

IMPACT OF FUNCTIONAL TRAINING ON SELECTED MOTOR FITNESS COMPONENTS OF SPINTERS

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Abstract:

Background: Functional training improves sprinters body's ability to work efficiently as one unit by training multiple muscle groups at the same time which was help to avoid unnecessary injuries research have investigated the advantages of functional training developing reaction time and flexibility in sprinters and hurdlers. **Method:** Therefore the purpose of the study was to investigate the impact of functional training on reaction time and flexibility of sprinters. In this study thirty (30) subjects, of college male athletes studying in Alagappa University were randomly selected in functional training group and in non functional training group, fifteen (15) in each group. The age of the subject were ranged between 18 to 21 years. **Timeline:** The functional training consisted of 45-60 min/day, 3 days in a week till twelve weeks from the alagappa university campus karaikudi, Tamilnadu. Motor fitness components completed of the both groups at zero time and after twelve weeks of functional training in experimental group and except functional training intervention in non functional training group. **Results:** In present study, reaction time (15.10) and flexibility (18.71) were changed significantly. **Conclusion:** The result of the study showed that there was a significant difference between experimental group and control group on reaction time and flexibility among male sprinters.

Keywords: Sprinters, Paired 't' test, Motor Fitness, Functional Training.

Introduction:

Sprinting is one of the popular events in track and field. 100m and 400 m etc are some of the events which demands supreme efforts, excellent physical fitness, sufficient strength and speed (Tiwari et al, 2012). Past investigations have indicated a significant commonality between sprinting performance across distance from 20 to 100 m and explosive power (Charag et al, 2011). As the largest inhibitor in the sprinting movement is gravity, sprinters must produce large vertical ground reaction force during step take-off to achieve maximal velocity (Coh et al, 2010).

Sprinting requires the ability to produce force with the hamstring while they are lengthening to long muscle length the ability to produce force with the hip extensors while they are shortening very quickly at short muscle lengths and ability to produce force with the hip flexors while they are shortening very quickly through a full range of motion. Functional training is not supplementary training. It should and can work side-by-side with the traditional strength programs. If coaches understand the biomechanics of function and movement and are creative and innovative, they will be able to blend the two together to implement successful training programs for sprinters and hurdlers that build strength and explosive power. Functional training is becoming increasingly popular within the fitness industry and has been considered to be a better alternative and traditional resistance training for improving various measures of muscular fitness including strength, endurance, coordination, balance. Definitions describing what functional training is or what a functional exercise program should entail vary considerably in the literature. Furthermore, experimental research conducted to ascertain the muscular fitness benefits of functional training is limited and focused specifically on improving athletes (Milton et al, 2008). As modern, evidence suggest that functional training developing leg explosive power as well as flexibility of the sprinters.

Methodology:

The purpose of this study was to find out the impact of functional training on motor fitness components of male sprinters. Thirty male sprinters were randomly selected and they were assigned into two equal groups. Each group consisted of fifteen subjects. Pre test was conducted for all the thirty subjects on motor fitness components of reaction time, and flexibility. This initial test scores formed as pre test scores of the subjects. Experimental group I was exposed to functional training, and group II was control. The control group was not exposed to any experimental training other than their regular daily activities. The experimental period was 12 weeks. After the experimental treatment, all the subjects were measured on the motor fitness variables. This final test scores formed as post test scores of the subjects. The data collected from the experimental and control groups on selected dependent variable was analyzed statistically by paired 't' test to analyze the significant difference if any between the pre and post test.

Training protocol:

Functional training exercise intervention consisted of 45-60 min exercise namely; Dumbbell Thruster, Turkish Get-Up, Jump Squat, Crab Reach (Thoracic Bridge) , One-Arm Kettlebell Snatch, Sled Pull/Push , Woman Maker, Pull-Up, Wall Handstand Push-Up, Farmer's Walk, Dumbbell Reverse Lunge with Rotation, Hip and Thoracic Openers, Single Leg Dumbbell Row Break Dancer Push Up, Yoga Squat, Kettlebell Turkish Get Up, Side Lunge with Reach, Overhead Warm Up with Dumbbells, Stir the Pot with a Stability Ball.

Statistical analysis:

The data were analysed using statistical package for social sciences (SPSS) for windows version 16.1. Paired t-test was carried out between Functional training and control groups. To find out significance difference between the means of pre and post test of the groups and are presented in table I & II.

Table-I

TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POST TREATMENT SCORES AMONG FUNCTIONAL TRAINING.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Motor Fitness Components							
Reaction Time	Pre test	17.16	2.93	0.96	14	15.10*	2.145
	Post test	14.23					
Flexibility	Pre test	20.33	9.47	0.81	14	18.71*	
	Post test	29.80					

* Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145

Table I suggests the obtained 't' values of the swiss ball training group on criterion measure of 15.10 (reaction time) and 18.71 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required critical value was once 2.145. Hence the obtained 't' values on the selected criterion variables greater than the required critical value, it

was concluded that the functional training programme produced enormous improvement mean difference.

Figure 1:
Bar diagram showing the pre, post means values of functional training group on reaction time and flexibility.

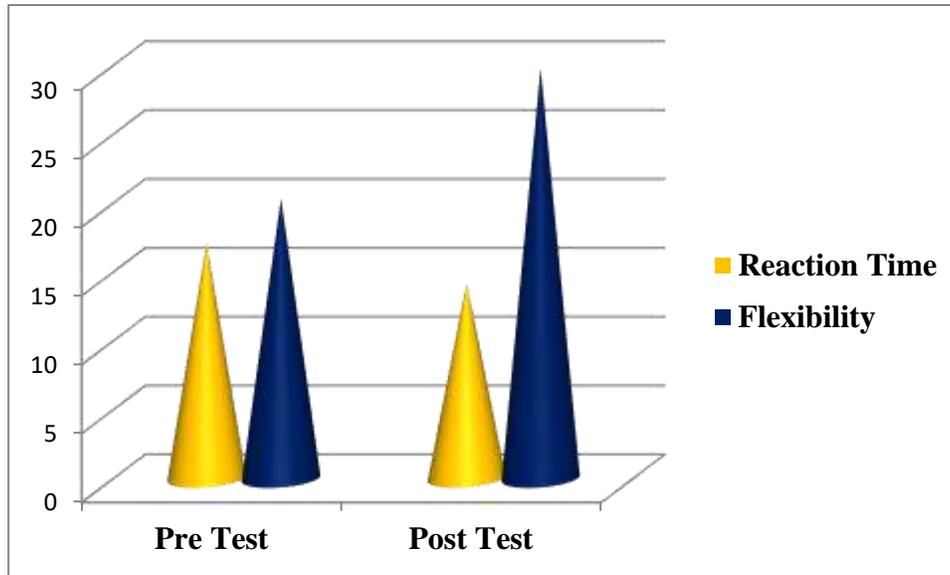


Table-II

TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POST TREATMENT SCORES AMONG CONTROL GROUP.

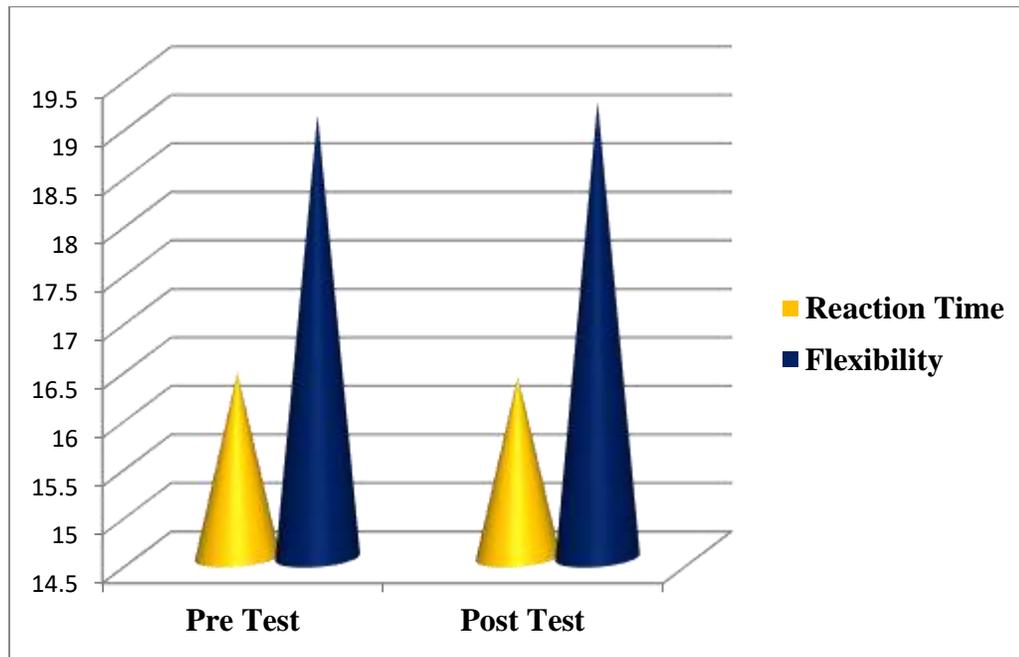
Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Motor Fitness Components							
Reaction Time	Pre test	16.41	0.04	0.255	14	1.31	2.145
	Post test	16.37					
Flexibility	Pre test	19.06	0.14	0.52	14	0.45	
	Post test	19.20					

** Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145*

Table II suggests the obtained 't' values of the control group on criterion measure of 1.31 (reaction time) and 0.45 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required critical value was once 2.145. Hence the obtained 't' values on the selected criterion variables less than the required critical value, it was concluded that the control group no differences.

Figure 2:

Bar diagram showing the pre, post means values of control group (CG) on reaction time and flexibility.



Discussion on findings:

The present study was found statistically significant improvement on reaction time and flexibility, which showed that positive effect of functional training. The findings of the study were also agreed with the findings of (Udermann B 2008), (Ford A 2005).

Conclusion:

From the results achieved, the following conclusions were drawn.

1. The result of the study showed that there was a significant difference between experimental group and control group on reaction time among male sprinters.
2. The result of the study showed that there was a significant difference between experimental group and control group on flexibility among male sprinters.

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