



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2024; 9(1): 89-92

© 2024 Yoga

www.theyogicjournal.com

Received: 18-11-2023

Accepted: 25-12-2023

Ooraniyan K

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Dr. K Murugavel

Senior Professor and Head,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Corresponding Author:

Ooraniyan K

Ph.D., Research Scholar,
Department of Physical
Education, Bharathiar
University, Coimbatore, Tamil
Nadu, India

Effect of sports specific drills training on selected strength physiological and skill performance variables of handball players

Ooraniyan K and Dr. K Murugavel

Abstract

The purpose of this study is to assess the effect of sports specific drills training on selected strength physiological and skill performance variables of handball players. To achieve the purpose of the study 40 intercollegiate handball players were selected from affiliated colleges of Bharathiar University, Coimbatore. The selected subjects were assigned into 2 groups: sports specific drills training group 'I' (SSDT) (n = 20) and control group 'II' (CG) (n = 20). The respective training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of sixteen weeks. The control group was not be given any sort of training except their routine work. The strength parameter core strength were measures by plank test, physiological variables O₂ saturation were measures by pulse oximeter test and skill performance variables passing was assessed by Zinn team handball skill battery test. The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result of the core strength, O₂ saturation and passing improved significantly due to effect of sports specific drills training with the limitations of (diet, climate, life style) status and previous training the result of the present study coincide findings of the investigation done by different experts in the field of sports sciences.

Keywords: Sports specific drills training, handball, core strength, O₂ saturation and passing

Introduction

Handball is one of the most popular and widely viewed sports in the world. Handball is played between two teams, composed of seven players and a goalkeeper each, who try and throw the ball into their opponents' goal. Since the basis of the game is catching, throwing, jumping and shooting at goal, handball is a sport that develops the bodies of young players as well as keeping older players physically fit. In many team sports such as football, handball, field hockey and rugby, speed is frequently associated with successful performance (Upton, 2011)

^[1] Handball is a team sports characterized by repeated sprint bouts of high intensity of short duration with partial rest. Handball players require greater speed, strength, power, endurance, agility and flexibility to excel in competition (Balasubramanian *et al.*, 2014) ^[2].

Sports specific drills is simply fitness and performance training designed specifically for athletic performance enhancement. If done correctly this type of training can be very beneficial for athletes however if it is not done properly it can be very detrimental. The concept of game specific drills has evolved over time. Currently, its main purpose is to stimulate a movement or exercise in a weight room with the intent of it transferring to the playing field, court. Depending on the sport, athletes will focus on training specific muscle groups and utilizing a specific energy system in order to strengthen their body and improve the skills used in their sport. Drill & practice is familiar to all educators. It "promotes the acquisition of knowledge or skill through repetitive practice". It refers to small tasks such as the memorization of exercise, skill and technique of specific game or the practicing to gain some top level of performance. Drill-and-practice, like memorization, involves repetition of specific skills, such as repetitions of specific skills and techniques to gain higher level of performance. To be meaningful to learners, the skills built through drill-and-practice should become the building blocks for more

meaningful learning (Prakash *et al.*, 2023) [10].

Rationale and benefits of sports specific drills exercise

Sports specific drills training methods in team-sports, several researchers have focused on physiological and physical activities of specific ball-drills. Thus, physiological demand of Sports specific drills can be altered by manipulating the exercise regime, duration of playing time, field dimension, coach encouragement, technical restrictions and or rule modifications, goalkeeper presence, and number of players involved (Ravier *et al.*, 2017) [3]. Sports specific drills that include both technical and tactical assignments as part of sport-specific conditioning. The use of these drills has been reported to result in physiological responses that mirrored aspects of both average and maximal match play and can be used as a training method aiming to improve fitness levels in advanced players (Fernandez *et al.*, 2017) [4].

Hypotheses

It was hypothesized that, the sports specific drills training would produce significant changes over strength physiological and skill performance variables of handball players.

Table-1: Characteristics of training groups (N=20) at pre training mean

Variable	TTG	CG
Age (Y)	18-21	18-21
Height (cm)	170.30	168.20
Weight (kg)	65	62

Methods

Forty Intercollegiate handball players were randomly selected as subjects and their age ranged between 18 and 21 years.

Table 2: Computation of ‘t’-ratio between pre and post-test means of sports specific drills training experimental group and control group on core strength (in seconds)

Group	Test	Mean	Standard Deviation	t-ratio
Sports specific drills training	Pre test	52.12	3.73	20.27*
	Post-test	54.14	3.84	
Control Group	Pre test	52.31	3.84	1.69
	Post-test	52.50	3.89	

* The table values significant level 0.05 level (degree of freedom 2.093, 1 and 19)

Table II reveals the computation of mean, standard deviation and ‘t’ ratio on selected variables namely core strength of sports specific drills training group. The obtained ‘t’ ratio on core strength were 20.27 respectively. The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant.

The subjects are categorized into two groups namely sports specific drills training group (SSDTG) and control group (CG) each group had twenty subjects. The selected criterion variables strength parameter core strength were measures by plank test, physiological variables O₂ saturation were measures by pulse oximeter test and skill performance variables passing was assessed by Zinn team handball skill battery test.

Sports specific drills training Programme

The training programme was lasted for 60 minutes for a session in a day, 3 days in a week for a period of twelve weeks duration. These 60 minutes included sports specific drills training for 40 to 50 minutes and 10 minutes warm-up, and 10 minutes warm down. Every four weeks of training 5% of intensity of load was increased from 65% to 80% of work load.

Statistical analysis

The means and standard deviations of sports specific drills training groups were calculated for core strength, O₂ saturation and passing for the pre as well as post-tests. Statistical significance was set to a priority at p< 0.05. All statistical tests were calculated using the statistical package for the social science (SPSS).

Result and Findings

The effects of sports specific drills training on selected core strength, O₂ saturation and passing. were analyzed and presented below.

Core Strength

From the computation of mean, standard deviation and ‘t’ ratio on selected variables namely core strength of Control group. The obtained ‘t’ ratio on core strength were 1.69 respectively. The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were less than the table value it was found to be statistically not significant.

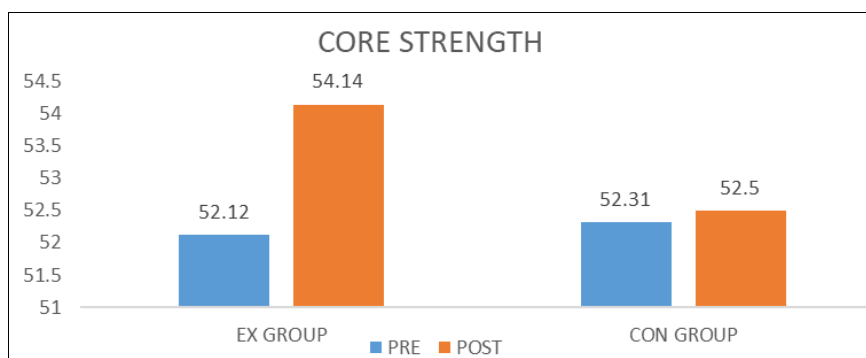


Fig 1: Bar diagram showing the mean values of core strength pre and posttest for experimental group and control group. (Scores in Seconds)

O₂ Saturation

Table 3: Computation of ‘t’-ratio between pre and post-test means of sports specific drills training experimental group and control group on O₂ saturation (Mm/hg)

Group	Test	Mean	Standard Deviation	t-ratio
Sports specific drills training	Pre test	93.25	1.25	29.24*
	Post-test	96.25	1.51	
Control Group	Pre test	93.25	1.25	1.45
	Post-test	93.45	1.57	

* The table values significant level 0.05 level (degree of freedom 2.093, 1 and 19)

Table III reveals the computation of mean, standard deviation and ‘t’ ratio on selected variables namely O₂ saturation of sports specific drills training group. The obtained ‘t’ ratio on O₂ saturation were 29.24 respectively. The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant.

From the computation of mean, standard deviation and ‘t’ ratio on selected variables namely O₂ saturation of Control group. The obtained ‘t’ ratio on O₂ saturation were 1.45 respectively. The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were less than the table value it was found to be statistically not significant.

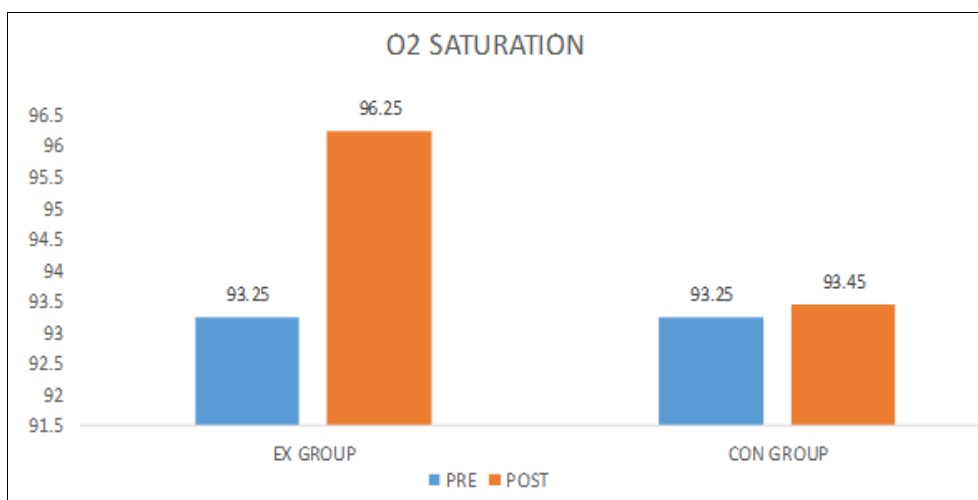


Fig 2: Bar diagram showing the mean values of O₂ saturation pre and posttest for experimental group and control group (Scores in Mm/hg)

Passing

Table 4: Computation of ‘t’-ratio between pre and post-test means of sports specific drills training experimental group and control group on passing (Scores in Points)

Group	Test	Mean	Standard Deviation	t-ratio
Sports specific drills training	Pre test	26.05	1.39	26.21*
	Post-test	30.50	1.63	
Control Group	Pre test	26.15	1.34	1.28
	Post-test	26.35	1.46	

* The table values significant level 0.05 level (degree of freedom 2.093, 1 and 19)

Table V reveals the computation of mean, standard deviation and ‘t’ ratio on selected variables namely passing of sports specific drills training group. The obtained ‘t’ ratio on passing were 26.21 respectively.

The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were greater than the table value it was found to be statistically significant.

From the computation of mean, standard deviation and ‘t’ ratio on selected variables namely passing of Control group. The obtained ‘t’ ratio on passing were 1.28 respectively. The required table value was 2.093 for the degrees of freedom 1 and 19 at the 0.05 level of significance. Since the obtained ‘t’ values were less than the table value it was found to be statistically not significant.

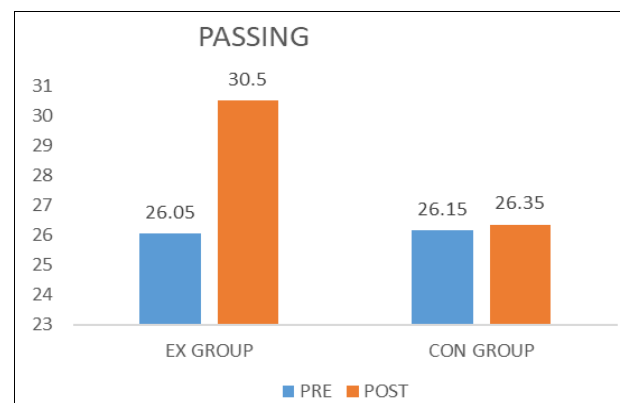


Fig 3: Bar diagram showing the mean values of passing pre and posttest for experimental group and control group. (Scores in Points)

Discussion on Findings

The present study sought to investigate the effects of a 16-week period of training with sport specific drills training on selected strength physiological and skill performance variables of handball players. Overall, the outcomes of the strength physiological and skill performance assessment show that the of a 16-week sport specific drills training period can promote greater improvements in core strength, O₂ saturation and passing performance with sport specific drills training of handball players. The strength, physiological and skill performance variables selected for the study were core strength, saturation and passing. The result of the study was a significant improvement on service ability of specific drills programme (Jayapal *et al.*, 2021) ^[8]. These results indicate that the specific training drills stimulates a more uniform physiological response than other currently adopted specific endurance training protocols used in soccer (Kelly *et al.*, 2013) ^[7]. The findings of the present study have strongly indicated that volleyball specific drill training group have a significant effect on playing ability of male volleyball players (Saravanana *et al.*, 2016) ^[6]. Sports specific training program composed of multiple skill training components has shown significant effect in improving anaerobic power and capacity and has shown beneficial effect on agility and vertical jump height. However, these sports specific circuit training can be useful for the coaches with players in developing the physical and physiological levels and to improve athletes' performance (Brijwasi *et al.*, 2022) ^[5]. The result of the study was a significant improvement on maximal oxygen uptake, heart rate of sports specific exercises in handball players (Buchheit *et al.*, 2009) ^[9]. Status and previous training the result of the present study coincide findings of the investigation don by different experts in the field of sports sciences. Due to the effect of game specific drills training significantly improved selected skill performance variables of adolescent handball players (Prakash *et al.*, 2023) ^[10]. The present results suggest that reproducibility of physiological demand of ball-drills should be considered before prescribing them as conditioning training (Ravier *et al.*, 2017) ^[3]. The results revealed that there was a significant difference found on the criterion variable. The difference is found due to game specific exercise package given to the experimental group on dribbling and shooting when compared to control group (Palani *et al.*, 2022) ^[11]. The result of the study reveals that there was a significant improvement on the performance variables passing and dribbling among handball players (Yokesh 2019) ^[12]. It was concluded that there was significant improvement in selected physical and physiological variables of speed, agility, muscular strength, resting heart rate and breath holding time among college women kabaddi players due to specific training (Kumara 2015) ^[13].

However, the subjects participated in the control group did not improve their core strength, O₂ saturation and passing.

The result of the present study indicates that the sports specific drills training methods is appropriate protocol to core strength, O₂ saturation and passing. The discrepancy between the result and the result of previous studies might be attributed to several reasons, such as the training experience level of the subjects, the training programme, in intensity used and the duration of the training programme.

Conclusions

Twelve weeks of sports specific drills training programme produced significant improvements in the core strength, O₂ saturation and passing of hand ball players.

Sports specific drills training is an appropriate training protocol to bring out desirable changes over strength, physiological and skill performance variables of handball players. Thus a continuous and systemic sports specific drills training aimed at maximizing performance capacity should be applied of handball players.

References

1. Upton DE. The effect of assisted and resisted sprint training on acceleration and velocity in Division IA female soccer athletes. *The Journal of Strength & Conditioning Research*. 2011;25(10):2645-2652.
2. Balasubramanian CM, Chittibabu B. Effect of Handball Specific Aerobic Training on Aerobic Capacity and Maximum Exercise Heart Rate of Male Handball Players. *International Journal of Physical Education, Fitness and Sports*. 2014;3(2):85-91.
3. Ravier G, Hassenfratz C, Bouzigon R. Reproducibility of heart rate and perceptual demands of game-based training drills in handball players. *Revista Brasileira de Cineantropometria & Desempenho Humano*. 2017;19:515-525.
4. Fernandez-Fernandez J, Sanz D, Sarabia JM, Moya M. The effects of sport-specific drills training or high-intensity interval training in young tennis players. *International journal of sports physiology and performance*. 2017;12(1):90-98.
5. Brijwasi T, Borkar P. To study the effect of sports specific training program on selective physical and physiological variables in basketball players. *International Journal of Physical Education, Sport, Health*. 2022;9:25-30.
6. Saravanana N, Veeramanian S. Effect of specific drill training programme on playing ability among volleyball players. *International Journal of Physical Education, Fit. Sports*. 2016;5:1-3.
7. Kelly DM, Gregson W, Reilly T, Drust B. The development of a soccer-specific training drill for elite-level players. *The Journal of Strength & Conditioning Research*. 2013;27(4):938-943.
8. Jayapal G, Sivaraman P. Effect of game specific drills program on service ability and strength endurance among male Volleyball players.
9. Buchheit M, Leprêtre PM, Behaegel AL, Millet GP, Cuvelier G, Ahmaidi S. Cardiorespiratory responses during running and sport-specific exercises in handball players. *Journal of Science and Medicine in Sport*. 2009;12(3):399-405.
10. Prakash RU, Suma RS, Prasath RG. Effect of game specific drills on selected skill performance variables of adolescent handball players. *International Journal of Multidisciplinary Research (IJMR)*; c2023.
11. Palani S, Sridar P. Impacts of game specific exercise on skill performance variables among handball players. *epra International Journal of Multidisciplinary Research (IJMR)*. 2022;8(4):22-24.
12. Yokesh T. Influence of Game-Specific Skill Training with and Without Yogic Practices on Performance Variables among Handball Players; c2019.
13. Kumari GN. Effect of specific training on selected physical and physiological variables among college women kabaddi players; c2015.