brief self-esteem inventory

This inventory was developed by Ken Williams (2000) and it was used to examine the level self-esteem of degree college students. The inventory consists ten areas namely appearance, competence, intelligence, personality, success, unconditional worth, self-forgiveness, acceptance of weakness, self-love, and freedom from guilt. This inventory contains 20 items and the content validity and reliability were found by the author who was satisfactory.

Statistical Analysis

The statistical technique such as independent "t"-test was utilized to examine the hypotheses and level of significance was fixed at 0.05 level of significance. The statistical procedure was completed with the help of the SPSS Package and MS Excel 2010.

Analysis and Interpretation of Data

The independent "*t*"-test was used to find out the significant differences in the self-esteem and anxiety of degree college students and obtained results have been shown in the following Table 1.

Table 1 shows independent "t"-test result on selected psychological fitness between urban and rural degree college students of Bengaluru District. The calculated "*t*" values 4.01 and 3.07 are higher than table d value 2.63 at 0.01 level and it is found significant. Hence, stated hypothesis is rejected and an alternative hypothesis has been accepted that "there is a significant difference in the level of self-esteem and anxiety between urban and rural degree college students from Bengaluru District." The results found that urban degree college students had higher level of self-esteem and less anxiety when compared with rural degree college students [Figure 1].

DISCUSSION OF RESULTS

The result found that urban Degree College Students had higher level self-esteem and less anxiety level when compared with

Table 1: Comparison of self-esteem and anxiety levels between urban and rural degree college students of Bangalore District

Variables and groups	Number	Mean scores	Standard deviation	Obtained "*t*" Value	Level of significant
Self-esteem					
Urban students	100	55.165	4.135	4.01	**
Rural students	100	58.165	6.234		
Anxiety					
Urban students	100	32.740	13.258	3.07	**
Rural students	100	38.100	11.325		

@Not significant; **Significant at 0.01 level (Table '*t*' value 0.05=1.98; 0.01=2.63)

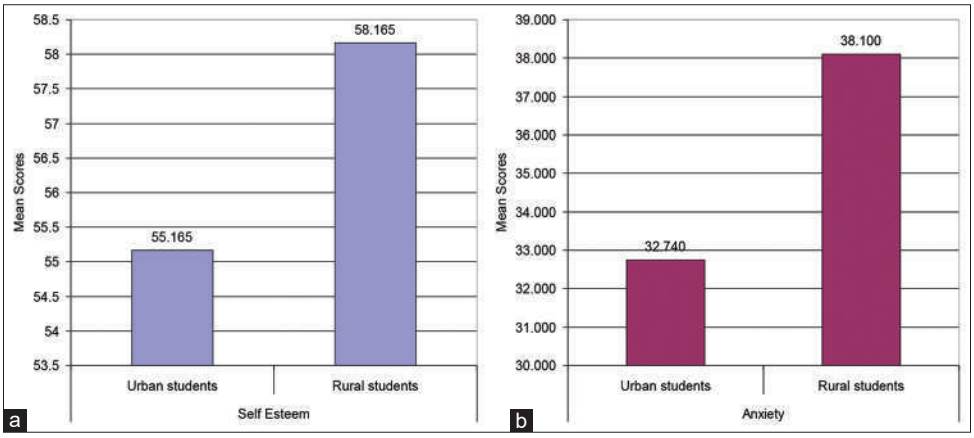

Figure 1: Bar graph shows the comparison of self-esteem and anxiety level between urban and rural degree college students. (a) Self-esteem level among degree college students and (b) anxiety level among degree college students

rural high school boys. The "*t*"-test result shows significant differences in the level of self-esteem between urban and rural degree college students and proved that urban degree students (M = 62.160) were higher level of self esteem when compared to rural students (M = 58.500). This may be due to training and facilities availed in the urban locality. The "*t*" test result also proves and shows significant difference in the anxiety between urban and rural degree college students and proved that urban degree college students (M = 30.740) were less anxiety when compared to rural boys (M = 39.900). This may be due to lack of counseling, training, facilities, and life styles in rural locality. Similar results were found in Kannekanti and Hamza (2015), Sridevi (2013), and Alam (2013).

CONCLUSION

It was found that there was a significant difference in the self-esteem and anxiety level between urban and rural degree college students. The degree college students from urban background had higher self-esteem and low anxiety when compared with students from rural locale. These are indications from the investigation that the location plays a determining role in developing self-esteem and reducing anxiety of students. Perhaps, urban communities are aware about values might be the children of support essential for thriving, support which develops self-esteem as well as reduce anxiety. Urban parents should ensure that their home provides children to sufficient emotional support and encouragement for their wisdom. College campus atmosphere should be supportive for the emotional development and mental health of the children and they should be free to utter their feelings. Nowadays, self-role is special status accounts in personality psychology, growth and adaptation to their.

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Research Article

Comparison of explosive power among Taekwondo players and Karate Athletes of the Hyderabad District in Telangana State

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ABSTRACT

The purpose of the study is to find out the explosive power among Taekwondo players and Karate Athletes of the Hyderabad District in India. The study was formulated based on the simple random sampling. The samples were collected from the 20 Taekwondo players and 20 Karate Athletes of the Hyderabad District in the age group of 18–22 years. Hence, the Taekwondo players are having good explosive power compare to Karate Athletes. Explosive power is more important in Combat sports.

Keywords: Explosive power, Taekwondo, Karate Athletes

INTRODUCTION

"Sports" is a popular spectacle and a mass social movement of contemporary times. The process of historical development sports has occupied a prominent place both in the moral culture of a society. Its social significance continues to soar. In the modern days, "sports for all" become a very popular slogan. Participation in sports will yield optimum physical fitness and positive health for all. In the hurry scenario of modern life, people need more exercise to keep their body and mind fit to execute the day-to-day activities effectively. Human being is an active creature. He possesses capacities for movement. He has all the necessary neuromuscular mechanisms that make movement possible and encourage gross motor activity of the entire being. Without this basis there is not life physiologically, while man is alive, he must move in some way.

Alp and Gorur (2020) studied to compare explosive strength and anaerobic power performance of taekwondo and karate athletes. Ten taekwondo and ten karate athletes participated to the study voluntarily by taking "Informed Consent Form." The athletes' values were in taekwondo as mean of age 21 ± 2.4 years, height 181.2 ± 8.01 cm, weight 66.9 ± 15.74 kg, sport age 7.5 ± 5.52 years; in karate as mean of age 21.1 ± 1.66 years, height 170.2 ± 10.04 cm, weight 64.4 ± 15.69 kg, and sport age 10.5 ± 3.83 years. Counter movement jump, standing long jump, and Wingate Anaerobic test were applied to the athletes. The data were analyzed using statistical package program. Descriptive statistics were used for mean and standard deviation values, "Shapiro–Wilk" test was used to determine whether the data showed normal distribution or not, and "Independent t-Test" was used for comparisons. The results were evaluated according to "$P = 0.05$). As a result, when explosive strength and anaerobic power characteristics of taekwondo and karate athletes were compared, a difference was found between the two branches. The reason for this can be said to be different competition times, training programs, training methods, and physical requirements of the branches. In addition, taekwondo athlete's foot techniques, karate athletes using hand techniques more than foot techniques can be listed as the reasons for this difference.

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Significance of the Study

The purpose of the study is to find out whether or not any significant difference found on selected physical fitness variables, that is, explosive power among Taekwondo players and Karate athletes of the Hyderabad District in India.

Purpose of the Study

The purpose of the study is to find out the explosive power among Taekwondo players and Karate Athletes of the Hyderabad District in Telangana State.

METHODOLOGY

The study was formulated based on the simple random sampling. The samples were collected from the 20 Taekwondo players and 20 Karate Athletes of the Hyderabad District in the age group of 18–22 years (Table 1).

Standing Broad Jump

The standing long jump, also called the Broad Jump, is a common and easy to administer test of explosive leg power.

- Purpose: To measure the explosive power of the legs.
- Equipment required: Tape measure to measure distance jumped, non-slip floor for takeoff, and soft landing area preferred. Commercial long jump landing mats are also available. The take-off line should be clearly marked.
- Procedure: The athlete stands behind a line marked on the ground with feet slightly apart. A two foot take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backward. Three attempts are allowed.

RESULTS AND DISCUSSION

In Table 2, the mean values of Taekwondo players in standing Broad Jump is 2.32 and Karate athletes is 2.26. Hence, the Taekwondo players are having good explosive power compare to Karate athletes. Explosive power is more important in Combat sports.

Table 1: The sample of the study

S. No.	Name of the category	Number of subjects
1.	Taekwondo players	20
2.	Karate athletes	20
	Total Players	40

Table 2: Mean values and independent samples test of standing Broad Jump between Taekwondo players and Karate Athletes

Variables	Group	Mean±SD	*t*	*P* value
Standing Broad Jump	Taekwondo players	2.32±0.157	3.55	0.001
	Karate Athletes	2.26±0.159		

*Significant at 0.05 level

CONCLUSIONS

Kicking is the major way to score in a Taekwondo competition which makes athletes leg power a key quality. The explosive power is important among Taekwondo and Karate Athletes to performance better. The Taekwondo players are having good explosive power compare to Karate Athletes. Explosive power is more important in Combat sports.

RECOMMENDATIONS

Similar studies can be conducted among females and in other sports and games. This study is useful to the coaches to prepare the conditioning program to improve their skills in Combat sports.

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Research Article

Effect of plyometric exercises and medicine ball exercises on the development of explosive power among school sprinters of Hyderabad District

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ABSTRACT

The purpose of the study was to find out the effect of plyometric and medicine ball exercises on the development of explosive power among school sprinters of Hyderabad District in Telangana State. To achieve this purpose, 30 sprinters in the age group of 14–16 years taken as subjects. The selected 30 subjects were divided into three equal groups of ten members each as two experimental groups and one control group, in which Group – I ($n = 10$) underwent plyometric exercises for 3 days/week for 6 weeks, Group – II ($n = 10$) underwent the medicine ball exercises for 3 days/week for 6 weeks, and Group – III ($n = 10$) acted as control who are not participate any training apart from their regular activities. The standing Broad Jump Test pre- and post-test were conducted among three groups to assess the explosive power of legs. The results of the study were found that there was a significant difference of performance due to plyometric exercises and medicine ball exercises when compared with the control group for development of explosive power.

Keywords: Sprinters, Plyometric, Explosive power, Medicine ball

INTRODUCTION

Plyometrics for speed, which focus on the stretch shortening cycle, are an effective method for supplementing a speed training program. Anyone interested in improving speed must sprint as part of their training. Used by athletes to reach peak physical condition, plyometric exercises manipulate the elasticity and strength of muscles by increasing the speed and force of their contractions. This gives plyometric training the ability to produce fast and powerful movements that provide explosive power for a variety of sports.

Used by athletes to reach peak physical condition, plyometric exercises manipulate the elasticity and strength of muscles by increasing the speed and force of their contractions. This gives plyometric training the ability to produce fast and powerful movements that provide explosive power for a variety of sports.

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Studies have shown that medicine ball training can be more effective than conventional strength training at boosting performance.

Samson *et al.* (2020) studied the effect plyometric training on explosive power among college students. Twenty-four volleyball players From Thoothukudi District, Tamil Nadu, India were selected randomly as subjects. The age of the subjects has been ranged from 19 to 25 years. The selected subjects were divided into two groups. Group – I underwent plyometric training and Group – II acted as control. The experimental group was subjected to the plyometric training for alternative 3 days for up to 6 weeks. The plyometric training was selected as independent variable and the criterion variables horizontal and vertical explosive power were selected, as dependent variables and the selected dependent variables were assessed by the standardized test items. Horizontal explosive power was assessed by standing broad jump test and the unit of measurement is in centimeters, and vertical explosive power was assessed by vertical jump test and the unit of measurement is in centimeters. The experimental design selected for this

Table 1: Analysis of covariance with means and "f" ratio, standing Broad Jump for plyometric training, medicine ball exercises group, and control group

Variable Name	Group Name	Control Group	Medicine ball exercises Group	Plyometric training Group	'F' Ratio
Standing Broad Jump (in meters)	Pre-test mean±SD	1.91±0.12	1.91±0.13	1.92±0.13	0.003
	Post-test mean±SD	1.91±0.12	2.07±0.22	2.14±0.31	3.034*

*Significant at 0.05 level of confidence.

study was pre- and post-test randomized design. The data were collected from each subject before and after the training period and statistically analyzed using dependent – "*t*"-test and analysis of covariance (ANCOVA). It was found that there was a significant improvement and significant different due to the effect of plyometric training on horizontal and vertical explosive power.

Taheri *et al.* (2014) studied the effect of plyometric and resistance training on agility, speed, and explosive power in soccer players. Thirty male soccer players who aged 18–25 voluntarily participated in the study. They were randomly assigned in plyometric ($n = 15$) and resistance ($n = 15$) groups. Both groups performed selected soccer-specified plyometric and resistance training for 8 weeks. Data were analyzed using paired *t*-test, independent *t*-test, and covariance statistical methods. The results showed that levels of agility, speed, and explosive power in plyometric training group ($P = 0.0001$), and agility and explosive power in resistance training group ($P = 0.0001$) were significantly improved in post-test compared to pre-test. Between-groups comparison showed better records in agility, speed, and explosive power for plyometric compared with resistance training group after 8 weeks (respectively, $P = 0.032$, $P = 0.0001$ and $P = 0.002$). According to the results, it can be concluded that both plyometric and resistance training exercises increase agility and explosive power and reduce sprint time in football players. Plyometric exercises also showed more favorable effects on study variables compared with resistance exercises. Therefore, these types of training methods are suggested to soccer players and coaches for improving speed and performance skill.

METHODOLOGY

The purpose of the study was to find out the effect of plyometric and medicine ball exercises on the development of explosive power among School Sprinters of Hyderabad District in Telangana State. To achieve this purpose, 30 sprinters in the age group of 14–16 years taken as subjects. The selected 30 subjects were divided into three equal groups of ten members each as two experimental groups and one control group, in which Group – I ($n = 10$) underwent plyometric exercises for 3 days/week for 6 weeks, Group – II ($n = 10$) underwent the Medicine Ball exercises for 3 days/week for 6 weeks, and Group – III ($n = 10$) acted as control who are not participate any training apart from their regular activities. The standing Broad Jump Test pre- and post-test were conducted among three groups to assess the explosive power of legs. The results of the study were found that there was a significant difference of performance due to plyometric exercises and medicine ball exercises when compared with the control group for development of explosive power. The following tests were conducted at in pre-test and post-test for measuring explosive power.

Standing Broad Jump – Explosive Power of Leg.

RESULTS AND DISCUSSION

The data collected before and after the experimental periods on leg explosive power plyometric training group, medicine ball training and control group were analyzed and presented in the following Table 1.

RESULTS

The results of the study also shown plyometric training group has significantly improved in Standing Broad Jump from 1.92 to 2.14 compare to the medicine ball exercises group is 1.91–2.07 and control group is 1.91–1.91 remain same. Hence, plyometric training is effective for development of explosive power in the legs.

CONCLUSIONS

From the analysis of the data, the following conclusions were drawn.

1. There was a significant improvement due to the plyometric training and medicine ball training on explosive power when compared with the control group.
2. There was a significant improvement due to the plyometric training compare to the medicine ball exercise training for development of explosive power.

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