

## AN ANALYSIS OF 4 WEEKS MEDICINE BALL TRAINING ON ARMS AND TRUNK STRENGTH OF FEMALE JUDO PLAYERS

**Dr. Bhawna Mittal**

*Associate Professor & Head*

*Department of Physical Education*

*Raghunath Girls P.G. College, Meerut*

*Email: sportsdeptt@gmail.com*

### **Abstract**

*The Medicine ball is one of today's top fitness tools and improves muscular strength, abdominal strength, and full body strength. Performing strength exercises on medicine balls have been advocated on the belief that a labile surface will provide a greater challenge to the trunk musculature, increase the dynamic balance of the user and possibly train users to stabilize their spines to prevent and treat injury. The purpose of the present study was to find out the significant effects of 4 weeks of medicine ball training on the arm and trunk strength of female Judo Players. In this study, 25 female Judo players were selected randomly from 3 women's colleges in the Meerut District. The subjects underwent medicine ball training for 6 days of 4 weeks. The pre-test and post-test data were collected before and after 4 weeks of the medicine ball training program. The t-test was used to determine the effect of medicine ball training on the arm and trunk strength of female Judo Players. Further, the level of significance was set at 0.5 levels. The results of the study revealed that there was a significant difference found between pre and post-test concerning arm and trunk strength at a 0.05 level of significance. The training was very effective for subjects and this confirmed that the medicine ball training has effectively improved the arm and trunk strength of the selected subjects.*

### **Keywords**

*Medicine ball, Fitness, body strength, Judo Players.*

Reference to this paper should be made as follows:

**Received: 08.06.2022**

**Approved: 21.06.2022**

**Dr. Bhawna Mittal,**

*AN ANALYSIS OF 4 WEEKS  
MEDICINE BALL TRAINING ON  
ARMS AND TRUNK STRENGTH  
OF FEMALE JUDO PLAYERS*

*RJPSSs 2022, Vol. XLVIII,*

*No. 1, pp.96-101*

*Article No.12*

Similarity Check: 14%

**Online available at:**

*<http://rjpss.anubooks.com>*

**DOI:** *<https://doi.org/10.31995/rjpss.2022v48i01.12>*

## **Introduction**

In recent years, body fitness has recommended core stability in fitness training programs. Medicine ball training also involves isometric muscle actions small loads and long tension for an increase in strength and endurance. Core muscles must produce sufficient and well-coordinated muscle contraction to both support and stabilize the lumbar spine area. Medicine balls are heavy-duty inflatable balls that offer you a fun safe and highly effective way to exercise. The use of medicine balls in strength and conditioning programs has become ubiquitous. This ball has been incorporated into strength training regimes and used as a means to more effectively train the musculoskeletal system. Performing strength exercises on medicine balls have been advocated on the belief that a labile surface will provide a greater challenge to the trunk musculature, increase the dynamic balance of the user and possibly train users to stabilize their spines to prevent and treat injury. Medicine balls are firm, weighted balls that are available in varying sizes from 2kg to 110 kg and come in several variations including inflatable, rubber, or grip balls. the earliest documented use of the medicine ball dates back to almost 3000 years ago when Persian wrestlers trained with bladders that were filled with sand. Later on, medicine balls are an invention by the Greek Physician Hippocrates “the Father of Medicine” who used weighted balls to aid injury recovery in patients. It became one of the “4 horsemen of fitness”, which also included the dumbbell, the wand and the Indian club. Today, medicine balls are often used during workouts to work towards progressive overload. Medicine ball training benefits is the effective development of strength, balance and endurance-three of the key elements of total body fitness.

So keep this in mind, the investigator has analyzed the effect of medicine balls on arms strength and trunk strength of female Judo players after 4 weeks of a medicine ball training program.

### **The objective of the study**

To find out and analyze the effect of 4 weeks of regular medicine ball Training program on the arms strength and trunk strength of Female Judo players.

### **Hypothesis**

There will be significant differences appear in the arms and trunk strength variables.

### **Sampling and Methodology**

The present study was experimental. To achieve the objective of the study, 25 female Judo players of 17-25 aged were selected from 3 women’s colleges in the Meerut district randomly. They were state-level Judo players. Before starting the

training program, the pre- test was conducted and data was collected. The duration of the medicine ball training program was 4 weeks in which everyone received training for 6 days per week and 45 min per day. Sunday was a resting day.

Keeping in mind the objective of the study, a medicine ball training program was prepared in such a way that helps to improve the arm strength and trunk strength variables. 3 and 4 kg medicine balls were used for training.

Following training, Programme was performed by the subjects for 4 weeks daily in the morning session in the gymnasium at 6 am.

(Medicine ball Training Program -4 weeks)

S. No.	Day	Training Program
1	Monday	Warming up -10 min (3 sets of 20 repetitions) Arm curl and press exercise Knee lift with ball Squat and sweep with a ball Circle squat with a ball Cooling down
2	Tuesday	Warming up-10 min (3 sets of 20 repetitions.) Knee lift with the ball. Squat and sweep with a ball Circle squat with a ball Lunge with a toe touch. Cooling down
3	Wednesday	Warming up-10 min (3 sets of 20 repetitions). Knee pulls with ball Medicine ball pullover. Circle squat with a ball Lunge with a toe touch. Cooling down
4	Thursday	Warming up-10 min (3 sets of 20 repetitions) Knee lift with ball Knee roll with the ball Circle squat with a ball Lunge with a toe touch. Cooling down
5	Friday	Warming up-10 min (3 sets of 20 repetitions) Knee lift with ball Squat and sweep with a ball Medicine Ball Wood chop exercise. Diagonal wood chop exercise Cooling down
6	Saturday	Warming up-10 min (3 sets of 20 repetitions.) Toss with the ball. Squat and sweep with a ball Circle squat with a ball Diagonal wood chop exercise. Cooling down
	Sunday	Rest.

Before starting the training, we took taken pre-test on the Arm and trunk variables of 25 female Judo players and data collected. The muscular strength of the arm was measured with the help of a pull-ups test and trunk strength was measured with the help of a trunk flexion test. The score of the pull-ups and trunk flexion test was noted. After 4 weeks of medicine ball training, the investigator again took a post-test of the subjects on arm strength and trunk strength variables and data collected.

The pre-test and post-test data concerning arm and trunk strength variables were collected before and after 4 weeks training program. and were compared using a single sample group t-test at a 0.05 level of significance.

### Analysis of Data

The data was analyzed using the following statistical techniques:

1. Computation of mean.
2. Computation of standard deviation.
3. Computation of standard error of the difference between the means.
4. Computation of 't' ratio.

The level of significance chosen was 0.5 level of significance.

### Findings

The analysis of data about the comparison of pre and post-test arm strength and trunk strength of subjects in tables 1 and 2.

**Table - 1 (Arm strength)**

Variable	Stages	No	Mean	s.d	t.ratio
Arm strength	Pretest	25	10.56	2.67	4.98*
	Post test	25	13.80	3.12	

It revealed from the table-1 that there was a significant difference appeared between pre-test and post-test means of female Judo players at a 0.05 level of significance regarding arm strength. It was signified that 4 weeks of medicine ball training program improve the arm strength of the subjects.

**Table - 2 (Trunk Strength)**

Variable	Stages	Number	Mean Score	s.d	t.ratio
Trunk Strength	Pretest	25	43.89	5.67	3.76*
	Post test	25	46.89	5.98	

It revealed from table-2 that there was a significant difference appeared between pre-test and post-test means of female Judo players at a 0.05 level of significance regarding trunk strength. It was signified that 4 weeks of medicine ball training program improve the trunk strength of the subjects.

### Discussion & Conclusion

The study was framed to find out the effect of 4 weeks of medicine ball training program on arm strength and trunk strength of female Judo players. The subjects were given training on medicine ball exercises continuously for 4 weeks six days a week. The result shows that there was a significant difference appeared between pre and post-test mean scores of arm strength and trunk strength variables. This significant change in arm and trunk strength of female Judo players might be due to the effects of 4 weeks medicine ball exercise training program.

It was observed and concluded that 4 weeks of medicine ball training program significantly improved the arm strength and trunk strength of female Judo players. Medicine ball exercises play a significant role in improving muscular strength.

### References

1. Barnett, M.L. (1977). Effect of two methods of goal setting on learning a gross motor task. *Research Quarterly*. 48. Pg. **19-23**. Barnett, M.L., & Stanicek, J.A (1979).
2. Carroll, S.J., Tosi, H.L. (1973). Management by objectives. Macmillan: New York.
3. Fox, E., Bowers, R., Foss, M. (1988). The Physiological Basis for Exercise and sport. WBC Brown and Benchmark Publishers: Dubuque. Pg. **324-326**.
4. Goldberg, D. (1992). General Health Questionnaire (GHQ-12) Windsor. NFER-Nelson: UK.
5. James, G. et.al. (1987). New Health related fitness Norm. *JOPERD*. 67. Pg. **66-70**.
6. Kamlesh, M.L. (1983). Psychology of Physical Education and Sports. Metropolitan Books company Pvt. Ltd.: New Delhi. Pg. **17**.
7. Jewell, A.E. (1969). An introduction of Physical Education. W. B. Saunders Company: Philadelphia.
8. Kumar, D., Sakthignanavel, D. (2013). Effect of six weeks swiss ball exercise on the arm and abdominal strength of untrained college male students. A pilot study. *Horizon Palaestra*. vol.2. Pg. **1**.
9. Mridha, S. (2010). A Comparative Study on Motor Fitness of 12 to 14 Years Tribal and Non-Tribal Boys. Abstract Book, National Conference on Trends & Practices in Physical Education. Department of Physical Education. Vishva Bharti Santiniketan University: West Bengal. 1(1). Pg. **11**.
10. Negi, V.B. (2006). A Study of Motor Fitness and Selected Physiological Variables among Mongoloid and Mediterranean Senior Secondary School

- Students. Thesis (Ph.D) Department of Physical Education. Himachal Pradesh University: Shimla (India).
11. Reiff, G.G. (1976). AAPHER Youth Fitness Test Manual.
  12. Satpal, K. (2011). "Physical Fitness". Proceedings of the UGC Sponsored National Seminar. Global Trends in Physical Education and Sports: Punjab, India. Pg. **169-172**.
  13. Senthilkumaran, R. (2009). Effect of Aerobic Training on Selected Physical Fitness, Physiological and Kin anthropometric Variables in Varied Periods. *Indian Journal of Sports Studies*. 9. Pg. **25-35**.
  14. Singh, S. (2010). Comparison Between Selected Physical Fitness Variables of Offensive and Defensive Football Players of University Level. Abstract Book. National Seminar on Recent Trends & Future of Physical Education and Sports Science. Mahatma Gandhi Vidyapith: Varanasi (UP), India. 1. Pg. **37**.
  15. Singh, G.K. (2008). A study of Physical, Physiological and Psychological characteristics of National Level Basketball Players. Unpublished Ph.d thesis. B.H.U.
  16. Thakur, G. (2011). Comparison of Motor Fitness Components of Rural and Urban School Hockey Boys". Proceeding of the UGC Sponsored National Conference. Physical Education as a Profession, Arya College: Ludhiana. 1(1). Pg. **32-36**.
  17. Verma, J. (2000). Prakash. A textbook on sports statistics. Venus Publication: Gwalior, India. ISBN 81-87645-03-2.
  18. <http://www.biospectrumindia.com>
  19. <http://www.journals.iww.com>
  20. <http://www.verywellfit.com>
  21. <http://www.wikipedia.com>