
EFFECT OF THERA TUBE AGILITY DRILLS AND THE PLYOMETRIC TRAINING ON AGILITY IN RECREATIONAL ATHLETES

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Background

Weight training and physical conditioning have become year-round requirements for sports, such as football and basketball, at the upper levels of competition. In which weight training improve muscle strength, endurance, and skill while decreasing the chance of injury at susceptible joints such as the knee, Edward M. Wojtys et al¹ Muscle reaction times and the time needed to generate peak muscle torque appear to be important parameters to consider in injury prevention. Edward M. Wojtys et al¹ investigate, agility exercises potentially improve this parameter. **Agility is the ability to decelerate, accelerate and change direction while maintaining good body control and without losing time in the transition.** Patra krinis. He also said that outside of sports specific skills agility is the primary determining factor for success in sports. In the game of football, no player is going to run without having to either stop, change direction or change speed. Thus It is important to train agility in the same manner that any other skill would be trained.

RESEARCH QUESTION

To find out, if thera tube agility drill can produce greater effect on agility in comparison to plyometric training ?

AIM OF THE STUDY

1. To find out the effect of thera tube agility drill on agility
2. To compare the effect of a four week training period of thera tube agility drill with plyometric training on agility

HYPOTHESIS

Experimental hypothesis

- ✦ It is hypothesized that the effect of thera tube agility drill would result in significant greater change in agility as compare to plyometric training.

Null hypothesis

- ✦ It is hypothesized that the effect of thera tube agility drill would not result in significant greater change in agility as compared to plyometric training.

RESEARCH DESIGN

- ✦ Experimental, Comparative
- ✦ SAMPLE SIZE
- ✦ 35 different game players and athletes coming sometimes to a sports club, were initially recruited, out of which 5 players discontinued training in between the training duration

SAMPLING METHOD

- ✦ Random sampling

INCLUSION CRITERIA

- ✦ age between 19-24 years
- ✦ Subjects playing any game at least 3 days a week.
- ✦ Should satisfy minimum fitness level in the form of strength and flexibility of the muscle group in consideration.
- ✦ Subjects who have not been involved in the drills similar to plyometric & agility

EXCLUSION CRITERIA

- ✦ Any lower extremity injury since last 3 month
- ✦ Biomechanical fault and pathology of hip, knee, ankle joint.
- ✦ Limb length discrepancy
- ✦ Subject not willing to participate in training program

VARIABLES

INDEPENDENT VARIABLES

- ✦ Plyometric training (6 week)
- ✦ Thera tube agility drill (4 week)

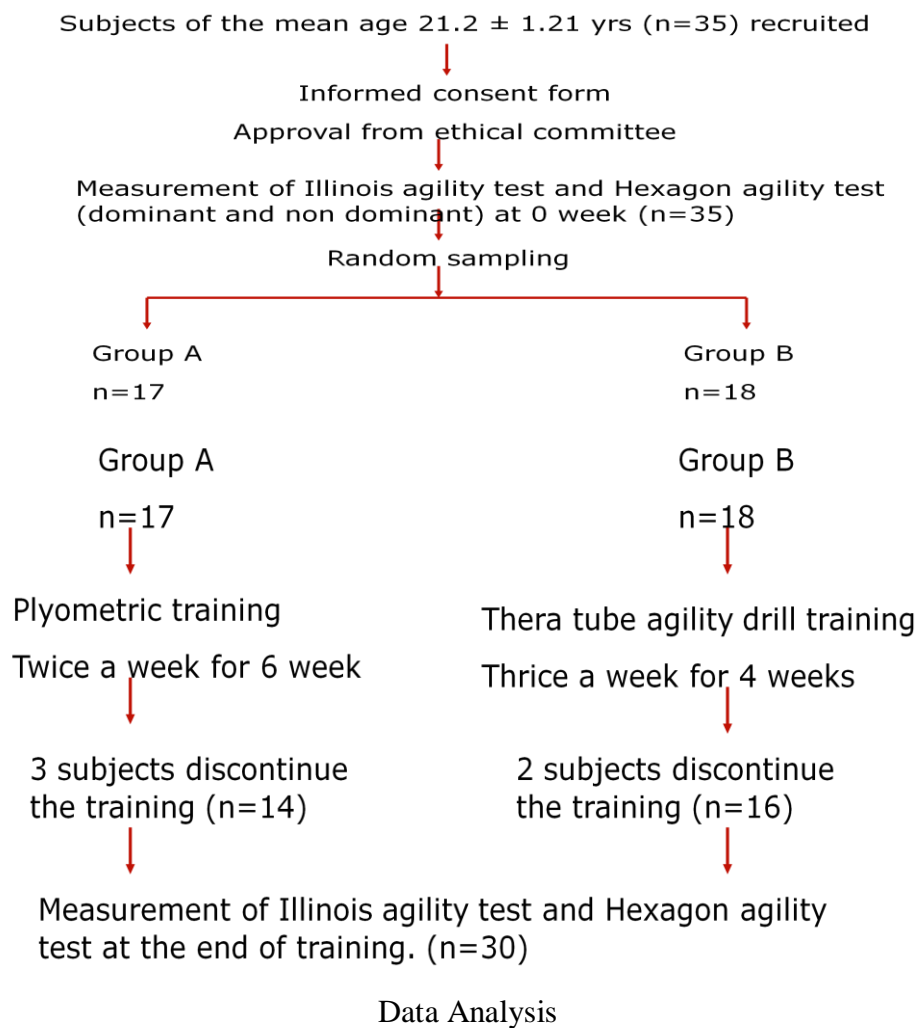
DEPENDENT VARIABLE

- ✦ Illinois agility test score
- ✦ Hexagon agility test score

INSTRUMENTATION

- Non-slippery surface
- Marking cones
- Measuring tape
- Stopwatch
- Thera tube
- Blocks

METHODOLOGY



- ✦ Paired t-test was applied with in the groups on before training and after training for both the group A & B.
- ✦ Unrelated t-test has been performed to compare the agility score in between groups i.e. for Illinois agility score, Hexagonal agility score Dominant & Non dominant side.
- ✦ The significant (probability) has been selected as 0.05.

COMPARISON OF MEAN ILLINOIS AGILITY TEST SCORE, HEXAGON TEST SCORE DOMINANT SIDE AND NON DOMINANT SIDE WITH IN THE GROUP A i.e. BEFORE TRAINING 0 WEEK AFTER TRAINING 6 WEEK.

	Illinois agility score	Hexagon agility score (dominant side)	Hexagon agility score (non-dominant side)
0 week	21.47 ± 1.67	22.59 ± 2.34	24.01 ± 3.61
After 6 week	19.09 ± 0.88	17.91 ± 1.08	18.03 ± 1.24
T value	6.77	8.74	7.58
P value	0.00	0.00	0.00
S / NS	S	S	S

COMPARISON OF MEAN ILLINOIS AGILITY TEST SCORE, HEXAGON TEST SCORE DOMINANT SIDE AND NON DOMINANT SIDE WITH IN THE GROUP B i.e. BEFORE TRAINING 0 WEEK AFTER TRAINING 4 WEEK.

	Illinois agility score	Hexagon agility score (dominant side)	Hexagon agility score (non-dominant side)
0 week	20.18 ± 1.02	20.88 ± 2.30	21.73 ± 2.34
After 4 week	17.87 ± 0.96	16.58 ± 1.26	16.69 ± 1.18
T value	11.21	9.63	9.15

P value	0.00	0.00	0.00
S / NS	S	S	S

Discussion

Statistically significant result with in the group A & B and non significant result between the group A & B. Significant result in group A . Supported by Miller et al⁸ who stated that the plyometric training improve times in agility test measures

This is because of either better motor unit recruitment or neural adaptation. According to Craig neural adaptations usually occurred when improved coordination between CNS signal and proprioceptive feedback.

- According to Kevin E Wilk et al¹³ explosive plyometric training may improve neural efficiency and increase neuromuscular performance
- This enhanced neuromuscular coordination could lead to greater net force production, referred to as neural adaptation
- According to Cory Goodman et al¹⁶ speed, strength, power, balance and flexibility contributes to ones agility.
- This is the probable explanation for plyometric improving agility as plyometric result in greater improvement in power which contributes to agility.

According to phil page¹⁰

- Elastic resistive exercises requires maximal muscle activation throughout the range of motion
- It also requires neuromuscular coordination and stabilization to maintain proper motion patterns.
- Training with thera tube also improve the strength and balance which is equally important for the quick stop and turn.³

Supported by Blackburn JT³¹

- Thus thera tube agility drill training improve the neuromuscular coordination, strength and balance which improve the agility score.

Implication of the study

- Used for an integral system of sports preparation as well for a preventive training program.
- Football player will be benefited by improving their agility as little as 4 weeks of time and thus on field performance. This can be useful during the last preparatory phase before in season competition for athletes.
- Coaches, therapist, and sports trainer can use the combined training program to improve agility and enable the athlete to return to sports as early as possible following injury.

Limitation of the study

- Professional football players were not included in study.
- There was a probability of personal physical error since measurements were not computerized.
- Subjects could not be matched for anthropometry similarity. Matching the subjects for anthropometric similarity would have generated data for a homogenous group.

Scope of further study

- It can be done on professional players and on different sports and different age groups to see the results
- It can be done according to the player's position, by matching anthropometric similarities
- This can be done with increase the length of the study
- A longitudinal study can be conducted to examine the difference in pre and post training injury rates.

CONCLUSION

- Statistically result concluded that thera tube agility drill training and plyometric training both shows the improvement in agility
- There is no significant difference in improvement of agility between both the groups.

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