Effect Of Agility Drill Alone on Body Weight of Non-Athlete Young Females – An Interventional Study

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Abstract: Agility is an ability to change the body's position efficiently and requires the integration of isolated movements skills using a combination of balance, coordination, speed, reflexes, strength and endurance in an effective manner. In physiotherapy, agility helps the body to maintain proper alignment and posture during movement. Agility drills encourages the body to learn to maintain correct body placement. Being agile doesn't just improve athletic performance, it can improve your performance in day-to-day activities. Based on relationship of agility with body weight due to changes in body composition, we are assuming that agility training may cause changes in body composition there by body weight .Objective: To assess the effect of agility training performed in nonathletes on body weight .Method: Subjects were selected based on set criteria. Young non athlete females aged between 18 to 25 years and weight between 55kgs to 70kgs were recruited. that exercise was started which includes the combination of Illinois agility drill, side walk squat (10 reps), step up step down (20 reps), jumping jacks (20 reps) for 15 minutes continuously. After completion of main exercise, the subjects were headed toward cool down exercise .Result: Mean body weight show reduction of 0.8kgs at the end of 6 weeks protocols. Conclusion: After the completion of 6 weeks protocol of agility, we can see the significant change in p value which is < 0.05. Thus, we can say that there is decrease in body weight. Keywords: Agility, body weight, non-athlete females.

INTRODUCTION

Physical activity is an important aspect in order to regulate as well as reduce body weight1.

Exercise training is an important part of any weight loss/control regime, however change in weight from any exercise training programme without caloric restriction is debatable. Exercise training without caloric restriction may help maintaining weight or preventing weight gain1. Exercise training regardless of weight loss has numerous health benefits.

Agility is an ability to change the body's position efficiently and requires the integration of isolated movements skills using a combination of balance, coordination, speed, strength and endurance2. Thus, agility training would focus upon physical activity based on above mentioned components.

Agility training is an effective method to add intensity, variety, and functional training to any fitness program. Exercise training including agility drill not only improves change of direction abilities and footwork, but they also improve strength, mobility, and endurance. Muscles worked include most of the muscles on your legs and hips, including calves, quads, glutes, and hamstrings.

Agility training includes short duration high intensity physical activity, hence increasing the energy expenditure, thereby increasing metabolism1. Low intensity exercise training does not lead to greater energy expenditure as compared to high intensity. Being agile doesn't just improve athletic performance, it can improve the performance in day-to-day activities.

Speed, agility and quickness training can be a great type of training to incorporate into weight loss program because it is fun, demanding, can challenge the cardiorespiratory system, and is a type of exercise training at the average exerciser never experience. Also, because it is a type of exercise that is usually not performed by the average exerciser interested in weight loss, the increased demands that it can place on the body may lead to increase calorie burn both during and after the exercise session.

Agility of any person is affected by the unique proportions of fat mass and muscle mass even if body weights are similar. Although there is known relationship between body weight, body structure and height with agility, the effect of agility training on body weight remains unknown.

NEED OF STUDY

a. To know if short duration high intensity exercise has any effect on body weight.
b. To know if the Agility drill helps burn enough calories to cause weight loss.

RESEARCH METHODOLOGY

This is an Interventional study. Subjects were selected based on set criteria. Young non-athlete females aged between 18 to 25 years and weight between 55kgs to 70kgs were recruited. The Method and proceeding of intervention were explained to the subjects. And concert was taken.

Before starting intervention, base line outcome i.e., body weight and girth measurement of hip and waist were recorded. The subjects were explained and demonstrated agility drill by one therapist before beginning the training. The intervention includes warm up for 5 minutes, which includes marching at place and full body stretching. After that main exercise was started which includes the combination of Illinois agility drill, side walk squat (10 reps), step up step down (20 reps), jumping jacks (20 reps) for 20 minutes continuously. After completion of main exercise, the subjects were headed toward cool down exercise. The Cool down intervention includes breathing exercise, stretching for 5 minutes. This intervention was continued for 6 weeks and 5 days /week. After completion of protocol post reading of the subjects were recorded. Changes in the body weight were analyzed.

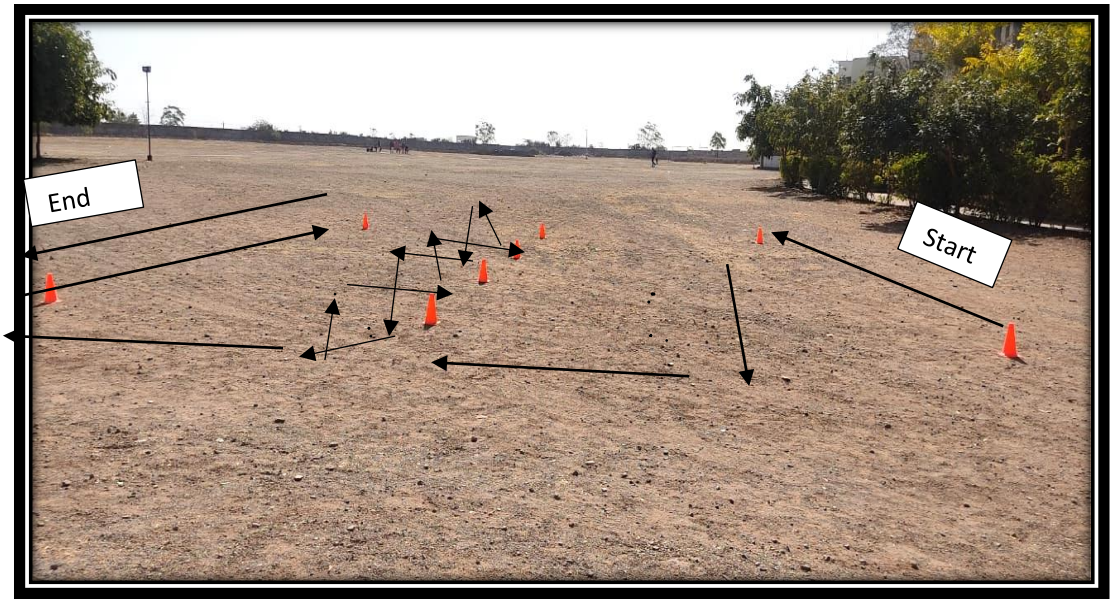


Fig. The agility Drill

Fig. Subject performing agility drill

RESULT AND DISCUSSION

Result analysis was done using SPSS version 21.0 for windows. Microsoft excel was used to create graphs and tables.

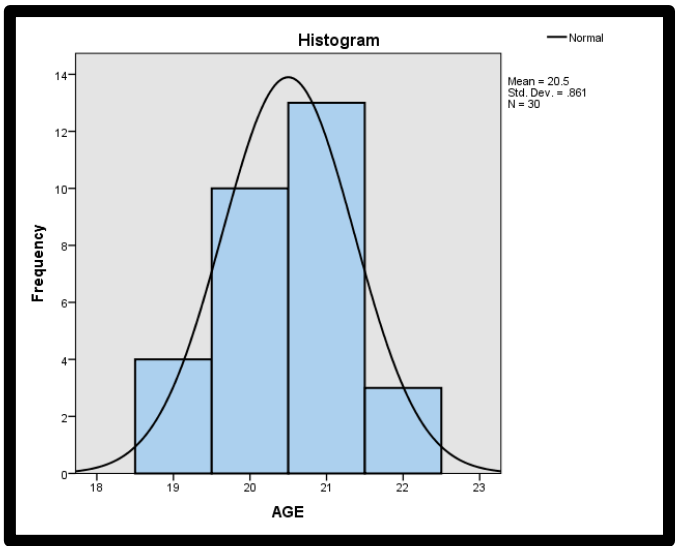
Demographic Data:

30 subjects were qualified for statistical analysis out of 32. Non athlete females weighing more than 50 and less than 70 received 6 weeks of exercise program that included agility drill and were assessed for changes in body weight post intervention.

Descriptive statistics were used to describe age of the subjects.

Mean of age body weight

Demographics	Mean
Age	20.5 years
Baseline body weight	62.8 kgs



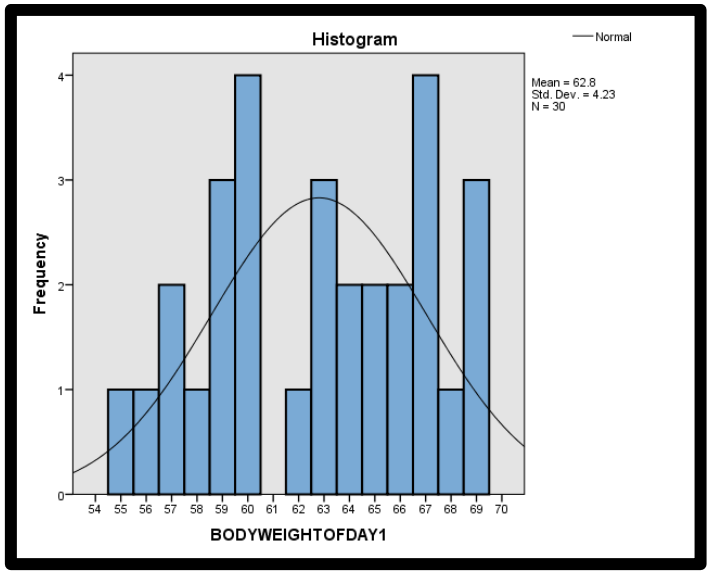
Histogram of age

All the subjects were females and non-athlete. Total 30 subjects actively participated aged between 18 to 25 yrs. Mean age of 30 subjects 20.5 (standard deviation0.861).

Test for normality was applied for analyzing data distribution where level of significance was considered <0.05 and confidence interval (CI) 95%. Data was analyzed with skewness and kurtosis, Shapiro Wilk test and histogram for body weight recorded on day 1.

Tests of normality

Test for Normality	P value
Skewness	-0.31
Kurtosis	-1.43
Shapiro wilk	0.120



Histogram of body weight

❖ Interpretation

Since p value of Shapiro Wilk test was >0.05, and that of kurtosis and skewness was found appropriate as mentioned above, hence we accept the null hypothesis that the data were normally distributed. This was an interventional study conducted to assess the

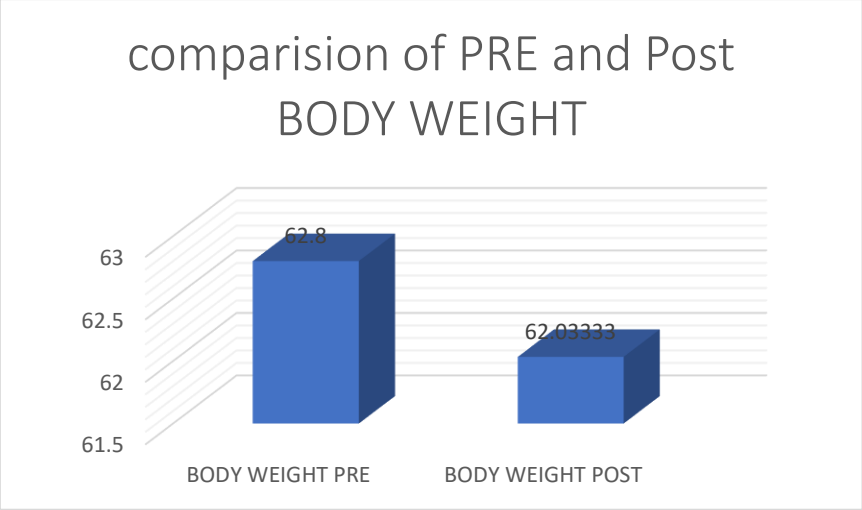
effect of agility drill on body weight of non-athlete young female. Outcome measure was recorded on day 1 and on Day 30 i.e., post 6 week of intervention.
Since all the dependent variables were normally distributed, the data were analyzed using PAIRED T TEST. The significant level was considered at P value <0.05.

Difference in body weight

Outcome Measure	Mean	Skewness/kurtosis
Body weight at day 1	62.8	-1.47/-1.193
Bodyweight at day 30	62.0333	-0.26/-0.916

❖ **Interpretation:**

Mean body weight show reduction of 0.8kgs at the end of 6 weeks protocols.



Bar graph of pre and post body weight

Comparison between pre and post body weight

Paired T test	P- value
Pre and post body weight	0.000

❖ **Interpretation**:

The p value > 0.05, the difference in the mean of both the outcome measure i.e., Body weight on Day 1 and Day 30 was statistically significant.
Conclusion: After the completion of 6 weeks protocol of agility, we can see the significant change in p value which is < 0.05. Thus, we can say that the decrease in body weight was statistically significant.

Discussion:

The result showed that after completion of 6-week protocol of agility training there is significantly decrease in body weight, having p value 0.000 which is <0.05. Decrease in body weight was expected due to various factors like workout intensity, physiological changes, speed, age, body composition.
During any exercise the intensity of workout is important factor, that directly affects the body, lower the intensity lower will be the outcome, while higher the intensity the higher will be the outcome. Thus, intensity of exercise directly affects the energy expenditure and metabolism which helps maintaining or reduce the body weight of the subject.
The physiological changes occur in the body when fat is liberated from adipocytes into circulation to supply the energy needed by the body during exercises. This release of fat result in fat metabolism and thus leads to reduction in body weight. The speed variation of subjects results in varying outcome which shows that speed is important component of the agility drill.

According to Megan Dix, in his study “Type of body fat: benefits, dangers and more” there are some essential fats in our body which is required for a healthy body. Which are found in brain, nerves, bone marrow and membrane that protect organs of body, but if visceral fat increases more than it can cause danger to body, and lead to heart diseases, cancer, stroke, etc. and exercise is the best way to reduce the unwanted fat of body. More the amount of visceral fat in body it takes more time to have effect on body weight. It can be easily reduced in young population due to high metabolic rate than that in elderly population. In females pelvic region, thighs and arms contain maximum amount of fat but it varies from person to person. in this study All these factors have played an important role in the reduction of body weight.