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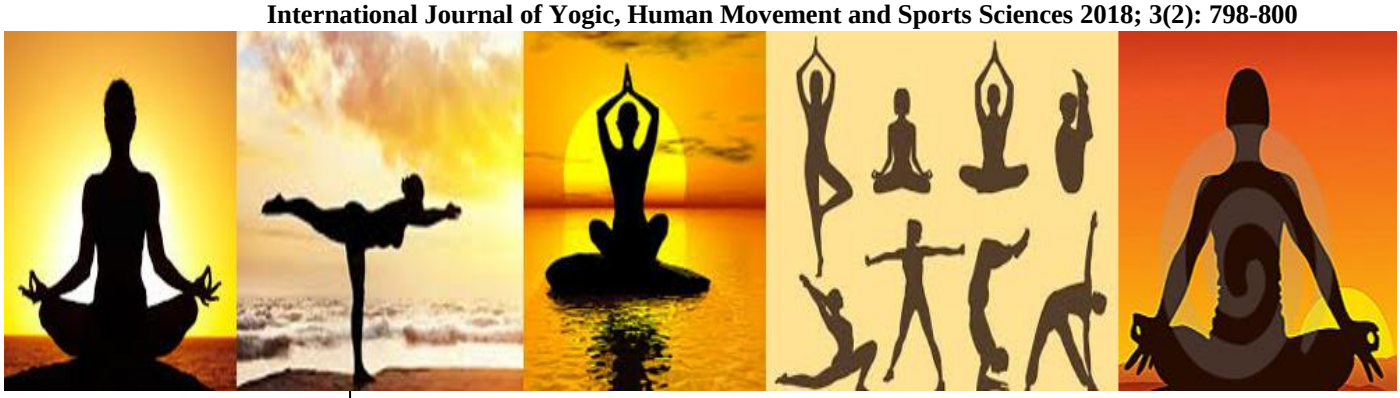

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Effect of walking cycling and swimming on physiological changes among overweight men

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Abstract
The purpose of the study was to find out the effect of walking cycling and swimming on selected physical fitness variables among overweight men. To achieve this purpose, forty eight overweight men (BMI=from 25 to 29.9kg/m^2) were randomly selected subject from various faculty of Vel Tech University, Chennai, Tamil Nadu, India as subjects. The selected subjects age, height and weight range were 34 ± 4 years, 167 ± 8 cm and 77 ± 14 kg respectively. They were randomly split into four equal groups, and all groups contains of twelve (n=12) subjects in each, in which they known as group I walking group, group II cycling group and group III swimming group. The group IV would be considered as control group, which did not undergo any specific training programme except their regular activities. The physiological variables such as vital capacity and VO_2 max were selected as criterion variables and tested. The walking, cycling and swimming training protocols administered for six days per week you twelve weeks. In every day training session, the practice lasted approximately between forty-five minutes and an hour, which included warning up and relaxation. The date on selected variables on prior and after the training programme were statistically analyzed by using ANCOVA and scheffe's post hoc test to find the significance and paired mean differences. The magnitude of improvement also be observed that the percentage of improvement due to training. The result shows that there was a significant improvement among experimental groups on selected physical fitness variables due to respective training protocol.

Keywords: Walking, cycling, swimming, vital capacity and VO_2 max

Introduction
Walking gait is fundamental to the survivability of all terrestrial animals. We humans are biomechanically designed to walk and walk and walk. "A quadruped has a greater amount of horizontal forward thrust than a biped; that's why we lose speed and agility when we became upright (Tanaka, 2009) [5]. In the quadruped posture, the centre of mass lies well forward of the hind limbs. The upright posture, in contrast, places our centre of mass almost directly over the foot. The individuals lose horizontal thrust and thus lose speed," The centre of mass is like a point on the body where, the strike a rod through it, the body would be evenly balanced in all directions, just as a wheel is around its axle (Brown, 1993) [1]

Thus, the research scholar is interested to verify and justify the findings of medical research which states that brisk walking programme are equally effective in improving body fat and Cardio vascular disease as expensive medical fitness programs, one can adopt simple and effective way of walking to remain fit and healthy. In today's times, people are leading a very unhealthy lifestyle. Inadequate sleep, eating disorder, lack of proper regular exercise, increasing rate of obesity and other health diseases, shooting stress levels are some of the facts that define the contemporary world's lifestyle. It can be said that in the present era, human beings have got so engrossed in earning money, that they have virtually stopped paying attention to their physical and mental fitness (Tanaka, 2009) [5]

People don't realize the fact that money cannot buy them happiness. There is a saying that "if wealth is lost, something is lost, but if health is lost, everything is lost." So, it's high time, we start giving importance to our health and make a constant effort to work towards maintaining our all round fitness (Huei-Ching Yang, 2014) [3].

There are distinctive types of workout that one can perform in order to keep fit, but one exercise that is suitable for all age groups is brisk walking. The present study was therefore

undertaken for better understanding of the effect of brisk walking on health related physical fitness and physiological variables of sedentary college student.

Methodology

Selection of Subjects

To achieve the purpose of the study, forty eight overweight men (BMI=from 25 to 29.9kg/m^2) were randomly selected subject from various faculty of Vel Tech University, Chennai, Tamil Nadu, India as subjects. The selected subjects age, height and weight range were 34 ± 4 years, 167 ± 8 cm and 77 ± 14 kg respectively. They were randomly split into four equal groups, and all groups contains of twelve (n=12) subjects in each, in which they known as group I walking group, group II cycling group and group III swimming group. The group IV would be considered as control group, which did not undergo any specific training programme except their regular activities.

Selection of Variables

The physiological variables such as vital capacity and VO_2 max were selected as criterion variables and tested. The walking, cycling and swimming training protocols are selected as Independent variables for present study.

Training Programme

During the training period, group I underwent walking training, group II underwent cycling training and Group III underwent swimming training. The whole experimental programme was implemented for six days per week for twelve weeks. In every day training session, the practice lasted approximately between forty-five minutes and an hour, which included warning up and relaxation. The Experimental groups underwent their respective training programme under the supervision of the researcher.

Statistical Procedure

The analysis of variance (ANOVA) was used to find the difference among the group if the difference on initial and final mean. After eliminating the influence of pre-test, the adjusted post-test means of experimental groups were tested for significance by using ANCOVA. In addition to this, Scheffe's post-hoc test will be employed, when the F-ratio of the adjusted post-test means is significant, to find out the paired mean difference if any among the groups for each variable, separately. Further the magnitude of improvement between pre and post data of experimental groups and control group assess by using percentage calculation on selected criterion variables. The level of confidence is fixed at 0.05, for significance.

Table I: Ancova Of Walking Group Cycling Group Swimming Group And Control Group On Selected Physiological Variables

Test / Variables	Walking Group	Cycling Group	Swimming Group	Control Group	SOV	SS	df	MS	F
Vital Capacity	2.71	2.76	2.85	2.54	**B**	0.608	3	0.203	**80.49***
					W	0.108	43	0.003	
VO_2 MAX	37.49	38.42	40.08	35.50	**B**	131.51	3	43.839	**95.59***
					W	19.720	43	0.459	

*Significant at 0.05 level.

Table II: Scheffe's Post Hoc Test on Paired Mean Differences on Selected Physiological Variables

Test / Variables	Walking Group Vs Cycling Group	Walking Group Vs Swimming Group	Walking Group Vs Control Group	Cycling Group Vs Swimming Group	Cycling Group Vs Control Group	Swimming Group Vs Control Group
Vital Capacity	0.045*	0.139*	0.178*	0.094*	0.223*	0.317*
VO_2 MAX	0.931*	2.593*	1.990*	1.662*	2.922*	4.583*

*Significant at 0.05 level.

There was a significant difference among walking group, cycling group and swimming group and control group on Vo_2 Max and vital capacity among overweight men. Further, the table also shows that the paired mean difference on selected variables found significant difference on Vo_2 Max and vital capacity among overweight men.

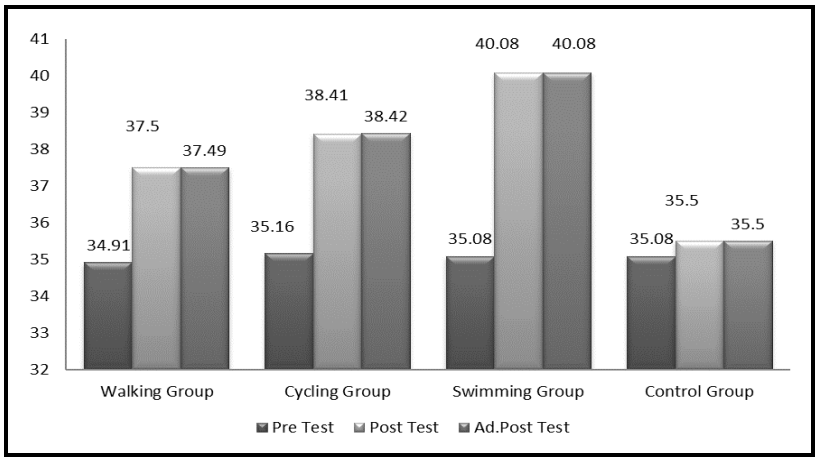

Fig I: The Bar Diagram Of Adjusted Mean Values Among Walking Group Cycling Group Swimming Group And Control Group On Vo_2 Max

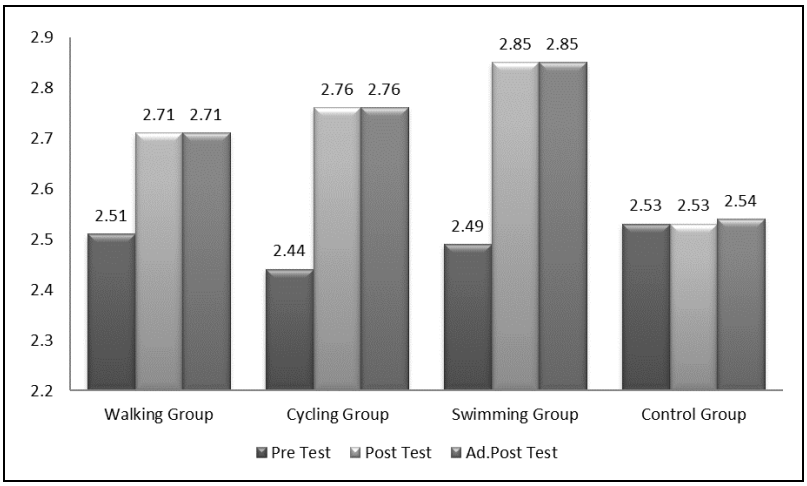

Fig II: The Bar Diagram Of Adjusted Mean Values Among Walking Group Cycling Group Swimming Group And Control Group On Vital Capacity

Discussion on Results

The results on Vo_2 Max and vital capacity shows that there was a significant difference among walking group, cycling group, swimming group and control group. Therefore, the paired mean difference on selected variables shows significant on VO_2 Max and vital capacity. The control group has in-significance on selected physiological variables**.** The previous results of various training procedures in-line with the present study are logically presented below.

Cycling on movement and muscle recruitment patterns during running are unknown but critical to success in triathlon. The researcher outlines and tests a new protocol for investigating the direct influence of cycling on neuromuscular control during running. Leg movement and muscle recruitment were compared between a control run and a 30-min transition run that was preceded by 20 min of cycling. The protocol outlined here is repeatable and can be used to measure any direct influence of cycling on neuromuscular control during running. (Brown, 1993) [1]

The influence of the transition from cycling to running on leg movement and muscle recruitment during running in elite international level triathletes. These findings suggest that short periods of cycling do not influence running kinematics**.** This influence is not related to kinematic variations and is unlikely related to fatigue but may be a direct effect of cycling on motor commands for running (Palazzetti, 2005) [4].

Compare the physiological responses in cycling and the energy cost of running after cycling in elite junior and senior triathletes. Swimming, cycling, running and overall race performance over a standard event was also measured in the field (Heiden, 2003) [2]. When all subjects were pooled, the overall triathlon time (min) was significantly correlated to VO2 max and PPO in cycle ergometry. The study revived that the elite senior triathletes can be distinguished from their younger (junior) counterparts, mainly by a higher PPO in cycling and a lower increase in the whole body energy cost of running after cycling in female and by a higher ventilator threshold in male triathletes (Tang, 2009) [6]. The results on present study in sequence with the above findings.

Conclusion

Based on the result of the study, there was a significant improvement observed on VO_2 Max and vital capacity due to walking, cycling and swimming training among overweight men. The swimming improves better on VO_2 Max and vital capacity when compare with walking and cycling training among overweight men.

References

1. Brown M, Holloszy JO. Effects of walking, jogging and cycling on strength, flexibility, speed and balance in 60- to 72-year olds. Aging (Milano). 1993; 5(6):427-34.
2. Heiden T, Burnett A. The effect of cycling on muscle activation in the running leg of an Olympic distance triathlon. Sports Biomech. 2003; 2(1):35-49.
3. Huei-Ching Yang, Chia-Ling Lee, Roxane Lin, Miao-Ju Hsu, Chia-Hsin Chen, Jau-Hong Lin *et al*. Effect of biofeedback cycling training on functional recovery and walking ability of lower extremity in patients with stroke. Kaohsiung Journal of Medical Sciences. 2014; 30:35e42.
4. Palazzetti S, Margaritis I, Guezennec CY. Swimming and cycling overloaded training in triathlon has no effect on running kinematics and economy. Int J Sports Med. 2005; 26 (3):193-9.
5. Tanaka H. Swimming exercise: impact of aquatic exercise on cardiovascular health. Sports Med. 2009; 39(5):377-87.
6. Tang A, Sibley KM, Thomas SG, Bayley MT, Richardson D, McIlroy WE *et al*. Effects of an aerobic exercise program on aerobic capacity, spatiotemporal gait parameters, and functional capacity in subacute stroke. Neurorehabil Neural Repair. 2009; 23:398e4