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Effect of theraband resistance training on shoulder strength and core strength among kabaddi players

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Abstract
The purpose of the study was to find out the effect of Theraband resistance training on shoulder strength and core strength among Kabaddi players. To achieve the purpose of this study, 20 male Kabaddi players were randomly selected as subjects from Aditanar College of Arts and Science, Tiruchendur, Tamilnadu, India. Their age ranged from 18 to 25 years. The selected participants were randomly divided into two groups such as Group 'I' underwent Theraband resistance training (n=10) and Group 'II' acted as control group (n-10). Group 'I' underwent Theraband resistance training for four alternative days and one session per day and each session lasted for 45 minutes to an hour for six week period. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on shoulder strength and core strength were collected and administering by pushups test and plank test. The pre and posttests data were collected on criterion selected variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent-'t' test and Analysis of covariance (ANCOVA) for each and every selected variable separately. It was concluded that the Theraband resistance training group had shown significantly improved in shoulder strength and core strength. However the control group had not shown any significant improvement on selected variables such as shoulder strength and core strength.

Keywords: Theraband resistance training, shoulder strength, core strength, plank test

Introduction

The shoulder is a very complex joint that is crucial for most activities of daily living. Decreasing shoulder mobility is a serious issue. Various conditions can affect shoulder and the most important musculoskeletal condition being frozen shoulder. The term "Frozen shoulder" was first introduced by Codman in 1934. Long before, in 1872, the same condition was labeled as "Peri-arthritis" by Duplay. Theraband was created in 1978 in Akron, USA. These bands are safe, inexpensive and portable. Its unique properties are that it allows muscles to be stretched and relaxed in a smooth and consistent manner. This also prevents the bounce at the end of a range of motion exercise that can cause muscle spasms. The other major advantage is that it is not dependent on gravity for providing resistance. Theraband exercise is a revolutionary replacement to traditional static stretching devices. When used with dynamic contract-relax stretches, it helps to improve flexibility and muscle strength. Stabilize the humeral head and the pectoralis major, latissimus dorsi, serratus anterior; biceps and deltoid all contract to decelerate the arm. The latissimus plays a major role in controlling deceleration and diminishing the eccentric over load on supraspinatus tendon (Viswanath, 2018) [1]. Resistance exercise using the Theraband is simple and economical, and has safety advantages. It is generally used for rehabilitation purposes, because training can be selected case by case through free control of the loading intensity. Several studies have reported that strengthening exercise using the Theraband for the upper and lower extremities improves balance and strength abilities. Arumugam, (2018) [2] conducted a study on elastic resistance training and the results found that leg strength and shoulder strength can be improved by using which related to Theraband training. Guex *et al.* (2015) [3] found that maximal muscle strength, muscle endurance can be improved and muscle hypertrophy can be achieved by using Theraband. Theraband can be used as an alternative to other strength training sessions since they can be used in all age groups due to their low cost and extensive availability as well as operating more than one region at the same time; moreover, they can be applied anywhere without any difficulties (Iversen, 2017) [4]. In land training, different materials and training methods are used to increase the strength performance of Kabaddi players. Some coaches use resistance machines to increase the strength performance of Kabaddi players, while others prefer body weight, medicine ball, and core exercises. Recently, Theraband (resistance rubber) exercises have been used extensively to increase muscle strength and endurance (Mikesky, 1994) [5]. It is a well-known fact that the exercises performed with Theraband increases the strength and mass of the muscles to which they are applied (Page, 2005). Therefore, strengthening exercise with a Theraband in the body; thus, this is a suitable home-based exercise program for improving the balance and strength in activities of daily living of elderly adults. We evaluated the impact of Theraband resistance exercises on the shoulder and core strength among Kabaddi players.

Purpose of the study

The purpose of the study was to find out the effect of Theraband resistance exercises on the shoulder strength and core strength among Kabaddi players.

Methodology

To achieve the purpose of this study, 20 male Kabaddi players were randomly selected as subjects from Aditanar College of Arts and Science, Tiruchendur, Tamilnadu, India.

Their age ranged from 18 to 25 years. The selected participants were randomly divided into two groups such as Group 'I' underwent Theraband resistance training (n=10) and Group 'II' acted as control group (n-10). Group 'I' underwent Theraband resistance training for four alternative days and one session per day and each session lasted for 45 minutes to an hour for six week period. Group 'II' was not exposed to any specific training but they were participated in regular activities. The data on shoulder strength and core strength were collected and administering by pushups test and plank test. The pre and posttests data were collected on criterion selected variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent-'t' test and Analysis of co-variance (ANCOVA) for each and every selected variable separately.

Analysis of data

Table 1: Means and dependent 'T'-test for the pre and post tests on shoulder strength and core strength experimental and control groups

Criterion variables	Mean	Experimental group	Control group
Shoulder strength (numbers)	Pre test	25.37	24.98
	Post test	29.46	25.12
	't'test	11.34*	1.05
Core strength (seconds)	Pre test	74.45	73.81
	Post test	91 47	75 20
	't'test	7.56*	0.94

*Significant at. 05 level. (Table value required for significance at. 05 level for 't'-test with df 9 is 2.26)

From the table I the dependent-'t'-test values of shoulder strength and core strength between the pre and post tests means of experimental groups were greater than the table value 2.26 with df 9 at 0.05 level of confidence, it was concluded that the experimental group had significant improvement in the shoulder strength and core strength between while compared to control group.

Computation of analysis of covariance

The descriptive measures and the results of analysis of covariance on the criterion measures were given in the following tables.

Table 2: Computation of mean and analysis of covariance on shoulder strength and core strength of experimental and control groups

	Experimental group	Control group	Source of variance	Sum of squares	df	Mean square	F
Shoulder strength (Adjusted post mean)	29.24	25.08	BG	42.51	1	42.51	15.92*
			WG	45.39	17	2.67	
Core strength (Adjusted post mean)	92.85	76.32	BG	53.66	1	53.66	10.24*
			WG	89.08	17	5.24	

* Significant at 0.05 level. Table value for df 1, 17 was 4.45.

The above table indicates the adjusted mean value on shoulder strength and core strength of experimental and control groups were 29.24 & 25.08 and 92.85 & 76.32 respectively. The obtained F-ratio of 15.92 and 10.24 for adjusted mean was greater than the table value 4.45 for the degrees of freedom 1 and 17 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on shoulder strength and core strength.

Discussion on findings

Viswanath, Vengaiah & Madhavi, (2018) [1] evaluated the study on effect of Theraband resistance training versus resistance training using dumbbells on the strength of rotator cuff muscles in male recreational badminton players. Arumugam, (2018) [2] conducted the study on impact of elastic resistance training on leg strength and shoulder strength among cricket players. Aktug, Vural & Serkan, (2019) [7] evaluated the research on effect of Theraband exercises on motor performance and swimming degree of young swimmers. Agopyan, Ozbar & Ozdemir, (2018) [8] determined the paper on effects of 8-week Theraband training on spike speed, jump height and speed of upper limb performance of young female volleyball players. Suriya & Arumugam, (2018) [2] conducted the study on effect of suspension training on core strength and static balance among soccer players. Satheesh Kumar & Arumugam, (2018) [2] evaluated the article on influence of Swiss ball training on core strength and shoulder strength among school boys. Arumugam & Thanga Banu, (2019) conducted the research on effect of iron yoga practices on abdominal and core strength among women students. Arumugam, (2018) [2] analyzed the paper on bulgarian bag training effect on leg explosive power and shoulder strength among volleyball players. From above those supportive study the researcher intent to conduct this study, the result of the my study indicates that there was a significant improvement on shoulder strength and core strength due to the effect of Theraband resistance training among Kabaddi players when compared to control group

Conclusion

1. There was significant improvement on shoulder strength and core strength due to the effect Thera band resistance training among Kabaddi players of experimental group.
2. There was a significant difference between experimental and control groups on shoulder strength and core strength due to the effect of Thera band resistance training among Kabaddi players.
3. However the control group had not shown any significant improvement on any of the selective variables.

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