

EFFECT OF KETTLEBELL TRAINING ON AGILITY AND MUSCULAR STRENGTH AMONG UNIVERSITY-LEVEL MEN HANDBALL PLAYERS

Edwin Jerry C, Dr.D.JAsath Ali Khan

M.Phil Research Scholar, Assistant Professor,
Department of Physical Education and Sports Sciences, College of Science and Humanities,
SRM Institute of Science and Technology, Kattankulathur

Abstract

A university-level men's handball team set out to investigate the effects of kettle bell training on agility and muscular strength. Our study's purpose was to investigate the effects of handball on health among senior men aged 18 to 25 years old from the Chennai region, Tamil Nadu, India. 15 subjects in each group were analysed in a split-group design. Kettle bell training was conducted by Gathering-A over a period of six weeks, while Gathering-B was a control group that did not take part in any special training. The dependent variables selected were agility and muscular strength. The T-test was used to assess agility, and the wet push-up to test muscular strength. Randomization was used at pre- and post-tests. Data were collected before and after the 6-week training period and statistically analysed through an 'ANOVA' test, in order to determine whether there was a significant change in some variables after the training period. Among university-level men handball players, kettle bell training resulted in significant improvements in agility and muscular strength.

Keywords: kettlebell training, Agility, muscular strength, men handball Players

Introduction

The game of handball has gained popularity as a whole. A handball match represents extremely demanding physical activities that require a great deal of physical coordination, such as speed, agility, explosive force, stamina, endurance, and strength. Modern handball requires a high level of physical fitness, both explicitly and implicitly. High intensity for a minimum of 40 minutes, with successive attacks and defences. The players play out a great deal of speed increasing turns and bounces during a game, especially when moving directly with opposite team players. As a result of the wide variety of endeavours, endurance, speed, agility, and strength are required. It is oxygen-consuming and anaerobic cycles that supply the handball contest with energy. Exercise, level-headed preparation, and executing prep loads in groups are inseparable parts of a deliberate assessment of fitness. In assessing flexible changes brought about by preparation, metabolic records play a crucial role.

Nowadays, the likeness of the impacts of activity with loads and the impacts of weight training preparation is apparent, because of the chance of creating physicality and strength, as well as changes in body

arrangement. There is likewise a chance of constructive outcomes as far as expanding strength and perseverance in weight training and powerlifting, subsequent to practicing with loads as vague preparation measures. Kettlebells are otherwise called 'girya,' and can be portrayed as a cannonball with a handle. In Russia, competitors take part in coordinated rivalries determined to finish however many kettlebell lifts as could reasonably be expected inside a period limit.

Kettlebell preparing has as of late developed exceptionally well known in the strength and molding local area and is frequently professed to be an unrivaled approach to creating explosive power. The enormous power created by the hips helps lift the kettlebell upwards. Kettlebells are an ideal apparatus for ballistic full-body practices utilizing high muscle powers, making them possibly helpful for working on muscle strength and cardio-respiratory wellness.

Kettlebells are amazing for figuring out how to create speed and power. Kettlebell's swings produce force in both strength and speed. The strength is significant on the grounds that it guarantees dependability and prevents injuries. The ballistic development incorporates repetitive and quick

unusual concentric withdrawals of the hip muscle structure. The hips assume a vital part in numerous athletic developments like hopping, running and emerging from the position of a game violently.

Materials & Methods

In this research, the subjects were taken from the Chennai region, Tamil Nadu, India. 30 university-level men handball players are implemented in this study and their age range is between 18 to 25 years. They are

divided into two groups namely, gathering –A as the kettlebell preparation bunch and gathering- B as the control bunch. The gathering-A was treated as an experimental bunch for 6 weeks. The training protocol was given in the morning section of alternate days of the week for 6 weeks. Before and after the training protocol of 8 weeks the data of subjects was collected for analysis of their performance.

Kettlebell Training protocol for 8 weeks

Rehabilitation Training Protocol for 6 weeks				
1 st & 3 rd weeks				
Exercises	reputations	sets	Rest between reputations	Rest between sets
Front Squat	10-12	3	40sec	2 mts
Forward Lunge				
Romanian Deadlift				
Split Squat				
Step-Ups				
Glute Bridge				
Single Arm Row				
4 th & 6 th weeks				
Exercises	reputations	sets	Rest between reputations	Rest between sets
Front Squat				
Forward Lunge				
Romanian Deadlift				
Pullover				
Step-Ups				
High Pulls				
Calf Raises				

Results

Table 1 Analysis of variance in agility and muscular strength of experimental and control group

Agility						
Tests	Gathering-A	Gathering-B	S.O.S	D.F	MS	F-Ratio
Pre-Test	11.59	11.67	0.046	1	0.046	0.371
			3.50	28	0.125	
Post-Test	11.08	11.69	2.77	1	2.77	22.97*
			3.38	28	0.121	
Muscular strength						
Tests	Gathering-A	Gathering-B	S.O.S	D.F	MS	F-Ratio
Pre-Test	22.00	21.53	1.63	1	1.63	0.696
			65.73	28	2.34	
Post-Test	23.86	21.00	61.63	1	61.63	20.12*
			85.73	28	3.06	

*Significant at 0.05 level table value 4.17 df 1.28

For the kettlebell training group, we found that the pre-test mean and value of agility were 11.59, while for the control group, it was 11.67. F-ratio 0.371 is lower than the 0.05 level significance table value of 4.17 for df 1 and 28.

As a result, the mean agility scores for the groups with kettlebell training and controls were 11.08 and 11.69, respectively, at the end of the post-test. For df 1 and 28, **22.97*** is higher than 4.17 in the table for significance at a level of confidence of 0.05.

For the kettlebell training group and control group, the pre-test mean and value for muscular strength is 22.00 and 21.53, respectively. The F-ratio of 0.696 obtained below the expected value of 4.17 at a level of confidence of 0.05 was significant.

Similarly, in the kettlebell training group and control group, the mean post-test muscular strength values are 23.86 and 21.00 respectively. For both df 1 and 28 the F-ratio obtained is **20.12***, which is higher than the 4.17 table value required for significance at the 0.05 level of confidence.

Discussion on findings

Kettlebells are an exceptional and functional apparatus for preparing and conditioning. The portable weight grab is a low-sway dynamic activity that gives adequate protection from muscle reinforcing, as well as upgrading vigorous limit **Falatic, 2015**. Kettlebells preparation can increment 1RM strength, regardless of the accentuation of iron weight preparing on hazardousness and the speed of development as opposed to strength improvement **William, 2012**. Kettlebells preparation and its impact on strong and high-impact execution, it appears to be that there is adequacy in regards to upgrades in solid strength, power, perseverance, and vigorous limit **Eckert, 2016**. Kettlebells exercise might be a more reasonable and available strength and vigorous preparation choice to increment and keep up with actual wellness connected with cardiorespiratory wellbeing and power and strength execution **Vancini, 2019**. Muscular perseverance, the expansion of KTB swing on a periodized premise is by all accounts a more viable methodology **Santos Junior, 2022**. Kettlebells can be utilized for a wide range of populaces to foster actual wellness. They can be utilized in recovery

settings to foster portability and strength **Beardsley, 2014**

Conclusion

This study was conducted within the constraints of the experimental conditions and the following conclusions can be drawn. University-level men handball players who trained with kettle bells demonstrated significant improvements in agility and muscular strength.

ACKNOWLEDGEMENT

Conflict of Interest: Nil

Ethical Clearance: Nil

Source of Funding: Self

References

- Falatic, J. Asher, et al. "Effects of kettlebell training on aerobic capacity." *The Journal of Strength & Conditioning Research* 29.7 (2015): 1943-1947.
- Otto III, William H., et al. "Effects of weightlifting vs. kettlebell training on vertical jump, strength, and body composition." *The Journal of Strength & Conditioning Research* 26.5 (2012): 1199-1202.
- Eckert, R. M., and R. L. Snarr. "Kettlebell training: a brief review." *J Sport Hum Perform* 4.3 (2016): 1-10.
- Vancini, Rodrigo Luiz, et al. "Kettlebell exercise as an alternative to improve aerobic power and muscle strength." *Journal of Human Kinetics* 66.1 (2019): 5-6.
- Jay, Kenneth, et al. "Kettlebell training for musculoskeletal and cardiovascular health: a randomized controlled trial." *Scandinavian journal of work, environment & health* (2011): 196-203.
- Santos Junior, EvaldoRui Tavares, et al. "Effects of Six-week Periodized Versus Non-Periodized Kettlebell Swing Training on Strength, Power and Muscular Endurance." *International Journal of Exercise Science* 15.4 (2022): 526-540.
- Beardsley, Chris, and Bret Contreras. "The role of kettlebells in strength and conditioning: a review of the literature." *Strength & Conditioning Journal* 36.3 (2014): 64-70.
- Manoranjith, R., T. Arun PrasannaPDF Scholar, and S. Nagarajan. "Collusion of Different Ground Surface of Plyometric with Aerobic Training on Selected Agility and Explosive Power Among School Boys

Volleyball Players." *International journal of advance science and techology* (2019).

Jayasingh Albert Chandersekar, S., et al. "Effect of Yogicpractice on Resting Pulse Rate among College Men Long Distance Runners." *Indian Journal of Public Health Research & Development* 11.6 (2020).

Pounraj, Dr, and R. Jaskar. "Mano Ranjith, Dr. T. Arun Prasanna, Dr. M. Sundar, CM Jerin, Consequence Of Jump Rope Training And Kettle Bell Training On Selected Agility And Muscular Strength Of College Men Badminton Players." *Journal–Xidian University* 14: 664-669.

Varalakshmy, Dr S., et al. "Mano Ranjith, Dr. R. Senthilkumaran, Collision of Ballistic and Plyometric Training on Selected Explosive Power and Vital Capacity of College Men Volleyball Players." *Journal-High Technology Letters* 26: 593-601.

Prasanna, T. Arun. "Persuade of mobility exercise and circuit resistance training on selected speed endurance and explosive power among college men students." *Strad Research*, 7(8), 2020

Ranjith, R. Mano, Dr T. Arun Prasanna, and Dr M. Sundar. "Pounraj, Dr. S. Nagarajan, Coalesce Cause of Plyometric and Tabata Training on Explosive Power And Endurance Among Men Volleyball Players." *Journal-Proteus Journal* 11: 130-139.

Deeva, E., Et Al. "Effect of Varied Intensities and Frequencies of Aerobic Exercises on Selected Motor Ability and Physiological Variables among Inter-School Handball Players." *Aegaeum Journal*, 8, (3) 2020

Manoranjith, R , S. Nagarajan Impact of Plyometric and Tabata Training on Speed Endurance and Vital Capacity among Men Volleyball Players, *Turkish Journal of Physiotherapy and Rehabilitation*. 32(3) 2021

Uma Devi, Arun Prasanna, Mano Ranjith Consequence of Various Yogic Practices with Sattvic Diet on Selected Vital Capacity and Hemoglobin Among Underweight School Boys, *Europe's Journal of Psychology*, 17(3), 16-20, 2021