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## THE EFFECT OF 8 WEEKLY TERABANT TRAINING ON FREE STYLE SWIMMING PERFORMANCE IN 11-14 AGE GROUP FACTORS

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### ABSTRACT

This study aims to investigate the effect of 8-week terabant training on 25 meters, 50 meter and 100 meter Freestyle Swimming performances in male swimmers between 11-14 age group. To have 7 experiments and 7 control groups between 11-14 years old who work in Van Olympic Swimming pool. a total of 14 male swimmers. Terabant exercises were applied to the participants in 8 weeks, 3 days a week and 60-75 minutes per day. The effects of the 25m, 50m and 100m Freestyle Swimming performances of the terabant exercises performed by pre-test and post-test were investigated. Paired-Samples t-test was used for pre-test and post-test analysis of the experimental and control groups after the 8-week training program. The data were analyzed with SPSS 17.0 package program. Length, weight, 25 meters, 50 meters and 100 meters Freestyle Swimming degrees were taken before and after the training. The difference between the pre and post tests of the 25, 50 and 100 meter Freestyle Swimming performances of the experimental group were statistically significant ( $p < 0.05$ ). It can be said that the 5-week terabant training provided a positive contribution to free-style swimming performances.

**Keywords:** Terabant, Training, Swimming

### 1. INTRODUCTION

Swimming is a popular sport in all age groups and provides very good cardiovascular fitness without the need for stressful activities in the musculoskeletal system. For this reason, swimming is a very good form of exercise for obese children. It is also a good option for those with asthma due to high temperature and humidity. In addition, swimming in sufficient intensity to develop physical fitness and spend calories as a negative trait requires a certain skill (Selcuk, 2013).

For children, sport is important both in physical development and social aspects. Through sports, the child recognizes his / her environment, communicates, increases his / her self-confidence and strengthens his / her place in society. From a psychological point of view, it shows many positive developments such as self-control, being able to concentrate on a subject, using its will and being motivated for success. Especially the contribution of the swimming branch to the physical and mental development of children has been revealed in many scientific studies and important studies have been carried out to direct children to this branch (Sevim, 2002).

Swimming is a set of meaningful movements that an individual makes to cover a certain distance in water. Sportive swimming is defined as the ability of the athlete to cover certain distances as soon as possible in the liquid. Swimming branch is a sports branch where the risk of disability is lower than other branches and the motoric features can contribute to the development. In order to achieve sporting efficiency in this branch, the athlete must start sports at an early age, be run by a coach with good technical knowledge, and receive support from the family and school environment. If a swimmer wants

to be successful in swimming, he should do regular training with quality training programs and pay attention to rest and nutrition (Gunay, 2007, Turgut, Arıkan and Sarıkaya, 2014).

- The benefits of swimming can be listed as follows:
- Enhances heart and lung capacities by strengthening the heart.
- Improves durability and flexibility.
- Contributes to the development of muscle and balance properties.
- Change the physical appearance, regulate the circulatory system.
- Protects against diseases such as varis.
- Increases energy usage capacity and contributes to weight control.
- Reduces stress and tension.
- In joints such as inflammation of joints and ligaments less strain is recommended because of the type of exercise.
- Can be used for physical and rehabilitation purposes by treating muscle weakness.
- It is especially useful in individuals with weight problems, pregnant and inactive people (Celebi, 2008).

Free technique is the fastest among competition techniques. It consists of a right arm, a left arm traction and a variable number of foot strokes. There are 6 foot kick, 4 foot kick and 2 foot kick options. In the free technique, technical errors generally occur in the arm technique. Athletes should be able to have the right arm technique so that they can catch the water ahead and push it backwards with the right technique. This can be achieved by the minimum friction (Bozdoğan & Ozuak, 2003).

Muscle strength increases with age in children. In adolescence, there is a significant increase in muscle strength. In sports based on muscle strength and speed, the development occurs gradually as the age progresses. Therefore, efforts to achieve early success by forcing children more than necessary at very early ages may have negative effects on the child's physical development (Yılmaz, 2001).

Strength training provides the following benefits to children when applied consciously;

- Increase in muscle strength and durability,
- Sports performance improvement,
- Having the habit of exercising throughout life,
- Less injury,
- Increase in bone mineral density,
- Development of body structure and having a proper posture and structure,
- Positive effect on psychological structure, increase in a personal discipline (Zatsiorsky and Kraemer, 2006).

Today, elastic bands are used in rehabilitation after disability, in increasing the functional capacity of elderly individuals, in chronic diseases and in increasing the functional capacity of athletes. As the elastic bands' extent, the resistance produced decreases. The resistance of elastic bands increases the strength and mass of the muscles to which they are applied. With elastic resistance training, we can effectively and efficiently operate single or multiple joints at the same time. Elastic bands do not work due to gravity, such as resistance machines, they are distinguished from resistance machines (Page and Ellenbecker, 2005).

## 2. INDIVIDUALS AND METHOD

### 2.1. Subjects

The study group consisted of 14 male swimmers (7 experimental and 7 control groups) aged 11-14 who were doing sports in Van Olympic Swimming Pool. The participants were given terabant exercises for 8 weeks, 3 days a week (Wednesday, Friday, Sunday) within the 60-75 minute program. While the control group continued normal swimming training, terabant exercises were applied for 8 weeks in addition to the swimming training of the experimental group. After the 8-week training program, Paired-Samples t-test was used for the pre-test and post-test analyzes of the experimental and control groups. Age, height, weight, 25 meters, 50 meters and 100 meters measurements were taken. The data obtained were analyzed with SPSS 17.0 package program.

### 2.2. Anthropometric Measurements

**Length Measurement:** A wall scale with a sensitivity of 0.1 cm was used for height measurement. The athletes' feet were bare or the measurement was made with socks whose thickness could be ignored. During this measurement, it was ensured that no object could affect the measurement at the beginning of the athletes. While taking measurements, the body and head are upright, the soles of the feet are on the ground and adjacent to the scale, arms are freely hanging from side to side. Under these conditions, the length value on the scale was read. The obtained value was recorded with a sensitivity of 0.1 cm (Ozer, 1993, Sarikaya, Selcuk, Gencer, Temur and Ontürk, 2017).

**Weight measurement:** 0.1 kg weighing scale was used for this measurement. There were no clothing that would affect the weight of the athletes. The athletes stood on the scale, looking upright, and the reading was recorded in kg (Sarikaya, Cinar and Selcuk, 2016).

**Training Program:** Experimental group received regular terabant exercises 3 days a week (Wednesday, Friday, Sunday) for 8 weeks. 20 minutes of warm-up exercises were applied in each training session. The main stage in the training of the experimental group lasted 40-60 minutes. During the main phase of the training, basic swimming exercises were applied to the groups. At the end of the unit training on Wednesday, Friday and Sunday 3 days a week, terabant studies were applied in addition to water and land swimming studies, while no control group was applied. Active and passive stretching exercises and cooling exercises were performed after each training session.

**Terrabant or elastic band exercises:** Elastic bands are used in rehabilitation after disability, increasing the functional capacity of elderly individuals, chronic diseases and increasing the functional capacity of athletes. As the elastic band's extent, the resistance produced decreases. The resistance of elastic bands increases the strength and mass of the muscles to which they are applied. With elastic resistance training, we can effectively and efficiently operate single or multiple joints at the same time. Elastic bands do not work due to gravity, such as resistance machines, they are distinguished from resistance machines (Page and Ellenbecker, 2005).

**25 Meters Swimming Test:** Swimming measurements were made in Van Olympic swimming pool. The pool is 50 meters long and 3 meters deep. Before the test, the athletes warmed up on land and swim 100 meters of free-style warm-up in water. Test pool sprint board Ready... Exit! The time from the moment the athlete pushed the sprint of the pool with his foot until the fingers reached 25 meters was measured with a stopwatch. Distance freestyle swim (Soydan, 2006)

**50 Meters Swimming Test:** Swimming measurements were made in Van Olympic swimming pool. The pool is 50 meters long and 3 meters deep. Before the test, the athletes warmed up on land and swim 100 meters of free-style warm-up in water. Test pool sprint board Ready... Exit! The time from the moment the athlete pushed the sprint of the pool with his foot to the moment he touched the opposite wall was measured with a hand stopwatch. Distance freestyle swim (Soydan, 2006)

**100 Meters Swimming Test:** Swimming measurements were made in Van Olympic swimming pool. The pool is 50 meters long and 3 meters deep. Before the test, the athletes warmed up on land and swim 100 meters of free-style warm-up in water. Test pool sprint board Ready... Exit! It was started from the moment when the athlete pushed the sprint of the pool with his foot. The test was completed when the

athlete completed the distance of 100 meters and touched the wall with his hands. Distance freestyle was a swim and test time was measured by hand stopwatch (Soydan, 2006).

**Table 1.** Terabant of Training Schedule

NO	Exercise Type	1 Week	2 Week	3 Week	4 Week	5 Week	6 Week	7 Week	8 Week
1	BICEPS CURL	2x2	2x2	2x2	2x2	2x3	2x3	2x4	2x4
2	RIGHT FRONT RAISE	2x2	2x2		2x3	2x6	2x6		2x8
3	LEFT FRONT RAISE	2x2	2x2		2x3	2x6	2x6		2x8
4	HIP ABDUCTION	3x2	3x2	3x2	3x3	3x3		3x10	
5	HIP ADDUCTION	3x2	3x2	3x2	3x3	3x3		3x10	
6	TRICEPS KICK BACK	3x3		3x4		3x6	3x6	3x8	3x8
7	BACKSTROKE BUTTERFLY		3x6	3x6	3x8		3x8	3x10	3x10
8	BACKSTROKE FROG			3x6	3x8			3x10	3x10
9	PUSH UPS	2x2	2x2	2x2	2x2	2x2	2x2	2x2	2x2
10	RIVERSE CRUNCH		3x8	3x8		3x10	3x10		3x12
11	HIP FLEKSIYON	3x2	3x2	3x2		3x3	3x8	3x10	3x10
12	HIP EXTENSIYON	3x2	3x2	3x2		3x3	3x8	3x10	3x10
13	SQUAT VE BENCH PRESS	3x6		3x6	3x6	3x6	3x8	3x8	3x8
14	UPRIGHT ROW	2x2	2x2	2x2	2x4	2x4		2x6	2x6
15	SCAPULAR RETRACTION	3x3	3x3	3x3		3x6	3x6	3x8	
16	RIGHT / LEFT UPRIGHT	3x2	3x2	3x3	3x3	3x4	3x4	3x5	3x5
17	LATERAL RAISE		2x4	2x4	2x6		3x8		3x12
18	LEG PRESS	3x3	3x3		3x6	3x6		3x8	3x8
19	LUNGE	3x8	3x8	3x8	3x10		3x10		3x12

### 3. RESULTS

**Table-2** Age, Height and Weight Distributions of Experimental and Control Groups

PARAMETERS	Age Range	Experimental Group	Control Group
		N=7 X±SS	N=7 X±SS
Age (years)	11-14	13,42 ± ,78	11,71 ± ,48
Height (cm)		162,28 ± 11,01	149,28 ± 7,18
Weight (kg)		52,85 ± 15,07	38,85 ± 5,24

As seen in Table 2, the age, height and weight distributions of the experimental and control groups were the average age of the experimental group (13.42 ± ,78), height (162.28 ± 11.01), weight (52.85 ± 15.07). The mean age of the control group (11.71 ± ,48), height (149.28 ± 7.18), weight (38.85 ± 5.24) were found.

**Table-3** Test Group Test Analysis

TESTS		Mean	N	Standart Deviation	T	P
25 meters	PRE-TEST	17,05	7	,763	13,56	,000
	POST-TEST	14,52	7	1,02		
50 meters	PRE-TEST	39,30	7	3,55	14,04	,000
	POST-TEST	36,84	7	3,17		
100 meters	PRE-TEST	84,48	7	8,84	11,33	,000
	POST-TEST	81,12	7	8,88		

**Table-4** Control Group Test Analysis

TESTS		Mean	N	Standart Deviation	T	P
25 meters	PRE-TEST	22,69	7	3,98	-,647	,541
	POST-TEST	23,01	7	4,53		
50 meters	PRE-TEST	53,35	7	10,27	-,722	,497
	POST-TEST	53,82	7	10,55		
100 meters	PRE-TEST	121,32	7	23,71	-1,65	,150
	POST-TEST	123,39	7	25,33		

#### 4. CONCLUSION

In this study, while 8 weeks of terabant exercises were applied to the experimental group, no training program was applied to the control group. The effects of 25 meters, 50 meters and 100 meters freestyle swimming performances of terabant exercises performed by pre-test and post-test were examined. As a result of the 8-week training program, a significant change was observed in the freestyle swimming performances of the experimental group.

Resistance trainings are carried out using various equipment. It is reported that the use of weight machines is ideal when starting resistance training programs (ACSM, 2002). However, working with weight machines requires facility and financial resources. It is controversial whether the use of weight machines is the ideal option for public access to these machines or home use (Colado and Triplett 2008). The use of elastic resistance devices such as elastic bands for the development of muscular fitness is increasing because it is more economical, more accessible and can be used anywhere than weight machines (Hostler et al. 2001, Thomas, Mueller and Busse, 2005). Concentric and eccentric contractions and elastic resistance bands (Patterson, Stegink, Hogan and Nassif, 2001) that allow exercises to be performed over a wider range of motion (Patterson et al, 2001) allow for a more secure and controlled exercise with varying width and stiffness (resistance level) for low or high intensity exercises (ACSM, 2002; Kraemer et al, 2001)

This study was carried out using elastic bands with different resistance properties. Many studies have examined the effects of training with elastic resistance bands. However, it was applied intensively in the middle and older age groups for rehabilitation purposes (Colado et al, 2012; Coladoand Triplett 2008, Egana, Reilly and Green, 2010, Han, Ricard, Fellingham,2009, Selcuk, Cinar, Sarikaya and Oner, 2018).

Umut Canli (2017) stated that there was an increase in shooting the performance and all biomotor values of the study group where teraband strength training and basketball training were performed. In another study, the relationship between non-invasive laboratory measurements of muscle strength and sprint (50m) and mid-range (400m) swimming performance was examined. There is a strong relationship between swimming performance (Hawley, Williams, Vickovic and Handcock, 1992). In our study, it was observed that the group providing strength with the elastic band had better 50m swimming degrees compared to the group that only trained in swimming (Selcuk, 2013).

Tanaka and Swensen (1998) stated that traditional resistance training is an important part of training programs of endurance athletes or cycling athletes, but more specific forms of resistance training are needed to perform performance development of swimming athletes. When the literature was examined, Yapici, Maden & Findikoglu (2016) divided 22 swimmers with an average age of  $14.13 \pm 0.88$  years into 3 groups training. At the end of the program, they found a significant decrease in swimming degrees in all three groups and reported a more positive increase in both knee flexion extension muscle strength and swimming degrees in the swimming + land + resistance training group compared to the swimming + land training group.

The study examined the effects of dumbbell and elastic band exercise on 22 elderly women (62-94 years) living in the city in Africa and America and performed chair-centered exercises using elastic resistance bands (upper and lower body) and dumbbell (upper body). Elastic band training increased upper body strength and lower body strength. In addition to a 10% improvement in balance, mobility and agility, there was a 5% increase in grip strength. This study demonstrates that exercises with equipment costing only a few dollars per participant can improve the upper and lower body strength of African American women living in urban settings (Rogers, Sherwood, Rogers and Bohlken,2002).



As a result; When the 8-week swimming training and terabant training on the ground were compared before and after the training, positive changes were observed in the development of athletes aged 11-14. It is thought that it is important to plan the resistance trainings according to the level of children and to follow them very carefully for optimum efficiency.

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