



A Comparative Study On Hand Grip Strength Between Powerlifters And Judoka.

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Abstract: hand grip strength is assessed to evaluate differences in muscle endurance between the two groups. The present study comprised 25 male powerlifters and 25 male Judokas of Karnataka state. The researcher used disruptive statistic tool for analyze and interpret the data. the mean and SD of powerlifters for the variable is 48.65 ± 12.20 and the mean and SD of Judoka for the variable is 42.44 ± 4.01 , is respectively. The t- value is 2.42 which is higher than the table value 0.01. Hence that the group difference for the variable Hand grip is statistically significant at the 0.05 level. It is concluded that The Hand grip strength of powerlifters of Karnataka state is higher level than that judoka of Karnataka state.

KEY WORDS: Hand grip, powerlifters, judoka.

I. INTRODUCTION.

Physical education and sports play a fundamental role in promoting physical fitness, mental well-being, and social development. Physical education (PE) aims to develop the physical competence, knowledge, and skills that allow individuals to maintain a healthy lifestyle through structured physical activities (National Association for Sport and Physical Education [NASPE], 2004). It not only emphasizes physical fitness but also promotes cognitive development and social skills, helping students build habits of teamwork, resilience, and discipline (Bailey, 2006).

Sports, on the other hand, extend the principles of physical education by emphasizing skill development and competition in organized, rule-based environments. Participation in sports helps individuals develop strength, endurance, flexibility, and agility, all of which contribute to overall physical fitness (Bomba & Haff, 2009). Moreover, sports play a crucial role in shaping character, promoting social interaction, and instilling values like sportsmanship, perseverance, and fair play (Côté, 1999). Research has shown that both PE and sports enhance cognitive functions, psychological well-

being, and social engagement, underscoring the holistic impact of physical activity on human development (Tomprowski et al., 2008).

With the rise in sedentary lifestyles and associated health risks, PE and sports have become essential elements of education and community programs worldwide. Educators and policymakers have recognized the need to integrate these activities into curricula to foster lifelong health benefits, reduce the incidence of lifestyle-related diseases, and improve mental health outcomes (Sallis et al., 1999). Therefore, a focus on physical education and sports is increasingly seen not just as a method of physical development, but as an approach to holistic well-being, enhancing quality of life, and promoting positive social behaviors.

Hand grip strength (HGS) is described as the force applied by the hand to hold on, to pull on, or to suspend objects in the hand. It is a reliable measurement which can be easily used to evaluate the functional integrity of the hand. HGS values have been influenced by many factors such as age, gender BMI, hand and forearm anthropometries, and hand dominance Strength of the skeletal muscles depends on multiple factors such as body build and composition, physical activity, hormonal influence, etc. HGS reflects total muscle strength and physical fitness. Therefore, it can be used as a powerful indicator of the overall strength of the body. Sedentary people who were not actively participating in sports have demonstrated significantly lower HGS compared to physically active people that involved in regular sports activities such as cricket, hockey, tennis, basketball, handball, etc. Therefore, HGS can be used to indicate the sedentary nature of a population, and it would help to predict their potential risk of developing non communicable diseases such as myocardial infarction and stroke. Further, it is important to consider the other factors that are influencing the HGS in order to have a better understanding.

Powerlifting is a competitive strength sport that consists of three attempts at maximal weight on three lifts: squat, bench press, and deadlift. As in the sport of Olympic weightlifting, it involves the athlete attempting a maximal weight single-lift effort of a barbell loaded with weight plates. Powerlifting evolved from a sport known as "odd lifts", which followed the same three-attempt format but used a wider variety of events, akin to strongman competition. Eventually, odd lifts became standardized to the current three.

In competition, lifts may be performed equipped or unequipped (typically referred to as 'classic' or 'raw' lifting in the IPF specifically). Equipment in this context refers to a supportive bench shirt or squat/deadlift suit or briefs. In some federations, knee wraps are permitted in the equipped but not unequipped division; in others, they may be used in both equipped and unequipped lifting. Weightlifting belts, knee sleeves, wrist wraps, and special footwear may also be used, but are not considered when distinguishing equipped from unequipped lifting.

Judo is an unarmed modern Japanese martial art, combat sport, Olympic sport (since 1964), and the most prominent form of jacket wrestling competed internationally. Judo was created in 1882 by Kanō Jigorō as an eclectic martial art, distinguishing itself from its predecessors instead of kata. alongside its removal of striking and weapon training elements. Judo rose to prominence for its dominance over

established jujutsu schools in tournaments hosted by the Tokyo Metropolitan Police Department resulting in its adoption as the department's primary martial art. A judo practitioner is called a "judoka" and the judo uniform is called "judogi" (judo attire).

The objective of competitive judo is to throw an opponent, immobilize them with a pin, or force an opponent to submit with a joint lock or a choke. While strikes and use of weapons are included in some pre-arranged forms (kata), they are not frequently trained and are illegal in judo competition or free practice. Judo's international governing body is the International Judo Federation, and competitors compete in the international IJF professional circuit.

STATEMENT OF THE PROBLEM:

The aim of the present study is to compare the Hand grip strength component between the powerlifters and Judoka.

OBJECTIVES OF THE STUDY:

- 1.To measure and compare the hand grip strength of Powerlifters and Judoka (judo player)
- 2.To provide recommendations for enhancing physical fitness in both Powerlifters and Judoka, based on identified differences in specific fitness components.

HYPOTHESIS OF THE STUDY:

It was hypothesized that there was a no significant difference in hand grip strength between Powerlifters and judoka.

DELIMITATIONS OF THE STUDY:

- 1.The study was delimited to Powerlifters and judoka from Karnataka state only.
- 2.The study was de limited to male Powerlifters and judoka of Karnataka state only.
- 3.The study was delimited to a sample size of 25 Powerlifters and 25 judoka age ranged between 18-25 years.
- 4.The study was delimited to the assessment of hand grip strength.
- 5.The study was delimited to measurements and assessments performed in controlled indoor environments to ensure standardization of testing conditions.

LIMITATIONS OF THE STUDY:

- 1.The necessary data were collected through physical fitness tests, which may limit the comprehensiveness of data on broader physical or psychological factors.

- 2.The study was limited to data obtained from primary sources and secondary sources, potentially excluding other perspectives or historical fitness data.
- 3.The study did not account for participants' previous training intensity or duration, which might contribute to differences in physical fitness levels.
- 4.Environmental factors, such as the testing setting and timing, were standardized but could still introduce minor variations affecting participant performance.

SIGNIFICANCE OF THE STUDY:

- 1.The study helps in understanding the Hand grip strength component of Powerlifters, and Judokas of Karnataka state .to providing insights into their respective strengths and areas for improvement.
- 2.The findings of the study aim to motivate sports persons of Karnataka state , to concentrate more towards practice of their respective games.
- 3.This research provides valuable data for physical education trainers, coaches to develop targeted training programs that address the specific fitness needs of both sports persons.
- 4.The study may reveal vital information regarding the selection of talents in Powerlifters and judoka, keeping in mind the level of hand grip strength performance.

DEFINITION OF THE TERMS:

- 1.Grip Strength:** Grip strength is the force generated by the muscles of the hand and forearm, often used as a general indicator of muscle strength and endurance. For this study, hand grip strength is assessed to evaluate differences in muscle endurance between the two groups (Mathiowetz, Volland, Kash man, & Weber, 1985).
- 2.Judoka:** A judo practitioner is called a "judoka".
- 3. Powerlifters:** someone who engages in the sport of powerlifting, a strength competition involving three lifts: the squat, the bench press, and the deadlift, where athletes compete to lift the most weight in a single attempt.

REVIEW OF RELATED LITERATURE:

Dr. P. Sathya, et al., (2016) finds that there is positive correlation (moderate to strong) between grip strength and shoulder power.

Charushila A Rukadikar, et al., (2018) observed positive correlation between hand grip strength with height and weight in cricket players Conclusion Proper training for maintaining height and weight will increase in hand grip strength. It will further lead to better strength and performance in cricket activities like batting, bowling, throwing fielding.

Aswathy. (2019) finds the grip strength of softball players showed the closest relationship with the arm measurements compared to hockey players. It may be concluded that the grip strength of university level women softball players had significant relationship with most of their arm measurements.

Miss. Sowmyashree (2020) that Researcher conclude that, there is a no significance difference in hand grip strength level between wrestlers and weightlifters of Mangalore University. The study found there is positive relationship between body weight and handgrip strength.

METHODOLOGY:

To achieve the objective of the study, the researcher adopted an analytical research method. The researcher selected the sample using the random sampling technique. The present study included 25 male Powerlifters and 25 male Judoka of Karnataka state as samples. The researcher collected data using the dynamometer and used descriptive statistics such as mean, standard deviation, and t-value for analysis.

The researcher collected Hand grip strength data by administering a Dynamometer. subjects are randomly selected and informed them about the Dynamometer and the testing procedure. The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort. the shown data was recored in kg/lbs.

DATA ANALYSIS AND INTERPRETATION:

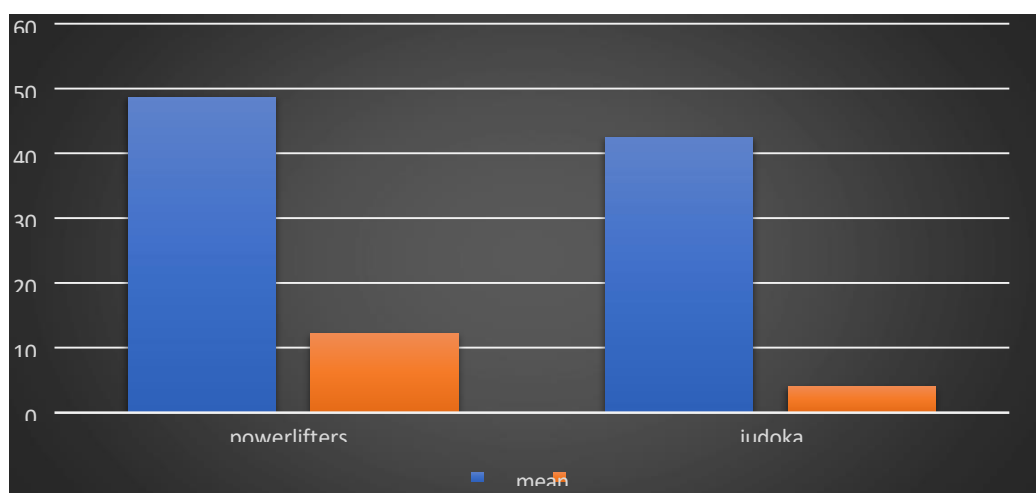
Mean, standard deviation and t value of Hand grip between Powerlifters and judoka of Karnataka state.

VARIABLE	GROUP	NUMBER	MEAN	STANDARD DEVIATION	Obtained 't' value
Hand grip	Powerlifters	25	48.65	12.20	2.42
	judoka	25	42.44	4.01	

revealed the results of Hand grip strength of powerlifters and judoka of Karnataka state. A Analysis of data revealed that the mean and SD of powerlifters for the variable is 48.65 ± 12.20 and the mean and SD of Judoka for the variable is 42.44 ± 4.01 , is respectively. which means the Powerlifters are having better Hand grip then Judoka.

The obtained 't' value is 2.42 which is higher than the table value 0.01. Hence that the group difference for the variable Hand grip is statistically significant at the 0.05 level.

Graphical Representation of Mean, standard deviation, and t value of Hand grip between Powerlifters and judoka of Karnataka state.



DISCUSSION ON RESULT:

To achieve the purpose of study, the collected data was analyzed by using the statistical technique 't' test, and the results showed significant difference. Powerlifters have more Hand grip strength Judoka. When mean values are compared with hand grip, have more than. And hence, the formulated hypothesis was Rejected.

The study was hypothesized that the no significant difference in the Hand grip strength when compared to the Powerlifters and Judoka of Karnataka state. the Hypothesis is Rejected.

CONCLUSION:

The Hand grip strength of powerlifters of Karnataka state is higher level then that judoka of Karnataka state.

RECOMMENDATIONS:

- 1.This study may be conducted on more subjects.
- 2.The study may be conducted on different game players.
- 3.The study can be conducted on male /female players also.
- 4.The similar study may be on other disciplines.
- 5.The study may be conducted on other area like higher level.
- 6.The same study may be conducted to compare between two categories.

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