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Review Article

A healthier future by global partnerships promoting physical activity and sustainable community living: The A24-Kaifeng conference

Sunday O. Onagbiye¹, Garry Kuan², Yew Cheo Ng³, Ming-Kai Chin⁴, Govindasamy Balasekaran³, Ke Zhou⁵, Qingyun Zheng⁵, Thomas Root⁶, Ian G. Culpan⁷, J. Larry Durstine⁸

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ABSTRACT

Initiatives for promoting physical activity have the potential to address discrepancies in sustainable development goal 3 and significantly contribute to improved global health. The World Health Organization (WHO) by the year 2030 (WHO, 2019) has set an ambitious agenda to reduce physical inactivity by 15%. The aims of this paper are to discuss strategies for promoting physical activity and regular practiced exercise across all age groups by fostering global partnerships through physical activity, exercise, and health science conferences. To achieve these goals, purposeful and concentrated collaborative efforts are essential to meet the proposed 2030 target. These collaborations are exemplified by the initial founders of the Asian Council of Exercise and Sports Science (ACCESS) which were still present in the 10th Asia Pacific Conference of Exercise and Sports Science (A24-Kaifeng). The ACCESS leadership is actively engaged in bringing together global experts in organized conferences, seminars, workshops, symposiums, roundtable discussions, and training courses. The ACCESS leadership is committed to publish original research and information regarding physical activity, exercise, and associated sports science aspects, while establishing collaborative links between institutions and organizations to collectively develop strategies to provide solutions for enhancing physical activity and well-being worldwide. The goal of these initiatives is the promotion of a better quality of life for all.

Keywords: Community, Physical activity and health, Sustainable development goal 3, Summits

INTRODUCTION

The pursuit of promoting an active lifestyle for better health, well-being, and quality of life is a pressing global priority. Improvement and maintenance of healthy living are recognized as global priorities for promoting individual quality of life and extending the life span (Cesari *et al.*, 2016; Marquez *et al.*, 2020; Wu *et al.*, 2024). Engaging in physical activity and regular practiced exercise are essential for mitigating risk

for various chronic diseases, improved mental health, and reducing physical injuries. Evidence provided by the World Health Organization (WHO) demonstrates that participation in physical activity, exercise, and sports leads to significantly improved health outcomes (Anderson *et al.*, 2019; Mahindru *et al.*, 2023; WHO, 2015). An executive summary published by the lancet regarding physical activity in 2021 revealed that insufficient progress to globally enhance physical activity levels is being made; a situation exacerbated by the coronavirus disease 2019 (COVID-19) pandemic (Filiz *et al.*, 2024; Isakson, 2021; Woods *et al.*, 2020; Wu *et al.*, 2023). Furthermore, Reilly *et al.* (2022) reported global physical activity levels among children and adolescents did not

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increase significantly between 2014 and 2022. These study results support that substantial actions are urgently needed to meet the 15% reduction in physical inactivity by the year 2030 as the WHO has recommends (WHO, 2018; Neville *et al.*, 2022). If this reduction in physical inactivity is not achieved, a substantial number of children and adults face increased risk of non-communicable diseases (NCDs), reduced life expectancy and quality of life, and premature mortality (Benzing *et al.*, 2021).

Recent findings published in the Lancet Global Health journal, analysed data from 507 population-based surveys involving 5.7 million participants, underscore the urgent need for intensive collaboration to meet the proposed 2030 target for reducing physical inactivity (Strain *et al.*, 2024). Although progress is being made, additional advocacy is required to better align with the first global action plan on physical activity presented by the WHO in 2018 (WHO, 2018). This global plan places a strong emphasis on up-scaling policy measures aimed at increasing physical activity and exercise to promote health and well-being. Among other highlights of this plan are the roles physical activity and exercise play to increase sustainable development (SD) (Global Action Plan on Physical Activity 2018–2030).

A primary goal of the United Nations SD goals (UNSDGs) is Goal 3 which aims to ensure healthy lives and promote well-being for all, irrespective of age (UNSDG, 2024). This goal is best achieved through increased physical activity and regular exercise participation and is interdependent of the broader objective of building a better, sustainable future for the global population by 2030 (Uvinha *et al.*, 2022; Ding *et al.*, 2021). Notably, physical activity and regular exercise engagement positively influence many other SDGs including reducing premature death from NCDs, improving mental and physical health, promoting quality education and quality of life, advancing gender equality, fostering economic growth, and enhancing overall community living standards. The WHO recognizes that promoting health through physical activity and exercise helps to alleviate issues such as air pollution, inequitable access to public spaces, and the reduction of carbon emissions (WHO, 2019).

HISTORICAL PERSPECTIVE OF ASIAN COUNCIL OF EXERCISE AND SPORTS SCIENCE (ACCESS)

In 1999 the ACCESS was establishment and guided by the collective efforts of the leadership of Dr. Tae-Won Jun (Seoul National University, Korea), Dr. Ming-Kai Chin (Hong Kong Institute of Education, China), and Dr. Mario G. Imson (University of Baguio, Philippines). These four leaders jointly contributed to the early advancement of the UNSDGs, especially Goal 3 (SDG 3). One year later in 2000, at the

first International Conference for Physical Educators (IPCE 2000) held at the Hong Kong Institute of Education, Hong Kong (China hosted and sponsored by Dr. Jasson Chiang of the Graduate Institute of Sport Coaching Science of the Chinese Culture University, Taiwan, and Ms. Cillia Chiang of the Aerobic Fitness and Health Association of Taiwan) these four experts met and continued the organizational and strategy discussions regarding the ACCESS's future direction.

During this pivotal meeting, several important steps were accomplished. The ACCESS constitution and by-laws were developed. Dr. Tae-Won Jun was unanimously selected as the acting president whose primary responsibility was to facilitate the organizational structure development and to lead in the preparation for the inaugural 2001 Asia Pacific Conference. Additionally, discussions by this group resulted in the agreement that regular conferences would be held every 2 years to ensure on-going dialogue and collaboration among members, and that the ACCESS's mission was to address relevant issues regarding the promotion, communication, interaction, and cooperation among Asian physical activity, exercise, and sports science experts, allied professionals, and students from educational, scientific, and research institutions. The academic role of ACCESS is to:

1. Promote research in the areas of exercise and sports science; facilitate international exchanges among researchers and students in the Asian regions; and assist young scholars/graduate students in conducting applied research in exercise and sports science
2. Organize conferences focused on exercise and sports science
3. Publish resources and literature related to exercise and sports science
4. Establish links with other institutions and organizations involved in exercise and sports science activities.

Since official establishment in 2001, ACCESS has actively organized biennial scientific conferences, known as the Asia Pacific Conference on Exercise and Sports Science (APCESS), in collaboration with various partners. The inaugural APCESS conference and the First General Assembly Meeting of ACCESS took place in July 2001. This organization is committed to advancing the field of physical activity, exercise, and sports science, thereby improving health, fitness, living standards, and quality of life for individuals in not only Asia populations but also population worldwide. Most importantly, these objectives now align with SDG 3. ACCESS, to this day, continues to advance new innovations, ideas, and perspectives and has seen many organized APCESS conferences [Table 1].

APCESS 2024-KAIFENG (A24-KAIFENG)

In 2024, the 10th APCESS Kaifeng (A24-Kaifeng) conference organized by the School of Physical Education, Henan

Table 1: This Table presents information regarding previously successfully organized 10th APCESS 2024-Kaifeng (A24-Kaifeng) conferences, the year, host nations/regions, the University, and conference themes

Edition	Year	Host country	Host institution	Conference themes	No. of delegates
1 st	2001	Korea	Seoul National University	The New Perspective of Exercise and Sports Science for the Better Life in the 21 st Century	280+
2 nd	2005	Philippines	University of Philippines-Diliman	Sport in Society and Asian Perspectives in the 21 st Century	700+
3 rd	2007	Japan	University of Hiroshima	Asian Harmony of Exercise and Sports Sciences	500+
4 th	2009	Malaysia	Universiti Saints Malaysia	Integration of Exercise and Sports Sciences, Physical Activity, and Training for Sports Performance and Health	600+
5 th	2011	China	Shanghai Sports University	Better City, Better Life Through Active Healthy Lifestyles and Sports Science	600+
6 th	2013	Taiwan	Chinese Culture University	Caring for the Future Generation: A Holistic Approach Leading towards Health and Active Living	600+
7 th	2015	India	Manav Rachna International University	Interdisciplinary Applied Approach to Health and Performance Enhancement through Sports Science	800+
8 th	2017	Thailand	Kasetsart University	Innovation and Healthy Living for Sustainability	360+
9 th	2019	Philippines	University of the Philippines	Stronger and Healthier ASEAN through Sports Science	400+
10 th	2024	China	Henan University	Active and Sustainable Community Living: Global Partnerships through Physical Activity, Exercise, and Health Science	600+

*The conferences between 2019 and 2024 were cancelled due to the Coronavirus Disease 2019 pandemic

University, Kaifeng, Henan Province, China, in collaboration with the ACESS and the Foundation for Global Community Health (GCH) was held. This milestone event attracted more than 600 delegates, marking a significant anniversary for the APCESS conferences and adding to the legacy of previously held prestigious conferences [Table 1]. The theme of the 10th A24-Kaifeng conference, “Active and Sustainable Community Living: Global Partnerships through Physical Activity, Exercise, and Health Science,” promoted innovative and creative research ideas aimed at promoting healthy lifestyles to increase quality of life and to enhance sports performance. This theme aligns closely with the 17 UNSDGs, particularly focusing on Health and Well-Being (Goal 3) (Menne *et al.*, 2020) and Quality Education (Goal 4) (Hales and Birdthistle, 2022). The A24-Kaifeng conference welcomed a diverse array of global keynote speakers, invited speakers, symposium speakers, workshop presenters, GCH Future Leaders (GCHFL), and delegates. This collaborative event pushed the boundaries of research in physical education, physical activity, exercise science, and sports science. Global experts from countries including Argentina, Austria, Belgium, Bulgaria, China, Hong Kong, India, Indonesia, Malaysia, New Zealand, Nigeria, Paraguay, Philippines, Republic of Korea, Russia, Singapore, Spain, Slovakia, South Africa, Thailand, the United States of

America, Turkey, and Zimbabwe came together to share their knowledge and expertise [Table 2].

The 10th A24-Kaifeng conference featured representation from 31 local institutions and included 116 oral presentations, comprising keynote speakers, invited speakers, GCHFL, and symposium presentations, and an impressive 595 poster presentations [Tables 2-4].

The 10th A24-Kaifeng conference was an enriching experience examining various strategies for enhancing community health through physical activity and exercise. Most importantly, the APCESS leadership gathered expertise from global physical activity and exercise professionals and apply their experiences to gain insights for the collective benefit of all attendees. Such strategies ensured that the 10th A24-Kaifeng would attract a strong presence from local China groups. Most importantly, the A24-Kaifeng conference was endorsed by over 70 different international organizations [Appendix 1].

Original research presented at this conference reported that preschool years serve as an influential time for the development of movement, motor skills, and healthy active behaviours to promote increasing youth physical activity and exercise levels (Coe, 2020; Kuzik *et al.*, 2020). A highlight of the conference

Table 2: Descriptive statistics of international and local delegates for the 10th APCESS 2024-Kaifen (A24-Kaifeng)

Keynote speakers	7
Invited speakers	6
Global community health future leaders	7
Symposium speakers	32
Oral presentations	64
Total number of oral presentations	116

Table 3: Descriptive categories for oral presentations (n=116) for the 10th APCESS 2024-Kaifen (A24-Kaifeng)

Categories	Total number
Biomechanics	3
Exercise physiology	4
Sports medicine	8
Physical activity and health	9
Mental health and well-being	9
Injury, rehabilitation, prevention	3
Sports pedagogy/physical education	34
Adapted physical education/sports	2
Motor learning/control	2
Sports psychology	4
Sports sociology	14
Sports management	3
Sports branding/sports marketing	5
Sports nutrition	3
Sports coaching	5
Chronic illness and special populations	8

included tours to a most successful sports company in China known as JoyKids/JoyStar. This company is renowned for providing a fun learning experience coupled with outstanding facilities and a dedicated staff that successfully implemented proven curricula. Established with the goal of making early learning enjoyable for children, JoyKids offers a secure and stimulating environment where kids mentally develop while physically growing. This preschool education program, JoyKids is primarily focussed on children aged 1–12 years, offering flexible program options including full-time and part-time and hourly programs participation, facilities for continued living to ensure that every child’s educational needs are met in a nurturing atmosphere. The 10th A24-Kaifeng also hosted many local delegates from various Chinese institutions and provinces coupled with many international delegates [Appendix 2].

A key collaborating partner for this conference was the GCH. This 501(c) organization is dedicated to the continuous

Table 4: Descriptive categories for poster presentations (n=595) for the 10th APCESS 2024-Kaifen (A24-Kaifeng)

Categories	Total number
Biomechanics	15
Exercise physiology	42
Sports medicine	18
Physical activity and health	30
Mental health and well-being	39
Injury, rehabilitation, prevention	18
Sports pedagogy/physical education	105
Adapted physical education/sports	15
Motor learning/control	21
Sports psychology	32
Sports sociology	93
Sports management	24
Sports branding/sports marketing	30
Sports nutrition	10
Sports coaching	74
Chronic illness and special populations	29

development of global best practices focusing on physical, social, emotional, and environmental well-being. By collaborating with top-tier organizations and institutions, GCH delivers peer-reviewed technology-proven solutions, addressing the most significant challenges and vulnerabilities to impact humanity’s well-being to empower the next generation - our children. GCH’s efforts align with and support the Center for Disease Control (CDC) and prevention’s Whole School Model Whole Community, Whole Child (WSCC) and the 17 UNSDGs (CDC Healthy Schools, 2023). Through these platforms, GCH facilitates school-based well-being initiatives.

Given the GCH’s global initiatives, the Organization for Economic Cooperation and Development (OECD) speculates that global initiatives and actions often serve as catalysts for development while impacting both local and national levels (OECD 2024). The Olympic and Paralympic Games are excellent mega examples for such an impact. Nevertheless, GCH’s initiatives most often impact on a much smaller scale. Taken together, these events and initiatives stimulate external investment, enhance tourism, increase trade, create jobs, and foster community cohesion.

LOOKING AHEAD

Looking ahead to the 2028 Los Angeles Olympic Games, the GCH sees an ideal opportunity to bring together global initiatives advancing the 2018 WHO’s call for action to reduce physical inactivity. In particular, the GCH believes

that Olympic sports, aligned with the Olympic philosophy of Olympism, play an important and critical role in positively influencing physical activity and exercise adherence while addressing environmental and sustainability challenges faced by future generations. The GCH believes increasing participation is best achieved by promoting the UNSDGs 3, 4, and 11 through initiatives such as the “5-A Day Olympic Brain Break Challenge.” These challenges serve as a pathway for realizing the United Nations 2030 Agenda (WHO, 2018). The Los Angeles Olympic Games provides a unique opportunity to connect the pivotal roles of sports, Hollywood, and Corporate Social Responsibility (CSR) to encourage physical activity and exercise participation and aligns with the WHO’s 2018 global action plan (WHO, 2019). By establishing this GCH Model Schools across Los Angeles County, representing 88 cities, GCH plans to integrate SDGs, Olympic philosophy, and sports to facilitate alignment with Hollywood entertainment and CSR, and thereby, empowering students to become content creators who offer creative solutions.

Original research studies presented at the 10th Urban Forum highlighted that approximately 10,000 cities globally, (defined as geographic areas with populations of at least 50,000 people), and a density of 1,500 people per square kilometre (UN-Habitat (2020) exist. GCH’s long-term goal leading up to the 2028 Olympic Games is to develop, in the Los Angeles area, new GCH Model Schools, and to connect these new Model Schools with the existing global 10,000 GCH Model Schools, thus empowering students to create olympic-related activities while utilizing SDGs and WSCC guidelines (CDC Healthy Schools, 2023). Moreover, GCH global advisors and GCHFL (Senior Young Leaders and Future Leaders) recognized as innovative well-being specialists in their respective countries, will serve as mentors to these K-12 schools in the Los Angeles area. The goal is to integrate Olympic education, skills, history, culture, heritage, and olympism into school curriculums, as presented by the “5-A Day Brain Breaks[®] Olympic Challenge” (OECD, 2024).

GCH’s has an excellent record of historical accomplishments by hosting innovative conferences and forums that are again manifested in the upcoming 11th APCESS 2025-Kuching conference set for December 2025. This conference, organized in collaboration with the School of Design and Arts at Swinburne University of Technology, Sarawak, Malaysia will continue partnerships between ACESS and GCH. Highlight at this upcoming conference is the intrinsic relationship between active innovative pathways and collaborative practices in physical activity, exercise, and sports science to promote holistic health and well-being to improve quality of life.

The 11th APCESS 2025-Kuching conference offers a platform with a variety of programming that align with the Olympic culture to enhance education learning, and skill

development. An most important programming is the planned interdisciplinary approach to foster the promotion of holistic health as related to UNSDG 17. Another important focus of the APCESS 2025-Kuching conference is on SDG 3 (Health and Well-Being), SDG 4 (Quality Education), and SDG 11 (Sustainable Cities and Communities). Through the ACESS and other conference collaborators such as BRICS Council for Exercise and Sport Science (BRICSESS), the GCH believes unique opportunities exist to facilitate specific targets such as SDG 4. Leveraging their proven track records, the GCH is strategically situated and committed to ensuring that all learners acquire the knowledge and skills necessary to promote SD within their communities.

DISCUSSION

A primary objective of the UNSDGs is to ensure healthy lives and promote well-being for all individuals at all ages (SDG 3), provide equitable and universal access to quality education and lifelong learning opportunities (SDG 4), and create inclusive, safe, resilient, and sustainable cities and human settlements (SDG 11) (UNSDG, 2024). The A24-Kaifeng conference titled “Active and Sustainable Community Living: Global Partnerships through Physical Activity, Exercise, and Health Science” focused on innovative and developed for productive research facilitate practical ideas and develop tools designed to promote healthy lifestyles to promote improved quality of life. These initiatives consistently align with the UNSDGs. For example, an increased emphasis exists for the integration and collaboration between educational leaders and community health leaders to enhance children’s cognitive, physical, social, and emotional development (CDC Healthy Schools, 2023; Willgerodt *et al.*, 2022). This synergy is exemplified by the Whole School, WSCC model, which is crucial for achieving many of the UNSDGs. The WSCC model addresses the need for enhanced focus on both psychosocial and physical environments while also recognizing the expanding roles of community organizations and families in fostering better health behaviours and children’s developmental outcomes (CDC Healthy Schools, 2023).

Furthermore, building global partnerships is known to positively influence and reinforce physical activity and regular exercise to build sustainable in developing global health and well-being (Grube *et al.*, 2023; Uvinha *et al.*, 2022; Vaggi, 2019). One objective of ACESS is to foster global partnerships through global expert participation in developing collaborations at all levels which was present at previous and will continue to be present in upcoming conferences to promote SD in health and well-being as supported by GCH. This ACESS objective aligns with the ecological model (Brown *et al.*, 2023; Sabo *et al.*, 2024) of policy development, systems theory, and environmental sustainability. By the adoption of these multidisciplinary

approaches to promote health, physical activity, exercise, and well-being, the ACESS objectives are better achieved (Brown *et al.*, 2023; Bunch *et al.*, 2011).

The ecological model proposed by Brown *et al.*, 2023; Sabo *et al.*, 2024 includes five levels: Individual, interpersonal, organizational, community, and policy (Brown *et al.*, 2023; Sabo *et al.*, 2024). Active involvement of community members and global professionals from the fields of physical education, holistic health, sports science, human performance, and allied health professional are essential components for success. Furthermore, establishing connections with industry experts and policymakers, who prioritize physical education, physical activity, and exercise to promote health and well-being for individuals of all ages remains most important (Piggin, 2020; Standage *et al.*, 2012; Zieff *et al.*, 2012). Initiatives like JoyKids/JoyStar as presented at the A24-Kaifeng conference recently held in China, exemplify this commitment. The ongoing integration of knowledge and expertise from professional specialists into communities and society is also a priority for enhancing overall humanity's well-being and quality of life. APCESS conferences provide new up-to-date tools necessary for the implementation of innovative concepts and effective practices while fostering networking and collaborative opportunities among conference participants. These collaborative opportunities include both the participation of newly inaugurated and veteran GCHFL attendees are entrusted with the continued promotion of health and well-being in their respective countries. These conferences also offer invaluable opportunities for attendees to engage with and learn from esteemed global scholars and practitioners. This interaction will in the future continue to foster an environment emphasizing knowledge, information exchange, and networking. These aspects will further the development and empowerment for the next generation of leaders in health and well-being.

For the 1st time in the history of the APCESS conferences, attendees attending the 10th A24-Kaifeng conference came from all China provinces who submitted original research for oral and poster presentations, marking a significant Chinese contribution milestone in the fields of physical education, exercise science, and public health forging forward humanity's well-being. This unprecedented participation reflects a groundbreaking interdisciplinary approach that extends beyond traditional physical education and sports, to encompass diverse fields such as public health, engineering, technology, psychology, rehabilitation medicine, and Traditional Chinese Medicine. These conferences provide a platform for holistic perspectives in health while also highlighting collaborative cooperation within the academic, professional, and the corporate community.

The upcoming APCESS 2025 conference in Kuching, Malaysia, is an anticipated premier conference. This meeting's

objectives include empowering health and sport scientists by providing comprehensive programs and on-going education to community members. The Kuching APCESS conference will combine academics, professionals, scientists, and the corporate community presenting the latest information on health, physical activity, exercise, and sport research. Most importantly, the conference program content is being developed to encourage student members both graduate and undergraduate to seek interactions and networking with leading global experts, and to gain access to the latest cutting-edge research and practical implementation resources. Furthermore, the APCESS 2025 conference in Kuching encourages leadership opportunities offered by the GCHFL training program that are intended to enhance leadership skills with a focus on global collaboration with diverse communities. As many professional organizations are presently offering such learning opportunities, the GCHFL professional training program goes the extra step by providing collaboration opportunities with leading global experts and are designed to foster lifelong friendships/partnerships that transcend international borders, creating a global network dedicated to health and wellbeing (<https://www.asiancess.com/programs>). In addition, student volunteers are intricately involved in all aspects of conference development and program implementation to include assisting conference organizers in every way. These activities provide invaluable student opportunities to interact and learn from global scholars, to further establish future avenues for developing collaborative relationships in developing health initiatives.

CONCLUSION

The promotion of an active lifestyle for health and well-being is paramount to developing overall quality of life. Maintaining and improving health is regarded as a global objective throughout an individual's lifetime. Despite progress made in the past, globally physical activity levels have failed to meet global physical activity recommendations, as many individuals are yet to meet the WHO's physical activity guidelines (WHO, 2019). Achieving the proposed 2030 target for reducing physical inactivity levels requires purposeful and intensive collaboration among stakeholders. Nonetheless, such collaborations are evident through the efforts of the founders and present leaders of BRICSESS, ACESS, and APCESS, who are dedicated in uniting global experts through organized conferences, seminars, workshops, symposiums, roundtable discussions, and training courses. Conference participants are engaged to publishing relevant resources related to physical activity, exercise, and sports science, establishing links between institutions and organizations in developing potential solutions and strategies that increase global physical activity, regular exercise, well-being, and quality of life.

Furthermore, meaningful collaborations between global experts in conjunction with GCHFL, further advances the

UNSDGs, specifically SDGs 3, 4, and 11, as well as providing support for the WSCC model. Meaningful advocacy is crucial, as highlighted by the WHO's first global action on physical activity (WHO, 2019). This advocacy focuses on increasing physical activity and regular exercise in conjunction with professional organizations to promote health and well-being at all government and non-government levels. Furthermore, up-scaling policy reviews, policy actions, and policy implementations are necessary for advancing healthy lives, promoting well-being, and quality of life for all irrespective of age (Piggin, 2020; Standage *et al.*, 2012; Zieff *et al.*, 2012). APCESS' advocacy for innovative ideas and multi-interdisciplinary approaches for developing holistic health by addressing wellness and public health concerns have the potential to transform the health and wellness concept into successful practice and improve quality of life.

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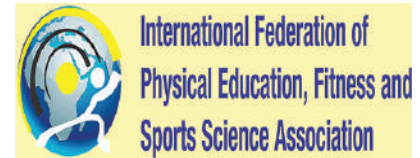
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Appendices

Appendix 1: Different international organizations that endorsed 10th APCESS 2024-Kaifeng (A24-Kaifeng).



Research Article

The impact of extracurricular sports activities on the quality of life of university students

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ABSTRACT

In Vietnam, alongside mandatory physical education in the curriculum, extracurricular sports activities, which students can freely choose, have become increasingly diverse and attract many students. These activities contribute to the comprehensive development and training of students. The study was conducted to evaluate the changes in students' quality of life (QOL) after implementing extracurricular sports programs. The results of the study on students at Ho Chi Minh City University of Industry and Trade showed that extracurricular activities have a strong and positive impact on the QOL of students.

Keywords: Extracurricular sports activities, Ho Chi Minh City University of Industry and Trade, Quality of life, SF-36

INTRODUCTION

Extracurricular activities are defined as activities that are not the components of the academic curriculum but are an important part of the educational environment. Extracurricular activities comprise sports, singing, music, debate, dance, drama, social services, etc. Schools can play a significant role by transmitting the energy of both normal as well as physically challenged students into a positive direction of personality development through extracurricular activities.^[1] In particular, sports are a distinctive form that has a strong impact on the physical development of students.

Sports activities in schools are voluntary activities for students, organized in the form of extracurricular activities, fitness and sports clubs, groups, or individuals, suitable to their interests, gender, age, and health. These activities aim to improve motor skills, support the achievement of physical education goals through various forms of exercise and sports competitions, and create opportunities for students to exercise their right to play, entertain, and develop sports talents. They also help in identifying and nurturing sports talents and abilities.^[2]

Accordingly, school sports activities are organized in the following ways:

- Extracurricular Activities that take place outside of official class hours
- Sports clubs: Groups of students with similar sports interests who participate in regular activities
- Groups: Small groups of students who practice or compete together
- Individual: Students practice on their own according to their interests and abilities.

According to Nguyen Quoc Tram (2021), school sports activities (also known as extracurricular sports activities) are activities conducted outside of class hours, depending on the interests, preferences, and desires of each student within the framework of the school's organizational capabilities and conditions.^[3] This is a voluntary and organized sports activity conducted outside of regular school hours, suitable for the interests, gender, age, and health of students. Extracurricular sports activities are very diverse, including sports activities during break times, training for school teams, practicing in sports clubs, and participating in sports competitions.^[4]

The 36-Item Short Form Health Survey (SF-36) questionnaire was developed by the Boston Health Research Institute in the United States. The SF-36 questionnaire provides a concise method that is mainly used to check the health status of

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members of the general population aged 14 years or over. The SF-36 questionnaire can provide a direct quantitative indication of an individual's health status, and as it is easy to administer, it has become the most widely used quality of life (QOL) evaluation tool in the world. The SF-36 questionnaire was listed as an evaluation tool by an international quality evaluation project in 1991.^[5] Since then, the reliability and validity of the SF-36 questionnaire have been evaluated in a number of specific populations worldwide.

QOL is either defined as the subjective perception of one's own well-being within the socio-cultural context or as the satisfaction of desires and pleasures and the accomplishment of the ideal to a standard of perfection.^[5] Great attention has been focused on the assessment of different populations ever since the concept of QOL has become widely accepted by society.

Thus, QOL is a multidimensional phenomenon used to describe perception and personal satisfaction and reflect various aspects of life, such as functional ability, psychological and emotional well-being, as well as social relationships.^[6] The SF-36 questionnaire (Short Form-36) was developed by the RAND Corporation as part of the Medical Outcomes Study.^[7] This questionnaire includes 36 items measuring 8 domains:

- Physical functioning: Measures limitations in physical activities
- Role-physical: Assesses difficulties in performing work or other daily activities due to physical health
- Bodily pain: Evaluate the level of pain
- General health: Inquires about overall health perception
- Vitality: Measures energy levels and fatigue
- Social functioning: Assesses limitations in social activities
- Role-emotional: Evaluates difficulties in work or daily activities due to emotional problems.
- Mental health (MH): Assesses psychological well-being.

To date, the SF-36 has been used and developed in over 60 countries, translated into more than 50 languages, including Vietnamese, and is widely applied. The SF-36 has been proven to be a suitable tool and has been used in many studies to assess the QOL of individuals in various fields. The distribution of measurement variables for the evaluation items is detailed in Table 1 below:

The scores are divided into two main groups: The physical component summary score and the mental component summary score. In each question, respondents mark the square box next to each option.

Based on previous research studies, it has been demonstrated that extracurricular sports activities have a positive influence on students' lives by improving their behavior, academic performance, better exam scores, more regular class attendance, a better self-image due to these aspects, which

make the students life more successful.^[1] Finally, evaluating the impact of extracurricular sports activities on the QOL of students at Ho Chi Minh City University of Industry and Trade (HUIT) is truly necessary and should be carried out. The results of this study will provide a useful scientific basis for promoting sports development activities among university students in general and enhancing the physical and MH of the school's students in particular.

METHODOLOGY

Aim of Study

The purpose of this study is to examine whether participation in extracurricular sports activities positively changes the QOL of students. If there is a positive change, this will be a useful solution for sports managers to improve the health of the student community and society.

Statistical Procedure

Participants are required to thoughtfully answer the SF-36 survey, as it is conducted in the classroom, making it easy to implement and ensuring no student leaves any questions unanswered. After data collection, the results are calculated according to the SF-36 scoring guidelines. Specifically, each question is scored from 0 to 100, with higher scores corresponding to better QOL. The specific score for each question is determined based on the order of the selected answers. The overall QOL score is calculated as the average of the MH score and the physical health score.

Classification of QOL: Physical health, MH, and overall QOL are classified into three levels based on the scores:

- Low: ≤ 30 points
- Average: 30–80 points
- High: 80–100 points.

Selection of Sample

Part 1 of the study surveyed 1000 students currently enrolled in the Physical Education course at the time of evaluation, with the number evenly distributed across academic years. This part aims to determine the average QOL of students across the entire university.

Part 2 of the study aims to compare whether, after one semester, the group of students participating in extracurricular sports has a higher QOL score than the other group. Therefore, this part includes 240 students who are evenly divided into two groups: The control group and the experimental group.

RESULTS AND DISCUSSION

Assessment of the QOL at HUIT's Students

The research results show that the QOL of the 1000 students participating in the study at HUIT is classified as "Average"

Table 1: Lists the evaluation components of the SF-36 questionnaire

No	Evaluation item	Question	Number of questions	Grouping
1	Physical activity	3 4 5 6 7 8 9 10 11 12	10	Physical health
2	Physical functioning	13 14 15 16	4	
3	Bodily pain	21 22	2	
4	General health activities	1 2 33 34 35 36	6	
5	Emotional functioning	17 18 19	3	Mental health
6	Vitality	23 27 29 21	4	
7	Psychological state	24 25 26 28 30	5	
8	Social functioning	20 23	2	

Source: The RAND 36-Item Health Survey, Version 2.0

Table 2: Scoring for each question in the SF-36 questionnaire

Question	Answer	Score	Question	Answer	Score	
1, 2, 20, 22, 34, 36	1	100	13, 14, 15, 16, 17, 18, 19	1	0	
	2	75		2	100	
	3	50		24, 25, 28, 29, 31	1	0
	4	25			2	20
	5	0			3	40
3, 4, 5, 6, 7, 8, 9, 10, 11, 12	1	0		4	60	
	2	50		5	80	
	3	100		6	100	
21, 23, 26, 27, 30	1	100	32, 33, 35	1	0	
	2	80		2	25	
	3	60		3	50	
	4	40		4	75	
	5	20		5	100	
	6	0				

Table 3: Quality of life of students at HUIT (SF-36)

Academic year	Gender	Physical health				Mental health				Quality of life score (SF-36)			
		Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1 st -year	Male	50.2	9.4	51.4	9.1	54.0	13.1	52.2	12.0	52.1	8.6	51.8	7.8
	Female	52.4	8.7			50.8	10.8			51.6	7.0		
2 nd -year	Male	56.7	7.7	56.1	8.5	62.0	14.8	62.7	14.9	59.4	10.2	59.4	10.3
	Female	55.7	9.3			63.5	15.1			59.6	10.4		
3 rd -year	Male	57.1	8.3	57.7	8.1	63.5	15.9	59.2	14.9	60.3	10.6	58.5	9.9
	Female	58.5	7.9			55.5	12.9			57.0	8.9		
4 th -year	Male	46.8	8.1	50.6	9.1	51.1	12.1	55.5	13.2	49.0	7.2	53.0	9.1
	Female	55.6	7.9			61.3	12.5			58.4	8.6		

HUIT: Ho Chi Minh City University of Industry and Trade

(total SF-36 score is 55.7 ± 9.9). The MH score (mean = 57.4 \pm 14.4) is higher than the physical health score (mean = 54.0 \pm 9.2); however, this difference is insignificant. The detailed results are presented in Table 3 below.

Results presented in the table show that for 1st-year students, the average QOL score (SF-36) is 51.8 ± 7.8 . The MH score is 52.1 ± 8.6 , and the physical health score is 51.4 ± 9.1 .

Table 4: Quality of life (SF-36) of students at HUIT after the experimental program

Component	Experimental group (n=120)			Control group (n=120)		
	Male	Female	Total	Male	Female	Total
Physical health						
TB	85.1	76.3	80.7	62.7	54.6	58.7
S.D	8.7	9.4	9.1	10.6	11.8	11.2
Mental health						
TB	79.2	87.5	83.4	54.1	52.4	53.3
S.D	7.5	8.3	7.9	12.3	9.6	11.0
Total						
TB	82.2	81.9	82.0	58.4	53.5	56.0
S.D	8.1	8.9	8.5	11.5	10.7	11.1

HUIT: Ho Chi Minh City University of Industry and Trade

Among the four groups of students in different academic years, the data analysis results show that 2nd-year students have the highest SF-36 score, reaching 59.4 ± 10.3 . The MH score is 62.7 ± 14.9 , and the physical health score is 56.1 ± 8.5 .

Third-year students' average QOL score (SF-36) is 58.5 ± 9.9 . The MH score is 59.2 ± 14.9 , and the physical health score is 57.7 ± 8.1 .

Fourth-year students have the lowest QOL score (SF-36) among the four cohorts, averaging 53.0 ± 9.1 . The MH score is 55.5 ± 13.2 , and the physical health score is 55.5 ± 13.2 .

QOL of Students after Participating in Extracurricular Sports Activities

As mentioned earlier, the QOL score of students at HUIT is only at an average level. Therefore, we have compiled and organized an extracurricular sports program for students. In addition to mandatory physical education classes, students can also participate in their favorite sports clubs. However, due to certain limitations, we could only organize extracurricular sports activities for three sports: Swimming, karate, and basketball. To better observe the impact of sports activities on students' QOL, the study designed an experimental program with two groups as follows:

Experimental group

120 students (60 male, 60 female) were randomly selected from newly established extracurricular sports classes (Basketball, Swimming, Karatedo), with an equal number of students in each class. They will follow the regular physical education program and participate in one extracurricular sports class (Basketball/Swimming/Karatedo) according to their interests and needs.

Control group

120 students (60 male, 60 female) were randomly selected from physical education classes. This group will follow the regular physical education program and participate in other free activities according to their interests and needs.

The experimental program took place from semester 1 of the 2023–2024 academic year, with a total duration of 50 sessions, equivalent to 17 weeks. The learning and training conditions of the groups were the same. Before starting the program, the study conducted a pre-experimental physical assessment. Then, data were randomly selected from each group of 120 students (60 male, 60 female) to ensure that the pre-experimental conditions were the same, with no significant differences between the control and experimental groups. This data are also important for evaluating students' physical condition after the experimental program.

According to the evaluation results of The RAND 36-Item Health Survey, Version 2.0 on QOL, after the new extracurricular sports program, the experimental group achieved a total SF-36 score of 82.0 ± 8.5 , reaching a "high" level (80–100 points). Meanwhile, the control group had a total SF-36 score of 56.0 ± 11.1 , reaching an "average" level (30–80 points).

In the "Physical Health" group, the total score of the experimental group is 80.7 ± 9.1 , while the control group is 58.7 ± 11.2 . In the "Mental Health" group, the total score of the experimental group is 87.5 ± 8.3 , while the control group is 53.3 ± 11.0 .

Thus, after the experimental program, the QOL (SF-36) assessment results show a significant difference between the experimental and control groups. In the "Physical Health" group, the experimental group scored 22.1 points higher than the control group. In the "Mental Health" group, the

experimental group scored 30.1 points higher than the control group. The total SF-36 QOL score of the experimental group is better than the control group and reaches the “high” classification.

CONCLUSION

The research results show that the QOL of 1000 students at HUIT is at an “average” level, with a total SF-36 score of 55.7 ± 9.9 . The MH score (mean = 57.4 ± 14.4) is higher than the physical health score (mean = 54.0 ± 9.2), but the difference is not significant. After participating in the extracurricular sports program, the experimental group (120 students) achieved a total SF-36 score of 82.0 ± 8.5 , classified as “high.” In comparison, the control group (120 students) achieved 56.0 ± 11.1 , still at an “average” level with a wide standard deviation, indicating differences among students with varying levels of sports participation. The physical health score of the experimental group is 22 points higher than the control group, and the MH score is 30 points higher. This is a significant difference, statistically meaningful. Thus, the extracurricular sports program has positively impacted and significantly improved the QOL of students.

Recommendations

Based on the research results on the QOL of students at HUIT, the study suggests that the university should undertake further activities to enhance the QOL of students, which is a goal that most educational institutions aim for.

First, it is necessary to strengthen extracurricular sports programs. Currently, there are only three sports (Basketball, Swimming, and Karatedo), so it is recommended to expand to other sports, such as Badminton, Soccer, and Yoga, to meet the diverse needs of students. In addition, investing in facilities and sports equipment is essential to provide the best conditions for students to participate in sports activities.^[8]

Second, encourage student participation by creating incentive programs such as awards and bonus points for students who actively participate in sports and mental activities.^[9] Encourage students to join clubs and interest groups to enhance bonding and mutual support.

Third, activities to improve MH should be organized alongside physical activities. Organize workshops and courses on stress management, life skills, and relaxation methods.^[6] Provide free or low-cost psychological counseling services to support students facing mental difficulties.

It is acknowledged that this study has certain limitations in scope. Therefore, it is hoped that future research will continue to develop this issue to improve the QOL of students, helping them develop comprehensively both physically and mentally.

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Research Article

Effect of different training methods on selected physiological variables among male taekwondo players of Telangana State

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ABSTRACT

The purpose of the study is to find out the effect of different training methods on selected physiological variables among male taekwondo players of Telangana state. To achieve the purpose of 45 college-level male taekwondo players of Telangana state. Their age category from 18 to 23 years, and they were divided into three groups, Group-I underwent a plyometric training group, Group-II underwent a strength training group, and Group-III control (CG). They did not participate in any special training, apart from their regular curricular activities. Training was given for 12 weeks and alternative 3 days per week. The pre- and post-tests were conducted before and after training for 12 weeks. The data collected from three groups before and after the training period were statistically analyzed using the “t” test at 0.05 level of confidence to test the significance. The result of the study shows there is a significant difference between the experimental groups and the control group. The criterion variables, namely, breath-holding time and resting pulse rate have been selected as dependent variables for this study. The training period would be 12 weeks. The result shows that the breath-holding time and resting pulse rate of the selected subjects were significantly improved in experimental groups due to the effect of plyometric training and strength training.

Keywords: Breath-holding time, Plyometric training and strength training, Resting pulse rate

INTRODUCTION

Taekwondo made its first appearance at the Olympics as a demonstration sport at the 1988 Summer Olympics in Seoul, South Korea. The opening ceremony featured a mass demonstration of taekwondo, with hundreds of adults and children performing moves in unison. Taekwondo was again a demonstration sport at the 1992 Summer Olympics in Barcelona, Spain. Taekwondo became a full medal sport at the 2000 Summer Olympics in Sydney, Australia, and has been a sport in the Olympic Games. The quest to bring taekwondo to the Olympics began in 1974 in the United States when taekwondo was admitted into the Amateur Athletic Union.

Plyometric Training

Plyometrics is the term now applied to exercise that has its roots in “Europe” where they were first known simply as “jumping

training.” Interest in this jump training increased during the early 1970s as East European athletes emerged as powers on the world sports scene. As the Eastern Bloc countries began to produce superior athletes in such sports as track and field, gymnastics, and weight lifting, the mystique of their success began to center on the training methods (Donald A. Chu, 1998).

Strength Training

Strength training follows the fundamental principle that involves repeatedly overloading a muscle group. This is typically done by contracting the muscles against heavy resistance and then returning to the starting position. This process is repeated for several repetitions until the muscles reach the point of failure.^[2] The basic method of resistance training uses the principle of progressive overload, in which the muscles are overloaded by working against as high a resistance as they are capable of. They respond by growing larger and stronger. Beginning strength trainers are in the process of training the neurological aspects of strength, the ability of the brain to generate a rate of neuronal action potentials that will produce a muscular contraction that is close to the maximum of the muscle’s potential.

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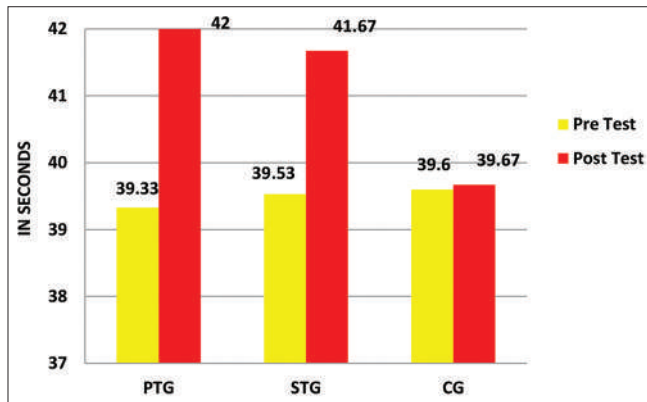


Figure 1: Cylinder diagram displaying the mean difference of pre- and post-test scores on breath-holding time of experimental and control groups

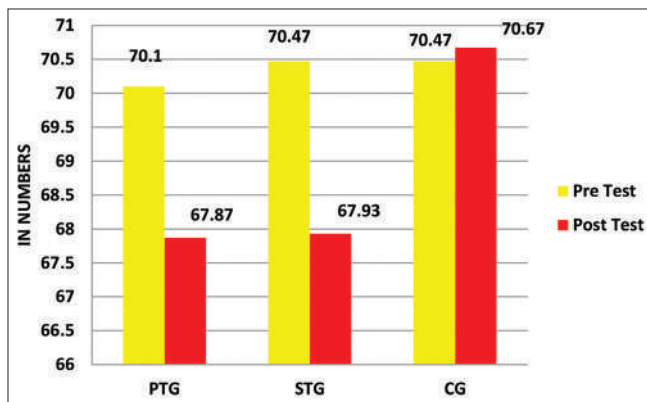


Figure 2: Cylinder diagram displaying the mean difference of pre- and post-test scores on resting pulse rate of experimental and control groups

METHODOLOGY

Experimental Design

The study was formulated as a true random group design, consisting of a pre-test and post-test. Forty five ($n = 45$) male taekwondo players from Avanthi Degree and P.G College Barkatpura, Ambedkar Degree College Barkatpura, Nobel Degree College Dilsukhnagar, Government Degree College Hayathnagar, and M.P.Ed College of Osmania University, Hyderabad, Telangana, India. Were selected as subjects and their ages ranged from 18 to 23 years. The subjects ($n = 45$) were randomly assigned to three equal groups of 15 subjects each, namely, Experimental Group-I, Experimental Group-II, and Control Group in an equivalent manner. Experimental Group-I was involved in plyometric training, Experimental Group-II was exposed to strength training, and Control Group-III was not exposed to any experimental training other than their regular daily activities. The duration of the experimental period was 12 weeks. After the experimental treatment, all 45 subjects were tested on their physiological variables. These final test scores formed as post-test scores of the subjects. The pre-test

and post-test scores were subjected to statistical analysis using a paired “t” test and Analysis of Covariance to find out the significant difference among the mean differences, whenever the “F” ratio was found to be significant, pairwise comparison was used to find out paired mean significant differences. In all cases, 0.05 level of significance was fixed to test the hypotheses.

RESULTS

Table 1 displays that the pre-test mean of breath-holding time of the plyometric training group (PTG) was 39.33, the strength training group (STG) was 39.53, and the control group (CG) was 39.60.

The observed “P” value on the pre-test 0.96 was higher than the “P” = 0.05 to be significant at 0.05 level of confidence. This showed that there were no statistically significant differences in the pre-tests among the experimental and control groups showing that the process of assigning the groups was perfect while assigning the subjects to groups.

The post-test analysis showed that there was a statistically significant difference among the groups, as the obtained “P” = 0.01 was lower than the “P” = 0.05. This proved that there were significant differences among the post-test means of all the groups.

Taking into consideration the pre- and post-test among the groups, the adjusted post-test means were calculated and subjected to statistical treatment. The observed “P” = 0.01 was smaller than the required “P” = 0.05. This showed that there were significant differences among the means of experimental groups due to the allotted training on breath-holding time.

Table 2 displays that the pre-test mean of the resting pulse rate of PTG was 70.07, STG was 70.47, and the control group (CG) was 70.47.

The observed “P” value on the pre-test 0.94 was higher than the “P” = 0.05 to be significant at 0.05 level of confidence. This showed that there were no statistically significant differences in the pre-tests among the experimental and control groups showing that the process of assigning the groups was perfect whereas assigning the subjects to groups.

The post-test analysis showed that there was a statistically significant difference among the groups, as the obtained “P” = 0.01 was lower than the “P” = 0.05. This proved that there were significant differences among the post-test means of all the groups.

Taking into consideration the pre- and post-test among the groups, the adjusted post-test was calculated and subjected to statistical treatment. The observed “P” = 0.01 was smaller than the required “P” = 0.05. This showed that there were significant

Table 1: Computation of analysis of covariance on breath-holding time of experimental and control groups (breath-holding test – in seconds)

Test	Means			Sources of variance	Sum of square	DF	Mean square	F	“P” value
	Plyometric training group	Strength group	Control group						
Pre	39.33	39.53	39.60	B	0.58	2	0.29	0.43	0.96
				W	284.67	42	6.78		
Post	42.00	41.67	39.67	B	47.78	2	23.89	3.38*	0.04
				W	296.67	42	7.06		
Adjusted post	42.15	41.62	39.56	B	56.14	2	28.07	34.28*	0.01
				W	33.58	41	0.82		
Mean gain	2.67	2.14	0.07						

*Significant difference at 0.05 level of confidence

Table 2: Computation of analysis of covariance on resting pulse rate of experimental and control groups (resting pulse rate test - in numbers)

Test	Means			Sources of variance	Sum of square	DF	Mean square	F	“P” value
	Plyometric training group	Strength group	Control group						
Pre	70.07	70.47	70.47	B	1.60	2	0.80	0.06	0.94
				W	510.40	42	12.15		
Post	67.87	67.93	70.67	B	76.58	2	38.29	3.76*	0.03
				W	426.00	42	10.14		
Adjusted post	68.10	67.82	70.55	B	67.68	2	33.84	47.24*	0.01
				W	29.37	41	0.72		
Mean gain	2.20	2.54	0.20						

*Significant difference at 0.05 level of confidence

differences among the means of experimental groups due to the allotted training on resting pulse rate.

CONCLUSION

From the analysis of the data and results of this research study, the following conclusions were arrived:

1. The plyometric training positively improved the prescribed physiological variables, namely, breath-holding time and resting pulse rate of college-level male taekwondo players due to 12 weeks of plyometric training
2. The strength training effectively improved the prescribed physiological variables, namely, breath-holding time and resting pulse rate of college-level male taekwondo players due to 12 weeks of strength training.

RECOMMENDATIONS

Based on the results arrived from this research study, the following recommendations were created.

1. The results predicted in this research study may be utilized by physical education teachers, fitness trainers, and

- coaches for their training program to enhance the selected physical fitness performance of college-level male players
2. The results arrived in this research study may be utilized by physical education teachers, fitness trainers, and coaches for their training program to enhance the selected physiological performance of college-level male players
3. The results found in this research study may be utilized by physical education teachers, fitness trainers, and coaches for their training program to enhance the selected body composition performance of college-level male players.

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Research Article

Survey on health and fitness of school children

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ABSTRACT

Physical activity plays a key role in maintaining good health. "Health is Wealth" The present communities are heavily influenced by technology. Physical activity and exercise are directly associated with an individual's awareness about fitness and their health. With the influence of technology and social media, the sedentary population is increasing by taking a toll on their health. While there are facilities such as open gyms, oxygen parks, public play areas, and walking tracks which can be used for practicing physical activity, it is observed that these facilities are not fully utilized. To overcome this, one must increase their awareness about Physical Literacy and put it into practice. The children should be given basic physical activity for every 45 min while they are at school (it can be a simple jump or move around in the classroom). It is extremely important that we promote physical activity in the individual capacity, family, community, Non-Government Organizations and through Government policies and schemes. Customized fitness training programs should be planned for respective families. Increase awareness and motivate people to practice by following certain innovative methods such as open gyms, paintings to reflect some of the traditional games, posture challenges, and reward-based activities in shopping malls. This study deals with analyzing status of health and physical fitness of school going children in India. It also analyzes their body mass index and illness pattern linked to physical fitness routines. This study also deals with analyzing parents' profile (working or homemakers), family profile (joint family or nuclear family), facilities like ground and equipment along with physical education teacher/trainer, and its impact on the children's well-being.

Keywords: Health, Fitness, Family, Sedentary lifestyle, School going children etc.

INTRODUCTION

World largest problem in current generation is children suffering with sedentary lifestyle. Obesity and less physical activity lead to negative effect on mental health and physical health. In the present days, technology influences children in both ways (the positive is it helps in adopting and learning best practices and stay healthy and the negative aspect is to get addicted to screens, video games etc. thereby become sedentary).

Physical Activity

Physical activity plays a key role in maintaining good health. "Healthy mind in a Healthy body". Physical activity is important for children to keep them away from illness. Keep children fit body and proper growth. It helps to maintain fitness

and it gives a proper lifestyle as routine also improves mental health and alertness.

Health

"Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

Purpose of the Study

Purpose of the study is to find out the health and fitness status of school going children.

Scope of the Study

Review the physical fitness and health status of school going children pertaining to their lifestyle in school and home of school going children its impact on their health and fitness.

Significance of the Study

By conducting this survey, we will have good understanding about school going children lifestyle on their health and fitness.

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Delimitations

- This survey is delimited to people across the India with maximum participation from
- Hyderabad. For the present study, 309 response received but consider 3–16 years children only, responses considered 306
- Age group ranging from 3 to 16 years.

Limitations

- This study does not include people who do not use digital medium (Internet, WhatsApp, etc.)

SURVEY METHODOLOGY

It is a cross-sectional study for which a close-ended questionnaire was prepared covering the details of the student as well as their fitness, diet routine, and family type. It is an online Google form which was shared with parents across India. This survey questionnaire was responded by parents across various states of India. The target population for this survey was school going children. The questions were asked to the parents of school going children. In this study the child's personal details are not mandatory. This study focused on children's lifestyle and parenting. The age category for this survey is up to 16 years children (Boys and girls). The received responses were analyzed to produce various views.

Sample

Have received 309 responses as on April 17, 2024.

Tools Used

- Survey questionnaire with multiple objective questions
- Digital medium for responding to survey
- Excel for analyzing the data and producing graphs

Survey Questionnaire

The online mode is used to get responses for this survey. The survey questionnaire is prepared consisting of basic questions related to the school going child. The detailed survey questionnaire can be accessed using the below link:

https://docs.google.com/forms/d/18DmyiIxxDjtrPjt0VodcKb6iPU7-4KeI0_QdKdbK3Bs/edit#responses

Data Collection Procedure

After creating the questionnaire, it is shared with friends, family and among other working people in Physical Education fraternity. The link is shared using text messages, WhatsApp, and other social media platforms for larger reach. The responses are automatically captured in my Google Forms account.

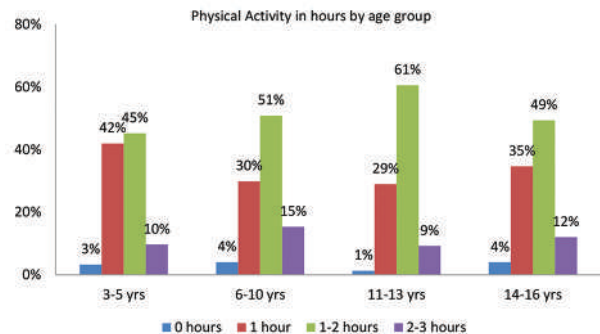
Data Analysis

Have received 309 responses for the survey of which three entries were wrong (<3 years) hence have considered 306

responses for the purpose of this study. No of Girls are 138. No of Boys are 168. The responses are received from fourteen states in India.

Below graph depicts no. of hours the students are participating in Physical Activity by age group. Physical activity here refers to activities such as active sports in play fields, dance, run etc. The percentile mentioned below is within the age group. It is observed that

- 3% (Girls – 4% and Boys – 3%) of students do not participate in any physical activity
- 84% (Girls – 82%, Boys – 86%) of students participate in physical activity for 1–2 h
- 12% (Girls – 14%, Boys – 11%) of students participate in any physical activity for 2–3 h



Below graph depicts the details of health status of children by age group. It give us details about the number of times a kid usually fall sick which gives an indication of their health status.

- 30% (Girls – 30% and Boys – 30%) of the students are healthy
- 3% (Girls – 4% and Boys – 3%) reported sick more than once a month
- 10% (Girls – 10% and Boys – 10%) reported sick once a month
- 19% (Girls – 18% and Boys – 20%) reported sick once a quarter
- 26% (Girls – 26% and Boys – 26%) reported sick once half year
- 11% (Girls – 12% and Boys – 11%) reported sick once in a year

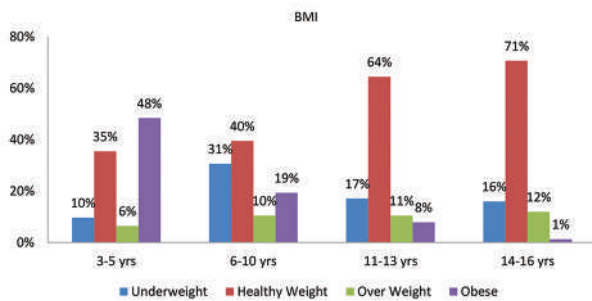
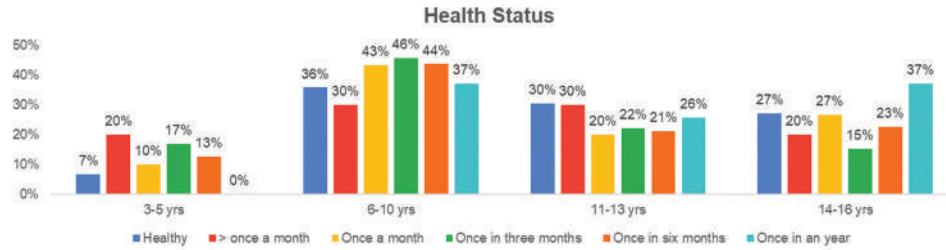
The students are categorized into various buckets based on their age, height, weight, and gender. The below graph depicts overall Body mass index (BMI) for the selected students.

22% (Girls – 17% and Boys – 25%) of the students are underweight

53% (Girls – 57% and Boys – 49%) of the students are Healthy

10% (Girls – 12% and Boys – 10%) of the students are overweight

15% (Girls – 14% and Boys – 16%) of the students are obese.



OBSERVATIONS

From an academic perspective, 14% students secure first position, 58% are among the top 10, 27% manage to pass all the subjects and 1% often fail in one or two subjects.

Addiction to screens such as mobiles, televisions, and video games is most common these days. Among the selected students, 3% of the students do not spend any time on screen, 21% spend less than an hour, 41% spend 1–2 h, 20% spend 2–3 h, 11% spend three to 4 h, 5% spend 5–6 h, and 1% spend more than 6 h a day.

As the responses are from people who have knowledge of digital technologies, they must have moved from their hometowns to the nearby cities for work. About 65% our students are from nuclear families and 35% are from joint families.

With regards to the play time spent with family members, 3% of the students do not spend any time, 34% spend 1–3 h, 30% spend 4–6 h, and 33% spend more than 7 h.

With regards to nutrition, 41% students show interest in consuming nutritious food, 49% sometimes show interest in consuming nutritious food and 10% does not show interest in consuming nutritious food.

About 6% of them consume junk food every day, 15% eat more than twice a week, 26% of them eat once a week, 45% of them eat occasionally, and 8% of them do not show interest in consuming junk food.

About 75% of students have basic facilities at home or in the community and 25% do not. About 56% of students participate in active sports whereas 44% do not.

About 97% of parents feel that physical activity is important for kids' overall well-being while 2% of parents do not feel so and 1% of them did not chose to respond.

About 90% parents have reported that their kids do not have any specific medical issues such as asthma, obesity, and ADHD, 5% of parents have reported that their kids have medical issues and 5% chose not to respond.

SUMMARY

Of the received responses (306), it is observed that only 3% of the students do not participate in any physical activity where are remaining 97% of the population participates in one or more activity ranging from 1 to 3 h a week. It is also observed that kids of joint family spend more time with family members in various activities in comparison to kids of nuclear family. Among the students, 65% of them belong to nuclear family and 35% belong to joint family. Only 13% population have reported sick at least once a month and 30% were healthy. 97% of parents feel that Physical Activity is important for kids' overall wellbeing where are 2% of them feel that it's not important. With COVID teaching the world about the importance of fitness, we still have a few parents who feel that physical activity is not important.

CONCLUSION

Based on the responses received from parents, it is concluded that most of the students are actively participating in physical activity or dance. There is obese and underweight population observed in the received responses who need to work on set routine to bring their BMI back in control. Children preference toward nutrition food is higher than junk food; hence, we can conclude that parents and schools must be spending good effort in discriminating healthy and unhealthy food. Majority of the students have access to sports facilities. It is concluded that the trend of the students is in the right direction, of course

there are certain course corrections required in certain aspects which need to be looked at.

RECOMMENDATIONS

Parents and schools must concentrate on various arrangements to make children get attracted toward physical activity. Government policies like compulsory daily physical activities for school going children will help. Brain break or any other similar innovative ideas needs to be implemented. Awareness sessions to be conducted among parents by respective schools, government advertisements on health and wellness, etc., to promote awareness.

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Research Article

Effect of circuit training for development of speed among Kabaddi players of Srikakulam

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ABSTRACT

The objective of the study is to determine the effect circuit training for development of speed among male Kabaddi players of Srikakulam between the age group of 18 and 25 years. The sample for the present study consists of 20 Male Kabaddi players out of which 10 are experimental group and 10 are controlled group. Circuit training was given to the experimental group along with general training of Kabaddi and control group has doing general training of Kabaddi for 8 weeks. To assess the Speed 50 M Run were used in the pre-test and post-test of the study. This study shows that the experiment group increase the speed compare to the control group. It is concluded that due to circuit training there is an improvement of speed among Kabaddi players.

Keywords: Circuit training, Kabaddi, Speed etc.

INTRODUCTION

In the case of Kabaddi, the basic skills such as holding, riding, blocking, and breath holding are highly needed. It is true that these skills are basic abilities for all Kabaddi players, but the performance potential depends on specific variables. The coaches and trainers may not be able to determine them by their subjective observations of performances alone.

Circuit training has a strengthening effect as well as boosting your athlete's power and is ideal for those athletes who depend on high running speeds – football, rugby, basketball, cricket players, and even Kabaddi players.

Circuit Training Offers the Following Benefits

- Helps develop power and muscle elasticity
• Improves stride frequency and length
• Develops co-ordination, encouraging the proper use of arm action during the driving phase and feet in the support phase.

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Purpose of Research

The purpose of the research is to determine the effect of circuit training for development of speed among Kabaddi players of Srikakulam between the age group of 18 and 25 years.

Population and Sample Group

Sample of the study

The sample for the present study consists of 20 male Kabaddi players out of which 10 are experimental group and 10 are controlled group.

Table with 4 columns: S. No, Name of the university, Sample (Kabaddi players), Total number of subjects. Row 1: 1, [blank], Experimental group 10 players, 20. Row 2: [blank], [blank], Control group 10 players, [blank].

METHODOLOGY

Circuit training with 8-12 stations was given to experimental group on alternate days, i.e., three sessions per week and controlled group were given the general training for 8 weeks. Pre-test and Post-test were conducted in 50 M Run among experimental group and controlled group of Kabaddi players of Srikakulam.

Table 1: Paired sample *t*-test of experimental group and control group of Kabaddi players in 50 M Run

Speed (50 M Run)	N	Pre-test		Post-test		Mean differences	T-Cal	df	P-value
		Mean	Standard deviation	Mean	Standard deviation				
Experimental group	10	6.82	6.822	6.087	0.439	0.735	9.484	29	0.000
Control group	10	6.822	0.4977	7.066	0.488	0.244	4.697	29	0.000

RESULTS AND DISCUSSION

The independent samples *t*-test statistics are applied for the study. The comparison was made among experimental group and control group in pre-test and post-test mean (Table 1).

In 50 M, the experimental group pre-test is 6.82 and post-test is 6.08; there is an improvement from 6.82 to 6.08 due to circuit training and control group pre-test is 6.82 and post-test is 7.06 there is a decrease in performance due to general training.

CONCLUSION

It is concluded that due to circuit training will be improvement in speed among Kabaddi players. In this study due to the circuit training. There is an improvement in speed among Kabaddi players. Circuit training helps to develop or maintain physical fitness and overall health. It is evident from a number of the adaptations that occur with circuit training that there are several health-related benefits. Circuit training has been shown to increase factors associated with physical fitness. From the results, the different modes of circuit training can be improved speed during the age between 18 and 25 years of Kabaddi players.

RECOMMENDATIONS

It is recommended that similar studies can be conducted on other events in other events and also female Kabaddi players. This type of study is useful to coaches to give proper coaching for development of motor qualities for improvement of performance in Kabaddi.

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Research Article

Effect of interval training for the development of agility among Kho-Kho players of Telangana

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ABSTRACT

The objective of the study is to determine the effect of interval training for the development of agility among Kho-Kho players of Telangana. To achieve the purpose of this study, 30 male Kho-Kho players were randomly selected between the age group of 16 and 25 years. The selected subjects were randomly assigned into two groups. Group I 15 members acted as an experimental group which interval training (PT); Group II did not participate in any special training and were strictly under control (CG). The treatment is given to Kho-Kho players for 12 weeks. To assess the agility shuttle run test was used in the pre-test and post-test of the study. This study shows that the experiment group of interval training performed better than the control group. It is concluded that due to interval training, there is an improvement in agility among Kho-Kho players.

Keywords: Agility, Interval training, Kho-Kho, etc.

INTRODUCTION

Sports participation is widely recognized as a crucial component of physical, psychological, and social development, contributing to individuals' overall well-being. Kho-Kho is one of the most popular traditional sports in the country. Some of the interesting facts about the game. The position of the players sitting is random; one will never find the same set of players sitting in the same order as when the game starts. The game requires immense stamina and speed. Kho-Kho is played on a rectangular court with a central lane connecting two poles which are at either end of the court. Its origins are as old as Mahabharata, with strategies and tactics likely derived from Mahabharata itself. This game fosters many desirable traits such as sportsmanship, teamwork, loyalty, competitiveness, and self-esteem as well as speed, agility, strategy, and quick thinking. This game in itself is a personal development tool for the athlete who takes up the challenge. The game of Kho-Kho is very interesting and exciting in nature and demands a high level of physical fitness, stamina, strength, speed, technique,

and self-control. Every sports require a special set of workout to grow endurance and ability of players. Sports training has been an integral part of sportsperson success, and trends in this domain are continuously changing as per the demand of excellence in sports competitions. The great thing about adding interval training to your workout routine is that you can develop both strength and endurance fast. Interval training is a favorite of coaches due to its effectiveness in cardiovascular build-up and also its ability to make better-rounded runners/riders.

Vallimurugan *et al.* (2024) studied the effect of interval training on skill-related physical fitness variables among Kho-Kho players. The purpose of this study was to find out the effect of interval training on skill-related physical fitness variables among Kho-Kho players. To achieve the purpose of the present study, 30 Kho-Kho players were selected as subjects at random, and their ages ranged from 21 to 25 years. The subjects were divided into two equal groups. The subjects ($n = 30$) were randomly assigned to two equal groups of 15 Kho-Kho players each. The interval training group participated in the training for a period of 8 weeks and the post-tests were conducted. The subjects were tested before and after the experimentation on reaction time, cardiovascular endurance, and agility. Dependent "t" test was used to test the treatment effect of the training programs on all the variables used in the

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Table 1: To compare the shuttle run (Secs) performance between the experimental group and the control group for both the pre-test and post-test results

Shuttle Run (S)	n	Experimental			Control			t- Cal value	t- Tab value	Df	P-value	Inference
		Mean	SD	SE	Mean	SD	SE					
Pre-test	15	11.6413	0.21744	0.03970	11.6447	0.21468	0.03920	0.060	2.021	28	0.953	NS
Post-test	15	10.8270	0.12049	0.02200	11.6533	0.21729	0.03967	18.216	2.021	28	0.000	S*

study. It was observed that the 8 weeks of interval training have significantly improved the selected skill-related physical variables of Kho-Kho players.

Purpose of Research

The purpose of the study is to determine the effect of interval training for the development of agility among Kho-Kho Players of Telangana.

METHODOLOGY

To achieve the purpose of this study, 30 Male Kho-Kho players were randomly selected between the age group of 16–25 years. The selected subjects were randomly assigned into two groups. Group I 15 Members acted as experimental group which interval training (PT), Group II did not participated in any special training and was strictly under control (CG). The treatment is given to Kho-Kho players for 12 weeks. To assess the agility shuttle run test were used in the pre-test and post-test of the Study.

RESULTS AND DISCUSSION

Independent t-test was used to compare the shuttle run times (in seconds) performance between the experimental group and the control group for both the pre-test and post-test results. The pre-test shows that the experimental group mean is 11.6413 s with a standard deviation of 0.21744, while the control group mean is 11.6447 s with a standard deviation of 0.21468. The t-calculated value is $0.060 < t$ -tabulated value of 2.021 and 58° of freedom. The $P = 0.953$, which is >0.05 . It shows that there is no statistically significant difference in the shuttle run times between the experimental and control groups in the pre-test. Post-test indicated that the experimental group mean is 10.8270 s with a standard deviation of 0.12049, whereas the control group mean is 11.6533 s with a standard deviation of 0.21729. The t-calculated value is $18.216 < t$ -tabulated value of 2.021 and 58° of freedom. The $P = 0.000$, which is <0.05 . It shows a statistically significant difference in the shuttle run times between the experimental and control groups in the post-test.

From the table, we observed that the interval training intervention applied to the experimental group was effective in significantly reducing shuttle run times, indicating improvements in speed and agility. In contrast, the control group showed no improvement in performance. Overall, the interval training was beneficial for enhancing agility in the experimental group among the Kho-Kho players.

CONCLUSION

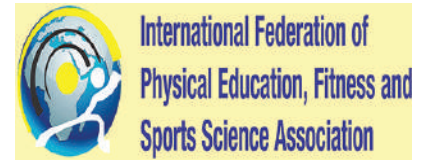
The results of the paired samples t-test indicate that the experimental group viewed a significant improvement in shuttle run test performance. It is concluded that due to interval training there will be an increased in agility among Kho-Kho players of Telangana. It was concluded that individualized interval training group showed a statistically significant positive sign over the course of the treatment period on agility of Kho-Kho players.

Recommendations

It is recommended that similar studies can be conducted on other events in other events and also female Kho-Kho players. This type of study is useful to coaches to give proper coaching for the development of motor qualities for improvement of performance sports and games.

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Research Article

Effect of plyometric training and combined with skill training for the development of an aerobic power among intercollegiate volley ball players of Warangal District

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ABSTRACT

The objective of the study is to determine the effect of plyometric training (PT) and combined with skill training (ST) for the development of An Aerobic Power among Intercollegiate Volleyball Players of Warangal District. To achieve the purpose of this study, forty-five intercollegiate level volleyball players from the Warangal district were randomly selected between the age group of 18 and 22 years. The selected subjects were randomly assigned into three groups. Group I 15 members acted as an experimental group that underwent PT, group II 15 members underwent PT combined with ST (P and ST), group III did not participate in any special training and strictly under control (CG). The treatment is given to Volleyball Players for 12 weeks. To assess the an aerobic power, the Margaria–Kalamen power test was used in the pre- and post-test of the study. This study shows that the experiment group of PT combined with ST performed better than the PT and control group. It is concluded that due to PT with ST, there is an improvement of an aerobic power among Volley Ball Players.

Keywords: An aerobic power, Plyometric training, Volleyball, etc.

INTRODUCTION

Volleyball is an anaerobic sport in which explosive movements (both in vertical and horizontal directions) are performed intensively and intermittently during short rallies. Therefore, explosive strength, defined as the ability of an individual's neuromuscular system to generate tension in the shortest possible time, is accepted as a fundamental determinant of performance in single or repeated vertical jumps when performing such techniques as spiking, blocking, serving, and overhand passing (Silva *et al.*, 2019; Yiannis, 2005).

Samson *et al.* (2020) studied the effect of plyometric training (PT) on explosive power (horizontal and vertical) 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 PT and Group II acted as control. The experimental group was subjected to PT for an alternative 3 days for up to 6 weeks. The PT was selected as an 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. The horizontal explosive power was assessed by the standing broad jump test and the unit of measurement is in centimeters, and vertical explosive power was assessed by the vertical jump test and the unit of measurement is in centimeters. The experimental design selected for this study was pre and post-test randomized design. The data were collected from each subject before and after the training period and statistically analyzed by using the dependent-“*t*” test and analysis of covariance (ANCOVA). It was found that there was a significant improvement and significant difference due to the effect of PT on horizontal and vertical explosive power.

Khodajo *et al.* (2014) studied the effect of strength and PT on anaerobic power, explosive power, and strength quadriceps

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femoris muscle in soccer players. The purpose of the present study was to investigate the effect of 8 weeks of strength and PT on anaerobic power, explosive power, and strength quadriceps femoris muscle in Soccer Players. 20 male soccer players who aged 20–30 voluntarily participated in the study. They were assigned in strength ($n = 10$) and plyometric ($n = 10$) groups. Both groups performed selected soccer-specified strength and plyometrics for 8 weeks. Data were analyzed using paired t -test and independent t -test statistical methods. The results showed that the strength Quadriceps femoris muscle statistically significant increase in the post-test compared to the pre-test in the strength training group ($P = 0.015$) and explosive power in a statistically significant increase in the post-test compared to the pre-test in PT group ($P = 0.021$). Between-group comparison showed better records in explosive power for plyometric compared with the strength training group after 8 weeks ($P = 0.049$). The results showed that both strength and PT improve physical fitness in soccer players. Therefore, recommended that both types of training programs to prepare for their benefit.

Purpose of Research

The purpose of the study is to determine the effect of PT and combined with skill training (ST) for the development of An Aerobic Power among Intercollegiate Volleyball Players of Warangal District.

METHODOLOGY

To achieve the purpose of this study, forty-five intercollegiate level volleyball players from the Warangal district were randomly selected between the age group of 18–22 years. The selected subjects were randomly assigned into three groups. Group I 15 members acted as an experimental group that underwent PT, group II 15 members underwent PT combined with ST (P and ST), group III did not participated in any special training and were strictly under control (CG). The Treatment is given to Volleyball Players for 12 weeks. To assess the explosive

power in legs Vertical Jump was used in the pre- and post-test of the study.

RESULTS AND DISCUSSION

The statistical analysis comparing the initial and final means of Anaerobic Power due to PT and PT combined with ST compared with the control group among intercollegiate volleyball players of Warangal District is presented in Table 1.

As shown in Table 1, the obtained pre-test means on Anaerobic Power on the plyometric group was 911.83, plyometric combined with ST group was 914.27 and the control group was 912.70. The obtained pre-test F-value was 0.02 and the required table F-value was 3.10, which proved that there was no significant difference among the initial scores of the subjects. The obtained post-test means on Anaerobic Power on the plyometric group was 937.67, plyometric combined with ST group was 941.27 and the control group was 916.57. The obtained post-test F-value was 2.69 and the required table F-value was 3.10, which proved that there was no significant difference among post-test scores of the subjects.

Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and ANCOVA was done and the obtained F-value 74.62 was greater than the required value of 3.10; hence, it was accepted that there were significant differences among the treated groups. Since significant differences were recorded, the results were subjected to *post hoc* analysis using Scheffe's confidence interval test. The results are presented in Table 2.

The *post hoc* analysis of obtained ordered adjusted means proved that there were significant differences existed between the plyometric group and control group (MD: 21.91). There was a significant difference between the plyometric combined with the ST group and the control group (MD: 23.24). There was no significant difference between treatment groups,

Table 1: Computation of analysis of covariance of anaerobic power

	Plyometric training Group	Plyometric combined with skill training Group	Control group	Source of variance	Sum of squares	Df	Mean squares	Obtained f
Pre-test mean	911.83	914.27	912.70	Between	91.27	2	45.63	0.02
				Within	191208.33	87	2197.80	
Post-test mean	937.67	941.27	916.57	Between	10682.60	2	5341.30	2.69
				Within	172867.90	87	1986.99	
Adjusted post-test mean	938.69	940.02	916.78	Between	10216.89	2	5108.45	74.62*
				Within	5887.32	86	68.46	
Mean diff	25.83	27.00	3.87					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10. *Significant

Table 2: Scheffe's confidence interval test scores on anaerobic power

Plyometric Group	Means			Required. C I
	Plyometric combined with skill training group	Control group	Mean difference	
938.69	940.02		-1.33	5.40
938.69		916.78	21.91*	5.40
	940.02	916.78	23.24*	5.40

*Significant

namely, the plyometric group and plyometric combined with the ST group (MD: -1.33).

CONCLUSION

This study shows that the experiment group of PT combined with ST performed better than the PT and the control group. It is concluded that due to PT with ST, there is an improvement of An Aerobic power among Volley Ball Players.

Recommendations

It is recommended that similar studies can be conducted on other events in other events and also female volleyball players. This type of study is useful to coaches to give proper coaching for the development of motor qualities for improvement of performance in Sports and Games.

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