



Effect of six weeks isotonic exercise on shoulder strength, speed and power of cricketers

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Abstract

The aim of this study was to observe the effect of six week isotonic practice on shoulder strength, speed and power of cricketers of subject with the age range 17 to 21 years. For this 20 male subjects were drawn from M.M college Khekra Baghpat, by using simple random sampling. The result shows that there were significant effects on shoulder strength, speed and power of isotonic practice.

Keywords: Isotonic, shoulder strength, speed, power

Introduction

When a contracting muscle shortens against a constant load, as when lifting a weight. Isotonic exercise is one method of muscular exercise. In contrast, isometric exercise is when muscular contractions occur without movement of the involved parts of the body. Isotonic comes from the Greek "iso-", equal + "tonos", tone = maintaining equal (muscle) tone. The muscle maintains equal tone while shortening in isotonic exercise. Isotonic exercise also called dynamic exercise, is an exercise in which the tension applied to muscle remains unchanged while the length of opposing muscles changes such as when a contracting muscle shortens against a constant load, for example when lifting weights for the conditioning of a muscle group. Isotonic comes from the Greek "iso-", equal + "tonos", tone = maintaining equal (muscle) tone. The muscle maintains equal tone while shortening in isotonic exercise. In contrast, isometric exercise also called static exercise, is when muscular contractions occur without movement of the involved parts of the body. Isotonic exercises have two types of contractions one is Concentric contractions: when your muscle shortens as you overcome the force of a weight and second one is Eccentric contractions: when your muscle lengthens while being opposed by the force of a weight. For instance, when you are performing a bicep curl as you lift the weight up towards your shoulder your biceps perform a concentric contraction. When you bring the weight down, the contraction becomes eccentric. Your muscles are resisting the load of the weight throughout the whole range of motion.

In a concentric contraction the muscular force overcomes the resistance whereas in an eccentric contraction the resistance is too great to be overcome by muscular force. This leads to a lengthening of the muscle being subjected to the load. An example of an eccentric contraction would be trying to do bicep curls with a weight that is too heavy to get off the ground. Almost all bodybuilding exercises done with weights execute isotonic movements, primarily of the concentric kind. Isotonic exercises are great for maintaining your overall fitness. These usually performed using weights and is the action of your muscles resisting the load of the weight which makes these exercise so effective. The benefits of isotonic exercises include reduced body fat and enhanced muscle endurance.

Most forms of movement contain both types of exercise, although some are mostly isotonic (jogging, cross-country skiing, and swimming) and others isometric (weightlifting and speed skiing). Isotonic exercise causes a volume overload of the heart and an increase in oxygen consumption, heart rate, stroke volume, cardiac output, and systolic blood pressure. Owing to the decrease in peripheral resistance, the diastolic blood pressure may fall during isotonic exercise. After analyzing the above definitions, the researcher asserts that the purpose of study was to determine the effects of six week isotonic practice on shoulder strength, speed and power of cricketers between 17-21 years old. It was hypothesized those six weeks isometric practice will increase shoulder strength, speed and power of cricketers.

Methodology

To achieve the purpose of the study 20 male subjects were selected from M.M College Khekra between 17-21 years old. They were administered the training program of isotonic practice for six weeks that is; five day a week in the morning and evening time for one hour. The data pertaining for the criterion variable were taken before administering the training program of six week in relation to strength, speed and power. The standard tests were applied to collect data for above said variables. After completion of training a post-test data were taken on all the variables. The following tests were administered for data collection on selected variables.

Pull-ups: to measure the shoulder strength.

50 meter dash: to measure the speed.

Standing Broad Jump: to measure the power.

Collected data was analyzed with the help of SPSS computer software. Mean, standard deviation, standard error of mean and 't' test were used to compare the pre-test and post-test data.

Results

The following section of the report presents tables given a view of outcome of the study. The value of paired statistic of shoulder strength is given below in table.1, speed is in table no.2 and power is in table no. 3.

Table 3: Descriptive statistics of pre –isotonic v/s post- isotonic group of Cricketers in relation to shoulder strength (age group 17-21)

Group	N	Mean	S.D.	SEDm	t-ratio	d.f.
Pre-test	20	7.55	1.14	0.25	7.768	19
Post-test	20	9.25	0.85	0.19		

*Significant 't' 0.05 = 2.093

The table-1 shows that mean, standard deviation, standard error of mean with regard to pre data on shoulder strength were recorded 7.55, 1.14 and 0.25 respectively where in case of post data the same were recorded as 9.25, 0.85 and 0.19 respectively and 't' ratio 7.768 was found significant at 0.05 level.

Table 2: Descriptive statistics of pre – isotonic v/s post- isotonic group of cricketers in relation to speed (age group 17-21)

Group	N	Mean	S.D.	SEDm	t-ratio	d.f.
Pre-test	20	6.73	0.16	0.03	5.097	19
Post-test	20	6.32	0.29	0.06		

*Significant 't' 0.05 = 2.093

The table: 1 indicates that mean, standard deviation, standard error of mean with regard to pre data on shoulder strength were recorded 6.73, 0.16 and 0.03 respectively where in case of post data the same were recorded as 6.32, 0.29 and 0.06 respectively and 't' ratio 5.097 was found significant at 0.05 level.

Table 3: Descriptive statistics of pre–isotonic v/s post- isotonic group of cricketers in relation to power (age group 17-21)

Group	N	Mean	S.D.	SEDm	t-ratio	d.f.
Pre-test	20	1.89	0.08	0.02	10.914	19
Post-test	20	2.20	0.13	0.03		

*Significant 't' 0.05 = 2.093

The table-1 indicates that mean, standard deviation, standard error of mean with regard to pre data on shoulder strength were recorded 1.89, 0.08 and 0.02 respectively where in case of post data the same were recorded as 2.20, 0.13 and 0.03 respectively and 't' ratio 10.914 was found significant at 0.05 level.

Conclusion

On the basis of the results obtained the following conclusions are drawn:

1. There is a significant improvement in the shoulder strength of crickets after six week isotonic practices. Hence, the hypothesis is accepted.
2. There is a significant improvement in the speed of crickets after six week isotonic practices. Therefore, the hypothesis is accepted.
3. There is a significant improvement in the power of crickets after six week isotonic practices. Hence, the hypothesis is accepted.

References

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