

INTERNATIONAL RESEARCH JOURNAL OF MANAGEMENT SOCIOLOGY & HUMANITIES



ISSN 2277 – 9809 (online)

ISSN 2348 - 9359 (Print)

An Internationally Indexed Peer Reviewed & Refereed Journal

www.IRJMSH.com
www.isarasolutions.com

Published by iSaRa Solutions

EFFECT OF STRENGTH TRAINING ON PHYSIOLOGICAL VARIABLES IN HANDBALL PLAYERS

Prashant Sharma

PET,D.O.E of NCT of Delhi

Shubhang Negi

Research Scholar,DPESS University of Delhi

ABSTRACT:

This study looks into how strength training affects a few physiological factors in male handball players. After being specifically chosen from Delhi University, a group of thirty collegiate handball players, ages 18 to 24, underwent an 8-week strength training regimen (three sessions per week). Muscular strength, VO₂ max, body composition, and anaerobic power were among the physiological variables that were examined. Using paired T-tests, assessments from before and after training were examined. With a drop in body fat %, the results showed notable gains in anaerobic power, VO₂ max, and muscular strength. The study comes to the conclusion that strength training can play a significant role in improving handball players' physiological performance.

INTRODUCTION

Two teams of seven players each, including a goalie, fight to score goals by tossing a ball into the net of the other team in the fast-paced, exciting indoor team sport known as handball. Modern handball, which originated in Northern Europe in the late 19th century, combines aspects of basketball, hockey, and soccer and requires quickness, agility, and strategic collaboration. Matches last 30 minutes each, and the game is played on a 40 by 20-meter court. In order to outmanoeuvre defenders and outscore the goalie, players use their hands to pass, dribble, and shoot the ball. In 1936, handball made its Olympic debut as an outdoor activity. In 1972, it was brought back indoors for men, and in 1976, it was brought back indoors for women. It is currently regulated by the International Handball Federation (IHF) and is very popular, especially in Europe, where millions of people watch professional leagues and international tournaments.

REVIEW OF LITERATURE

Previous study has been shown the acute effects of different strength training (ST) programs in perceptual and physiological responses to handball small-sided games (SSG). E. Abade et al. (2014) The results showed that ST increased the time spent above 90% HR max. Similarly, Ciplak M. E. et al. (2019) It was found that the physical fitness performance of handball players in this age group is influenced by their body composition.

METHODOLOGY

Selection of subjects:

For the further study 30 male handball players were selected purposely from the Delhi university, aged between 18–24 years. All participants had at least 2 years of playing experience and no recent injuries.

Training Protocol:

Participants underwent an 8-week strength training program, 3 days a week, focusing on compound lifts (squats, deadlifts, bench press), plyometrics, and core stability exercises.

Selection of variables:

For the purpose of the study following independent variables selected are mentioned below:

1. Muscular Strength: Measured via 1-repetition maximum (1RM) in bench press and squats.
2. VO₂ Max: Estimated using the Yo-Yo Intermittent Recovery Test.
3. Anaerobic Power: Measured using the Margaria-Kalamen stair test.
4. Body Composition: Measured using skinfold calipers (Jackson-Pollock 3-site method).

Statistical Analysis:

Paired t-tests were used to assess pre- and post-training differences. Significance level was set at $p < 0.05$.

RESULTS

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Bench-press pre-test – Bench press post-test	-11.8333	2.61406	.47726	-12.80944	-10.85723	-24.794	29	.000
Pair 2	Squat pre-test – Squat post test	-18.0333	4.61245	.84211	-19.75565	-16.31102	-21.414	29	.000
Pair 3	Vo2 max pre -test - Vo2 max post test	-2.90000	.83253	.15200	-3.21087	-2.58913	-19.079	29	.000
Pair 4	Anaerobic power pre-test – Anaerobic power post test	-76.5000	5.75805	1.05127	-78.65009	-74.34991	-72.769	29	.000

Pair 5	Bodyfat pre-test – Body fat post test	1.82333	.40487	.07392	1.67215	1.97451	24.667	29	.000
--------	---------------------------------------	---------	--------	--------	---------	---------	--------	----	------

5. DISCUSSION

According to the findings, handball players body composition, aerobic and anaerobic ability, and muscle strength all significantly improve after an 8-week strength training program. Stronger muscles could result in stronger sprints and improved tackling skills. A higher VO₂ max makes it easier to maintain a high level of exertion during the game. Agility and speed are enhanced when body fat is reduced. These results support the usefulness of strength training for handball performance and are consistent with findings from other sports contexts.

Similarly, E. Abade et al. (2014) conducted a study which show that during the strength training can impact the overall intensity. For instance, adding a strength training prior to a training session raises stress levels outside and results in higher HR values.

6. CONCLUSION

Strength training dramatically improves physiological factors that are essential to playing handball. It is advised that handball players use such a program in their regular training regimen to maximize their level of fitness and competitive edge.

7. REFERENCES

1. E. Abade et al. (2014) Acute effects of strength training in the physiological and perceptual response in handball small-sided games, Volume 29, Issue 5, October 2014, Pages e83-e89
2. Ciplak M. E. et al. (2019) The Relationship between Body Composition and Physical Fitness Performance in handball Players international journal of applied exercise physiology, vol.8, pp.347-353, 2019
3. Chamari K. et al. (2009) Anthropometric, physiological and performance characteristics of elite team-handball players. J Sports Set 2009 Jan 15;27(2): 151-7.
4. Delamarche P. et al. (2001) Physiological profile of handball players. J Sports Med Phys Fitness. 2001 Sep;41(3):349-53.
5. Gal Ziv et al. (2009) Physical characteristics, physiological attributes, and on-court performances of handball players, vol 9, October 2009, Pages 375-386.



EARN YOUR MBA

WWW.IIMPS.IN



Accreditation & Ranking



UGC / NCTE Approved.

INFO@IIMPS.IN

☎ 011-41005174

RESEARCH
GATEWAY

STOP PLAGIARISM



Arogyam Ayurveda
Holistic Healing through herbs



AROGYAM
ONLINE

PARIVARTAN PSYCHOLOGY CENTER

परिवर्तन

COLOR PSYCHOLOGY : HOW COLOR AFFECT YOUR CHILD



BLUE

Calms your Child's
Mind & Body

YELLOW

Promotes Concentration,
Stimulates the Memory

PINK

Evokes Empathy,
makes your Child Calm

RED

Excites and energizes
your Child's body

GREEN

Improves Reading speed
and Comprehension

www.parivartan4u.com



परिवर्तन

Confuse about your children's future?

भारतीय भाषा, शिक्षा, साहित्य एवं शोध

ISSN 2321 – 9726

WWW.BHARTIYASHODH.COM



**INTERNATIONAL RESEARCH JOURNAL OF
MANAGEMENT SCIENCE & TECHNOLOGY**

ISSN – 2250 – 1959 (O) 2348 – 9367 (P)

WWW.IRJMSST.COM



**INTERNATIONAL RESEARCH JOURNAL OF
COMMERCE, ARTS AND SCIENCE**

ISSN 2319 – 9202

WWW.CASIRJ.COM



**INTERNATIONAL RESEARCH JOURNAL OF
MANAGEMENT SOCIOLOGY & HUMANITIES**

ISSN 2277 – 9809 (O) 2348 - 9359 (P)

WWW.IRJMSH.COM



**INTERNATIONAL RESEARCH JOURNAL OF SCIENCE
ENGINEERING AND TECHNOLOGY**

ISSN 2454-3195 (online)

WWW.RJSET.COM



**INTEGRATED RESEARCH JOURNAL OF
MANAGEMENT, SCIENCE AND INNOVATION**

ISSN 2582-5445

WWW.IRJMSI.COM



**JOURNAL OF LEGAL STUDIES, POLITICS
AND ECONOMICS RESEARCH**

WWW.JLPER.COM

JLPE