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## Effects of split style snatch training protocol on upper body muscular endurance and lower body explosive muscle power of taekwondo athletes

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### Abstract

The purpose of the study was to investigate the relationship between Split styles Snatch training protocol (twice a week for 6 weeks) on upper body muscular endurance and lower body explosive power (Legs) of male (n=50) Kyorugi taekwondo athletes (Age 18-25). The subjects for the study were selected randomly from different training centers in NCR and Delhi, India. All the subjects voluntarily agreed to Participate and had three-year experience of Participation in the National, University and State Competitions in different body weight Category. The split Snatch training was used during one of the resistance training session for three days a week for 6 weeks and loads were increased every week. The pre and post upper body muscular endurance was measured by push up test in counting (Maximum in 1 Minute) and standing broad jump test (SBJ) was used for lower body explosive power in Meters/ Cm and data was recorded. The R 4.1.0 statistic software program was used, with the help of Mean, Standard Deviation (S.D.), and T-test to determine the relationship between split Snatch training protocol with upper body muscular endurance and lower body (Legs) explosive muscles power of taekwondo athletes. The significance level was determined as  $P < 0.05$ . After 6 weeks of Split styles Snatch Training the result of the study indicates that split styles snatch is significantly correlated to upper body muscular endurance (0.01) and explosive muscles power (0.03).

**Keywords:** Split snatch, taekwondo, standing broad jump and push ups

### Introduction

Olympic weightlifting movements and their variation are believed to be among the most effective way to improve Power, strength and speed in athletes<sup>[1]</sup>. Olympic-style weightlifting is a registered sport that incorporates the use of two independent lifts that require the athlete to lift a loaded barbell from the floor to an overhead position in an explosive manner. The two lifts, the 'Clean & Jerk' and the 'Snatch' are explosive movements as they require a combination of maximal strength and maximal power<sup>[17]</sup>. Two fundamental skills of Olympic Weightlifting Snatch and Clean & jerk are used as a method of training for Improving or building Power and strength in the different sports.

Split Snatch used to be the snatch method up through the 20<sup>th</sup> century in the Olympic weightlifting competitions. In the execution of Split Snatch, athlete at the start, the feet should be at shoulder width with toes pointed straight ahead after pulled the bar as high and foos go into the split position. The front foot will only move forward about twelve inches. In contrast, the rear foot travel as far back as necessary for to go into a deep split with the knee of your trailing leg almost touching the floor<sup>[7, 11]</sup>. Split Snatch as a training tool in the resistance training programme helps an athlete to improve the ability of Power, strength and velocity of Pull, received and release movements.

Taekwondo, meaning literally 'the way of the foot and fist', is a Korean martial art, which first became an Olympic sport at the Sydney Olympics in 2000. A Taekwondo match is 3 rounds of 2 minutes, with a minute's rest between rounds. In competition, kicks and punches score points<sup>[18, 8]</sup>. Many individuals from approximately 209 Countries in the world are training taekwondo<sup>[9]</sup>. The sport Taekwondo which is also known as hand and foot sport, an athlete participates in two patterns of competitive actives Kyorugi and Poomsae. In the Kyogurgi athlete competes in the different Body weight Category events and Poomsae is organized as per

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age.

It is well-known fact that taekwondo is a physically demanding sports that is dominated by fundamental exercise Kicks, Punches, Blocks, hooking, Stances movements in the attacking and defending situations during the competitions. These Movements require Power, Strength, Coordination, Balance and flexibility (ROM) of Upper and lower body Muscles during the training and competition performance.

As mentioned above, the Competitive Taekwondo sport requires the whole-body fitness (Power, Strength, Speed, Coordination and flexibility), Mental Preparation and Systematic training plan for the optimum performance in the competitions. Researchers reveal that the optimum Performance in Taekwondo involves strength, Balance, speed, Power, Agility, arm to leg co-ordination during the Kicks, Punches, Blocks, hooking, Stances movements training and performance and Lower and Upper parts of body muscles need explosive power and strength to complete the execution of successful techniques.

Muscular endurance is the ability of muscles (or group of muscles) to continually exert force against resistance or a given movement [9]. Muscular power refers to a great force production over a short period of time [16]. Experts in the field of sports medicine, exercise physiology and sport training and coaches measure the muscular endurance and muscular power of the athletes through the use the pushups test for upper body and lower body muscle power is measured through the use of standing board jump test. These tests are accepted and recognized worldwide to assess the upper body muscular endurance (Shoulders & Arms) and explosive power of lower body part (legs) and of athlete’s body in different sports and games.

For the present study the push up test was used to measured muscular endurance of upper body and on the explosive lower body muscle power (legs) evaluated through standing broad jump test (SBJ) of the Kyorugi taekwondo athletes.

**Hypothesis**

It is hypothesize that split styles Snatch training protocol will increase the upper body muscular endurance and lower body explosive muscle power of Kyorugi taekwondo athletes.

**Purpose of the Study**

The purpose of the study was to analyze the effects of split style Snatch training protocol on upper body muscular endurance and lower body explosive muscle power of taekwondo athletes.

**Methodology**

To achieve the objective, the present study was conducted for Male Taekwondo athlete (n=50) age 18-25 years. All the subjects were busy preparing for the participations in National, State University and College Taekwondo Competitions in different training centers in Delhi and NCR, India from 2021-2023. The discussion was done with the players and their coaches regarding the purpose of the study and all agreed voluntarily to take part in the study and implement the training intervention. The technique of Split Snatch was taught by qualified Weightlifting coaches and trainers, and training load of Split Snatch was increased every week progressively for 6 weeks. The Split Snatch resistance training Protocol was used 3 days week during the training sessions. Pre and Post data was carried out through standing Broad Jump test (SBJ) and Push up tests.

All the subjects were given 15 minutes for warming up and practice the Standing Broad Jump Test (SBJ) and Push up test so that they are familiar with the test and know exactly what was to be done. The use of apparatus and Procedure was explained to them prior to the administration of the test. Three attempts were given to each subject. The best of three attempts were recorded as a personal score of SBJ and the score of Push Up test. All the equipment’s for test as tools were standardized and certified. The variables used in study are shown in table 1.

**Table 1:** Variables used for the Study

S. No	Variables	Test and Performance
1.	Upper Body Muscular Endurance	Push up Test in Counts/time
2.	Lower Body Explosive Muscle Power	Standing Broad Jump in Meters/Inches

**Results and Data Analysis**

The result of the study are presented in the tables and figures. The statistical analysis of data was done with help of ‘R’ 4.01 software. The descriptive statistics was applied to Table 2 showing the mean Values, S.D, T-Value and P value between

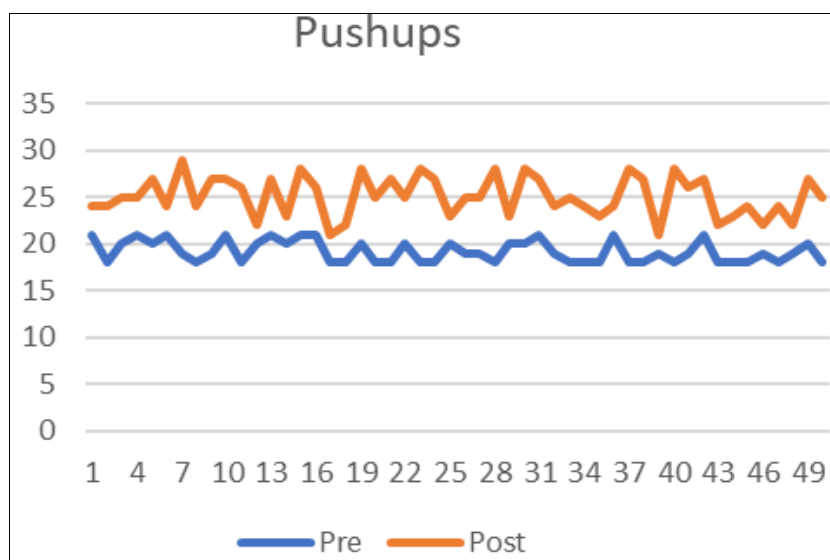
Pre- Test and Post- Test effects of Split style Snatch Training Protocol (6 weeks) on Upper Body Muscular Endurance and Lower Body Explosive Power of Male Taekwondo Sport Athletes.

**Table 2:** Descriptive Statistics of the split snatch training protocol on Upper Body Muscular Endurance (Pushups) and Lower Body Explosive Muscle Power (Standing Broad Jump)

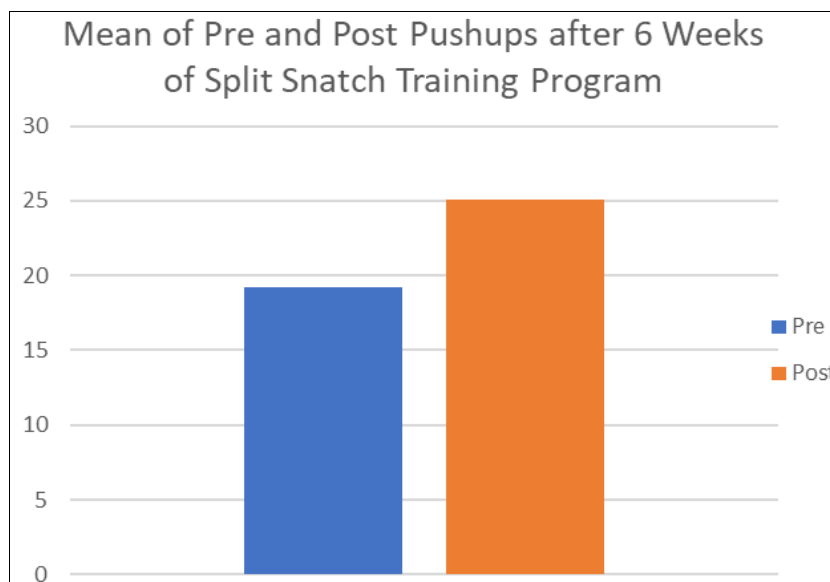
Variables	N	Mean		S.D.		‘t’ ratio
		Pre	Post	Pre	Post	
Upper Body Muscular Endurance (Pushups)	50	19.18	25.12	1.24	2.11	0.01
Lower Body Explosive Muscle Power (Standing Broad Jump)	50	2.3	2.7	0.11	0.03	0.03

Significance level  $p < 0.05$

**Graphical Representation of Effect of Split Snatch on Pushups**

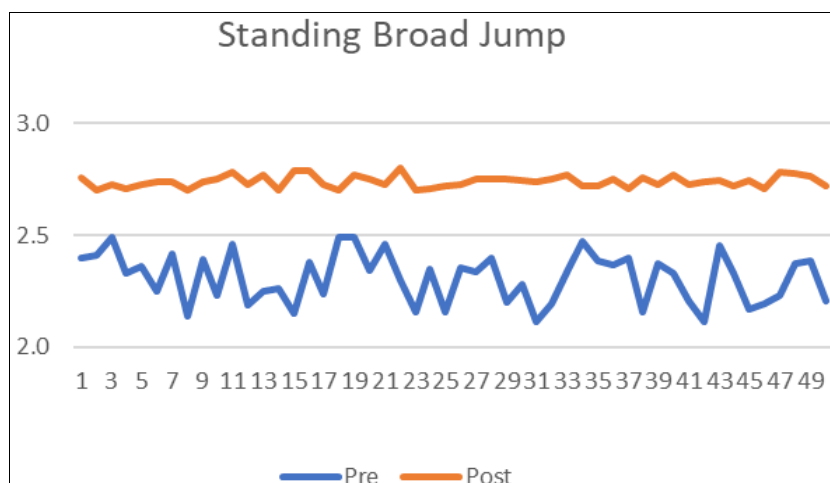


**Graph 1:** Number of maximum pushups in 1 minute

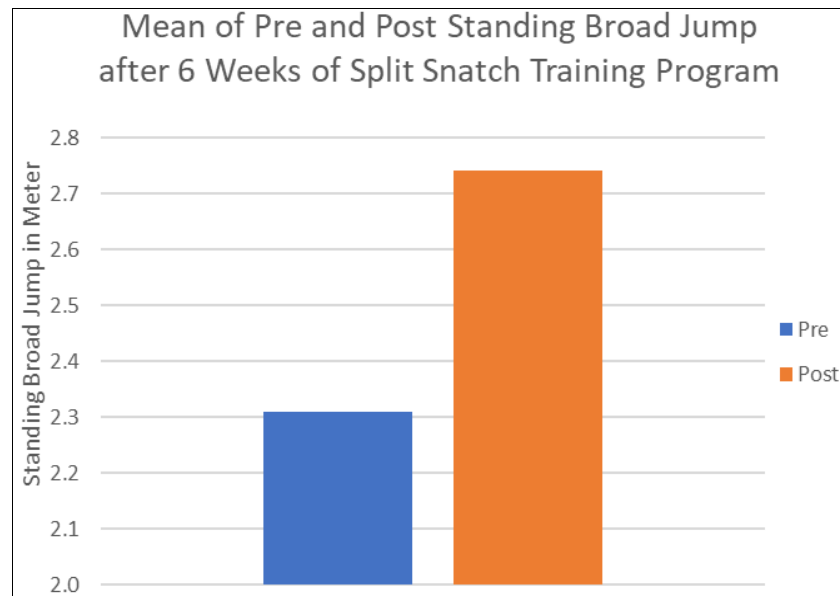


**Graph 2:** Number of maximum pushups in 1 minute

**Graphical Representation of Effect of Split Snatch on Standing Broad Jump (SBJ)**



**Graph 3:** Standing Broad Jump in meter



**Graph 4:** Standing Broad Jump in Meter

### Discussion of findings

The aim of this study was to investigate the effects of split style snatch training protocol on upper body muscular endurance and lower body explosive muscle power of taekwondo athletes. As evident from the result shown, the Split style Snatch Training Protocol significantly contributed in the upper body muscular endurance and lower body explosive muscle power of taekwondo athletes. Similar views are also given by Izzet Ince <sup>[6]</sup> in his study that the split snatch training improve Physical performance of female volley Ball players. In contrast to the mentioned, Hedrick <sup>[5]</sup> reported that Split snatch (alternating foot) is used as a tool for improving muscles power of upper and lower part of the body and it includes the training performance for the athletes. Tankano <sup>[13]</sup> also recommended that Split snatch provides an effective training effect on fast leg movements and Power of the athletes. Bompa <sup>[2]</sup> recommended that Olympic Weightlifting skills movements' clean and jerk, power clean and split snatch is good way to improve overall body strength and power. Harey Newton <sup>[10]</sup> share in his views that Olympic weightlifting skills are the best way for taekwondo athletes to train because of the sports unique combination of strength and power. Bill Starr <sup>[11]</sup> expressed his opinion that the split style snatch is one of the best exercises in weight training for athlete and he recommended that split style is more beneficial to strength sports athletes. Turner, <sup>[14]</sup> strength and conditioning coach suggested that the Power split snatch is beneficial for the taekwondo athlete during the Power training session.

### Implication of research findings

In the present study, restraint were recognized to be significantly correlated to Split styles Snatch training protocol with upper body muscular endurance, and lower body explosive muscle power in the taekwondo sports. There are many factors that can influence the results in Taekwondo sport performance, but as requirements of upper body and lower body muscle, power is an important contributor to the athlete's performance in Kyorugi taekwondo sports.

### Conclusion

The result of study demonstrates the significant positive effects of split styles snatch training protocol on upper body

muscular endurance and lower body explosive muscle power of taekwondo athletes. Based on the results and the analysis, it is to resume that Split styles Snatch training is helpful in improving upper body muscular endurance as well on lower body explosive muscle power of Kyorugi taekwondo female and male athletes.

### Conflict of interest

No funding or financial assistance was received for this study. The author has no conflict of interest related to this research.

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### Reference

1. Ayers JL, *et al.* Hang cleans and hang snatches produce similar improvement in female collegiate athletes. *Biol Sport.* 2016;33(3):251-256. DOI: 10.5604/20831862.1201814.
2. Bompa OT, *et al.* Periodization training for sports. Human Kinetics. Champaign, IL; c2005.
3. Burt N. Muscular Endurance Explained. *Science in Sport.* [Internet]. 6 January, 2022. Available from: <https://scienceinsport.com>sport-nutrition>muscular-endurance-explained>.
4. Hackett D, *et al.* Olympic weightlifting training improves vertical jump height in sportspeople. *Br J Sports Med.* 2015;50:865-872.
5. Hedrick A. The benefits of performing the Split Alternating foot Snatch. *Strength Cond. J.* 2014;36(3):26-32.
6. Ince I. Effects of Split style Olympic weightlifting training on leg stiffness, Vertical Jump, Change of direction and sprint in Collegiate Volleyball Players. *Universal J Educ. Res.* 2019;7(1):24-31. DOI: 10.13189/V/ER.2019.070104.
7. Mckhann C. Why the Split Snatch is My Favorite Lift for Athletes. *Strength Training;* c2019.
8. Sang N, *et al.* Effects of Taekwondo training on Physical Fitness factors in Korean elementary students: Systematic review and meta-analysis. *J Nutr. Biochem.*

- 2019;23(1):36-47.
9. Nam SS, *et al.* Effects of Taekwondo Training on Physical Fitness Factor in Korean Elementary Students: A systematic review and meta-analysis. *J Exerc. Nutr. Biochem.* 2019;23(1):36-47.  
DOI: 10.20463/jenb.2019.0006.
  10. Newton H, *et al.* Making a strong more Powerful taekwondo athlete. *sportsedtv.* 26 May 2020. Available from: <https://sportsedtv.com>blog> making-a- strong-more powerful taekwondo athlete>.
  11. Starre B. The split Snatch. *Starting Strength.* The Aasgaard Company; c2011. Available from: [https://startingstrength.com/article/the\\_split\\_snatch](https://startingstrength.com/article/the_split_snatch).
  12. Stone MH, *et al.* Relationship between anaerobic power and Olympic Weightlifting Performance. *J Sports Med.* 1980;(20):99-102.
  13. Takano B. The role of Split lifts in Improving Athleticism. *Breaking Muscle.* Breaking Muscle; c2021.
  14. Turner A. *Strength & Conditioning for Taekwondo athletes.* Middlesex University London; c2009. Available from: [https://repository.mdx.ac.uk>UKSCA\\_Taekwondo](https://repository.mdx.ac.uk>UKSCA_Taekwondo).
  15. Valverde AG, *et al.* Effects of weightlifting training on jumping ability, sprinting performance and squat strength A systematic review and meta-analysis. *Int. J Sports Sci. Coaching.* 2012, 17(4).
  16. Virglina M, *et al.* *Dance Wellness, Muscular strength Power and Endurance Training.* Human Kinetics; c2017. Available from: <https://us.humankinetics.com/products/dancer-wellness-pdf-with-web-resource>.
  17. Walker O. *Olympic Weightlifting.* Science of Sports; c2023. Available from: <https://www.scienceforsport.com/olympic-weightlifting>.
  18. Turner A. *Strength & conditioning for Taekwondo athletes.* Professional Strength and Conditioning; c2009.