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# Kinematics Analysis Of Stride Frequency Among Jumpers

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## Abstract

The purpose of the present study was to investigate the effect of SAQ (Speed, Agility and Quickness) training on stride frequency among jumpers. To achieve the purpose of the study thirty men jumpers were selected from Alagappa University, Karaikudi, Tamilnadu, India during the year 2022. The subject's age ranges from 18 to 25 years. The selected subjects were randomly divided into two equal groups consists of 15 men jumpers each namely experimental group and control group. The experimental group underwent a SAQ (Speed, Agility and Quickness) Training programme for eight weeks. The control group was not taking part in any training during the course of the study. Stride frequency was taken as criterion variable in this study. The selected subjects were tested on Stride frequency was measured through 50 mts run test. Pre-test was taken before the training period and post-test was measured immediately after the six week training period. Statistical technique 't' ratio was used to analyse the means of the pre-test and post test data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variable. The difference is found due to SAQ (Speed, Agility and Quickness) Training given to the experimental group on Stride frequency when compared to control group.

**Keywords:** SAQ (Speed, Agility and Quickness) Training, Stride frequency and 't' ratio.

## INTRODUCTION

SAQ was training, or speed, agility, and quickness training, is a system of dynamic movement and principles used to develop the importance of motor talents in order to improve an individual's capacity to move quicker. SAQ training is a type of physical training that can be used to improve speed, strength, or the ability to apply maximal force during quick movements. Increases in muscle power in linear, horizontal, and multiplaner motions are only a few of the advantages of SAQ training. It improved body spatial awareness, motor skills, and reaction time as well. Stride frequency is a measurement of how rapidly a stride is performed and is usually expressed in strides per second (or Hz). The distance covered during a stride is measured in stride length. Stride length is the distance covered during a stride and is typically represented as m/stride.

## **RESEARCH METHODOLOGY**

### **Selection of subjects**

The purpose of the study was to find out the effect of SAQ (Speed, Agility and Quickness) Training on stride frequency among men jumpers. To achieve this purpose of the study, thirty men jumpers were selected as subjects at random. The age of the subjects were ranged from 18 to 25 years.

### **SELECTION OF VARIABLE**

#### **Independent variable**

- SAQ ( Speed, Agility and Quickness ) Training

#### **Dependent variable**

- Stride frequency

### **EXPERIMENTAL DESIGN AND IMPLEMENTATION**

The selected subjects were divided into two equal groups of fifteen subjects each, such as SAQ (Speed, Agility and Quickness) Training group (Experimental Group) and control group. The experimental group underwent SAQ (Speed, Agility and Quickness) Training for five days per week for eight weeks. Control group, which they did not undergo any special training programme apart from their regular physical activities as per their curriculum. The following variable namely Stride frequency was selected as criterion variable. All the subjects of two groups were tested on selected criterion variable Stride frequency was measured through 50 mts run method at prior to and immediately after the training programme.

#### **Statistical technique**

The 't' test was used to analysis the significant differences, if any, difference between the groups respectively.

#### **Level of significance**

The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

### **ANALYSIS OF THE DATA**

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent 't' test was used with 0.05 levels as confidence.

**TABLE I ANALYSIS OF T-RATIO FOR THE PRE AND POST TESTS OF EXPERIMENTAL AND CONTROL GROUP ON STRIDE FREQUENCY**

(Scores counts in number)

VARIABLES	GROUP	STANDARD DEVIATION		SD ERROR	
		PRE	POST	PRE	POST
Stride frequency	Control Group	0.105	0.103	0.027	0.026
	Experimental Group	0.118	0.108	0.030	0.027

**TABLE II**

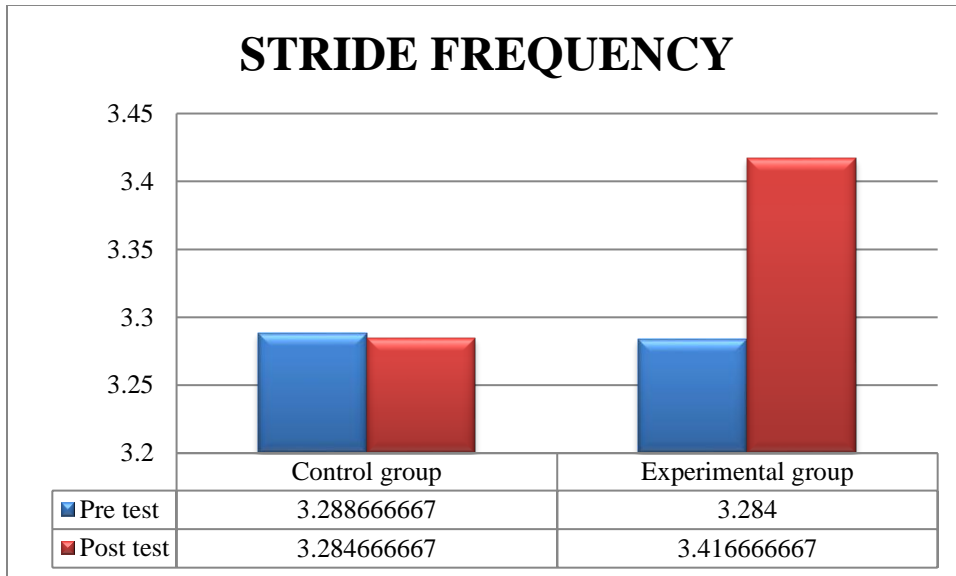
VARIABLES	GROUP	MEAN		DEGREE OF FREEDOM	't' ratio
		PRE	POST		
Stride frequency	Control Group	3.28867	3.28467	14	1.146
	Experimental Group	3.284	3.41667	14	6.743*

\*Significance at 0.05 level of confidence.

The Table-I and II shows that the mean values of pre-test and post-test of the control group on Stride frequency were 3.288 and 3.284 respectively. The obtained 't' ratio was 1.146, since the obtained 't' ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on Stride frequency were 3.284 and 3.416 respectively. The obtained 't' ratio was 6.743\*since the obtained 't' ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in Stride frequency. It may be concluded from the result of the study that experimental group improved in Stride frequency due to eight weeks of SAQ (Speed, Agility and Quickness) Training.

**Figure-1**

**Bar Diagram Showing the Pre and Post Mean Values of Experimental and Control Group on Stride frequency**



### DISCUSSIONS ON FINDINGS

The result of the study indicates that the experimental group, namely SAQ (Speed, Agility and Quickness) Training group had significantly improved the selected dependent variable, namely Stride frequency, when compared to the control group. It is also found that the improvement caused by SAQ (Speed, Agility and Quickness) Training when compared to the control group.

### CONCLUSION

On the basis of the results obtained the following conclusions are drawn,

1. There was a significant difference between experimental and control group on Stride frequency after the training period.
2. There was a significant improvement in Stride frequency. However the improvement was in favor of experimental group due to eight weeks of SAQ (Speed, Agility and Quickness) Training.

**Conflict of Interest:** I declare that no conflict of interest could be perceived as prejudicing the impartiality of the research reported.

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**Ethical Approval:** Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

**Informed Consent:** Informed consent was obtained from all individual participants included in the study.

**Data Availability:** The datasets used and/or analyzed during this study are available from the corresponding author on reasonable request.

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