# EFFECT OF TRIANGLE SYSTEM OF RESISTANCE TRAINING PROGRAMME ON AND ANTHROPOMETRIC VARIABLES OF DISTRICT LEVEL BODYBUILDERS

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## ABSTRACT

The present study investigated the effect of triangle system of resistance training programme on selected physical and anthropometric variables for district level bodybuilders. Twenty male body builders were randomly assigned to Triangle System of Resistance Training (TSRT). Training was performed four 4 days in a week and eight weeks Tests on selected variables were conducted before and after the tight weeks training regimen. Experimental group significantly improved physical and anthropometric variables. It was concluded that triangle system of resistance training on male body building subjects seemed to increase physical and anthropometric variables.

Key words. Triangle System of Resistance Training (TSRT), physical, anthropometric, body builders

## INTRODUCTION

Happiness is absolutely integral to the human spirit. Sports and physical activities are the highest qualities of basis for jubilant platform for all. Now it focused on competitive and recreational values to bring together, fostering unity, understanding, tolerance, love, fraternity, solidarity, non-violence, tolerance and justice which are essential ingredients of peace. Body building is one among a perfect way of approaching the values ensured by sports. It indeed the sports of the 80s and also a beautiful art form in regard to sculpting the body and positive representation and promotion by its leading stars and participants: body building will surpass all expectations and eventually become a "sports of the people Body building is an activity of aesthetic as well as athletic goals; these results are achieved through the synchronized use of weights to shape, strengthen and condition the body in an integrated way. Historically, people involved in power lifting, weight lifting and bodybuilding have been consulted to help develop programmes for resistance training. Resistance training, also known as strength or weight training has become one of the most popular forms of exercise for enhancing an individual's physical fitness as well as for conditioning by means of body's musculature to move (or attempt to move) against an opposing force, usually presented by some type of equipment. It can the changes in body composition, strength, muscular hypertrophy, and motor performance that many individuals desire (Fleck and Kraemer, 2004). Generally resistance training have many-sided systems of training namely, single-set system, express circuit, multiple-set system, bulk system, circuit system, peripheral heart action system, triset system, double progressive system, multipoundage system, breakdown training, superpump system, triangle system. This different training system is one way to bring training variation into a programme and therefore help to avoid training plateaus. Due to aforesaid reason triangle system of resistance training had selected in the present study to train the body builders at district level.

## METHODS

### Experimental design

The single group design was used to form the experimental group in which twenty male subjects were randomly selected for Triangle System of Resistance Training (TSRT). The selected subjects were

initially tested on the variables used in the study. After the completion of the initial tests, the subjects belonged to experimental group was treated with the Triangle System of Resistance Training (TSRT) for about 4 days in a week and eight weeks in total. After the completion of intervention period, all the subjects were tested on selected variables using means and methods used during the initial test.

**Subjects**

The main purpose of the present study was to assess the effect of triangle system of resistance training programme on selected physical and anthropometric variables of district level bodybuilders To achieve scientifically precise results, twenty male bodybuilders were randomly selected as subjects. They were representing at district level competition in body building. The age of subjects was fixed in the range of 20-35 years and belonged to 55 to 90 kg category.

**Variables**

On the basis of scientific literatures and discussion with experts the following variables were selected for this study

| S.NO | Name of the variable | Name of the test |
|---|---|---|
| 01 | Muscular Strength | Bench press, shoulder press and, squat |
| 02 | Muscular Endurance | Pull-ups and, Sit-ups |
| 03 | Anthropometrics | Arm girth, chest girth, waist girth and, thigh girth |

**Triangle system of resistance training**

A complete triangle or pyramid system begins with a set or 10 to 12 repetitions with a light résistance. The resistance is then increased over several sets so that fewer and fewer repetitions are performed, until only a 1RM is performed. Then the same sets and resistances are repeated in reverse order, with the last set consisting of 10 to 12 repetitions. (Fleck and Kraemer, 2004). (See figure 1)

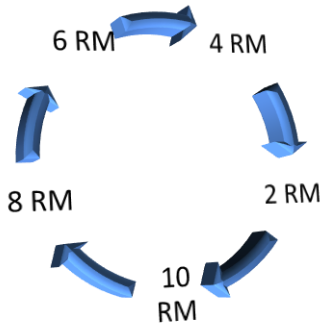



**Figure 1: Performing sets that progress from light to heavy resistances is a pyramid. Performing sets that progress from heavy to light resistance is a heavy-to-light system (descending half-pyramid) A full pyramid, or triangle, consists of both the ascending and descending portions of the pyramid.**

**Administration of Triangle system of Resistance Training (TSRT)**

**In** the present study light-to-heavy type of triangle system of resistance training was used as an intervention for the experimental group. The pyramid type of weight training was practiced by the body building with an initial load was fixed with 1RM test. Then the subjects were involved the

pyramid type of weight training in the evening session in four days of a week le. Monday, Wednesday, Friday, Sunday

**Table 1**

| S.NO | Days | Exercise | Intensity | Sets | Repetitions |
|---|---|---|---|---|---|
| 01 | Monday | Chest, Arms:<br><br>Bench press, Indine bench press, dips, triceps extension (barbell), press down, barbell curl<br>hammer curt | 1 RM – 10 RM | 1 | 3-5 |
| 02 | Wednesday | Shoulder, Trapezieus:<br>Back press, dumbbell shoulder press, lateral raise, upright raw, shoulder shrugs | | | 3-5 |
| 03 | Friday | Back, Abdominals<br>Pull-ups, lat pull down, barbell row, seated hanging leg raise. | | | 3-5 |
| 04 | Sunday | Thighs, Calves<br>Squat, leg press, leg extension, leg curt, standing calfraise, seated calf raise. | | | 3-5 |

**VARIABLES MEASUREMENTS**

**1.MUSCULAR STRENGTH**

**1.Bench press**

The purpose of this test was to measure the strength of chest muscles. The equipments needed for this test was a bench a weight bar (5 to 6 feet in length) and enough weight plates to be more than sufficient for the strongest student. The subject was made to lie on his back on a bench that was approximately 10 to 14 inches wide had partners helped lower the weight slowly to his chest and then attempt to raise the weight until his arms were straight. The maximum weight lifted by the subject was recorded in kilograms.

**2.Squat**

The purpose of this test was to measure the strength of quadriceps and hamstring muscles. The equipment needed for this test was a bench a weight bar (500 6 feet length) and enough plates to be more than sufficient for the strongest student. The stand with stood with his feet shoulder width a part with toes pointed slightly outward. The head was kept up and the shoulders is rounded on prevent under strain on the lower back next, lowered his body by bending his knee until his buttocks were about the height of the seat of a chair. If he went down lower than that and did a fine squat, he damages his knee. The maximum weight lifted by the subject was recorded.

**3.Shoulder press**

To measure the strength of shoulder muscles. The equipment needed for this test was a bench a weight bar (5 or 6 feet in length) and enough weight plates to be more than sufficient for the strongest student. The subject was made to lie on his back on a bench that was approximately 10 14 inches wide had partners helped lower the weight slowly to his chest and then attempt to raise the weight until his arms were straight. The maximum weight lifted by the subject was recorded.

**IL MUSCULAR ENDURANCE**

**1.Pull-ups**

To measure the strength of the arm and shoulder in the pull up movement. A horizontal bar raised to as height so that the subject may hang with their feet the floor should he used. Subject ask to stand below the across bar hold the across bar body full straight then start the whistle sound subject should below the top of across bar in chin.

No of pull-ups are measured sit-ups.

**2.Sit-ups**

To measure the strength of abdominal muscles in sit-up movement. To subject ask to sit on a mat and between the a distance of foot and buttocks is approximately 1 feet. His arm should keep behind the head. Then start the whistle sound subject performing no.of sit-ups. No. of sit-ups are measured.

**3. ANTHROPOMETRIC MEASUREMENTS**

Breadth and circumference (girth) measurements were used to assess body fat or body proportions. Procedures and techniques for these measurements were taken from Carter (1975) and Lohman et al (1988). Circumference or girth measurements were taken with a flexible non-stretchable tape measure. There were 2 measurements taken at each site, and a third if there were discrepancies a third measurement was taken. All measurements are taken perpendicular to the torso or limb and recorded in nearest centimeters. The following are standards of anthropometry for girth measurements

**1. Arm girth:** At the point of maximal circumference with the elbow fully extended, palm arm abducted parallel with the floor (Baechle and Earle, 2000).

**2. Chest girth:** At the nipple level

**3. Thigh girth:**

**4. Waist girth:** Waist at the narrowest part of the torso between the xiphold process and the umbilicus

**STATISTICS**

To test the significance of mean differences within groups was determined by 't' ratio.

**RESULTS**

**TABLE-2**

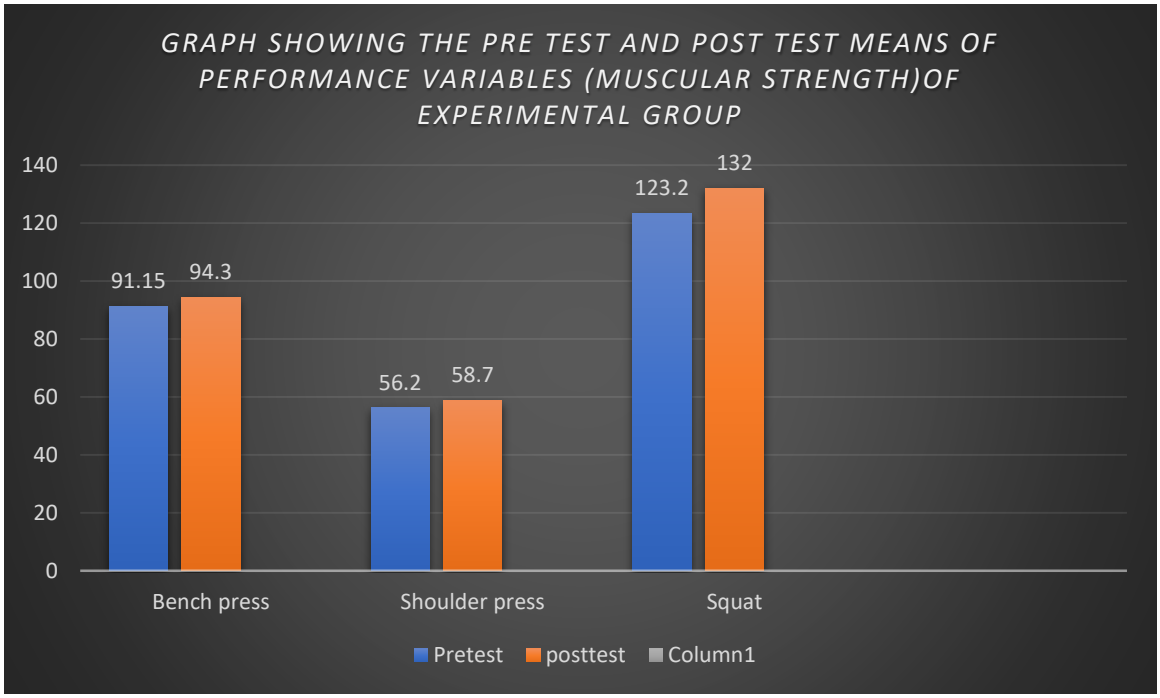
**COMPUTATION OF T' RATIO BETWEEN THE INITIAL AND FINAL TEST MEANS ON PHYSICAL AND ANTHROPOMETRIC VARIABLES**

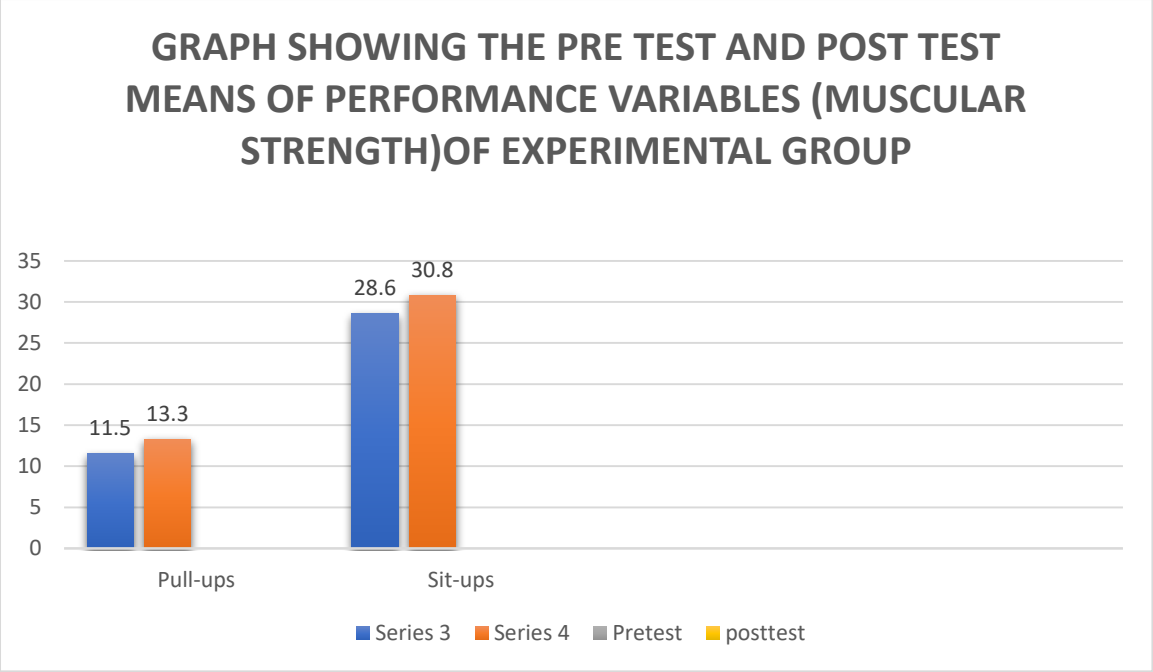
| S.No | Name of the variable | Initial test | Final test | Mean test | €Dm | t-radio | Sig. |
|---|---|---|---|---|---|---|---|
| 01 | Muscular endurance (pull-ups) | 11.50 | 13.30 | 1.80 | 2.4 | 5.9 | Sig.* |
| 02 | Muscular endurance (sit-ups) | 28.65 | 30.80 | 2.15 | 2.8 | 6.5 | Sig.* |
| 03 | Muscular strength | 91.15 | 94.30 | 3.15 | 1.03 | 3.03 | Sig.* |

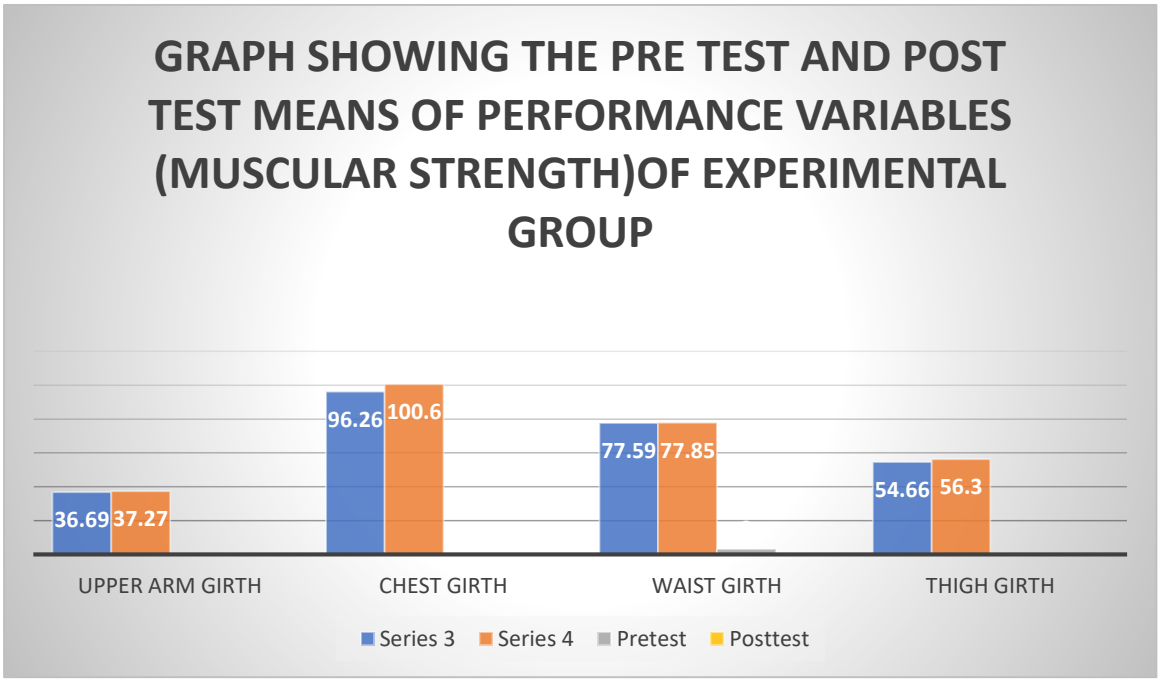
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | (bench press) | | | | | | |
| 04 | Muscular strength shoulder press | 56.20 | 58.70 | 2.50 | 0.68 | 3.64 | Sig.* |
| 05 | Muscular strength (squat) | 123.20 | 132.00 | 8.80 | 3.69 | 2.38 | Sig.* |
| 06 | Biceps girth | 36.65 | 37.27 | 0.62 | 9.94 | 6.28 | Sig.* |
| 07 | Chest girth | 99.26 | 100.60 | 1.33 | 0.3 | 4.02 | Sig.* |
| 08 | Waist girth | 77.59 | 77.85 | 0.25 | 0.35 | 0.83 | Not Sig.* |
| 09 | Thigh girth | 54.66 | 56.30 | 1.63 | 0.3 | 4.30 | Sig.* |

Significant at 0.05 level of confidence (The required table value is 2.09 for df 19)

An examination of table.2 indicates that the obtained 't' ratio on selected variables were muscula rength bench press(3.03), shoulder press (3.64), squat (2.38), muscular endurance pull ups (5.9), sit-up 5) biceps girth (6.28), chest girth (4.02), waist girth (0.83), and thigh girth (4.30). Since the obtained ratio were greater than the required table value of 2.09 for df 19 and it was found that the mean difference between initial and final test on selected variable was statistically significant at 0.05 level. Since the obtained 't' ratio were greater than the required table value of 2.09 for df 19, except the waist girth and it was found that the mean difference between initial and final test on selected variable was statistically significant at 0.05 level.






**DISCUSSION**

Better performances can be the product of a number of factors. This product is primarily the outcome of efficient technique, the progression of speed and the maturing competitive attitude on a sound basis of general endurance, all round strength and general mobility. In addition to this, in any type of training, our energy system needs adequate restoration to improve required parameters for performance. Gollnick et al. (1974) stated that the energy source being used during the training session is probably the most important factor to consider. During the maximum strength phase, when we are primarily using the ATP/CP energy pathway, daily training is possible because ATP/CP restoration is completed within 24 hours. If we are training for muscular endurance then we require

a 48 hour recovery as this is how long it takes to fully restore our glycogen stores. In this perspective triangle system of resistance training programme (TSRT) or pyramid training is an attempt for uncommon strength training technique that produces excellent results, especially when it comes to increasing training volume in an exercise program. Pyramid training has been around for a long time, and was commonly used by old-time strength greats. The way pyramid training works is by starting off at the base, and climbing one more step each time until you reach the top, then we descend back down the pyramid until the bottom. It is a real challenge because of the total workload, and having to do each repetition with near perfect technique. Green bodybuilders keen to make an impression on other lifters in the fitness center swing and flap their arms as they walk towards the bench, load the bar with more weight than they can handle with correct form, and then give their spotter a better workout than they give themselves. Pyramiding overloads the muscle effectively and works very well. Based on these factors might be cause for significant improvement (except waist girth) on the variables L.e. muscular strength, muscular endurance, arm girth, chest girth and, thigh girth.

**CONCLUSIONS**

Based on the results of the present study the following conclusions have been drawn.

1. It was concluded that the triangle system of resistance training programme significantly improve

the selected performance variables such as muscular strength and, muscular endurance.

2 Further it was concluded that the triangle system of resistance training programme has significantly

improved the selected anthropometric variables such as biceps girth, chest girth and thigh girth except waist girth.

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