



EFFECT OF ASSISTIVE TRAINING ON ACCELERATION AND STRIDE LENGTH AMONG SCHOOL BOYS

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Abstract

The primary aim of this study was to analyze the effect of assistive training on acceleration and stride length among school boys. 24 school boys were selected from Chinmaya International Residential School, Coimbatore, Tamil Nadu, India and their age ranged from 14 to 17 years. The subject randomly divided in to two groups each (n=12) namely experimental and control groups. Experimental group underwent assistive training programme for a period of 6 weeks. The following variables such as the acceleration and stride length were selected as dependent variables. The data collected from the subjects were analyzed with dependent t-test and ANCOVA. Finally, it was concluded that acceleration and stride length had significantly improved due to resistive training when compared to control group.

Keywords: Resistive training, Acceleration and Stride Length.

INTRODUCTION

Assistive or supramaximal sprint training includes gravity-assistive modalities, such as downhill sprinting, and external tools such as high speed towing using a harness or stretch tubing and a parachute release while at a maximum speed. It has been shown that these overspeed training techniques improve velocity by increasing un-assistive stride frequency (Paradisis & Cooke, 2006).

To increase the ability to move quickly, research indicates that assistive training modalities can provide supramaximal velocity stimuli that cannot be achieved during resisted or bodyweight exercises (Argus, Gill, Keogh, Blazeovich, & Hopkins, 2011). The theory behind assistive training lies within the principle of specificity in that if an athlete trains at a specific speed, performance is likely to improve at and around that speed. Assistive training can be performed using a variety of methods (Bartolini et al 2011) Specifically, towed or assistive sprint training "pulls" the athlete forward, facilitating an increased stride length, stride frequency, or both to achieve a upper maximal velocity. Assistive training could provide a training stimulus outside the ordinary force-velocity spectrum: a stimulus in the form of overspeed.

PURPOSE OF THE STUDY

The purpose of the study is to find out the effects of assistive training on acceleration and stride length power among school boys.

METHODOLOGY

To achieve this purpose, twenty four school boys were selected from Chinmaya International Residential School, Coimbatore, Tamil Nadu, India and their age ranged 14-17 years. The selected subjects were divided into two groups of 12 each namely Group I experimental and Group II control. The experimental group underwent the assistive training for six weeks and the control group did not take part in any training. The pretest was taken before the training programme and posttest was taken after the six weeks of training period. As per availability of literature and the personal knowledge of the investigator following variables were be chosen for this study such as acceleration and stride length. 30 m Run and 50 m run test were used to measure the selected variables such as acceleration and stride length respectively.

The data collected from all the two groups were statistically analyzed. To find out the significant improvement between the pre and post test means, dependent t-test was used as statistical techniques. To find out the significant difference on adjusted post tests between the group, analysis of covariance (ANCOVA) was used. In all cases, the criterion for statistical significance was set at 0.05.

ANALYSIS OF DATA

TABLE I
THE SUMMERY OF MEAN AND DEPENDENT T-TEST FOR THE PRE AND POST TESTS
ON ACCELERATION AND STRIDE LENGTH OF EXPERIMENTAL
GROUP AND CONTROL GROUP

Variables	ACCELERATION				STRIDE LENGTH			
	Experimental group		Control Group		Experimental group		Control Group	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pre Test	5.30	0.36	5.25	0.29	7.69	0.20	7.74	0.22
Post Test	4.83	0.22	5.23	0.21	7.09	0.22	7.71	0.21
t-test values	3.99*		0.32		11.82*		0.42	

*significant at .05 level of confidence. (The table value $t_{11}=2.20$)

The table I shows that the obtained dependent t-test values between pre-test and post test means of experimental training and control groups on acceleration 3.99 and 0.32 and stride length are 11.82 and 0.42 respectively. The table value required for significant difference with df 11 at .05 level is 2.20. Since, the obtained t-test value of Experimental group is greater than the table value, it is understood that assistive training programme had significantly improved the performance of acceleration and stride length and the

control groups has not improved as the obtain t-test value lesser than the table value, because they were not subjected to any specific training. The Pre and posttest means of experimental and control groups on acceleration and stride length power were graphically represented in figure I.

The analysis of covariance on acceleration and stride length of experimental and control groups have been analyzed and presented in table II.

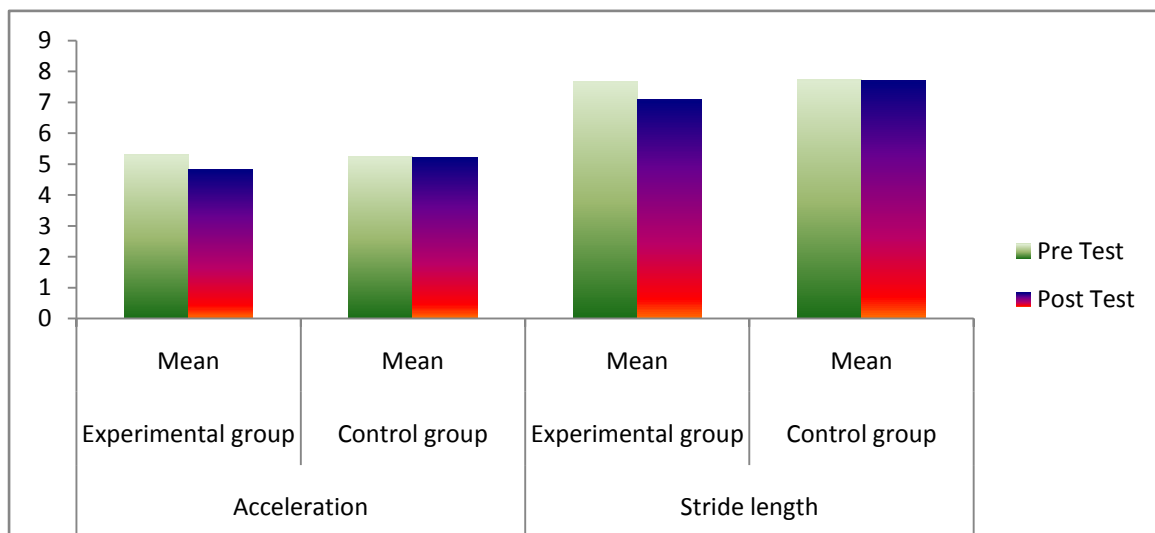


TABLE II
ANALYSIS OF COVARIANCE ON ACCELERATION AND STRIDE LENGTH OF EXPERIMENTAL AND CONTROL GROUPS

variables	Adjusted Post Test Means		Source of Variance	Sum of Square	df	Mean Square	F-ratio
	Experimental Group	Control Group					
Acceleration	4.83	5.23	Between	0.95	1	0.95	20.91*
			Within	0.95	21	0.05	
Stride length	7.11	7.70	Between	2.09	1	2.09	66.37*
			Within	0.66	21	0.03	

*Significant at .05 level of confidence. (The table value $F_{(1,21)}=4.32$)

Table II shows that the adjusted post test means of experimental and control groups on acceleration are 4.83 and 5.23 and stride length are 7.11 and 7.70 respectively. The obtained F-ratio value is 20.91 and 66.37 which is higher than the table value 4.32 with df 1 and 21 required for significance at .05 level. Since, the value of F- ratio is higher than the table value it indicates that there is significant difference exists between the adjusted post-test means of experimental and control groups on acceleration and stride length.

DISCUSSIONS

The result of the study indicated that, the experimental group had achieved significant improvement on acceleration and stride length when compared to the control group. Significant differences were found between experimental and control groups towards improving the selected variables such as acceleration and stride length among school boys.

The results from this study were parallel with the results reported in the literature. Some evidence suggests that from a recently. According to Upton, (2011). The effect of assistive and resisted sprint training on acceleration and velocity in Division IA female soccer athletes. Paradisis, & Cooke, 2006. The effects of sprint running training on sloping surfaces.

CONCLUSIONS

From the analysis of the data the following conclusions were drawn:

1. The experimental group had achieved significant improvement on acceleration and stride length when compared to the control group.
2. The experimental had significant difference on improvement of the acceleration and stride length when compared to the control group.

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