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## Research Article

# Changes in physiological fitness of Vietnamese talented female road cyclists after a 12-week preparatory phase

Pham Thanh Tu<sup>1</sup>, Bui Trong Toai<sup>2</sup>, Vo Quoc Thang<sup>2</sup>, Nguyen Thanh Le Tram<sup>2</sup>, Vo Chau Tuong<sup>1</sup>,  
Pham Hung Manh<sup>3</sup>

<sup>1</sup>Ho Chi Minh City National Sports Training Center, Hồ Chí Minh, Vietnam, <sup>2</sup>Ho Chi Minh City University of Sport, Hồ Chí Minh, Vietnam, <sup>3</sup>Tay Nguyen University, Buon Ma Thuot, Vietnam

### ABSTRACT

**Purpose:** This study focuses on an observational study evaluating the changes in selected physiological and performance indicators after a 12-week preparatory phase using a power measuring device. The main purpose of the study is to evaluate the change in the physical and performance attributes of female national-level road cyclists. **Methods:** Four national female cyclists ( $n = 4$ , age  $26.2 \pm 1.7$ , and experience  $12.5 \pm 1.1$ ) were monitored load over the preparatory training phase using a power meter. Changes in physiological and performance indicators were analyzed. **Results:** The study found significant changes in resting heart rate and max heart rate ( $P < 0.05$ ) following power meter use. However, lactate threshold, heart rate at lactate threshold 1 (LT1 (mmol)), and lactate threshold 2 (LT2) (mmol) did not show significant changes with  $d \text{ LT1} = -0.02$  and  $d \text{ LT2} = -0.03$  ( $P > 0.05$ ). Max lactate (mmol), fatigue index (%), power 5 s (W/kg), and power 30 s (W/kg) showed statistically significant changes with  $d$  of 0.59, -2.3, 0.32, and 0.42, respectively ( $P < 0.05$ ). Comparing these results with global indicators revealed that the national-level cyclists had lower resting heart rates and higher max heart rates than the global average. However, they had lower power output for longer durations, lower  $\text{VO}_2$  max, and lower power at lactate thresholds 1 and 2. **Conclusion:** These findings suggest that improve the physiological and performance indicators of female cyclists. The results of this study may contribute to the existing body of knowledge and inform future interventions aimed at optimizing training programs and enhancing performance in various athletic disciplines.

**Keywords:** Cycling, Determinants, Performance, Power meter, Predictors, Testing

## INTRODUCTION

Few published data are describing female cyclists and the studies available are difficult to interpret because of the classification of athletes. Martin (2001) Professional women's road cycling is growing in both the numbers of participants and the number of competitions, and although the demands of competition for professional male cyclists have been documented, such data are not readily available for female cyclists.<sup>[1]</sup> Very few published studies have shown the physiological responses of female road cyclists across various competition events, even including performance-related metrics, such as power output during the competition. Road cycling competition for women at the international level incorporates a wide range of formats.

The shortest races for women are prologue time trials lasting <15 min, which normally precede the first stage of multi-day tours. Criteriums and circuit races typically last between 30 and 120 min and are popular in the US. At the prestigious World Championships (held every year) and the Summer Olympics (held every 4 years), the road cycling program includes a 1-day road race that is between 110 and 130 km long and a time trial between 25 and 30 km long. The most competitive female cyclists will complete the road course in  $\approx 3$  h and depending on the distance, the time trial course will take between 32 and 42 min. The other popular racing format that attracts the most competitive female road cyclists is stage racing.

Ebert *et al.* (2006) determined that cyclists spend the most time ( $\sim 80\%$ ) at low-to-moderate power outputs (2–4.9 W/kg) and the least time at highest power outputs ( $> 8$  W/kg) during flat, hilly, and criterium races.<sup>[2]</sup> Furthermore, Ebert *et al.* (2006) reported that for all race types, there are numerous (20–70),

Address for correspondence:

E-mail: vuvietbao@gmail.com

short-duration bursts (3–30 s) at power greater than the power output associated with maximal oxygen uptake.<sup>[2]</sup> Others have described cycling events by reporting the typical heart rate response to cycling competitions. Padilla (2001), Vogt (2007), and Vogt (2007) showed that although the heart rate response may vary depending on the type and terrain of an event, mean heart rates for competitive road cycling races are ~135 beats per min (bpm), with higher values (>140 bpm) for time trials or hilly events.<sup>[3–5]</sup> Cycling cadence and speed, such as heart rate, are largely affected by the type and terrain of a race. According to Vogt (2007), generally, slowest speeds and cadences are reported during hilly events while the fastest speeds and cadences are reported during flat races and time trials.<sup>[5]</sup> Lucia (2001) Road cycling is an extremely demanding endurance sport characterized by its cyclic nature, large training volumes, and high intensities.<sup>[6]</sup> Mujika (2001) The activity is comprised of several different disciplines with clear physiological differences according to the typology of the cyclist and the particularities of the event (length, elevation gain, mass, or individual start, etc.).<sup>[7]</sup> Peinado (2018) Therefore, different types of riders specialized in specific events and efforts have appeared: time trialists (Støren, 2013) sprinters (Menaspà, 2015), and grand tour riders are some examples.<sup>[8–10]</sup>

Allen (2019) has proved that the integration of power measuring devices in the training of competitive cyclists offers numerous advantages.<sup>[11]</sup> These devices provide objective and accurate measurements, enable individualized training zones, facilitate effective pacing strategies, and help identify areas for performance improvement. By harnessing the power of data, athletes, and coaches can optimize training, track progress, and make informed decisions to enhance the performance of competitive cyclists.

Vietnamese national road cycling athletes participate in similar competition distances as athletes worldwide. Monitoring physiological responses to exercise or adaptive responses is mostly recognized through the training experience. Vo Quoc Thang (2021) demonstrated that the application of devices for managing exercise intensity in the training of Vietnamese road cycling athletes still has many limitations. Some athletes use heart rate monitoring devices during their training as a tool to recognize training intensity; however, managing the volume of exercise over an extended period to understand adaptive responses as well as to prevent training overload is not common.

### Purpose

The purpose of this research is to evaluate the changes in physiological and performance indicators of female cyclists by using a power meter for load monitoring. Specifically, the study aims to determine whether the use of a power meter has an impact on resting heart rate, max heart rate, lactate threshold, heart rate at lactate threshold, power output, and fatigue index (FI) of female road cyclists at the national level.

## MATERIALS AND METHODS

### Participants

Four female road cyclists at the national level. Age (years)  $26.2 \pm 1.7$ , experience (years)  $12.5 \pm 1.1$ , height (cm)  $164.25 \pm 3.86$ , and weight (kg)  $56.75 \pm 2.22$ . Characteristics of the experimental group are presented in Table 1.

The participants volunteered to participate in the study. To participate in the study, cyclists had to be free of musculoskeletal injuries or other conditions that could hinder their participation. Participants were informed of the potential risks and benefits of the study and signed a consent form to participate in this study.

### Design

The study followed a longitudinal observational design. Participants visited the laboratory on two different days interspersed by 48 h. All tests were performed at approximately the same time of the day and under the same conditions (temperature  $29 \pm 3^\circ\text{C}$ ). The first laboratory visit was a maximal incremental cycling test. During their second visit, the subjects completed the Wingate test. The assessment was conducted at the end of the preparation phase, during the second phase of the 2021 annual training plan. All experimental procedures were approved by the Ho Chi Minh City National Sports Training Center, Vietnam, and adhered to the principles outlined in the Declaration of Helsinki

### Procedure

The study involved four female road cyclists at the national level who were monitored over the preparatory phase using a power meter. Physiological indicators such as rest heart rate, max heart rate, lactate threshold 1 and 2, heart rate at lactate threshold 1 and 2, and max lactate were measured using Step test standard testing protocols. Performance indicators such as power output, and FI, were also measured using standard testing protocols (Wingate test).

The research uses the blood lactate transition thresholds of high-performance cyclists using a long-graded exercise test protocol. The cyclist warms up at 75–100 W in 5 min, the starting workload at 125 W, step increment is 25 W, cadence range selection (rpm) is 95–105, and step duration is 3 min. The tester records heart rate during the last 15 s of each workload and heart rate at the end of the test. The ergometer bike-Wattbike Pro 2019 from England is used for the step test

**Table 1: Characteristics of an experimental group participating in the study**

No. of players	Experience (years)	Age (years)	Height (cm)	Weight (kg)
04	12.5±1.1	26.2±1.7	164.25±3.86	56.75±2.22

procedure and Wingate test. Devices Lactate Scouts from the USA. Weight 80 g. Results within 10 s. Size 3.6 × 2.2 × 0.9.

### Statistical Analyses

We used Excel and SPSS software to process the data. To evaluate the changes before and after the training process, we used analysis of variance (ANOVA) and t-test for mean values and standard deviations. The research uses Lactate E (Newell J, 2007) to determine for calculating blood lactate endurance markers.<sup>[12]</sup>

## RESULTS

The changes in aerobic and anaerobic physiological indicators after the preparatory phase cycle of using a power meter for load monitoring are shown in Tables 2 and 3 respectively.

A comparative analysis was conducted to evaluate the changes in various aerobic physiological indicators between the pre-intervention (Pre) and post-intervention (Post) stages. Descriptive statistics, including mean ( $\bar{X}$ ) and standard deviation (Sd), were calculated for each variable. The differences (d) between pre- and post-values were also examined, along with their associated significance levels (Sig.) (Figure 1).

The table presents the following results for each variable:

*LT1 (mmol)*: The mean LT1 value decreased slightly from 2.9 (Pre) to 2.88 (Post), showing a negligible decrease ( $d = -0.02$ ,  $P = 0.83$ ). *Power @ LT1 (W/kg)*: The mean power at LT1 increased from 2.69 (Pre) to 2.83 (Post), indicating a significant improvement ( $d = 0.14$ ,  $P < 0.05$ ). *HR @ LT1 (bpm)*: There was a notable decrease in heart rate at LT1, with a change from 150.75 (Pre) to 146.25 (Post) ( $d = -4.50$ ,  $P < 0.05$ ). *LT2 (mmol)*: The mean LT2 value exhibited a marginal reduction from 4.73 (Pre) to 4.70 (Post) ( $d = -0.03$ ,  $P = 0.76$ ). *Power @ LT2 (W/kg)*: Power at LT2 displayed a significant increase, rising from 4.06 (Pre) to 4.29 (Post) ( $d = 0.23$ ,  $P < 0.05$ ). *HR @ LT2 (bpm)*: Heart rate at LT2 experienced a substantial drop, with values shifting from 168.5 (Pre) to 164 (Post) ( $d = -4.5$ ,  $P < 0.05$ ). *VO<sub>2</sub> max (ml/kg/ph)*: There was a noteworthy enhancement in VO<sub>2</sub> max, as it increased from 63 (Pre) to 67.41 (Post) ( $d = 4.41$ ,  $P < 0.05$ ). *Resting HR (bpm)*: The resting heart rate displayed a significant decrease from 51.75 (Pre) to 49.25 (Post) ( $d = -2.5$ ,  $P < 0.05$ ). *Max HR (bpm)*: Maximum heart rate showed a minor increase from 181 (Pre) to 182.5 (Post) ( $d = 1.5$ ,  $P < 0.05$ ).

Statistical significance ( $P < 0.05$ ) was observed for several variables, indicating meaningful changes in physiological indicators following the intervention.

**Table 2: The change of aerobic physiological indicators after a preparatory phase cycle**

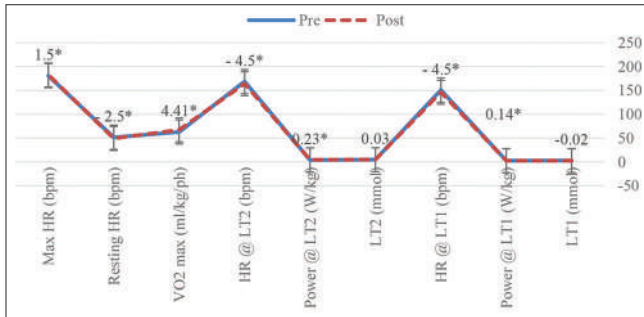
Variables	Pre		Post		d	Sig.
	$\bar{X}$	Sd1	$\bar{X}$	Sd2		
The aerobic physiological indicators						
LT1 (mmol)	2.9	0.42	2.88	0.4	-0.02	0.83
Power @ LT1 (W/kg)	2.69	0.21	2.83	0.21	0.14	0.00*
HR @ LT1 (bpm)	150.75	6.34	146.25	10.36	-4.50	0.00*
LT2 (mmol)	4.73	0.65	4.70	0.51	-0.03	0.76
Power @ LT2 (W/kg)	4.06	0.13	4.29	0.14	0.23	0.00*
HR @ LT2 (bpm)	168.5	2.65	164	3.37	-4.5	0.00*
VO <sub>2</sub> max (ml/kg/ph)	63	2.16	67.41	2.31	4.41	0.00*
Resting HR (bpm)	51.75	0.96	49.25	0.96	-2.5	0.01*
Max HR (bpm)	181	6.68	182.5	6.86	1.5	0.01*

\*Significantly different ( $P < 0.05$ ). LT1: Lactate 1; LT2: Lactate 2; HR: Heart rate

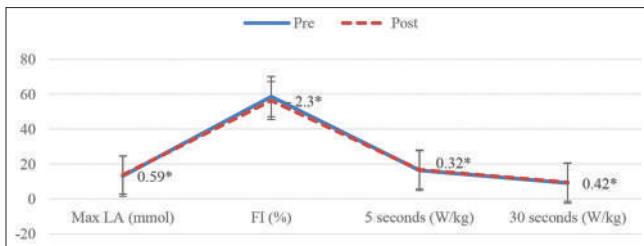
**Table 3: The change of anaerobic physiological indicators after a preparatory phase cycle**

Variables	Pre		Post		d	Sig.
	$\bar{X}$	Sd1	$\bar{X}$	Sd2		
The anaerobic physiological indicators						
Max LA (mmol)	13.1	1.81	13.69	1.89	0.59	0.00*
FI (%)	58.63	3.3	56.37	2.51	-2.3	0.03*
5 s (W/kg)	16.36	2.83	16.68	2.88	0.32	0.00*
30 s (W/kg)	9.08	1.18	9.5	1.23	0.42	0.00*

\*Significantly different ( $P < 0.05$ ). FI: Fatigue Index (%)



**Figure 1:** The change of aerobic physiological indicators after a preparatory cycle phase  
\*Significantly different ( $P < 0.05$ )



**Figure 2:** Comparison of Pre- and Post Intervention Anaerobic Physiological Indicator

A comparison was conducted between pre-intervention (Pre) and post-intervention (Post) values for various anaerobic physiological indicators. Descriptive statistics, including mean ( $\bar{X}$ ) and standard deviation (Sd), were calculated for each variable. The differences (d) and significance levels (Sig.) were also examined.

The table displays the following results for each variable:

*Max LA (mmol):* There was a slight increase in the mean Max LA value from 13.1 (Pre) to 13.69 (Post), yielding a positive difference ( $d = 0.59, P < 0.05$ ). *FI (%):* The mean FI percentage exhibited a notable decrease, shifting from 58.63 (Pre) to 56.37 (Post) ( $d = -2.3, P = 0.03^*$ ). *5 s (W/kg):* The mean power output for 5 s demonstrated an increase from 16.36 (Pre) to 16.68 (Post), with a positive difference ( $d = 0.32, P < 0.05$ ). *30 s (W/kg):* Power output for 30 s displayed an increase from 9.08 (Pre) to 9.5 (Post), resulting in a positive difference ( $d = 0.42, P < 0.05$ ).

## DISCUSSION

Schumacher *et al.* (2001) examined the effects of power-based training on performance in trained cyclists.<sup>[13]</sup> The researchers found that athletes who incorporated power meters into their training programs showed significant improvements in time trial performance compared to those who trained without power measurement. This study demonstrated the effectiveness of

power-based training in optimizing performance outcomes. Allen *et al.* (2019), investigated the relationship between power output and time trial performance in trained cyclists.<sup>[11]</sup> The results showed a strong correlation between power output and time trial performance, indicating that monitoring and training with power can be a valuable tool for predicting and improving race performance. Weston *et al.* (2014) examined the impact of power-based training on physiological adaptations and performance in competitive cyclists.<sup>[14]</sup> The researchers observed that athletes who utilized power meters in their training achieved greater improvements in functional threshold power,  $VO_2$  max, and time trial performance compared to a control group.

Much research has been done on endurance training programs, especially for cyclists. Tomlin (2001) suggested that aerobic metabolism plays an important role in sports performance, sometimes directly contributing to competitive performance, making a large contribution to cyclists' performance, and cyclists' recovery.<sup>[15]</sup> Appropriate aerobic endurance training programs not only help athletes develop endurance capacity alone but also help maintain capacity during the exercises themselves at certain intervals and the fastest recovery for the athlete, prepare the following exercises.

Research by Buchheit and Laursen (2013), shows that aerobic endurance development programs are often developed at subthreshold and high-intensity intervals, resulting in significant volume expansion, maximum oxygen absorption  $VO_2$  max (ml/kg/min) and lactate threshold.<sup>[16]</sup> However, heart rate monitors work well in situations where the riding intensity is kept relatively stable, such as longer, lower-intensity endurance or base training rides. The key benefits of power are the instantaneous feedback it provides and the lack of external influences that would otherwise undermine the data. The precision and real-time feedback of a power meter also allows coaches and cyclists to target specific training adaptations easier than with a heart rate monitor.

This study provided further evidence for the efficacy of power-based training in enhancing cycling performance. These studies, among others, consistently demonstrate the positive impact of power measuring devices on training effectiveness and performance outcomes in cycling. The evidence from these research works supports the integration of power meters into training programs to enhance performance monitoring, individualize training intensities, and improve race strategies for competitive cyclists.

Much research proved that using a power meter for training will help decrease fat percentage and increase muscle percentage suggesting that cyclists were able to optimize their body composition and improve their power-to-weight ratio using a power meter. The decrease in resting heart rate and increase



in max heart rate suggests that cyclists were able to improve their cardiovascular fitness and increase their work capacity. However, the lack of significant changes in lactate threshold, heart rate at lactate threshold, and power output suggests that the use of a power meter may not have a significant impact on these performance indicators. It is possible that the cyclists were already operating at their maximal lactate threshold and that further improvements in power output could only be achieved through other training interventions. The results of this study indicate that the use of a power meter can have a significant impact on the physiological and performance indicators of female road cyclists at the national level.

Regarding the aerobic physiological indicators, the use of a power meter demonstrated significant improvements across multiple key parameters. The increase in power output at both LT1 and LT2 indicates enhanced endurance capacity, potentially attributed to improved oxygen utilization and energy production mechanisms. The substantial elevation in VO<sub>2</sub> max, a crucial marker of aerobic fitness, underscores the use of a power meter’s positive impact on participants’ cardiovascular efficiency and capacity to sustain high-intensity exercise. The reductions in heart rate responses at LT1 and LT2 further affirm the use of a power meter’s influence on cardiovascular adaptation, as lower heart rates at comparable exercise intensities suggest enhanced cardiovascular efficiency and reduced strain on the cardiovascular system.

Shifting the focus to anaerobic physiological indicators, the use of a power meter exhibited meaningful changes that signify improvements in short-duration, high-intensity performance. The observed increase in power output during 5-s and 30-s efforts implies augmented anaerobic power and capacity. This enhancement is of significance in activities demanding rapid bursts of energy, such as sprinting and explosive movements. The decrease in FI percentage indicates an enhanced ability to sustain high-intensity efforts over time, suggesting improved muscular endurance and fatigue resistance.

Collectively, these findings substantiate the efficacy of the use of a power meter in enhancing both aerobic and anaerobic physiological attributes. The improvements noted across various parameters collectively contribute to a more comprehensive understanding of the use of a power meter’s impact on the participants’ overall physical performance. The use of a power meter’s ability to enhance endurance, cardiovascular efficiency, and anaerobic performance capabilities underscores its potential utility in optimizing training regimens for athletes seeking to improve their athletic prowess and competitive edge.

Comparing the indicators of this study to those of the world, it is important to note that the results of this study may not be generalizable to all female road cyclists. In additionally,

**Table 4: Anaerobic physiological indicators and VO<sub>2</sub> max variable of this research compared with world-class cyclists**

Level	5 s* (W/kg)	30 s* (W/kg)	VO <sub>2</sub> max** (ml/kg/ph)
World-class	17.9≥	11.2≥	75.5
Exceptional	<16.5≥	<10.4≥	
Excellent	<15.3≥	<9.8≥	
Very good	<13.9≥	<9.1≥	
Good	<12.6≥	<8≥	
Moderate	<11.3≥	<7.3≥	
Fair	<10≥	<6.9≥	
Recreational	≤8.6	≤6.1	
Thanh Tu, Pham (2021)	16.68	9.5	67.4

\*Coggan *et al.* (2006), \*\*Coyle (1995), Lucia (2001)

the indicators of this study do not exceed or underperform in comparison to the world’s average.

Anaerobic physiological indicators and VO<sub>2</sub> max variable of this research compared with the research of Coyle (1995), Lucia *et al.* (2001), and Allen *et al.* (2019) are shown in Table 4.<sup>[6,11,17]</sup>

Comparing these results with global indicators revealed that the national-level cyclists had higher max heart rates than the global average. However, they had lower power output for longer durations, lower VO<sub>2</sub> max, and lower power at lactate thresholds 1 and 2.

While the observational study design provides valuable insights into the changes in selected physiological and performance indicators following a 6-month training program, it is important to acknowledge its limitations. Observational studies cannot establish causality or determine the direct impact of the intervention being studied. Instead, they rely on observing and evaluating existing conditions without manipulating variables. In the context of assessing the effectiveness of power measuring devices in training applications, observational studies can provide preliminary evidence regarding the association between power output and physical fitness indicators. However, to establish a stronger understanding of the efficacy of power measuring devices, further research using experimental designs, such as randomized controlled trials, is warranted.

## CONCLUSIONS

These findings suggest that improve the physiological and performance indicators of female cyclists. The results of this study may contribute to the existing body of knowledge and inform future interventions aimed at optimizing training

programs and enhancing performance in various athletic disciplines.

The study found significant changes in resting heart rate and max heart rate ( $P < 0.05$ ), max lactate (mmol), FI (%), power 5 s (W/kg), and power 30 s (W/kg) with  $d$  of 0.59, -2.3, 0.32, and 0.42, respectively ( $P < 0.05$ ). However, its impact on performance indicators such as lactate thresholds 1 and 2 may not be significant. Further research is needed to determine the optimal use of power meters in cycling training and performance.

In light of the comprehensive analysis conducted on the collected data, it is evident that the implemented use of a power meter has yielded noteworthy alterations in both aerobic and anaerobic physiological indicators among the participants. The comparison of pre-intervention (Pre) and post-intervention (Post) values has provided valuable insights into the effects of the intervention on various physiological parameters, shedding light on the efficacy of the use of a power meter in enhancing athletic performance.

In essence, the findings highlight the use of a power meter's capacity to induce favorable adaptations in physiological markers pivotal for athletic success. As the pursuit of enhanced performance remains a constant endeavor, this study offers valuable insights into the mechanisms by which such use of a power meter can propel athletes toward their performance goals, potentially reshaping training methodologies and competitive strategies.

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## Research Article

# The reliability and validity of the Vietnamese version of UMJ' soft skill's questionnaire

Nguyen Ngoc Chon Tam<sup>1</sup>, Vu Viet Bao<sup>2</sup>

<sup>1</sup>Dong Nai University, Biên Hòa, Vietnam, <sup>2</sup>Ho Chi Minh City University of Sports, Ho Chi Minh City, Vietnam

### ABSTRACT

Understanding My Journey (UMJ) is an educational project supported by the European Union's Erasmus+ program to develop tools to support youth and young workers in the process of developing soft skills in a proactive and systematic way and has been successfully deployed in eight countries. UMJ's soft skills questionnaire is available in different languages. With the desire to deploy the Vietnamese version of the questionnaire and apply it to Vietnamese students. The purpose of this study is to test the reliability and validity of the Vietnamese version. UMJ's soft skills survey includes 20 questions reflecting seven skills: Positive attitude, communication skills, adaptive skills, time and energy management, work ethic, problem-solving skills problems and analysis, and leadership and teamwork skills. One hundred and eighty Dong Nai University students participated in this survey through questions prepared in Vietnamese and answered using Google Form. The use SPSS 14.0 is to analyze Cronbach's alpha, exploratory factor analysis, and confirmatory factor analysis and obtain results of a soft skills questionnaire with five components: (1) Adaptability, (2) analytical and problem-solving skills, (3) work ethic, (4) time management, and (5) positive attitude with 18 observed variables. Conclusion: The research results provide authentic evidence about the reliability and suitability of the Vietnamese version of the scale in assessing soft skills for students at Dong Nai University.

**Keywords:** Dong Nai University, Soft skills, Student, UMJ soft skills questionnaire

## INTRODUCTION

Soft skills are considered the key to career success, in addition to the professional knowledge and skills of graduates, they also vividly reflect each individual's life. Understanding My Journey (UMJ) is a European soft skills development handbook, a project developed by organizations working to support young people in seven countries. It is sponsored by Erasmus plus, which is the European agency promoting cooperation across Europe in education, training, youth volunteering, culture, and sport includes seven skills: positive attitude, communication skills, adaptability skills, time management skills, work ethic, analytical and problem-solving skills, leadership, and work skills grouped and measured with 20 observed variables. Some countries that do not belong to the English language group have researched standardization in different language versions to suit that country's practice.

With the desire to apply this toolkit to learn about the awareness of Dong Nai University students about the importance of soft skills training while still in school. The research also hopes to identify important skill groups (core soft skills) necessary to improve students' learning abilities. This study examined different techniques and tools to impart soft skills to students as well as the level of soft skills provided at Dong Nai University. Data were collected through a survey questionnaire translated by the researcher from a questionnaire according to the UMJ soft skills assessment toolkit. The student questionnaire includes two parts – Part A: Full name/Age/Gender and Part B: Assess the level of students' soft skills implementation. The cover letter will explain the purpose of the survey and the importance of each respondent answering to the best of his or her ability. Participants are assured of confidentiality and responses with final results will be provided in aggregate rather than individually.

**Address for correspondence:**  
Vu Viet Bao,  
E-mail: vuvietbao@gmail.com

Research on the reliability and validity of the Vietnamese version of the scale from the original UMJ scale to assess soft skills for students at Dong Nai University

## METHODS

### Subjects

One hundred and eighty students (60 students, 19 years old, studying in year 2 of course 12; 60 students, 20 years old, studying in year 3 of course 11 and 60 students, 21 years old, and studying in year 4 of course 10). All are students studying pedagogy at Dong Nai University participating in answering experimental questions through a questionnaire in Google Form.

### Measurement Scale

The research topic uses the European KNM UMJ development manual scale, a European project and has been developed by organizations working to support young people in seven countries. Country and some personal adjustments by the author according to practical conditions in Vietnam and the school. It is sponsored by Erasmus plus. It is the European agency that promotes cooperation across Europe in education, training, youth volunteering, culture, and sport. Includes seven skills: positive attitude, communication skills, adaptability skills, time and energy management, work ethic, problem solving and analytical skills, leadership, and performance skills. Grouping and measuring with 20 observed variables are as follows (Table 1):

### Analytical Methods

#### *Cronbach's alpha scale reliability test*

Used to eliminate junk variables before conducting factor analysis. Testing the reliability of the variables in the soft skills assessment scale is based on the Cronbach's alpha coefficient of the scale components and the Cronbach's alpha coefficient of each measurement variable. Variables with a corrected item total correlation coefficient less than 0.3 will be eliminated. A scale has good reliability when it varies within the range (0.70–0.80). If Cronbach alpha  $\geq 0.60$ , the scale is acceptable in terms of reliability (Nunnally and Bernstein 1994).

After preliminary assessment of the scale and reliability of observed variables using Cronbach's alpha coefficient, these variables are tested in EFA analysis to evaluate the convergent and discriminant validity of the scale.

#### *Exploratory factor analysis (EFA)*

The exploratory factor method is used to identify groups of criteria to evaluate the quality of soft skills for pedagogical students at Dong Nai University. The EFA analysis method belongs to the group of interdependence multivariate analysis techniques (interdependence techniques), meaning there are no dependent variables and independent variables, but it relies on the correlation between variables with each other

**Table 1: UMJ soft skills scale translated into Vietnamese**

Soft skills	Symbol	Ingredient
Positive attitude	TDTC1	I have a purpose in my life and feel I am making a contribution
	TDTC2	I have realistic goals which I feel I am progressing toward
	TDTC3	I value my friendships and find time to connect with other people
Communication skills	KNGT1	I think through ideas before I speak or communicate them
	KNGT2	I can communicate positively in difficult or challenging situations
	KNGT3	I know when to use informal or more formal language
Adaptability Skills	KNTU1	I see changes as opportunities to learn and experience new things
	KNTU1	I try to overcome setbacks and barriers to progress
	KNTU1	I am open to other people's suggestions about how I might do things differently
Time and Energy Management	QLTG1	I am always on time for things and rarely miss deadlines
	QLTG2	I regularly write 'to do' lists and tick off things when they're done
	QLTG3	When I start doing something, I like to try and finish it without getting distracted
Work ethic	DDLV1	I can be relied on to be there when the work needs to be done
	DDLV2	I own up to my mistakes and am happy to ask for help and advice when I need it
	DDLV3	I understand the importance of working hard to achieve my goals
Problem Solving and Analytical Skills	GQVD1	I step back and look at the bigger picture before trying to analyze a problem
	GQVD2	I set up and follow a logical sequence of stages in order to problem solve
	GQVD3	I think creatively and come up with solutions which other people have not thought of
Teamwork Leadership Skills	KNLD1	I understand how my role fits within a larger team
	KNLD2	I do as I say, and people trust me to act in accordance with my values

UMJ: Understanding My Journey

(interrelationships). EFA is used to reduce a set of  $k$  observed variables into a set  $F$  ( $F < k$ ) of more meaningful factors. The basis of this reduction is based on the linear relationship of factors with observed variables. The number of basic factors depends on the research model in which they are constrained by rotating orthogonal vectors so that correlation does not occur.

**Confirmatory factor analysis (CFA)**

CFA is one of the statistical techniques of linear structural modeling (SEM). CFA allows us to test how well the observed variables represent the constructs. CFA is the next step of EFA because CFA is only appropriate when the researcher has some existing knowledge about the underlying latent structure, in which the relationship or hypothesis (obtained from theory or experiment) between the observed variable and the underlying factor is implicitly assumed by the researcher before conducting statistical testing. The CFA method is used to confirm the univariate, multivariate, convergent, and discriminant validity of the soft skills assessment scale for pedagogical students at Dong Nai University.

**RESULTS AND DISCUSSION**

**Preliminary Assessment of Scale Reliability with Cronbach's Alpha Coefficient**

Results of testing the reliability of the scale with Cronbach alpha coefficient, the components of the service quality scale, all have Cronbach's alpha coefficients, which are all accepted in terms of reliability (greater than the required level of 0.6). In particular, the alpha coefficients of 7 skills are as follows: positive attitude (0.634), communication skills (0.617), adaptive skills (0.800), time and energy management (0.845), ethics working (0.827), problem solving and analytical skills (0.798), and leadership and teamwork skills (0.749). Considering that the variable-total correlation coefficient (corrected) of the observed variables all met the requirement of  $>0.30$  (Hair and etc. 2006); therefore, the author decided that no observed variables should be eliminated and the scale suitable for use in subsequent EFA analysis.

**EFA**

After the components of the soft skills scale were preliminarily evaluated for scale reliability with the Cronbach alpha coefficient, all observed variables met the requirements for EFA factor analysis. The factor extraction used is principal axis factoring with Promax non-perpendicular rotation (Table 2).

The results of the EFA analysis stopped a second time when the observed variable KNLD2 was removed (I do as I say, and people trust that I act according to my values); because the factor weight is  $<0.4$  (Gerbing and Anderson, 1988). EFA results have KMO coefficient = 0.848, the Bartlett test value is significant ( $\text{sig} < 0.05$ ), five groups of factors are extracted with a total error of 70.07%.

**Table 2: Results of the EFA scale assessing soft skills**

Symbol	Factor group				
	First	2	3	4	5
	KNTU	GQVD	DDLV	QLTG	TDTC
KNTU2	0.776				
KNTU1	0.769				
KNGT3	0.704				
KNTU3	0.694				
KNGT1	0.577				
GQVD3		0.853			
GQVD1		0.717			
KNLD1		0.702			
GQVD2		0.630			
DDLV2			0.871		
DDLV3			0.763		
DDLV1			0.666		
TDTC3			0.534		
QLTG1				0.911	
QLTG2				0.890	
QLTG3				0.790	
TDTC1					0.878
TDTC2					0.860

The new factor groups have mixed components: KNGT3 and KNGT1 factors are grouped together with the adaptability scale components; the KNLD1 factor is grouped together with the problem-solving skills scale; and TDTC3 factor is grouped together with the work ethic scale. In general, the components have changed significantly, so the names of the factor groups are changed to better suit the components of the new group. Thus, the soft skills scale after preliminary assessment includes five components: (1) Adaptability (KNTU), (2) problem solving and analytical skills (GQVD), (3) work ethic (DDLV), (4) time and energy management (QLTG), and (5) positive attitude (TDTC) with 18 observed variables. The 18 observed variables of the supermarket service quality scale all have satisfactory factor weights above 0.4 and are included in the next test with CFA analysis.

**CFA**

The CFA results of the first soft skills scale with the observed variable KNLD3 (I can communicate positively in difficult or challenging situations) belong to the spatial component because the weight of this variable is only 0.427, which is smaller than the standard. The allowable standard ( $\geq 0.5$ ) for the scale to reach convergent validity (Gerbing & Anderson, 1988), so this variable will be eliminated and the second CFA will be conducted.

The results of the second CFA (Figure 1) show that the weights of the observed variables all meet the allowed

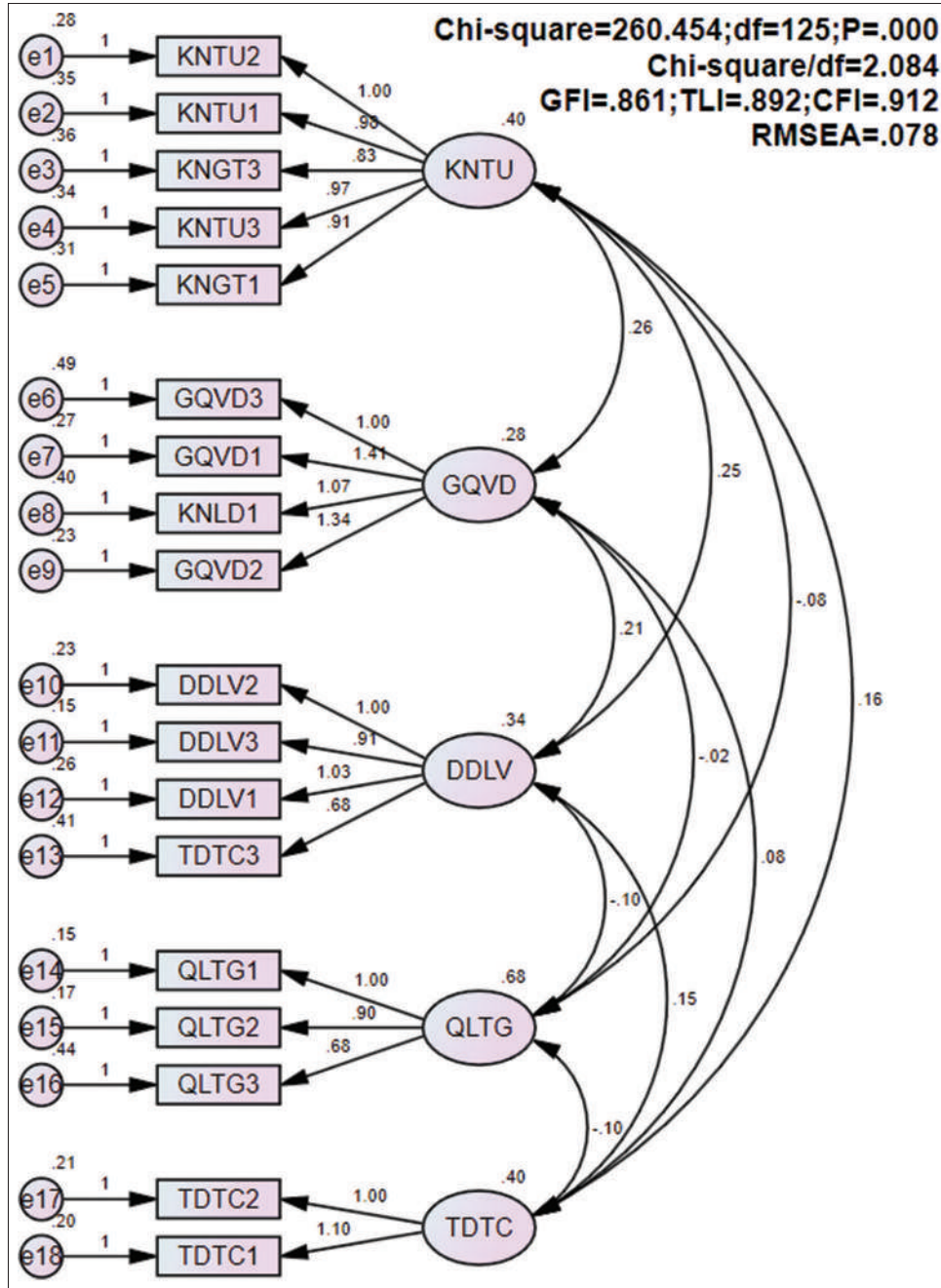


Figure 1: Confirmatory factor analysis results of standardized soft skills scale

standard ( $\geq 0.5$ ) and are statistically significant. p values are all equal to 0.000 (the lowest weight is the TDTC3 variable weight of 0.532).

Thus, it can be concluded that the observed variables used to measure the five components of the soft skill's scale achieve convergent validity. The second CFA shows that the model has 125 degrees of freedom, the Chi-square test value = 260,454 with p-value = 0.000; however, Chi-square/df = 2,084 is good because  $< 3$  and the indexes indicate that the model is suitable.

Table 3: Testing the discriminant validity of the soft skills scale

Relationship	R	SE	CR	P
KNTU <--> GQVD	0.771	0.055	4.151	0
KNTU <--> DDLV	0.675	0.062	5.211	0
KNTU <--> TDTC	0.403	0.072	8.239	0
GQVD <--> DDLV	0.669	0.063	5.276	0
GQVD <--> TDTC	0.230	0.074	10.336	0
DDLV <--> TDTC	0.392	0.073	8.368	0

**Table 4: Summary of results of testing the soft skills scale**

Ingredient	Number of observed variables	Reliability		Extracted variance (%)	Value
		Cronbach	Synthetic		
KNTU	5	0.800	0.844	0.520	Qualified
GQVD	4	0.798	0.826	0.546	
DDLV	4	0.827	0.817	0.533	
QLTG	3	0.845	0.855	0.666	
TDTC	2	0.634	0.809	0.680	

With market data (GFI = 0.861; TLI = 0.892; CFI = 0.912; and RMSEA = 0.078).

The correlation coefficient between the components with the accompanying standard deviation (Table 3) shows us that these coefficients are <1 (statistically significant). Therefore, the components of adaptability, problem solving and analytical skills, work ethic, time and energy management, and positive attitude all achieved discriminant value.

The value and reliability of the scale will be evaluated through the composite reliability coefficient and extracted variance (Table 4). This result shows that the components of the soft skills scale meet the requirements of validity and reliability.

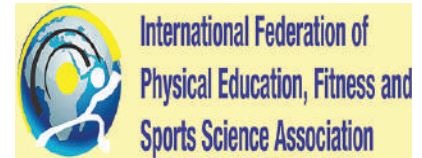
### CONCLUSION

The study has determined the reliability and validity of the soft skills scale for students at Dong Nai University in Vietnamese version from the original English version of UMJ. Through surveying students' opinions from the initial questionnaire and data analysis results, a soft skill's scale for Dong Nai University students has been formed with five components:

(1) Capacity adaptive skills (KNTU), (2) analysis and problem solving skills (GQVD), (3) work ethics (DDLV), (4) time management (QLTG), and (5) positive attitude (TDTC) with 18 observed variables. The components of the scale are the basis for assessing soft skills and can deploy large-scale surveys. The information obtained will suggest finding solutions to improve soft skills for students.

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## Research Article

# Role of emotions for enhancing performance in sports and games

Yerraguntla Emmanuel Shashi Kumar

Chairman, Indian Federation of Computer Science in Sports

### ABSTRACT

Emotions play a central role in sport performance. Most athletes are not aware of the influence with regard to their emotions in sports, which have a negative or positive, sway on their performance. Negative emotions create increased stress and anxiety, eventually resulting in poor performance. A positive attitude can help athletes stay motivated and help avoid rout and anxiety. While it might take time, effort, and regular maintenance by finding ways to shift a bad attitude into a good one that can help an athlete to perform at their best. Accordingly, it is important that athletes are able to draw on a range of strategies to enhance emotional control. An athlete's emotional state may also affect the outcome of a competition by influencing performance both during training and while competing. Emotion is a reaction to a stimulus, which can either be real or imagined. Emotion comprises three main elements: Physiological changes, subjective experience, and action tendencies. Optimal emotions for performance ensure efficient use of available resources until task completion. Positive self-statements, motivational general-arousal imagery, and regulate the physiological arousal of an individual are effective techniques to regulate the emotions of the athletes during training and competition. Strategies that influence physiological arousal need to be carefully considered because they may reduce the intensity of emotions important to success. Conversely, strategies that aim to increase physiological arousal may have the opposite effect and increase the intensity of a range of emotions.

**Keywords:** Emotions, Strategies, Success, etc

## INTRODUCTION

Emotions play a central role in sport performance. Accordingly, it is important that athletes are able to draw on a range of strategies to enhance emotional control. An athlete's emotional state may also affect the outcome of a competition by influencing performance both during training and while competing (Butler, 1996). This topic is to outline a range of psychological strategies that could be used by athletes to enhance their emotional control, resulting in improved performance levels. The first discusses how emotions arise, along with the characteristics of an emotional response followed by describes how emotions may impact sport performance, and a number of psychological strategies that could be used by athletes to enhance emotional control will be describes at the last section.

### The Objectives of this Study

1. To describe psychological strategies to enhance emotional control, resulting improved performance.
2. To explain how emotions arise during training and competition.
3. To discuss how emotions impact sport performance.

### Strategies to Enhance Emotional Control in Sports

Given that an individual's emotional state can affect sport performance, techniques to help athletes achieve emotional control are clearly important. The role of cognition in the generation and maintenance of emotions has clear implications for such techniques. Positive self-statements have also been used in conjunction with other techniques (e.g., relaxation training) in sport settings to reduce levels of anxiety (e.g., Prapavessis, Grove, McNair, and Cable, 1992), distress (Mace and Carroll, 1985; 1989), and stimulate a more positive perception of anxiety symptoms (e.g., Hanton and Jones, 1999). Martin, Moritz, and Hall (1999) suggested that motivational general arousal (MG-A) imagery, which focuses on feelings such as relaxation, stress, arousal, and anxiety in conjunction

#### Address for correspondence:

Yerraguntla Emmanuel Shashi Kumar,

E-mail: enmanuelskumar@gmail.com



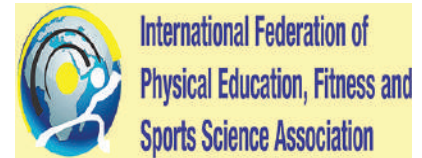
with sport competition, could be an effective strategy for emotional control. Imagery could be used to generate a positive emotional state (e.g., recalling past success may result in happiness and excitement) or remove a stimulus that results in a negative emotion (e.g., images of the correct execution of the skill replacing images of failing). A number of strategies have been proposed that aim to regulate the physiological arousal of an individual and improve emotional control (e.g., progressive muscular relaxation, centering, quiet place, emotive imagery, up-beat music, and exercise). Increasing or decreasing physiological arousal would appear to have a blanket effect on the intensity of emotions experienced by the individual (Hohmann, 1966; Zillmann, 1971; and Zillmann, *et al.*, 1972). Consequently, although a general arousal reducing technique (e.g., progressive muscular relaxation) may be targeted to decrease a particular emotion (e.g., anxiety), it may also influence the intensity of other emotions experienced (e.g., happiness). Strategies that influence physiological arousal need to be carefully considered because they may reduce the intensity of emotions important to success. Conversely, strategies that aim to increase physiological arousal (e.g., emotive imagery and up-beat music) may have the opposite effect and increase the intensity of a range of emotions.

### CONCLUSION

- a. Emotion is a reaction to a stimulus, which can either be real or imagined.
- b. Emotion comprises three main elements: Physiological changes, subjective experience, and action tendencies.
- c. Optimal emotions for performance ensure efficient use of available resources until task completion.
- d. Anxiety can be functional and dysfunctional to the performance.
- e. Learning any physical skill takes time, effort, and practice. Psychological skills are no different in this respect, so do not expect miraculous overnight changes in your performance.
- f. Positive self-statements, motivational general-arousal (MG-A) imagery, and regulate the physiological arousal of an individual are effective techniques to regulate the emotions of the athletes during training and competition.

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## Research Article

# Effect of short hill sprints for development of speed among high jumpers

Gurunam Singh Chug

Associate Professor, Department of Physical Education, Keshav Memorial Engineering College, Kachawarasingham, Hyderabad, India

### ABSTRACT

The objective of the study is to determine the effect of short hill sprints for development of speed among high jumpers of Hyderabad in India. It is hypothesized that there will be effect of short hill sprints for development of speed among high jumpers. The purpose of the present study was to find out the effect of short hill sprints for the development of speed in high jump. The sample for the present study consists of 30 male high jumpers of Hyderabad out of which 15 are experimental group and 15 are controlled group. Short hill sprints ranging from 10 to 30 M were given to experimental group on alternate days, that is, three sessions per week and controlled group were given the general training in high jump for eight weeks. To assess the speed, pre-test and post-test were conducted in 50 M run by the qualified technical officials of athletics to the experimental group and controlled group. This study shows that due to the short hill sprints, there is an improvement of high jump experimental group in speed and high jump controlled group is decreased in performance ability and speed due to the general training. High jumping is all about explosive power. Explosive power is a combination of speed, muscular endurance, and muscular strength, all of which can be developed through short hill sprints. It is concluded that due to plyometric training, there will be improvement in speed among high jumpers.

**Keywords:** Explosive Power, Short Hill Sprints, Speed, etc

### INTRODUCTION

The high jump is a track and field event in which competitors must jump unaided over a horizontal bar placed at measured heights without dislodging it. In its modern most practiced format, a bar is placed between two standards with a crash mat for landing. At the elite level, athletes run toward the bar and use the Fosbury Flop method of jumping, leaping head first with their back to the bar. Performed since ancient times, competitors have introduced increasingly more effective techniques to arrive at the current form. The discipline is, alongside the pole vault, one of two vertical clearance events to feature on the Olympic athletics program. It is contested at the World Championships in Athletics and IAAF World Indoor Championships and is a common occurrence at track and field meetings. The high jump was among the first events deemed acceptable for women, having been held at the 1928 Olympic

Games. Javier Sotomayor (Cuba) is the current men's record holder with a jump of 2.45 m (8 ft 0 $\frac{1}{4}$  in) set in 1993 – the longest standing record in the history of the men's high jump. Stefka Kostadinova (Bulgaria) has held the women's world record at 2.09 m (6 ft 10 $\frac{1}{4}$  in) since 1987, also the longest-held record in the event.

Kumar studied about the effect of hill training for development of aerobic fitness among middle and long distance runners of Hyderabad district in India. The sample for the study consists of 45 middle and long-distance runners between the age group of 18–20 years those who have participated in many middle and long-distance events since last 3 years. The selected subjects were randomly divided into three equal groups of 15 each. Group I is Experimental Hill Training Group, Group II is Experimental Fartlek Training Group, and Group III is Control Group. The experimental groups were given training alternate days for 12 weeks in addition to their normal practice on other days. The control group was given routine training. The data were collected in pre-test and post-test for all groups using the 12 min run cooper test. The collected data were analyzed

#### Address for correspondence:

Dr. Gurunam Singh Chug,

E-mail: gurnamsingh.chugh@gmail.com

**Table 1: Mean values of 50 M run test between experimental and control group of high jumpers**

Variables	Group	Pre test Mean±SD	Post test Mean±SD	T	P-value
50 M run test	Experimental	7.51±0.294	7.23±0.262	4.58	0.000
	Control	7.64±0.376	7.73±0.408		

\*Significant at 0.05 level

statistically using ANCOVA. The results of the study show that due to hill training and fartlek training, there is a significant development of aerobic fitness among experimental groups.

### Objectives of the Study

The objective of the study is to determine the effect of short hill sprints for development of speed among high jumpers of Hyderabad in India. It is hypothesized that there will be effect of short hill sprints for development of speed among high jumpers.

### Purpose of the Study

The purpose of the present study was to find out the effect of short hill sprints for the development of speed in high jump.

## METHODOLOGY

The sample for the present study consists of 30 male high jumpers of Hyderabad out of which 15 are experimental group and 15 are controlled group. Short hill sprints ranging from 10 to 30 M were given to experimental group on alternate days, that is, three sessions per week and controlled group were given the general training in high jump for 8 weeks. To assess the speed, pre-test and post-test were conducted in 50 meters run by the qualified technical officials of athletics to the experimental group and controlled group.

## RESULTS

This results of the study show that due to the hill running, there is an improvement of experimental group in the speed and controlled group is decreased in performance due to the general training (Table 1).

The experimental group of 50 m run men is 7.51 in pre-test and controlled group mean is 7.64 in pre-test, there is a difference

of 0.13 in pre-test. The experimental group mean is 7.23 in post-test and controlled group mean is 7.73, the experimental group mean in post-test in 50 m run is decreased from 7.51 to 7.23, and the control group mean in post-test in 50 m run is increased from 7.64 to 7.73. Due to the hill running, the experimental group has improved a lot.

## CONCLUSIONS

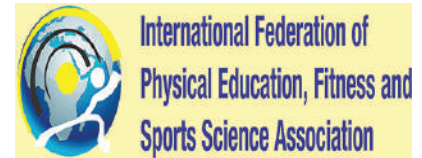
It is concluded that the due to the hill running develops the strength and power in the legs. It also improves the co-ordination in the arms and legs and promotes in developing the speed. In this study, it is concluded that due to the hill running, there is a development of speed among high jumpers.

## 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 the motor abilities of the Jumpers.

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## Research Article

# Sports culture in India

Hosmani Amalappa

Head, Department of Commerce, Gulbarga University, Kalaiburagi, Karnataka, India

### ABSTRACT

Physical education and sports have gained importance in a day-to-day life of an individual. Excellence in sports is an index of the progress and development of a nation. Excellence in sports events brings honor and glory to the nation. Advanced and developed nations excel in sports events and it speaks of a great mess of those nations. Sports contribute toward the physical, mental, and psychological health of people. It is obvious that in those nations where there is a healthy sports culture, people stay healthy and remain fit both physically and mentally. This results in a healthy work culture and people become hardworking, dedicated, and disciplined, which has a profound influence on the progress and development of that nation. India is home to a diverse population playing many different sports across the country. Proper coaching associated with standard techniques is not being imparted to the potential sports personnel. There is no hunt for talent and it is not spurred to the desired level. Many sports federations have been established but due to lack of sound financial backing, these federations have become nominal. Sponsors are also not coming forward except for a few sports. Cricket is the most popular sport. Unless there is a synergized, sports culture you will never win a string of medals. Sports spirit and professionalism are lacking in the people of our country which is so important toward promoting a healthy sports culture. In India, people are euphoric about winning but not about its true spirits.

**Keywords:** Excellence, Healthy, Cricket, etc.

### INTRODUCTION

Physical education and sports have gained importance in day-to-day life of an individual. Excellence in sports is an index of progress and development of a nation. Excellence in sports events brings honor and glory to the nation. Advanced and developed nations excel in sports events and it speaks of great mess of those nations. Sports contribute toward the physical, mental, and psychological health of people. It is obvious that in those nations where there is healthy sports culture, people stay healthy and remain fit both physically and mentally. This results in a healthy work culture and people become hardworking, dedicated, and disciplined, which has a profound influence on the progress and development of that nation.

Sports spirit and professionalism are lacking in the people of our country which is so important toward promoting a healthy sports culture. In India, people are euphoric about

winning but not about their true spirits. One important factor contributing to poor sports culture is that physical education teachers appointed in schools generally do not come from sports backgrounds although these teachers have diplomas and degrees to their credit. Although these teachers take theory classes, practical part of sports is ignored. Another important factor that is lacking is that as an independent discipline sports are not finding its due place in academics in higher education. The result of this is that research in this field is not promoted. In the absence of research sports, culture cannot be promoted.

Elite which is all powerful and who are in command of reign also are not playing a positive role although they talk tall about promotion of sports. There is no encouragement to the players in respect of financial resources and infrastructure. Proper coaching associated with standard techniques is not being imparted to the potential sports personnel. There is no hunt for talent and it is not spurred to the desired level. Many sports federations have been established but due to lack of sound financial backing, these federations have become nominal. Sponsors are also not coming forward except for a few sports.

**Address for correspondence:**  
Hosmani Amalappa,  
E-mail: aphosamani@gmail.com

## DISCUSSION

In such a scenario, where no favorable ambience is being created, sports culture is not evolving here.

As such, sports culture in our country is in a mess. Organizing bodies of sports are lacking in discipline, coordination, and control. The selection process is skeptical and every time fingers are raised. There is a lot of undesirable interference from various quarters. Hence, fairness and transparency are not achieved. Time has come for rethinking and taking a relook at the whole scenario. A holistic approach has to be made which will encompass all the factors and ground work has to be done to address this issue of poor sports culture. Some kind of respectability has to be restored to promote sports culture so that flag of nation may hoist in the international sports events.

India is home to a diverse population playing many different sports across the country. Cricket is the most popular sport. Unless there is a synergized sports culture, you will never win a string of medals.

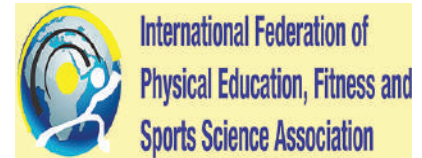
Countries with lower levels of per capita income than India, such as Kenya and Jamaica, have outperformed India in international sporting events. The sports culture is very weak in India and sports as a career option is still frowned upon. The conference on sports culture in 21<sup>st</sup> century is useful for promoting sports and culture in India.

## RECOMMENDATIONS

Fast forward to today, sports, like academics, have become a national obsession, especially around major sporting events like the Olympics. We are quick to point out that with a nation of our size and resources; our performance at the global level is dismal. While this sweeping statement has some merit, we have failed to understand why our performance is poor despite our vast and young population. Just like our education system values mark or grades rather than learning, our expectations from sports are medals at the Olympics instead of being active and enjoying sports. At the school level, most sports coaches and senior management are only interested in the medals won. Whether it is primary, junior, middle, or senior school, the emphasis is on playing to win, playing to compete. Competition is introduced negatively, and the fear of losing is instilled in a child's mind early on. Like bad academic grades, poor performance in sports is unacceptable. This double whammy of pressure from academics and sports is the reason most children drop out of sports at an early age. With sports, they have a choice; with academics, they do not.

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## Research Article

# Effect of plyometric exercises for development of speed among kabaddi players of Osmania University

Jagan Mohan Sidda

Associate Professor and Head, DPE, Government Degree College, Osmania University, Hyderabad, Telangana, India

### ABSTRACT

Plyometrics, also known as “jump training” or “plyos,” are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power. The purpose of the present study is to find out the effect of plyometric exercises on development of speed among kabaddi players. The sample for the present study consists of 20 male kabaddi players of Osmania University out of which ten are experimental group and ten are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and pushups were given to experimental group on alternate days, that is, three sessions per week and controlled group were given the general training for 12 weeks. Pre-test and post-test were conducted in 30 M run to measure the speed among experimental group and controlled group. This study shows that due to the plyometric training, there is an improvement of experimental group in the speed and controlled group is decreased in performance of speed. It is concluded that due to plyometric exercises, there will be improvement in speed among kabaddi players.

**Keywords:** Plyometrics, Kabaddi, Speed, etc.,

### 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.

Core training is important for sports, because all sports involve core based movements of one form or another. Because

training your core helps your mobility, stability, and strength, it will increase the power, efficiency, and consistency of the movements you make, while improving your stability and balance, and reducing your chances of injury.

Kabaddi is basically a combative sport, with seven players on each side; played for a period of 40 min with a 5 min break (20-5-20). The core idea of the game is to score points by raiding into the opponent’s court and touching as many defense players as possible without getting caught on a single breath.

Gnanavel and Venkatesan combined effect of core training and speed training on speed and agility among male kabaddi players.<sup>[1]</sup> The purpose of the study is to find out the combined effect of core training and speed training on speed and agility among inter collegiate kabaddi players. To achieve the purpose of the present study, 30 male kabaddi players studying in various departments and colleges of Dhanalakshmi Srinivasan group of institutions, Perambalur, Tamil Nadu, in the age group of 18–25 years were selected as subjects. They were divided into three groups, in which Group–I ( $n = 15$ ) underwent core training with speed training, Group–II ( $n = 15$ ) acted as control, who did not participate

#### Address for correspondence:

Jagan Mohan Sidda,  
E-mail: jmsidda@gmail.com

**Table 1: The mean values and independent samples test of 50 M test between experimental and control groups of kabaddi players**

Variables	Group	Pre-test mean±SD	Post-test mean±SD	t	P-value
50 M Run Test	Experimental	7.42±0.294	7.13±0.262	4.58	0.000
	Control	7.54±0.376	7.63±0.408		

\*Significant at 0.05 level, SD: Standard deviation

any special training apart from their regular routine activities. Before and after the exercises period, the subjects were tested for speed and agility. Explosive power. Speed was measured by 50 m dash and agility measured by T-test. Analysis of covariance was applied to know the significant mean difference between experimental and control group on speed and agility. It is concluded that 12 weeks of core training with speed training showed an impact on speed and agility in experimental group.

Kumar studied about the effect of plyometric and circuit training on selected physical variables among sprinters of Hyderabad District of Telangana State.<sup>[2]</sup> To achieve this purpose, 45 sprinters in the age group of 16–20 years those who have participated in the Hyderabad Open Sprints Athletics Championships at Gachibowli Stadium, Hyderabad, for the year 2019 taken as subjects.

### Purpose of Research

The purpose of the research is to determine the effect of plyometric training exercises for development of speed among kabaddi players of Osmania University between the age group of 18–25 years.

### Population and Sample Group

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

S. No.	Name of the university	Sample	Total number of subjects
1	Osmania	10 Raiders 10 Defenders	20

## METHODOLOGY

The sample for the present study consists of 20 male kabaddi players of Osmania University out of which ten are experimental group and ten are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and pushups were given to experimental group on alternate days, that is, three sessions per week and controlled group were given the general training for 12 weeks. Pre-test and

post-test were conducted in 30 M run to measure the speed among experimental group and controlled group.

## RESULTS AND DISCUSSION

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

In Table 1, the mean values of experimental group of kabaddi players in pre-test are 7.42 and control group kabaddi players are 7.54. Due to core strength training, the experimental group has decreased that the mean values in post-test are 7.13 and due to general training, the control group has increased the mean values to 7.63. The results of the study show that experimental group of kabaddi has increased in the performance 50 M run due to core strength training.

## CONCLUSION

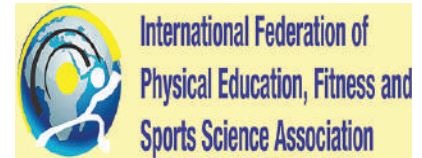
It is concluded that due to core strength training, there will be improvement in speed among kabaddi players. In this study, due to the core strength exercises, there is an improvement in speed among kabaddi players.

## 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 weight lifting.

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## Research Article

# Effect of plyometric exercises for development of speed among football players of Gulbarga University

Hanamant Jange

Principal and Co-ordinator, University College of Physical Education, Gulbarga University, Kalburagi, Karnataka, India

### ABSTRACT

The purpose of the present study is to find out the effect of plyometric exercises on the development of speed among football players of Gulbarga University. The sample for the present study consists of 20 male football players of Gulbarga University out of which ten are experimental group and ten are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and pushups were given to the experimental group on alternate days, that is, three sessions per week, and the control group was given general training for 6 weeks. Pre-test and post-test were conducted in 30 M run to measure the speed among the experimental group and controlled group. The experimental group of 30 M run men is 4.51 in pre-test and controlled group mean is 4.64 in pre-test, there is a difference of 1.13 in pre-test. The experimental group mean is 4.24 in post-test and the controlled group mean is 4.74, the experimental group mean in post-test in 30 M run is decreased from 4.51 to 4.24; there is an improvement of 0.27 from pre-test to post and the control group mean is post-test which is 4.74 that there is an increase of 4.64–4.74. This study shows that due to the plyometric training, there is an improvement in experimental group in speed, and controlled group is decreased in performance of speed. It is concluded that due to plyometric exercises, there will be an improvement in speed among football players.

### INTRODUCTION

Physical fitness is one of the most important and key aspects in the field of physical education. However, physical fitness is not the same as health; it plays an essential role in all aspects of health because they are very much related to fitness. Good health provides a solid foundation on which fitness rests and at the same time fitness provides one of the important keys to health and living one's life-to-the fullest. Fitness is not a state for the young; it is a reality for all ages.

Association football, more commonly known as football or soccer, is a team sport played between two teams of 11 players with a spherical ball. It is played by 250 million players in over 200 countries and dependencies, making it the world's most popular sport. The game is played on a rectangular field with a goal at each end. The object of the game is to score by

getting the ball into the opposing goal. Players are not allowed to touch the ball with their hands or arms while it is in play unless they are goalkeepers.

### Previous Studies

In soccer, there are around 1000–1400 strength and power actions per match (Stølen *et al.*, 2005). Actions such as sprinting, jumping, or kicking are known to be critical on a soccer match, which, therefore, is not surprising that maximum strength and vertical jumps can distinguish the competitive level between soccer athletes (Faina *et al.*, 1988; Wisløff *et al.*, 1998). In a study, two teams from the Norwegian elite soccer league, one elite, and the other sub-elite, were compared regarding endurance, strength, and power (Wisloff *et al.*, 1998). The elite team (Rosenborg) was the most successful team in the elite soccer league, while the sub-elite team (Strindheim) was playing for the 1<sup>st</sup> year in the major league at the time of the study. In what respect to lower body strength and power, both teams were tested for one repetition maximum 90° squat and vertical jump. Not surprisingly, the more competitive players (elite team) were significantly stronger compared to their opponents (sub-elite team) with squat values of  $164 \pm 21,8$  kg and  $135 \pm 16,2$  kg, respectively. Power was also higher

#### Address for correspondence:

Hanamant Jange,  
E-mail: dr.hsjanage05@gmail.com



**Table 1: Test description of week 1 and week 3 training intensity up to 60%**

Day	Name of the exercises	Repetitions and sets
Monday	Hopping, bounding, multiple hops, and jumps	30 M×3 reps×3 sets
Wednesday	Depth jumps, box jumps, and box drills	10 Jumps×3 reps×3 sets
Friday	Standing broad jumps, squat jumps, and alternate leg boundings	10 Jumps×3 reps×3 sets 30 M×3 reps×3 sets

**Table 2: Test description of week 4 and week 6 training intensity up to 80%**

Day	Name of the exercises	Repetitions and sets
Monday	Hopping, bounding, multiple hops, and jumps	40 M×3 reps×2 sets
Wednesday	Depth jumps, box jumps, and box drills	12 Jumps×3 reps×2 sets
Friday	Tuck jump, alternate long jump, and power skipping	12 Jumps×3 reps×2 sets 30 M×3 reps×2 sets

(not significantly) in athletes of the elite team compared to the subelite, with jumping heights of, respectively,  $567 \pm 66$  mm and  $531 \pm 40$  mm.

## MATERIALS AND METHODS

The sample for the present study consists of 20 male football players of Gulbarga University out of which ten are experimental group and ten are controlled group.

### Experimental Group: 1: Plyometric Training

Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, and pushups were given to the experimental group on alternate days, that is, three sessions per week, and controlled group were given the general training for 6 weeks. Pre-test and post-test were conducted in 30 M run to measure the speed among the experimental group and controlled group.

## RESULTS

The experimental group of 30 M run men was 4.51 in pre-test and controlled group mean is 4.64 in pre-test that there is a difference of 1.13 in pre-test. The experimental group mean is 4.24 in post-test and controlled group mean is 4.74, the experimental group mean in post-test in 30 M run is decreased from 4.51 to 4.24 that there is an improvement of 0.27 from pre-test to post and control group mean post-test is 4.74 that there is an increase of 4.64–4.74. This study shows that due to the plyometric training, there is an improvement of experimental group in the speed and controlled group is decreased in performance of speed.

## DISCUSSION AND CONCLUSION

Plyometric exercises will develop explosive power in your hips and legs, which, in turn, will help you sprint faster. Speed and strength are two athletic abilities that help a football player significantly improve his performance on the field. How fast and strong you are will partly depend on your body type and genetic makeup, but you can make notable strides by incorporating weight training, plyometrics, and speed work into your regimen. Soccer players need a combination of aerobic and anaerobic fitness. A good midfielder requires good aerobic fitness and a forward striker requires more anaerobic fitness. Plyometric exercises improve the explosive power in the legs, arms, chest, and shoulder. It also absorbs the forces of impact during the games. It is concluded that due to plyometric training, there will be an improvement in speed among soccer players.

## RECOMMENDATIONS

Hence coaches must include in the training program plyometric exercises to increase the speed and explosive strength among soccer players.

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## Research Article

# Effect of own body exercises and core strength exercises on selected physical variables among volleyball players of Gulbarga University

Mallappa Sharanappa Pasodi

Professor and Director, Central University of Karnataka, Gulbarga, Karnataka, India

### ABSTRACT

The body weight exercises capitalize on the ability of your own weight to provide resistance. Core strength training exercises work the core muscles through a range of movements that impact balance, posture, and flexibility, while also training intramuscular coordination. The purpose of the study was to find out the effect of own body exercises and core strength exercises on selected physical variables among volleyball players of Gulbarga University and to achieve this purpose the 45 men volleyball players in the age group of 18–25 years, Gulbarga University. The selected 45 subjects were divided into three equal groups of 15 each as two experimental groups and one control group, in which Group-I ( $n = 15$ ) underwent its own body weight exercises group for 3 days per week for 6 weeks, Group-II ( $n = 15$ ) underwent core strength exercises for 3 days per week for 6 weeks, and Group-III ( $n = 15$ ) acted as control who are not participating any training apart from their regular activities. The selected criterion variables such as abdominal strength (sit ups test), speed (50 M), and explosive power of legs (standing broad jump) were assessed before and after the training period. From the results of the study, it was found that there was a significant difference when compared with the control group. There was a significant difference between the own body weight group core strength exercises group and the control group. The core strength training exercises group has shown significant improvement compared to own body weight exercises group.

### INTRODUCTION

Body weight exercises capitalize on the ability of your own weight to provide resistance. It helps to build strength, burn fat, prevent injuries, and boost overall fitness. Medicine ball exercises work the core muscles through a range of movements that impact balance, posture, and flexibility, while also training intramuscular coordination.

Trajković *et al.* (2017) studied the effects of medicine ball training on physical fitness in primary school children. Medicine balls provide an effective means of improving muscular power, endurance, and functional fitness. The aim of this research was to determine the effects of medicine ball training on physical fitness in primary school children. A total

of 60 (26 girls) primary school children aged 10–12 voluntarily participated in this study. The physical fitness of the children was estimated by the following tests: standing broad jump, vertical jump, bent-arm hang, sit-ups, pushups, and medicine ball tests. The experimental group had twice per week medicine ball training on non-consecutive days for 12 weeks under monitored conditions in school. Compared with the initial testing, there was a significant ( $P < 0.05$ ) improvement in both jump tests. In the medicine ball tests, the analysis of variance revealed a statistically significant difference between groups pre-to-post-training ( $P < 0.05$ ) in backward overhead medicine ball throw. There were significant differences ( $P < 0.05$ ) between the initial and final testing for the flexed arm hang, push-ups, and sit-ups in both groups. Findings from the present study indicate that medicine ball training instructed by qualified professionals can result in significant improvements in selected physical fitness components in children and is a cost-effective and time-efficient method for promoting physical activity in school-based programs.

#### Address for correspondence:

Mallappa Sharanappa Pasodi,  
E-mail: malappapasodi@gmail.com

**Table 1: Analysis of covariance and “F” ratio for abdominal strength, speed, leg explosive power for own body weight, and core strength exercises and control group**

Variable name	Group name	Control group Mean±S.D	Own body weight exercises Mean±S.D	Core strength exercises Mean±S.D	“F” ratio
Abdominal strength (in numbers)	Pre-test	37.13±1.15	37.2±1.25	37.2±1.21	0.001
	Post-test	37.32±1.16	39.13±1.31	42.21±1.36	3.935*
	Adj. Post-test	37.50	39.17	42.19	23.250*
Leg explosive power (in meters)	Pre-test	1.816±0.12	1.818±0.135	1.822±0.13	0.003
	Post-test	1.819±0.12	1.978±0.22	2.141±0.31	3.034*
	Adj. Post-test	1.822	1.979	2.139	3.265*
Speed (in seconds)	Pre-test	7.9±0.008	7.89±0.0089	7.9±0.0083	0.006
	Post-test.	7.88±0.0081	7.59±0.0092	7.48±0.0097	6.766*
	Adj. Post-test	7.89	7.589	7.492	15.095*

\*Significant at 0.05 level of confidence. The table value required for significance at .05 level of confidence with df 2 and 43 and 2 and 42 were 3.21 and 3.22, respectively

### Purpose of the Study

The purpose of the study was to find out the effect of own body weight exercises and core strength exercises on selected physical variables among volleyball players of Gulbarga University.

To achieve this purpose, the 45 male volleyball players in the age group of 18–25 years, Gulbarga University. The selected 45 subjects were divided into three equal groups of 15 each as two experimental groups and one control group, in which Group-I ( $n = 15$ ) underwent own body weight exercises group for 3 days per week for 6 weeks, Group-II ( $n = 15$ ) underwent core strength exercises for 3 days per week for 6 weeks, and Group-III ( $n = 15$ ) acted as control who are not participating any training apart from their regular activities. The selected criterion variables such as abdominal strength (sit-ups test), speed (50 M), and explosive power of legs (standing broad jump) were assessed before and after the training period.

### RESULTS AND DISCUSSION

The pre-test mean of abdominal strength for own body weight exercises is 37.2, medicine ball exercises are 37.2, and control group is 37.13, and the post-test mean of own body weight exercises is 39.3, Core strength training exercises is 42.21, and control group is 37.32. There is an improvement due to medicine ball training, own body weight exercises in abdominal strength. The medicine ball training is effective. The pre-test mean of leg explosive power for own body weight exercises is 1.81, medicine ball exercises is 1.82, and control group is 1.81, and post-test mean of own body weight exercises is 1.97 medicine, ball exercises are 2.14, and control group is

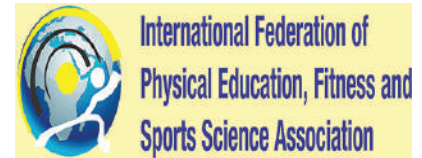
1.81. There is an improvement due to core strength training, own body weight exercises in leg explosive power. The core strength training is effective. The pre-test mean of speed for own body weight exercises is 7.89, core strength training is 7.90, and control group is 7.90, and post-test mean of own body weight exercises is 7.59 medicine that ball exercises are 7.48 and control group is 7.88. There is an improvement due to core strength training, own body weight exercises in speed. The core strength training is effective.

### CONCLUSIONS

1. There is a significant improvement due to core strength training exercises in abdominal strength, leg explosive power, and speed. This training is effective for developing the physical fitness compare to own body weight exercises
2. There is a little improvement due to own body weight exercises in abdominal strength, leg explosive power, and speed. This training is also effective for developing physical fitness.

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## Research Article

# Importance of physical education in Indian schools

Rajesh Kumar

Senior Professor in Physical Education, I/c Director of Physical Education, Dean, Faculty of Education, Osmania University, Hyderabad, Telangana, India

### ABSTRACT

Physical education activities play an important role for foundation of physical abilities among students. Many schools recognized that it is an essential component of education which helps a child to promote physical and mental health. Physical education classes within schools play a crucial role in establishing a solid foundation for the development of comprehensive physical fitness and creating opportunities for recreational engagement among Indian school students. Physical education activities include team sports such as football, basketball, football, and cricket. Individual sports such as athletics, swimming, and cycling promote the all-around development of the children. The physical education classes include traditional sports, yoga, kabaddi, kho, mass drill exercises, and more. Students acquire a diverse range of motor skills and cultivate good health and fitness. To enhance our Comprehensive Health Program, we integrate these facets using a school-wide approach. Our physical education classes, while honing fundamental movement skills for adeptness in sports, also encompass components related to nutrition and dietary habits. We also partake in the healthy meals in schools initiative to ensure students make sound nutritional choices and comprehend the importance of maintaining a well-balanced diet. Physical education promotes a healthy lifestyle, mental health, and also helps in talent identification among children to train in different sports and games. The school's physical education is the foundation stone for athlete development.

**Keywords:** Fitness, Physical education, Traditional sports, Yoga, etc.

### INTRODUCTION

Physical education activities play an important role for foundation of physical abilities among students. Many schools recognized that it is an essential component of education which helps a child to promote physical and mental health. Physical education classes within schools play a crucial role in establishing a solid foundation for the development of comprehensive physical fitness and creating opportunities for recreational engagement among Indian school students. Physical education activities include team sports such as football, basketball, and cricket. Individual sports such as athletics, swimming, and cycling promote all-around development of children's.

Outdoor play activities within schools play a crucial role in establishing a solid foundation for the development of comprehensive physical abilities and creating opportunities

for recreational engagement among Indian school students. Complementing the physical education curriculum, the co-curricular activities in sports offer avenues for specialized training in specific sports, as well as fostering well-rounded growth within the chosen sport and across various others. In conjunction with other school initiatives, physical education and sports contribute holistically to the preamble of the Physical Education and Sports Development Framework, aligning with the pursuit of 21<sup>st</sup>-century competencies that prepare individuals for success in an ever-evolving, interconnected world. The physical education curriculum constitutes an integral segment of India's school education framework. The subjects covered during outdoor physical education classes include traditional sports, yoga, kabaddi, kho, mass drill exercises, and more. Students acquire a diverse range of motor skills and cultivate good health and fitness. To enhance our Comprehensive Health Program, we integrate these facets using a school-wide approach. Our physical education classes, while honing fundamental movement skills for adeptness in sports, also encompass components related to nutrition and dietary habits. We also partake in the healthy meals in schools initiative to ensure students make

#### Address for correspondence:

Rajesh Kumar,

E-mail: rajesh2sports@gmail.com

sound nutritional choices and comprehend the importance of maintaining a well-balanced diet. Collaborating with parents, we promote healthy eating habits for students even beyond school hours. The amalgamation of appropriate exercise and proper nutrition significantly contributes to holistic well-being. Outdoor play fosters the development of essential life skills and enhances coping mechanisms among schoolchildren. Engaging in recreational activities in natural settings contributes positively to physical, mental, and overall health. It is within these outdoor leisure pursuits that students can experience the harmonious interplay between body and mind, leading to enhanced well-being.

## DISCUSSION

Physical education tends to be essential during the initial phase of schooling as it prepares students to be fit, bold, and confident and helps them gain good health and focus. Most parents are not aware of the importance of physical education and the benefits of physical activity in their children's lives because encouraging students to exercise ultimately complements their mental and physical health. As parents, we always force our children to concentrate on getting excellent grades and studies. However, at the same time, we neglect the importance of physical activities. Are you wondering why do we need to pay attention to physical education? Let's talk about it and the benefits students derive.

Physical education is introduced to stay healthy and learn various sorts of physical activities that will make students' muscles and bones strong. Regular physical activities such as running, cycling, walking, swimming, and yoga promote the physical growth and personality development of a child. If your child is engaging in daily physical activities, it will be more beneficial for their physical growth. One of the prime benefits of physical education is that it helps ensure good mental health. Mental health is as essential as physical health because it helps in emotional stability. Playing and engaging in physical activities will keep them away from many mental illnesses or disorders such as anxiety disorders, depression, and bipolar disorder which can result in severe conditions over the long-term.

Physical education helps reduce stress levels and keeps students mentally and physically healthy. Many students face stress during examinations or other reasons when they start doing some physical activities, which will reduce their stress and make them feel better and fresh. Hence, you should encourage your child to know about the importance of physical education. Physical education enables students to remain alert, concentrated, and proactive. Regular physical exercise will keep their mind at rest and help them focus on their studies as well as sports. They will be mentally and physically fit. One of

the important benefits of physical education is that students will have a good quality of sleep. Doing regular physical activities improve and develop good students' character and self-esteem. Students will be able to enhance their leadership qualities, team spirit, and become confident in making decisions.

## CONCLUSIONS

Regular physical activity can help children to improve their physical fitness, build strong bones and muscles, control weight, and reduce symptoms of anxiety and depression. It is concluded that physical exercises promote physical fitness among school children. Hence, regular physical activity must be included in the physical education programs in the schools. Schools are in a unique position to help students attain physical education classes of daily physical activity to promote physical fitness and good health. Researchers have also observed that there are improvements in leadership qualities on the positive side at an early age. After the research, we have also found that physical activity has also significantly improved their discipline and social behavior. The flow of oxygen to the brain is increased. The number of brain neurotransmitters is increased, which assists your ability to focus, concentrate, learn, remember, and handle stress. Physical activity is one of the best ways children which can improve their health. The aim for at least one hour of activity daily, including aerobic, muscle-strengthening, and bone-strengthening exercises. Aside from health benefits, your children will likely do better in school, too.

## RECOMMENDATIONS

- Evidence suggests that increasing physical activity and physical fitness may improve academic performance and that time in the school day dedicated to recess, physical education class, and physical activity in the classroom may also facilitate academic performance
- Physical exercises to the students in schools will improve physical fitness, health-related fitness, and specific fitness
- Executive function and brain health underlie academic performance. Basic cognitive functions related to attention and memory facilitate learning, and these functions are enhanced by physical activity and higher aerobic fitness
- Single sessions of and long-term participation in physical activity improve cognitive performance and brain health. Children who participate in vigorous- or moderate-intensity physical activity benefit the most
- Given the importance of time on task to learning, students should be provided with frequent physical activity breaks that are developmentally appropriate
- Although presently understudied, physically active lessons offered in the classroom may increase time on task and attention to task in the classroom setting.

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## Research Article

# Sports tourism in India

Sangappa Rampure

Department of Commerce, Government College, Yadgir, Karnataka, India

### ABSTRACT

Sports tourism means to travel for the sake of either viewing or participating in sports event staying apart from their usual environment. Sports tourism in India has scored a high place for its self in the Indian tourism industry. Sports tourism is broadly defined by the adventure sports and games in India. There are indeed several destinations in India offering sports tourism. There are varied sports activities that you can indulge in during your vacation. Distinguished adventure sports: Mountaineering, rock-climbing, scuba diving, water rafting, kayaking, canoeing, sailing, surfing, and water scooting. Aero sports such as ballooning, paragliding, and hand gliding. The scope and future of sports tourism are endless in India due to its diverse topography and climatic conditions. You can enjoy on land and water, underwater, and in the air whatsoever form of adventure sports in India. The future of sports tourism and adventure sports in India is very bright. Sports matches help to promote sports tourism in India. The World Cup 2023 in India has significantly improvement international sports tourism in India. A large number of agents and tour operators are introducing interesting packages surrounding major sporting events. Mega and small-scale sports tourism have the prospective to contribute to the social, economic, and infrastructural development and culture of the hosting country or city. Sports tourism involves the travel of persons for non-business reasons to participate in and or observe sporting activities. India is to emerge as a sports tourism destination and boost overall tourism in the country.

**Keywords:** Climatic condition, Gliding, SPORTS tourism, etc

## INTRODUCTION

Sports tourism is a type of tourism activity which refers to the travel experience of the tourist who either observes as a spectator or actively participates in a sporting event generally involving commercial and non-commercial activities of a competitive nature. Sports tourism is one of the fastest-growing sectors in tourism. More and more tourists are interested in sports activities during their trips whether sports are the main objective of travel or not. Sports events of various kinds and sizes attract tourists as participants or spectators and destinations try to add local flavors to them to distinguish themselves and provide authentic local experiences. Sports events can be a catalyst for tourism development if successfully leveraged in terms of destination branding, infrastructure development, and other economic and social benefits.

**Address for correspondence:**  
Sangappa Rampure,  
E-mail: rampuress@gmail.com

## DISCUSSION

Cricket in India is a major sport, especially now with the 11<sup>th</sup> edition of the Indian Premier League (IPL) currently underway. The demand for live streams for matches has increased manifolds, especially over weekends, and a lot of people are even traveling to host cities to watch the matches. According to reports, IPL has caused a major rise in sports tourism in the country, even though the trend is at an infant stage.

Sports tourism can be a vital force for world peace and increasing understanding and interdependence. Throughout the world, sports tourism can contribute to the establishment of a new international economic order that will help to eliminate the widening economic gap between developed and developing sports tourism countries and ensure the steady acceleration of economic and social development and progress in particular of the developing countries. Although sports tourism is a niche segment in India, it is growing rapidly, with a large number of entrepreneurs willing to invest in it. To support their endeavors, the government needs to arrange an overall

sprucing of infrastructure management, security issues, and marketing strategies. The travel operators themselves feel the need to introduce more value-added services so as to beckon international tourists to India.

India is a land of culture and religion. India is a popular holiday destination in the world where sports tourism is gaining immense prominence and popularity. Sports tourism in India is being encouraged by the tourism providers in India. It means that vacations to India are sports-oriented. Sports tourism in India is indeed lucrative from the point of revenue-earning. Sports are an integral part of the Indian sub-continent. India is a top destination offering tourists with great and excellent scope for skiing in the Himalayan ranges, going on bicycle tours on the Indian roads, or canoeing or whitewater rafting in the hilly streams and rivers. You can go in for mountaineering, rock climbing, and aero-sports such as hand gliding, ballooning, and paragliding in places such as Himachal Pradesh, Uttaranchal, and Darjeeling. There are numerous water sports and activities in India, especially in Goa and other popular beach destinations. Surfing the waves or water-scooting is great fun in the Indian seas. Scuba diving, etc.

## CONCLUSION

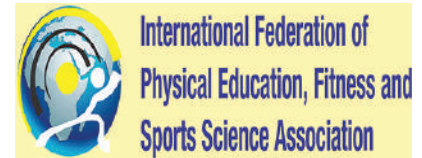
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## Research Article

# Effect of hill running for development of aerobic fitness among sepak takraw players of Hyderabad district in Telangana

**Koppula Suresh Reddy**

Associate Professor of Physical Education, Government Degree College, Hayathnagar, Osmania University, R.R. District, Telangana State, India

### ABSTRACT

The objective of this study is to study the effect of hill running on the development of aerobic fitness among sepak takraw players of Hyderabad district which will be helpful to coaches and trainers to develop endurance ability. The sample for the present study consists of 20 male sepak takraw players out of which 10 are experimental group and 10 are controlled group. Hill running training such as short hills, medium hills, long hills, and mixed hills running was given to experimental group on alternate days for 8 weeks along with general training of sepak takraw and control group was given general training of sepak takraw. Pre-test and post-test were conducted for 12 min Cooper test to assess the aerobic endurance of both groups. This study shows that the experimental group has rapid improvement due to hill running compared to control group. It is concluded that due to hill running, there is an improvement in aerobic endurance. It is recommended that the coaches must include the hill running programs to sepak takraw players for the development of endurance.

**Keywords:** Aerobic fitness, Hill running

## INTRODUCTION

Aerobic fitness is primarily determined by the energy liberation process. Endurance is directly or indirectly of high importance in all sports. Endurance is the ability to do sports movements, with the desired quality and speed, under conditions of fatigue. Endurance is a very important ability in sports. In sports, endurance ensures the optimum speed of motor actions. Good endurance also ensures high quality or skill of movement execution which finds expression in accuracy, precision, rhythm, consistency, etc. Endurance training results in the improvement of the functioning of various organs and systems of the human body.

“Sepak” is the Malay word for kick and “takraw” is the Thai word for a woven ball, therefore, sepak takraw quite literally means to kick ball. The choosing of this name for the sport was essentially a compromise between Malaysia and Thailand, the two powerhouse countries of the sport. Endurance is an important motor ability for sepak takraw players. The basic

elements of speed, mobility, and strength are all functions of explosive power and agility. Sepak takraw is playing volleyball with the feet. Sepak takraw is a skill ball game that originated from Asia. It combines the teamwork of volleyball, the dexterity of soccer, and the finesse of badminton. In Thailand, it is called takraw, but the official name of this internationally recognized game is sepak takraw. Without a doubt, it is one of the world’s most exciting sports, both to play and to watch, yet it is relatively unknown outside of Southeast Asia. Playing the sport requires little in the way of equipment or preparation but it does require quick reflexes, coordination, agility, and above all technique.

The game is played by two opposing Regus, a team of three players each, on a court separated by a net similar to badminton. It begins with the service, executed by a ball toss from one player to the server. Then, the players try to beat their opponents using their legs and head, except their hands, inside three kicks. The highlight is the “spike.” This is the most dramatic and explosive move in the game for spectators to watch as players go mid-air, twisting, and turning to power the ball down into the opponent’s court. To play takraw, players can use either a net, a hoop, or simply stand around in a circle formation. Whatever the style, the object is to kick the ball to another player without

### Address for correspondence:

Koppula Suresh Reddy,

E-mail: [koppula.sureshreddy@gmail.com](mailto:koppula.sureshreddy@gmail.com)

the ball touching the ground. Sepak takraw combines ball skills (kicking and juggling) with the agility and acrobatic moves of gymnasts and the instinctive reflexes of competitive badminton players. This sport seems to have its origins in ancient Thailand and was invented about 500 years ago. There is a strong martial arts tradition in Thailand with Muay Thai boxing originating from and still being widely practiced there today. Because of this strong tradition of martial arts which relies on powerful kicks, the sport may have come about as a side project of a few Muay Thai boxers. The kicking aspect of Muay Thai and the kicking aspect of sepak takraw are fairly similar and agility and dexterity in kicking very high objects and flexibility all play a part in both sports.

### Significance of the Study

The significance of this study is to find the effect of hill running for the development of aerobic fitness among sepak takraw players of the Hyderabad District which will be helpful to coaches and trainers to develop endurance ability. This study will bring true facts of sports training to develop the endurance ability among the sepak takraw players.

### Objectives of the Study

The objective of the study is to determine the effects of hill running for the development of aerobic fitness among sepak takraw players.

Running on hills is a form of strength training that can improve endurance on the track and road. Hill running increases the intensity of training and builds strength because of the resistance it offers when running. Hill running has a strengthening effect as well as boosting the athletes' power and is ideal for athletes who depend on high running speeds. To reduce the possibility of injury, hill training should be conducted once the athlete has a good solid base of strength and endurance.

Hill 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
- Develops control and stabilization as well as improved speed (downhill running)
- Promotes strength endurance
- Develop maximum speed and strength (short hills)
- Improves lactate tolerance (mixed hills).

## METHODOLOGY

To find the effects of hill running for the development of aerobic fitness among sepak takraw players of Hyderabad district of Telangana state in India. The sample for the present

**Table 1: The paired samples statistics of experimental group and control group of sepak takraw players in pre-test and post-test in 12 min run Cooper test**

12 min run Cooper test	Mean	Std. Deviation	Std. Error Mean	n
Experimental				
Pre-test	2659.00	90.468	28.608	10
Post-test	2732.40	93.223	29.480	10
Control Group				
Pre-test	2647.50	74.470	23.550	10
Post-test	2640.00	76.992	24.347	10

study is 20 male sepak takraw players of Hyderabad district in Telangana. The experimental group consists of 10 sepak takraw players and controlled group consists of 10 male sepak takraw players. Hill running training such as short hills, medium hills, long hills, and mixed hills running was given to experimental group on alternate days for 8 weeks along with general training of sepak takraw and control group was given the general training of sepak takraw. Pre-test and post-test were conducted for 12 min Cooper test to assess the aerobic endurance of both the groups.

## RESULTS

The experimental group's pre-test mean is 2659.00 and post-test mean is 2732.40. That means due to the hill running, the control group has improved a lot. The control group's pre-test mean is 2647.50 and post-test mean is 2640.00. Decrement of mean from pre-test to post-test is 7.50 due to the general training of sepak takraw. The result of the study shows that the experimental group has improved a lot compared to the control group.

## CONCLUSIONS

It is concluded that hill running develops the strength and power of the legs. It also improves the co-ordination in the arms and legs and promotes in developing the aerobic endurance. In this study, it is concluded that due to the hill running, the aerobic endurance develops a lot in the sepak takraw players.

## RECOMMENDATIONS

This study is useful to the coaches to prepare the conditioning program to improve the motor abilities of the sepak takraw players.

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## Research Article

# Enhancement of performance of players with “Neuro-linguistic Programming” visualization mental training

C. Veerender

Sports Psychologist, You and Me, Sports Counselling Center, Hyderabad, Telangana, India

### ABSTRACT

The tough challenges encountered by a sports person while participating, competing, and winning national and international events are always the discouraging elements that a sportsman spirit comes face to face with. The physiological side that's intensely subjected by training modules, high endurance training sessions, anticipation based extreme pressure from trainers creates a kind of confidence. When such confidence crumbles despite all efforts above, a sudden vacuum fill and dispirits the accumulated credibility over self. This is where the critical participation of mental faculties through researched, tested, and channelized studies through neuro-linguistic programming (NLP) visualization techniques (balloon exercise) helps to overcome from the prevailing inadequacies that develop at later stages in high competition environment. This NLP training program entails a 4-week training for six athletes (cricketer, shuttle, tennis, and runners), it must be done in a comfortable environment by giving the psychoeducation and after making them understand how this model works with brain and body training was given to them. In the pre-test, athletes' performance in their events was assessed. The results showed that NLP visualization training significantly improved athletes' performance (less automatic negative thoughts, more speed and quick time) in winning competitions. This paper deals with one of the most effective methods NLP visualizations (balloon exercise), how it helps the players to give the effective performance in the competitions.

**Keywords:** Balloon exercise, Mental training, Neuro-linguistic programming visualization, Performance

### INTRODUCTION

In the world of sports, where the margins of victory are very difficult, athletes are constantly seeking ways to gain a competitive edge. While physical training and technical skills development have traditionally dominated the area of performance enhancement, the importance of mental training techniques, such as neuro-linguistic programming (NLP), is increasingly recognized. NLP helps athletes create more positive associations with their talents and performance, and teaches them to focus on what they can achieve instead of worrying about mistakes or failure.

Neuro-linguistic programming, often referred to as NLP, is a field that examines the intricate connection between neurological processes, language, and behavioral patterns learned through experience. Coined by Bandler and Grinder

in the 1970s, NLP encompasses a wide range of techniques and strategies to improve communication, enhance personal development, and modify patterns of thought and behavior. It is based on the belief that understanding and utilizing the language of the mind can empower individuals to achieve excellence in various aspects of their lives. The term “Neuro-Linguistic Programming” refers to a stated connection between the neurological processes (Neuro), language (Linguistic), and behavioral patterns that have been learned through experience (Programming) and can be organized to achieve specific goals in life.

NLP is a revolutionary approach in developing human and personal relations emphasizing three different concepts of neurology, linguistics, and planning. Mental resources (the neurotic section) are used by utilizing NLP techniques; having access to the goals is facilitated using the verbal element (verbal or lingual section); and restraining mental conditions and organizing beliefs and values shall be accomplished for getting access to desired results (planning). In short, it can be argued that NLP describes the fundamental dynamics between

**Address for correspondence:**  
C. Veerender,  
E-mail: [drveerender@gmail.com](mailto:drveerender@gmail.com)

mind (brain and nerves) and language (speech) and how they mutually affect our bodies and behavior (programming).

### **Role of Mental Training with NLP Practices**

The study on the role of mental training with NLP practices to enhance performance in players holds significant importance in the field of sports psychology, and it is crucial for people to know about it for several reasons:

#### ***Comprehensive approach to performance enhancement***

Sports psychology aims to optimize athletes’ performance by addressing both the physical and mental aspects of their abilities. The study of mental training with NLP practices offers a comprehensive approach to performance enhancement, acknowledging the vital role of the mind in athletic success. By integrating NLP techniques into sports psychology, practitioners can provide athletes with a well-rounded training program that targets mental resilience, focus, and self-belief alongside physical conditioning.

#### ***Unlocking untapped potential***

Athletes often possess untapped mental resources that can significantly impact their performance. Understanding the role of NLP in mental training allows athletes, coaches, and sports professionals to tap into these resources and harness their full potential. By applying NLP practices, individuals can overcome mental barriers, enhance confidence, and develop effective strategies for self-motivation and goal attainment.

#### ***Optimal mental and physical well-being***

Mental and physical well-being are interconnected in sports, and neglecting either aspect can hinder an athlete’s performance. The study on mental training with NLP practices emphasizes the importance of maintaining optimal mental and physical well-being for athletes. By incorporating NLP techniques, athletes can cultivate resilience, manage stress, regulate emotions, and promote relaxation, thereby improving their overall well-being and performance outcomes.

#### ***Performance under pressure***

Sports often involve high-pressure situations, where athletes’ ability to perform at their best can be compromised by anxiety, self-doubt, or distractions. The study of NLP techniques provides athletes with effective tools to manage pressure, stay focused, and perform under demanding circumstances. This knowledge empowers athletes to maintain composure, make better decisions, and deliver their optimal performance in crucial moments.

#### ***Mental health support***

Mental health is a critical aspect of overall well-being, and athletes face unique psychological challenges in their pursuit of excellence. Understanding the role of mental training with NLP practices helps to identify and address mental health

concerns within the sports context. NLP techniques can aid in stress management, emotional regulation, and self-care, providing athletes with valuable support for their mental health and contributing to their long-term well-being.

#### ***Transferable skills***

The knowledge gained from studying the role of mental training with NLP practices extends beyond sports and has applications in various domains of life. NLP techniques, such as effective communication, goal setting, and self-motivation, can be utilized in academic pursuits, professional careers, and personal relationships. Sharing this knowledge with a wider audience enables individuals to enhance their overall performance and well-being in different areas of life.

#### **Importance of NLP in Athletes**

The application of NLP techniques in the context of sports has gained substantial recognition due to its potential to unlock untapped mental resources and enhance athletic performance. The following aspects highlight the importance of NLP in athletes:

#### ***Mental resilience and focus***

NLP equips athletes with tools to develop mental resilience, enabling them to overcome setbacks, manage stress, and maintain focus under pressure. By employing techniques like anchoring, reframing, and visualization, athletes can cultivate a positive mindset, boost confidence, and effectively navigate challenging situations.

#### ***Effective goal setting and motivation***

NLP provides athletes with structured methodologies for setting meaningful goals, creating compelling visions, and developing effective action plans. By aligning their subconscious mind with their desired outcomes, athletes can enhance motivation, increase commitment levels, and achieve optimal performance.

#### ***Enhanced communication and team dynamics***

NLP techniques foster improved communication skills, enabling athletes to establish stronger connections with teammates, coaches, and support staff. Clear and effective communication enhances teamwork, cohesion, and collaboration, leading to a more positive and productive sporting environment.

#### ***Performance optimization***

NLP practices help athletes optimize their performance by identifying and modifying limiting beliefs, fears, and negative thought patterns that may hinder their progress. Through techniques such as pattern interruption, anchoring positive states, and reprogramming the subconscious mind, athletes can unleash their full potential and achieve peak performance states.

NLP sports psychology helps to influence the human mind in such a way that it somehow starts to manage the internal

states of the mind. The state of mind of the individual is an essential factor in bringing out his or her best performance. A lot of sports performers spend a lot of their time focusing on improving their fitness and technical ability and often the mental element is neglected, even at world class level. NLP for sports gives a coach the authority to stimulate certain states in the players mind. Invoking of states can help bring out the best in a player. Coaches generally know their players very well and therefore have an idea about what is the best thing to bring out the peak performance in a player. Especially when the player is having the low self-esteem, abilities always plays very low and belief makes them feel they cannot achieve anything. Their brain unconsciously keep on comparing with the rich and socially popular players. With the help of NLP visualization the self-esteem of the players increases due to the positive picture of self. The positive picture of the player influences the players brain neuron and shows the effect on the physiology of the players with high self-esteem, this will turn up the confidence of the player, in improves the performance of the players (Veerender, 2017). Among sport performers and coaches, NLP visualization is a popular and well-accepted strategy for enhancing various aspects of performance. The importance of this strategy is reflected in anecdotal reports of successful athletes. For example, Ronaldinho, a midfielder for FC Barcelona and one of the world’s best footballers, eloquently described his use of imagery before the World Cup in 2006 in an article appearing in the New York Times Sports Magazine: physical practice, for the acquisition and performance of motor skills (for reviews. Driskell *et al.*, 1994; Feltz and Landers, 1983; Hall, 2001; Jones and Stuth, 1997). Effect sizes reported in the three different meta analyses carried out on this literature have ranged from small (0.26; Driskell *et al.*, 1994) to large (0.66; Hinshaw, 1991) in magnitude.

## METHODOLOGY

Aim of the study was to investigate the study of the positive effect of NLP exercises to improve the confidence and belief on self, which helped the player to give the best performance in the stress full situations. A case study method was used to for the present study. The sample consisted of six sports personnel of cricket, tennis, shuttle badminton, and three athletes (runners). Pre-post research design was used to study the efficacy of NLP on mental skills, confidence and cognitive restructuring (replacing unhelpful images with helpful images, thought challenging, positive statements, and behavioral rehearsal).

### Case No. 1

#### *Cricketer*

He is an 18-year-old cricket player who struggles with negative thoughts whenever he steps up to bat in competitions. His mind fills with images of being clean-bowled, and the mocking laughter of his friends and the smug looks of his competitors only worsen his anxiety. He begins to believe that he is

worthless, incapable of playing well, and that his techniques are ineffective. Adding to his difficulties, his family cannot afford to provide him with proper coaching due to their low income, and he feels marginalized in society.

Responding to these negative thoughts, he experiences anxiety, as noted by Pedro *et al.* (online, August 24, 2022). These unhelpful thoughts undermine his self-esteem and distract him from focusing on the game. Instead, he finds himself consumed by thoughts of survival and engages in internal battles, causing him to lose concentration. As a result, he struggles to stay at the crease for not more than two or three overs, a pattern that has repeated itself more than 10 times. The total team was unhappy for his poor performance.

### Case No. 2

#### *Tennis player*

A teenage tennis player of 16 years old, during practice matches with his seniors and coaches, he consistently outperforms, instilling confidence that he can excel in competitions. However, when it comes to tournaments, he consistently underperforms, leaving his coach, parents, and peers puzzled by his unexpected decline. Through assessments with sports anxiety and self-esteem tools, it became evident that he struggles with low self-esteem.

During tournaments, automatic thoughts of his poor performance, as well as his appearance and skin color, overwhelm him. Seeing a handsome opponent exacerbates his feelings of inadequacy, causing him to lose trust in his skills and believe he cannot compete successfully against anyone. These negative thoughts spiral, leading to further losses in matches.

### Case No. 3

#### *Shuttle badminton player*

A shuttle badminton player, competing at the state level, consistently finds himself losing in the final match of tournaments. Despite winning the initial match against his opponent, he is plagued by intrusive thoughts of defeat and sadness. These thoughts are intertwined with memories of his broken relationship with his girlfriend, a result of parental pressure. The player’s personal struggles have become public knowledge among the other players. Furthermore, the sight of a familiar face in the audience adds to his feelings of guilt. As a result, he consistently loses the subsequent matches, leading to repeated disappointment in tournaments.

### Case No. 4

A national-level runner with an impressive track record in state-level competitions faces challenges when competing against high-level performers in finals. Specifically, during the 200 m race, the athlete encounters difficulties after crossing the 100 m mark. His thigh muscles tighten, causing immense stress and hindering his ability to accelerate. Despite his intention

to push his body forward, he struggles to maintain pace, ultimately leading to poor performance and loss in national-level competitions. The athlete grapples with sports anxiety, particularly after the 100 m mark, as competitors begin to overtake him. Consequently, he becomes distracted, frequently looking around him while running toward the finish line.

### What is NLP in Sports

In sports, there are many ways that NLP can be used to optimize genetic, fitness, and technical abilities. NLP is often making the difference. NLP allows people to learn and adopt the strategies, techniques, and physiology used by our sporting role models to achieve excellence often in a fraction of a second. By using NLP techniques in sports we literally train people to be able to go into “flow states” to consciously enter states of peak sports performance as and when needed. You can use NLP to maintain the motivation to train so as to take your skill sets to the next level, you can learn to “get over” mistakes and to learn from errors rather than dwell on them and you can learn to have the confidence to compete to the best of your ability. Whether you are an aspiring Sachin, Sania Mirza, Tiger Woods, Paula Radcliffe, Lewis Hamilton, David Beckham or someone who plays sports simply for fun NLP is used by people even if they do it consciously or unconsciously. It will either be used against you or you can learn to use it for you and when you learn to use NLP with purpose you can really begin to play your sports at a new level.

NLP is often proposed as a study of the way in which human beings structure their perceptions, it creates a framework that can be used to analyze study, reprogram, and program a person’s behavior, lifestyle, and attitude. Body posture, breathing, gestures towards the eyes, ears, body, eye movements, and language patterns are all elements that are used to trigger the unconscious mind in NLP. High-achievers and peak performers think, act and feel differently from average people.

NLP can teach to change negative thinking to positive, stop self-limiting thinking patterns, increase energy, remove mental blocks, powerful visualization techniques, drop unwanted habits, create instant rapport, improve communication, remove unwanted, negative emotions, and to create smart learning and retention strategies. NLP sports psychology is based on the concept of bringing out the peak performance in an individual by improving their coordination and mental concentration. NLP for sports utilizes the five senses which are *auditory, visual, kinaesthetic, gustatory and olfactory senses*. By utilizing these five senses to influence, the mind this can help to enhance the performance of the individual. NLP for sports provides a method where a person can perceive the world around them in a certain way and with the use of sensory based language it is the best way to influence the human mind. When it comes to team work and coordination in sports, use of certain words that represent a sensation can give sports people that extra edge that

is required to win. NLP sports psychology helps to influence the human mind in such a way that it starts to manage the internal states of the mind. The state of mind of the individual is an essential factor in bringing out his or her best performance. A lot of sports performers spend a lot of their time focusing on improving their fitness and technical ability and often the mental element is neglected, even at world class level. Invoking of states in the mind can help bring out the best in a player. Coaches generally know their players very well and therefore have an idea about what is the best thing to bring out the peak performance in a player.

### How Do I Visualise

This process involves all your senses and be as specific as you can. You want to choose your goal and imagine everything related to it - the situation, time, place, people you’re with, environment, emotions, what you’re wearing - everything. Imagine what you can smell when you perform, what you see, the noises around you, the feeling deep in your heart, and the taste in your mouth. You can do this with eyes closed and intense focus Be as specific as you can and you’ll essentially trick your brain into it, eventually finding yourself unconsciously engaging in behaviors that promote what you want to happen in reality.

### Intervention Techniques - Balloon Technique

The below techniques were used:

- Make sure the atmosphere must be very quiet and comfortable if possible make the ambience serene and quite. Ask the sports person to sit comfortable in comfortable chair or sit comfortable on the ground if it is in the field. Ask the player to close the eyes and follow the suggestions.
- Breath deeply through nostrils and leave the air through mouth for 5 times.
- Now visualize your picture with the stress/anxiety/disturbance undergoing when in the ground
- Ask player to visualize in color picture with low self-esteem/disturbing thoughts, make the player perceive the sounds, smells on the field.
- Visualize all negative thoughts, anxious thoughts and low esteem feelings one by one in the brain and keep them in a line like books in a book shelf.
- Ask the player to visualize a specially designed balloon of his choice color, the special balloon has feature of infinite elasticity, has ability to elongate to maximum size
- Give the suggestions to the player to blow the air into the balloon with mouth to inflate the balloon. Slowly the balloon starts inflating slowly the size of the balloon increases.
- Visualize all the negative, anxious thoughts, and low self-esteem thoughts sinking to the bottom of the brain. Then, allow these thoughts to enter the client’s mouth through the roof of the mouth. Next, exhale the air in the mouth,

expelling all the negative, anxious, and low self-esteem thoughts into the balloon. As you do so, observe the balloon gradually expanding in size. All the thoughts in the brain enters into the balloon then the brain experiences fresh, relief from the burden, experiencing a comfortable feeling.

- Visualize you are tying the mouth of the balloon with a thread tightly.
- Visualize you are leaving the balloon into the air, slowly the balloon is going up going up into the sky away from you, it is appearing very small in the sky and then disappear into the sky.
- Visualize how you look with better performer and face is glowing with confidence (with +ve thoughts + energetic + skill full sport person).
- Visualize you are giving the best performance then all your friends are congratulating you. Enjoy this wonderful situation.
- Then slowly open your eyes.

If possible ask the player to write the experience. This was practiced at least 4 weeks days to become the reality daily three sessions.

## RESULTS AND DISCUSSION

In general, scientific literature in sport psychology has proved that NLP techniques supported athletes mental skill in competitive situations (Sin *et al.*, 2020; Shiva *et al.*, 2019) and improve the performance of young and adult athletes (Boughattas *et al.*, 2017; Grosu *et al.*, 2013). NLP helps athletes in reducing anxiety and emotional control. The results show that there was an improvement in each sports personnel.

**Table 1: ANT-NLP visualization**

Player	ANT	Physical sensations	NLP	Result	
Cricketer	Oh! Iam gone, i can't play this ball	Lost control on my focus and body become less energetic	After NLP Session	Skilled images of self -which filled in every neuron of the cricketer that made him confident,	Stay for long time and able to focus to hit the balls.
Tennis player	Depressed and negative thoughts are ruling him	Totally weak shivering.		Negative feelings when under pressure was removed new best version of self is created.	Able to move fast in the court and hit the balls with force.
Badminton player	No body can beat me, oh! This thought going to lose my second game...what my girlfriend think about me.	Feeling bad, memory of girl friend made him feel hard to breath, sweating.		All negative thoughts about self has been replaced with skillful image of the player, that made him to be successful.	Able to feel comfortable, breathlessness and Sweating stopped.

ANTs: Automatic negative thoughts, NLP: Neurolinguistic programming

### Case No. 1 Cricketer

He struggles with an abundance of negative thoughts, such as feeling inferior to opposing players who receive better training, are financially well-off, and possess attractive features or fair complexion. When facing a well-groomed and affluent opponent on the cricket pitch, he is often plagued by mental images of failure and being dismissed without scoring (“duck out”).

However, after participating in a session, not only does he manage to spend a prolonged period at the crease, but he also scores 85 runs. Furthermore, his self-esteem experiences a boost, and he becomes more comfortable with himself. He learns the skill of focusing on the game rather than dwelling on negative thoughts, utilizing self-talk to cope with the demands of the game during stressful situations. He asserts that this newfound ability to concentrate has significantly enhanced his performance on the field.

Comparing his self-esteem before and after the sessions, there is a noticeable increase in self-confidence following the intervention.

### Case No. 2 Tennis player

During play, he is often plagued by negative thoughts, comparing himself unfavorably to opponents who appear good-looking, dressed in expensive attire, driving luxurious cars, and maintaining a superior diet. He perceives that everyone receives them with admiration and support, leading him to believe he will lose the match despite his proficiency in all aspects of the game—forehand, backhand, rallies, and more. Remarkably, he even surpasses his coach and senior players during practice sessions, yet consistently



falters in actual matches, often being eliminated in the second round.

Following intervention, he gains a newfound appreciation for his skills and fitness level. He internalizes positive and instructional suggestions, thereby improving his performance and subsequently achieving victory in tournaments.

### Case No. 3

#### *Badminton player*

As a state-level player, he possesses all the necessary skills to outmatch his opponents in final matches. Consistently, he triumphs in the first match, but thereafter, he succumbs to overwhelming pressure. His subsequent losses stem from an excessive fear of failure, which triggers negative imagery in his mind, causing his body to react accordingly. During these matches, thoughts of his father’s financial struggles flood his mind, leaving him feeling helpless and causing his self-esteem to plummet.

After participating in sessions aimed at changing the negative images of self to the best performer with the help of visualization, creating the new neuron paths with better self-esteem as suggested by Hidayat and Didin, he experiences significant improvement. Armed with the ability to withstand pressure, he begins to envision positive outcomes and utilizes his skills effectively, resulting in victorious matches.

Furthermore, to bolster self-esteem, players are assigned a small project aimed at socializing and interacting with senior players who have competed at national and international levels. These interactions provide invaluable insights into the real-life experiences of successful athletes and encourage players to shift their focus from negative emotions to factual realities. Emphasis is placed on recognizing and appreciating the player’s exceptional skills, as evidenced by certificates and prizes awarded by coaches and organizations.

Players are engaged in a 30-day training program consisting of 10 sessions, each session duration will be 30 min, if they practice the duration will be 10 months. In addition, they are encouraged to practice visualization techniques 3 times a day—morning, afternoon, and before bedtime—for the following 30 days, while documenting their progress towards their goals.

The above real life stories are very encouraging and useful to all the coaches and sports persons.

## CONCLUSIONS

Sports psychologists have long recognized the importance of this NLP visualization method and being in the present in helping athletes achieve their potential [Table 1]. Everyone who play competitive sport or who competes at a state,

national, and international level faces adversity and obstacles to achieve the desired success such as physical pain, poor conditions, strong opponents, negative thoughts, comparisons, assumptions, expectations, and fatigue. The human brain is in a constant state of growth, change, and adaptation. As we engage in different experiences throughout our lives, our brain strengthens and weakens neural pathways accordingly. These experiences do not always have to be physical; they can be imaginary and exhibit a similar response in the brain. Visualizing the scenario of succeeding in a difficult situation or achieving your goals can activate the same areas in your brain as physically experiencing this scenario. This promotes neuroplasticity - the formation and strengthening of the pathways in your brain related to your success - and in turn reduces your stress, makes you more likely to succeed, and gives you a surge of motivation. Visualization can create the positive self-image and it can help to develop the confident athletes, which in turn helpful to give their best in competition (Cutton and Landin). The first finding of this study showed that NLP techniques have improved players and athletes mental skills. This finding is consistent with studies that assessed the effectiveness of NLP techniques on increasing mental health and all of its parameters such as anxiety, sports self-awareness, and athletic self-esteem, the ability of goal-setting and being aware of the results, decision-making power, focusing on attention emotional growth, effective communication skills, and motivation.

Perhaps, one of the possible reasons for the effectiveness of NLP techniques on improving players mental skills is to increase their ability to set specific goals and their commitment to achieve them. According to the Locke’s Goal-Setting Theory, more ambitious, difficult, and specific goals with time constraints lead to more performance improvement. As long as an individual accepts his clearly identified goals, he has the ability to attain them. Some studies Ranganathan *et al.* even suggest significant increases in muscle strength after mental training. Participants who imagined their muscles contracting for 11 min a day, 5 days a week, over the course of a month were twice as strong as those who did not. This has many implications on athlete performance and stroke/concussion recovery.

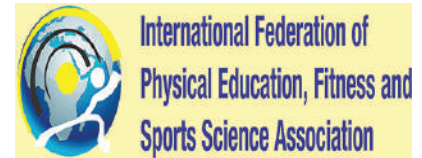
This NLP visualization affect determines his state-sport confidence level at a certain moment. When an athlete thinks about his abilities or predicting the result of a next competition, cognitive processing will develop a belief due to NLP visualization. Our thought has ability for captivating us in the world of imagination and incomplete information’s. Our language can be a clear representative of our thinking process. In this research we figure out the balloon technique can be a useful tool for increasing athletic self-awareness and cognitive controlling that has affect on state-sport confidence. The study recommends that NLP visualization can be used in

sport psychology to help the players to enhance their mental skills like, awareness about the sport, intention to give the best performance, increased self-esteem, and confidence to perform better in highly pressurized situations. The awareness must be given to all the coaches and players about this NLP tool to enhance the performance of the players.

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## Research Article

# Three Olympic games in Asia (2018-2022) and politics of Asian Era

Shakeel Ahmad Shahid<sup>1,2,3,4,5</sup>

<sup>1</sup>International Olympic Academy Olympia Greece, Greece, <sup>2</sup>Assistant Professor of Sports Sciences and P.E in Government Graduate College, Faisalabad, Pakistan, <sup>3</sup>Provincial Focal Person of Sports for Government of the Punjab Higher Education, Department Games for Faisalabad Division, Pakistan, <sup>4</sup>President: Sports for Peace and Development Society, Pakistan, <sup>5</sup>Country Director for Lock on Anti Doping and Testing Equipments Organization, Switzerland

### ABSTRACT

Sport and politics have long been linked, but the Olympic Games represent the most political sports event of all. The following article focuses on two of the most important aspects of the Olympics (and sports “mega-events” in general) that students of politics and international relations could make a major contribution toward: The use of the Olympics by states to showcase the host nation and the hoped-for “legacies” that arise from them. Both aspects are, of course, interlinked: The “legacies” are often put forward as the key rationale for the bidding for, and hosting of, the Olympics. In the span of 4 years from 2018 to 2022, three consecutive Olympic Games were held in East Asia – namely PyeongChang 2018 in South Korea, Tokyo 2020 in Japan, and Beijing 2022 in China. Given the geographic concentration of global multisports megaevents in the Asian Era of the Olympic Games.

**Keywords:** Asian Era, Olympic games, Politics

### INTRODUCTION

The era of the East Asian Olympics in the early 21<sup>st</sup>-century is finally over. It is noteworthy to observe that three consecutive Olympics were held in the cities and provinces in East Asia. Before these Games, most Winter and Summer Olympics were staged in the Western countries, and only occasionally the major sporting event went to non-Western nations. During the 5 years from 2018 to 2022, the Olympic cauldron stayed in the Far East region for the 1<sup>st</sup> time in the history of the Olympic Movement. This exceptional situation may indicate the increasing political and economic influence of South Korea, Japan, and China on world affairs (Kobayashi *et al.* 2024). Equally, the multiple Olympics in East Asia may reflect the rivalry of the three nations in their soft power exercise through the sports mega-events. In addition, increasing Olympic skepticism in the West, particularly concerning the huge environmental cost that the hosting of the Winter Olympics incurs, created relatively less competitive slots in the Olympic calendar that ambitious East

Asian nations subsequently occupied (Horne *et al.*, 2023). Whatever the case, few would deny that the concentration of the three successive Olympic Games in Northeast Asia marks an outstanding development.

PyeongChang 2018 From the viewpoint of international relations, the Olympic Games in PyeongChang, Tokyo and Beijing display a series of political episodes and diplomatic incidents. As to the 2018 Winter Olympic Games in PyeongChang, North and South Korean relations and peace promotion in the Korean Peninsula were the key political narratives at this event (Lee 2021a; Rowe, 2019). Until a few months before this Olympics, diplomatic tensions between the US and the DPRK were constantly escalating. They hurled provocative and aggressive condemnation at each other so fervently that the region seemed to be on the verge of war. Even some nations began to reconsider sending their Winter Olympic team to the South Korean town of PyeongChang over the political instability in the region (EtcHELLS, 2017). However, on New Year’s Day in 2018, the North Korean leader, Kim Jung-un unexpectedly announced that his nation would support the Olympic Games to be held in the South and he would send its delegations to PyeongChang. South Korea

#### Address for correspondence:

Shakeel Ahmad Shahid,  
E-mail:

welcomed this friendly gesture from the North. From this moment, the security concerns in the Korean Peninsula began to improve (Cho, 2021).

The communication channel between the two sides reopened and they held a series of bilateral talks in the border town of Panmunjom to discuss the North Korean delegations' visit to the Olympic venues in South Korea (Rowe, 2019). The IOC and the representatives from the North and South Korean Olympic Committees convened a meeting in Lausanne to discuss the collaboration between the two Korean teams in PyeongChang (Lee, 2021a). This three-party talk led to the agreement on the "Olympic Korean Peninsula Declaration" which states that North and South Korea would march together as one at the opening ceremony and the two sides would field a unified Korean female ice hockey team at this Winter Olympics (IOC, 2018). This news of inter-Korean connections in sport subsequently made the Olympic Games a political drama celebrating peace and unity between the two Koreas. Reflecting this mood, the IOC President, Bach (2018), claimed at the closing ceremony that the two Korean Olympic teams "have shown how sport brings people together in our fragile world; you have shown how sport builds bridges." He further noted that Olympic Truce was observed in PyeongChang with the affirmation that the IOC would continuously strive to make a peaceful world through sport after this Olympics.

The 2018 Olympic Winter Games in PyeongChang presents an exemplary case where a major international sporting event mitigates political tensions and facilitates inter-state dialogues that can result in reconciliation between the nations in conflict. The diplomatic functions of a major sporting occasion include representation, negotiation, and communication among the nations that dispatch their delegations to the international competition in question (Rofe, 2016). A series of incidents related to inter-Korean relations at this Olympics clearly demonstrate these diplomatic impacts of a major sporting event. Inter-Korean peace is arguably the most distinctive legacy of this winter sport mega-event. Although the relationship between the two Koreas froze again in 2020, the Olympics surely initiated nearly 2 years of amity that North and South Korea enjoyed. It is no surprise to see, therefore, that the Olympic Museums in South Korea and Switzerland house the section that commemorates the union of the two Korean teams in PyeongChang.

## TOKYO 2020

Tokyo 2020 recorded the first postponed Olympics in peacetime. Due to the outbreak of the coronavirus pandemic, the opening of this Summer Olympics was delayed for 1 year and eventually took place in 2021. It was a time when COVID-related traveling restrictions were still in place. As a result, Olympic athletes from different countries needed to follow

strict quarantine procedures, and no spectators were permitted to enter the Olympic stadium. Alongside the athlete delegations from the participating nations, only a limited number of essential individuals from the IOC, the Local Organising Committee, and the Japanese Government attended the opening and closing ceremonies of this Olympics (McCurry, 2021). Politically, the 2020 Tokyo Olympics was part of the Abenomics project, and Japan intended to utilize fully the economic opportunities that the Olympics generated such as the promotion of event-related consumption and tourism (Huang *et al.*, 2022; Ito, 2013). The outbreak of a pandemic abruptly paused most economic activities in the world. Japan was no exception. The COVID-19 lockdown simply shattered the Japanese desire to revitalize its economy through the Olympics.

This Olympic Games was, by no means, immune to geopolitics in East Asia. Due to the dispute over the interpretation of the colonial past, the relationship between Japan and South Korea became severely strained from 2019 onward. After nearly 2 years of diplomatic stalemate, the then South Korean President, Moon Jae-in proposed his visit to Japan during the Summer Olympics. A major sporting event often involves a pseudo-diplomatic conference where international VIPs meet and greet, and the South Korean leader attempted to exploit this unofficial interstate forum at the Olympics to reestablish the Japan–Korea links (Lee, 2021b). Nevertheless, Japan was lukewarm about this signal from Korea, and Moon Jae-in withdrew his plan to travel to Tokyo in response to Japan's reluctance. The Taiwan issue at Tokyo 2020 also deserves attention. At the opening ceremony of the Olympic and Paralympic Games, the Chinese Taipei delegations were introduced as the 'Taiwan' team (Chen and Tan, 2023; Everington, 2021). The Chinese state media vehemently criticized this naming incident arguing that Japan should not politicise this Olympics (Global Times, 2021). With the voice for the independence recently gaining momentum in Taiwan, China sensitively reacted to the display of a separate Taiwanese identity in a formal international domain (Chen and Tan, 2023). Amid this Sino-Taiwan tension, Tokyo sided with Taipei. Beijing's rather assertive response to this nomenclature problem at the Olympics probably reflects this geopolitical division.

Although some economic and political concerns affected the game, this Summer Olympics was a remarkable sporting occasion. It was the first proper sports mega-event taken place since the outbreak of the COVID-19 pandemic, and consequently, the event organizers had to face significant logistical challenges mainly due to the domestic and international travel restrictions in place. Despite this situation, Tokyo delivered the Olympics without major technical and practical problems (Huang *et al.* 2022). Moreover, the Olympic ceremonies in Tokyo displayed a restrained sense of festivity and showed some sentiments of sympathy for those who

lost their life during the pandemic (Akbar, 2021). Yet, the message that this Olympics relayed to international audiences was evident. Not only did this event symbolize the unity of humanity against the viral disease, but it also gave hope that we could overcome the global health crisis. At the closing ceremony, the IOC President proclaimed that “for the 1<sup>st</sup> time since the pandemic began, the entire world came together... The Olympic Games Tokyo 2020 are the Olympic Games of hope, solidarity and peace” (IOC, 2021). Normally, the closing speech of this type contains several cliché, rhetoric, and conciliatory phrases. At this time, Thomas Bach’s address demonstrated some elements of truth.

## BEIJING 2022

When the 2022 Olympic Winter Games in Beijing raised its curtain, many countries were gradually reopening their borders and the life of most people on earth was also steadily returning to normal. China still maintained international travel bans but, at least, the domestic residents were allowed to visit the Olympic sites and were permitted to watch the sporting competitions at the venues (McDonell, 2022). Seemingly, Beijing 2022 took place in the transition period between the pandemic and the post-COVID-19 times. Despite this betterment, the political circumstances surrounding this winter sport mega-event were far from optimistic. While there was a clear sign of the amelioration of health risks posed by the viral disease, ironically there also existed a symptom of the deterioration in the relations between the established and emerging powers at this late stage of the COVID-19 pandemic (Brands and Gavin, 2020). In effect, this Olympics was held amidst escalating tensions in world politics, and more problematically, China, the host nation, was deeply involved in this geopolitical struggle.

The rise of China economically, technologically, and militarily gives rise to the shifting of power balance in 21<sup>st</sup>-century world politics (Mahbubani, 2020). Particularly, with this increasing international influence, China has been attempting to revise the structure of South and East Asian geopolitics in its favor. The US has been a regional hegemon in this part of the world since the end of the Cold War in the early 1990s, but the recent Chinese empowerment poses challenges to the American strategic interests in this region (Kagan, 2018). This situation compelled Washington to change its perception of Beijing from an economic partner to a strategic competitor. The Winter Olympics clearly mirrored the worsening relations between the People’s Republic of China and the United States of America. Before the commencement of this Olympics, the US questioned the legitimacy of China as an event host largely due to poor human rights records and undemocratic practices in the communist state (Lee, 2021c). The authority in Beijing denied such criticisms and blamed the US government for politicizing the Olympics. Unable to mitigate this contention, the US called for a diplomatic boycott of the games, and in

the end, no Western political leaders attended the Beijing Olympic ceremonies.

With the absence of statesmen from the West, one distinctive individual who was watching the opening ceremony at the VIP terrace in the Beijing Olympic Stadium attracted noticeable media attention internationally. He was Mr. Vladimir Putin. When he arrived in the Chinese capital, the Russian President also had a meeting with the Chinese Premier Mr Xi Jinping. His visit to China appears to demonstrate the union of the two major authoritarian regimes while the Anglo-Saxon nations organized a group of democratic alliances. Furthermore, it should be noted that Russian armies were gathering their forces on the Western Front when the Olympic Games unfolded (Reuters, 2022). This aggressive gesture posed a serious security threat to neighboring Ukraine. When Ukraine athletes marched into the stadium, Mr. Putin seemed to fall asleep as if he showed no respect to the Ukraine delegations (Field, 2022). With the Russian threat of invasion on the horizon, some members of the Ukraine Olympic team protested against Moscow’s military provocation in Beijing (Associated Press, 2022). Recognizing this dreadful conflict, the IOC President appealed to the international community, saying “Give peace a chance” at the opening and closing ceremonies (IOC, 2022). Despite this call for a peaceful resolution, Russia invaded Ukraine a few days after the Olympics.

## IMPLICATIONS

The three Olympics in Asia from 2018 to 2022 present yet another evidence of a close intersection between global sport and world politics. Four distinct patterns of this sport-politics nexus can be identified here. First, the opening and closing ceremonies create a chance for holding an informal diplomatic convention where international leaders interact, and this interaction can catalyze the arrangement of more formal inter-state dialogue. Second, a major sporting event also offers a platform for political protest against a specific regimen, and both state and non-state actors can utilize this demonstration opportunity to disseminate their cause. Third, the operation of an international sports governing body such as the IOC cannot be free completely from political affairs surrounding their flagship competitions despite the non-political principles enshrined in their charters. Finally, sport mega-events including the Olympic Games can act as both a force for international peace and a cause of international dispute under the right geopolitical conditions. The cases of the three Olympics in Asia show the relative autonomy of global sports where it can intervene in some political situations and facilitate positive changes. At the same time, these occasions also indicate the vulnerable position of international sports where the organization of the event is significantly influenced by the wider political climate, especially the voice of the major powers within this environment.

## CONCLUSION

As the Olympics becomes bigger, more expensive, and more expansive, it would appear that sport is taking more of a back seat to politics, the wishes of multinational corporations, and the conditions and stipulations set by the Swiss-based organization, the IOC. While the diversity of approaches from a wide range of academic disciplines to the study of sports politics is welcome, it is time for political scientists to follow the burgeoning group of IR scholars in turning their attention to an increasingly complex area of study: sports politics and the Olympics. The Games offer an ideal test case in questions around resource allocation, political intrigue and corruption, hegemonic and “manufactured consent” about the positive aspects of such events, private versus public service provision, the corporatization of publicly funded sports events, and the ability of an unelected, non-transparent organization to impose legislative changes on the host state relating to tax, regeneration, and sponsorship - in short, much more than simply the study of sport. The two areas focused on here - the Olympics as part of a state’s soft power strategy and the need for work on understanding how best to “leverage” legacies from the Games-are ones in which political science and international relations can make a major contribution.

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## Research Article

# Comparative study of selected anthropometric variables of middle-aged women between rural and Urban Area

Tiyasa Hoom

Student of MPES, Department of Physical Education, National Sports University, Government of India, Ministry of Youth Affairs and Sports, A Central University, Imphal, Manipur, India

### ABSTRACT

The present study is a sincere effort on the part of the investigator to find out the effect of activeness on body weight and the percentage of body fat of middle-aged women. The investigator has selected 20 subjects, 10 from rural and 10 from urban areas. The weight of those women was taken by weighing machine and body fat percentage was measured by skinfold caliper in three different body sites: triceps, subscapularis, and abdominal site. Findings showed that there are higher body fat percentages and body weight in urban women. Nonsignificant mean difference is present in the case of body weight, triceps, and subscapularis skinfold whereas significant mean difference is presented in the abdominal skinfold. A sedentary lifestyle, higher socioeconomic status, and unhealthy nutritional status are the exact reasons to support the finding. This condition is associated with increased mortality and a higher rate of noncommunicable diseases.

**Keywords:** Middle-aged women, Noncommunicable diseases, Percentage of body fat, Skinfold

## INTRODUCTION

Recently areas of women's participation in sports have widened a lot. Women are now engaged in almost all the sports dominated by men with some modifications in distance or other parameters. However, modern women's sports should be designed on their body structure and physiology. For example, due to more adipose tissue in swimming events, females use less energy for unit distance than males.

In many studies, measures of body fat percentage have been reported as the best parameter that correlates with cardiovascular disease and metabolic disorders. Obesity was associated with several metabolic abnormalities, including hypertension, type 2 diabetes, cardiovascular disorders, and metabolic syndrome.

Anthropometric measurements are done for various purposes such as monitoring the growth and development of athletes, determining motor performance, physical activity and body composition changes, and nutritional interventions. The core elements of anthropometry are height, weight, head

circumference, body mass index, body circumferences to assess for adiposity (waist, hip, and limbs), and skinfold thickness.

## METHODOLOGY

The data were collected from ten women between the age group 35 and 45 years from rural areas (KashiNagar, South 24 Parganas) and ten women between the age group 35 and 45 years from urban areas (Sonarpur, Kolkata) for measuring anthropometric variable.

For administering the anthropometric measurement, skinfold caliper is used to measure the percentage of body fat and a weighing machine to measure the weight. Three side skinfold measurements have been taken into consideration: triceps, subscapularis, and abdominal side.

### Criterion Measures

The criterion measures adopted were the factors of weight and body fat.

### Statistical Analysis

To examine the significant difference between the mean of the two groups, the ratio was adopted.

#### Address for correspondence:

Tiyasa Hoom,  
E-mail: tiyasa.hoom@gmail.com

**Table 1: Significance of mean difference between the subjects of rural and urban women in weight**

Variable	Mean		S.E	“t” Ratio
	Rural	Urban		
Weight (kg)	48.3	50.6	3.87	0.59

“t” (.05)<sup>18</sup>=2.101

**Table 2: Significance of mean difference between the subject of rural and urban women in the fat of triceps**

Variable	Mean		S.E	“t” Ratio
	Rural	Urban		
Triceps skinfold	2.96	4.76	1.47	1.22

“t” (0.05)<sup>18</sup>=2.101

**Table 3: Significance of mean difference between the subjects of rural and urban women in fat of sub scapulars fat between the subjects of rural and urban women**

Variable	Mean		SE	“t” Ratio
	Rural	Urban		
Subscapularis skinfold	9.22	19.38	2.56	3.97

“t” (0.05)<sup>18</sup>=2.101

**Table 4: Significance of mean difference between the subjects of rural and urban women in fat of lateral abdomen**

Variables	Mean		S.E	“t” ratio
	Rural	Urban		
Abdomen	15.74	26.21	3.56	2.94

“t” (.05)<sup>18</sup>=2.101

## RESULTS AND DISCUSSION

From Table 1, it is evident that there is no significant difference with respect to weight (kg) between the subjects of rural and urban women.

From Table 2, there is no significant difference with respect to triceps fat between the subjects of rural and urban women.

Table 3 indicates that there is a significant difference with respect to subscapularis fat between the subjects of rural and urban women.

Table 4 indicates that there is a significant difference with respect to subscapular fat between the subjects of rural and urban women.

From the result, it is found that the weight of urban areas women is more than that of rural areas women for the sedentary lifestyle of urban women. However, there is no significant difference between the subjects of the two areas. Again triceps fat of urban areas women was more than that of the rural areas women but there was no significant difference. Subscapular fat of urban areas women was more than rural area women. There is a significant difference in the lateral abdomen fat of urban areas women were more than in rural areas women.

## CONCLUSION

There is no significant difference with respect to body weight and triceps fat but a significant difference is present in the case of subscapularis and abdominal fat. In urban areas, weight and body fat percentages are relatively higher for their sedentary lifestyle and high socioeconomic status. This condition is associated with increased mortality including a higher risk of noncommunicable diseases. Whereas low education level is associated with the improper activity rate in rural women concluding irrelevant fat distribution.

## RECOMMENDATION

1. Similar studies may be conducted with middle-aged servicemen and non-servicemen.
2. The same study may be conducted with more subjects with different economic groups which will increase the reliability.

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