

THE EFFECT OF 6 WEEKS OF ROPE-JUMP TRAINING ON CORE STRENGTH AND ENDURANCE, LEG POWER, RUNNING SPEED AND AGILITY, AND BALL SKILLS IN FOOTBALL PLAYERS.

INTRODUCTION

- Football is a physical sport. Being strong, fast and agile can determine the outcome of a match in this modern football. This is why football trainings focus on improving football players' core strength and endurance, leg power, running speed and agility..
- Rope-jump training has been proven to help improve endurance, speed, strength, agility and flexibility in the general population. And it has also been incorporated in football trainings (6).
- However, due to the different requirement of the sport, football requires the players to perform other trainings. There is a lack of investigations on whether football players can receive the benefits of rope-jump training.
- The purpose of this study is to look at whether performing rope-jump training can improve football players' leg power, core strength endurance, running speed and agility, as well as football related skills.

METHODS

- 20 football players, aged 16-18 years old, who played in a high school team were divided into control group and experimental group.
- They completed a series of pre-tests followed by 6 weeks of rope jump training.
- The tests included 40m sprint and dribbling tests, Illionis agility test, vertical jump test, heading test, press ups and sit ups tests.
- The experimental group performed 5 sets of 1 minute of rope-jump training prior to their normal football training (2 times a week), while the control group performed normal training.
- At the completion of the 6 weeks, the participants performed a series of post-tests.

RESULTS

- Running speed improved by 5% in the experimental group, while the control group had 1.99% improvement.
- Dribbling speed also improved by 8.3% in the experimental group and 5.5% in the control group.
- There was also an improvement of 2.88% for the experimental group and 1.9% for the control group in terms of agility.
- A huge significant difference of improvement was found in the experimental group compared to the control group in the sit-up test. However, the improvement found in the press-up test was somewhat similar between both groups.
- Jump height of the experimental group improved by 0.70cm, while the control group improved by 0.67cm. There was small improvement in the heading test..
- Mean data of the test results can be seen in Table 1.

Table 1. Mean Data of the Testing Results

Group	Experimental			Control		
	Pre	Post	Difference	Pre	Post	Difference
Sprints (sec)	6.54	6.21	0.33	6.54	6.41	0.13
Dribbling (sec)	7.49	6.87	0.62	7.59	7.17	0.42
Agility (sec)	18.04	17.52	0.52	17.38	17.05	0.33
Press Ups	40	44	4	43	46	3
Sit Ups	35	45	10	39	43	4
Vertical Jump (cm)	45.5	46.2	0.7	38	38.67	0.67
Heading	1.3	1.4	0.1	1.1	1.7	0.6

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DISCUSSION

- The experimental group had a significantly higher improvement in speed and agility compared to the control group. This improvement might have also caused the improvement in dribbling speed. This is because rope-jump training improve the ability to perform quick movements and rapid changes of direction (2)
- There was a higher significant improvement in abdominal strength and endurance in the experimental group, However, upper body strength and endurance showed small improvement in both groups..
- The small improvement in upper body strength might have been caused by the fact that this study only incorporated the use of normal skipping ropes instead of weighted ropes unlike previous studies (1 and 3).
- No significant improvement found in vertical jumping test. This is because rope-skipping can improve leg power and ankle strength, it doesn't necessarily improve vertical jump ability because it is a low intensity activity. Higher intensity is required to improve leg power (5).
- No significant improvement either in the heading test. Lack of improvement in the vertical jump could be a factor which cause the unsuccessful heading execution by the participants.

PRACTICAL APPLICATIONS

- The results of this study have found that rope-jump training can improve speed, agility and core strength and endurance.
- Therefore, rope-jump training should be incorporated in football trainings in order to maximize improvements.
- The results of this study also found little effect of rope-jump training on vertical jumping ability. Therefore, football players should not perform rope-jump training to increase their jumping ability.
- However, further investigations are required to analyse whether performing high intensity rope-jump training can improve jumping ability.
- Incorporating the use of weighted skipping ropes to improve upper body strength should also be investigated. This is important as upper body and jumping ability are very crucial in this modern game of football.

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