



Effect of Regular Swimming on Health Related Physical Fitness of Visva-Bharati Girl Students

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ABSTRACT: Flexibility is an integral component of physical conditioning in swimmers. Regular training of swimming helps to increase the ability of muscles to pull swimmers through the water and the less turbulence you create as you move through the water, the faster you will go. The aim of this investigation was to see the effect of regular free style swimming on health related fitness of Visva-Bharati girl students. 30 Visva-Bharati girl students who were participating 40 min. regular swimming (free style technique) for 30 days, has been tested pre test and post test on selected components of health related fitness. Flexibility, muscular strength and endurance have been improved by regular swimming. Regular swimming has improved the health related fitness status of Visva-Bharati girl students.

Key words: Flexibility, muscular strength, free style, health related fitness.

Introduction:

The modern world has become very much dependent on machine. The physical movement of the individuals has been reduced due to mechanical assistance. For this they have faced many physical and mental problems. These problems can be minimised by engaging our self in some physical activities like swimming, jogging, walking, free hand exercise etc. Researches have proved that various physical activities may have positive effects on wellness. Swimming delivers all the key benefits of an effective fitness program, without stressing out your precious joints. The built-in resistance of water promotes muscle strength, endurance and flexibility all things you need to be a good swimmer. The resistance benefits of training in water combined with the aerobic activity of swimming mean you hit all five components of fitness swimming. That makes swimming one of the best fitness bargains around (Ayala).

Flexibility is an integral component of physical conditioning in swimmers (Smith et al. 2002). Flexibility is the ability to achieve optimal positions in the water for the application of force and the minimization of drag. Efficiency of movement requires the appropriate amount of joint motion (Blanch & Fitzgerald 1998). It is well

known that poor flexibility predisposes the swimmer to injury (Fowler & Webster-Bogart 1996). Flexibility, leg strength and endurance are important component in swimming. Emphasis should be placed on the achievement and maintenance of flexibility in related joints, strength and endurance of leg and abdominal muscles both. Excessive flexibility, in the absence of adequate control, may also be detrimental to swimmers performance or predispose to injury. In free style swimming the leg strength, cardiovascular endurance is one of the main components of swimmers success.

In swimming, the training of flexibility helps to increase the ability of muscles to pull swimmers through the water and the less turbulence you create as you move through the water, the faster you will go (Hagerman 1995). However, there is conflicting information about the influence of flexibility on swimming results. For example, Maglischo (1982) and Rutemiller (1990) did not find significant relationships between joint flexibility and swimming performance. The aim of this investigation was to study the possible relationships between regular swimming and selected health related fitness components of Visva-bharati girl students (free style swimmers)

Aim and objectives:

The aim of the present study is to see the effect of regular swimming on health related physical fitness.

Materials and methods:

30 Visva-Bharati girl students aged 11 to 18 years have participated in 40 minutes regular swimming (free style technique), has been tested pre and post test on selected health related physical fitness components namely flexibility, muscular strength & endurance and body composition. The study was conducted during the summer vacation. The testing procedures have been explained properly to the students and they have given their consent to participate in the experiment. Body Mass Index (BMI) was calculated by **weight in Kg/height in meter²** to measure the body composition. One minute bent knee sit ups were conducted to measure the abdominal strength and endurance. The flexibility was measured by sit and reach test in cm. The leg strength was measured through vertical jump in cm. The students have practiced swimming in the morning as well as in evening. Descriptive statistics were used. Further Paired 't' test has been applied to see the significant difference at .05 level of confidence.

Result and discussion:

TABLE – 1
Descriptive statistics of health related physical fitness components

Components	Mean		SD	
	Pre test	Post Test	Pre Test	Post Test
Abdominal strength & endurance	22.46	25	7.69	6.93
Flexibility	7.3	9.2	5.15	4.50
BMI	25.89	25.78	3.86	3.59

Figure 1

Muscular strength and endurance
Bharati girl students

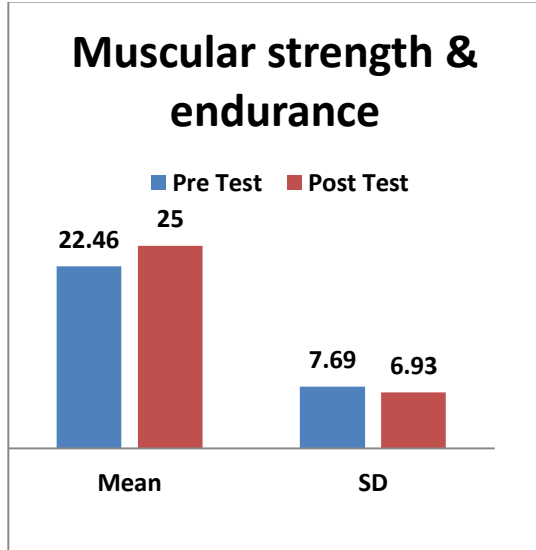


Figure 2

Flexibility of Visva-Bharati girl students of Visva-

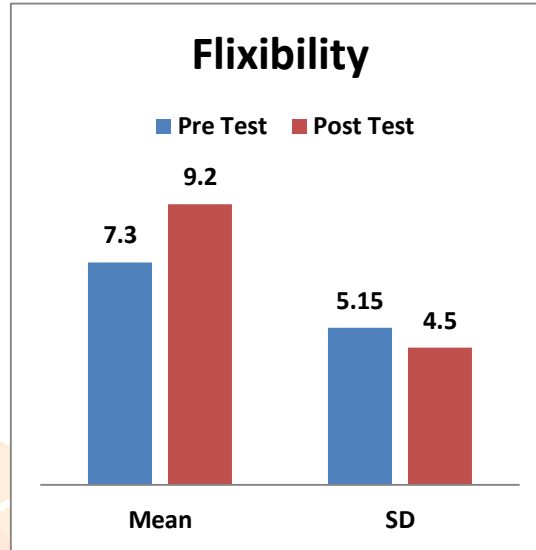


Figure 3

BMI of Visva –Bharati .

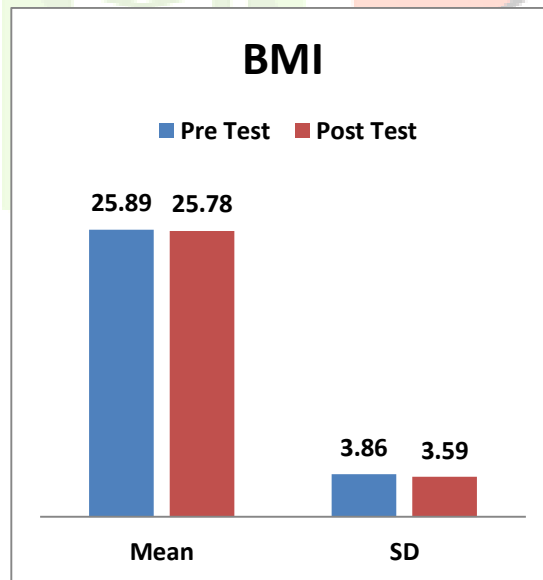


Table - 1 is showing the mean and standard deviation of various selected health related physical fitness components. The differences of mean and standard deviation of various health related fitness components has been shown by graphical representation in Fig.1 to 3.

TABLE:-2**Paired 't' test of health related physical fitness components**

Component	df	't'
Muscular strength & endurance		5.17
Flexibility	29	4.98
BMI		0.93

* Significant at .05 Level.

Tab't'.05 (df = 29) = 1.699

Table - 2 is showing the significant difference of pre test and post test of regular swimming for muscular strength & endurance, flexibility as the calculated 't' value i.e. 5.17, 4.98, respectively is greater than the Tab't'.05 (df = 29) = 1.699. Though there is no significant difference found in the BMI result as the calculated 't' value 0.93 is lesser than Tab't'.05 (df = 29) = 1.699.

Discussion:

Finding from statistical analysis have revealed and established significant differential training effect of swimming on selected health related physical fitness components of the Visva-Bharati girl students. As revealed by statistical analysis significant differences of pre & post training effect of 4 weeks regular swimming, can be seen.

It is well known that in some flexibility tests, for example simple sit-and-reach test, results depend on anthropometrical parameters (Jackson & Langford 1989, Shephard et al. 1990). Swimming burns calories and it is an excellent fitness activity for achieving healthy body composition and fibulas tone (Ayala), The flexibility has been improved due to wide range of motions involved in swimming when strokes are performed (Emmet Hines.2008), may be the reason of improving of flexibility.

Exercise in water adds natural resistance to the work out, which helps to build stronger muscles and upping resistance of water can build both muscular endurance and strength (Ayala), may be the reason of improvement of muscular strength and endurance.

Swimming burns calories and it is an excellent fitness activity for achieving healthy body composition and fibulas tone (Ayala), if it is practiced continuously. It may be the reason only 4 weeks swimming could not show significant improvement in Body composition. Further by doing swimming if you are to training get i set for a certain competition or lose weight by specific deadline, this can be problematic (Brian willett). Though the little improvement in mean BMI can be seen in Fig. 3.

Conclusion:

Four week regular swimming classes of Visva-Bharati girl students have shown the following changes;

1. The muscular strength and endurance has been improved.
2. The flexibility has been increased.
3. There is no significant changes can be seen in BMI.

References:

1. Blanch, P. & Fitzgerald, R. (1998): Flexibility. - Australian Swimming and Fitness 412, 44- 48.
2. Brian Willett, “Water Sports and Fitness, Advantages & Disadvantages of Swimming”, <http://woman.thenest.com>.
3. Christy Ayala, “Water Sports and Fitness, 5 Components of Swimming Fitness” <http://woman.thenest.com>.
4. Emily Meier, Swimming <http://www.jstor.org/stable/25126159>
5. Emmett Hines, "Fitness Swimming", eBook, ISBN-13: 9780736081504, 2008.
6. Fowler, P.J. & Webster-Bogart, M.S. (1996): Swimming. - In: Reider, B. (ed.): Sports Medicine: The School-Age Athlete. Second edition. - W.B. Saunders, Philadelphia, pp. 471- 489
7. Hagerman, P.S. (1995): Flexibility for Swimming. - NSCA's Perf. Training J. 1, 12-16.
8. Maglischo, E. (1982): Swimming Faster: A Comprehensive Guide to the Science of Swimming. - Mayfield Publishing Company, Palo Alto.
9. Rutemiller, B. (1990): Outmuscling Goliath. - Swimming Technique 27, 21-23.

