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Strength training program on hand grip strength: Tug of war

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Abstract

The purpose of the study was to see the effect of strength training program on hand grip strength. There were eight subjects who participated in the study. The duration of the training program was twelve weeks. Data was measured by the hand dynamometer. Pre data and post data were compared with pair t test in SPSS. The result showed that hand grip strength was improved by the strength training program on tug of war.

Keywords: Tug of war, hand grip, dynamometer

Introduction

Grip strength is a measure of muscular strength, or the maximum force/tension generated by one's forearm muscles. It can be used as a screening tool for the measurement of upper body strength and overall strength. It is most useful when multiple measurements are taken over time to track performance. Strength is a vital attribute of tug of war, with high levels of grip, back, and leg strength being essential to resist the large forces generated by the opposing team. It may seem like a game where the strongest wins, but Tug of War is more than a test of strength. Even before the game begins, athletes have to flex their cognitive skills. Strength is a key component of tug of war, as strong grips, backs, and legs are required to withstand the powerful pressures produced by the other team. Against a strong resistance, muscles contract primarily isometrically in cycles of gradual concentric and eccentric contraction. In fact, it has been demonstrated that poor grip strength is a good indicator of shoulder health. It was found in a 2016 study that there is a significant relationship between grip strength and lateral rotator strength, which was published in the sports science journal *Shoulder & Elbow*. And there are numerous exercises that strengthen the hand grip.

Selection of subjects

- For the purpose of research, 8 subjects were selected.
- Age ranging from 18 yrs. to 24yrs.

Selection of variables

Independent variable: Hand strength training.

Dependent variable: Grip strength.

Selection of test: Hand Dynamometer was used to measured grip strength.

Procedure

The subject holds the dynamometer in the hand that will be tested, holding the elbow close to the body and the arm at a straight angle. If necessary, the dynamometer's handle can be modified such that the base rests on the first metacarpal (the heel of the palm) and the handle rests on the middle of the four fingers. When ready, the participant squeezes the dynamometer as hard as they can isometrically and holds that position for around Ten seconds. Other forms of movement are not permitted. The subject needs to be pushed hard to put out their best effort.

Finding

Table 1: Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Data	51.6250	8	3.88909	1.37500
	Post Data	56.7500	8	3.65474	1.29215

A paired samples T-Test was conducted to see the impact of the SPSS training program on subject test scores. The results showed a significant increase in the marks of the subjects before (M= 51.62, SD= 3.88) to after (M=56.75, SD=3.65).

Table 2: Paired Samples Test

		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Data - Post Data	-5.12500	1.24642	.44068	-6.16704	-4.08296	-11.630	7	.000

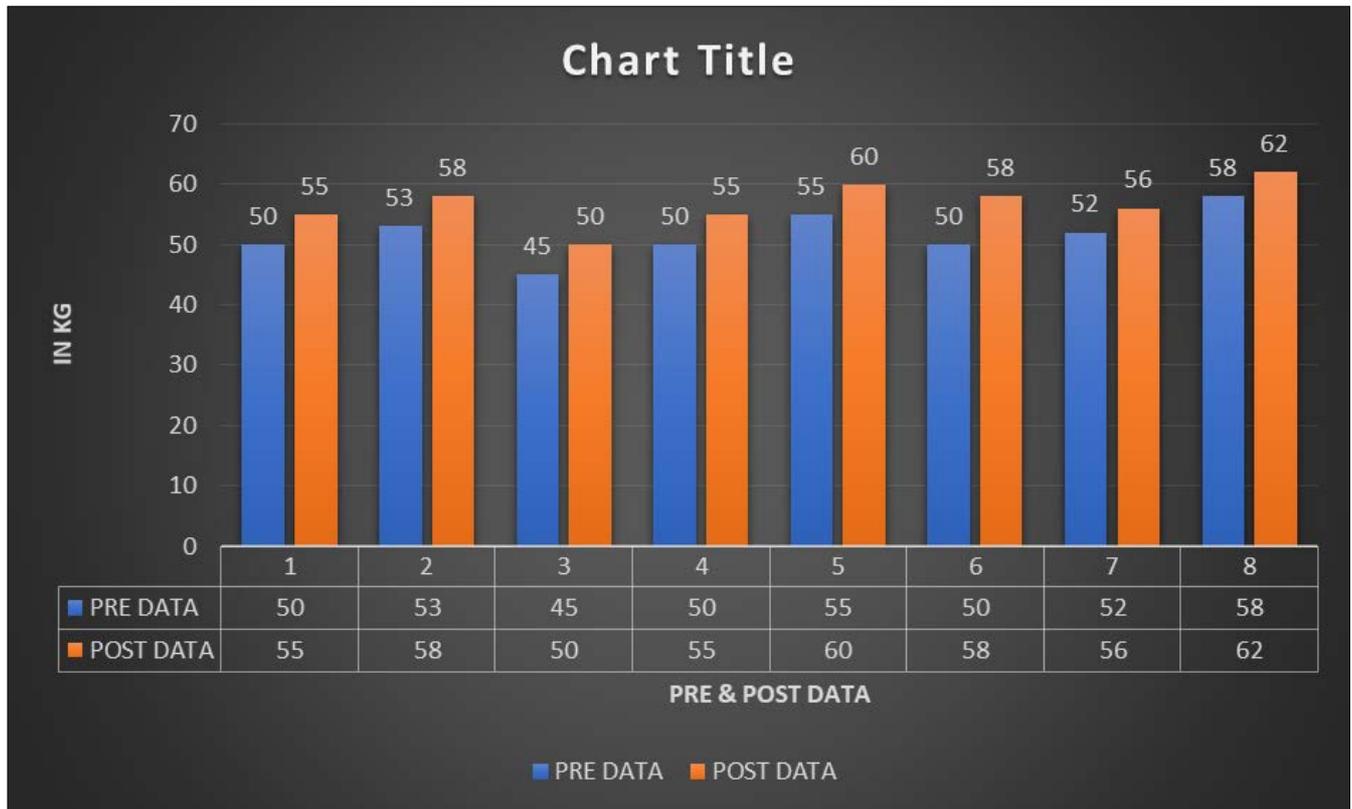


Fig 1: Mean of pre and post data

The two blue & orange columns in the histogram are used to display the pre data and the post data, respectively. This graph displays the tug-of-war competitors' performance. Each player's grip power is increasing.

Conclusion

On the basis of analysis of data, it was concluded that there was significant difference in the strength of subjects after the administration of the strength training for the time period of twelve weeks.

Increase in your performance after finishing a strength training program that focuses on hand grip strength for tug of war. Based on the program's efficacy, we may draw the following conclusions:

1. **Enhanced Hand Grip Strength:** The main objective of the training programme was to improve hand grip strength, and the outcome would probably be a discernible improvement in this area. Regular training activities like grip squeezes, wrist curls, and farmer's walks may increase the muscle strength and stamina in the hands and forearms.
2. **Enhanced Tug of War Performance:** With increased hand grip strength, would have a stronger grasp on the rope during tug of war competitions. This can provide with a

competitive advantage by allowing player exert more force and resist opponents' attempts to pull the rope away from player. Improved grip strength may contribute to better overall performance in this sport.

3. **Injury Prevention:** Hand and forearm strengthening exercises may assist shield players from harm while playing tug of war. The improved strength and stability in these regions may provide greater support for the joints, lowering the possibility of strains, sprains, or other associated ailments during strenuous pulling movements.
4. **Transferable Benefits:** Although the program's main goal was to improve hand grip strength, it's important to note that the training may also have a good impact on other facets of athletic performance. Push-ups, pull-ups, wrist curl, plate pi NCH, finger stretch, claw stretch that involve gripping and moving items may all benefit from increased grip strength.

In conclusion, a well-designed strength training program focused on hand grip strength can lead to significant improvements in the performance of tug of war, increasing grip strength, enhancing overall performance, preventing injuries, and potentially benefiting other related activities as well.

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