

# THE EFFECTS OF ISOKINETIC HIP FLEXION AND EXTENSION TRAINING OVER EIGHT WEEKS FOR MEN'S FOOTBALL PLAYERS

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## Introduction

The studies about hip muscular strength have been reported that the muscles iliopsoas was active during the entire kicking motion and the mean ball velocity related significantly with hip flexion strength of the kicking leg and hip extension strength of the supporting leg. So this study was designed to clarify the effect of isokinetic hip flexion and extension training over eight weeks training and to examine the change in mean ball velocity by kick, jump height, and sprint speed before and after training for men's football players.

## Methods

Subjects were sixteen university football players. There were divided into 2 groups (training group, control group), and measured isokinetic hip Flex/Ext strength at 4 angular velocities (60, 120, 180, 300deg/sec), mean ball velocity by kick, jump height (Squat jump: SJ, Counter movement jump: CMJ), and sprint speed before and after training. Training group did isokinetic hip flexion and extension training. BIODEX SYSTEM3 was used for training and measurement of muscular strength. Training intensity was 180deg/sec of angular velocity. Training was conducted 3 days per week, 3 sets per day, and 10 repetitions per set for 8 weeks.

## Results & Discussion

The changes of isokinetic hip Flex/Ext strength were indicated Fig 1. Isokinetic hip extension strength at 180, 300 deg/sec was significantly improved with training ( $p<0.05$ ). And isokinetic hip Flex/Ext strength at all angular velocities tended to improve. Mean ball velocity by kick ( $p<0.01$ ) and jump height (SJ:  $p<0.05$ , CMJ:  $p<0.05$ ) was significantly improved.

Although sprint speed shows no improvement, it tended to improve within after 15m. It suggested that improvement of hip extension strength affected improvement of mean ball velocity and jump height.

## Conclusion

These results suggested that hip extension strength is important for mean ball velocity and jump height.

## References

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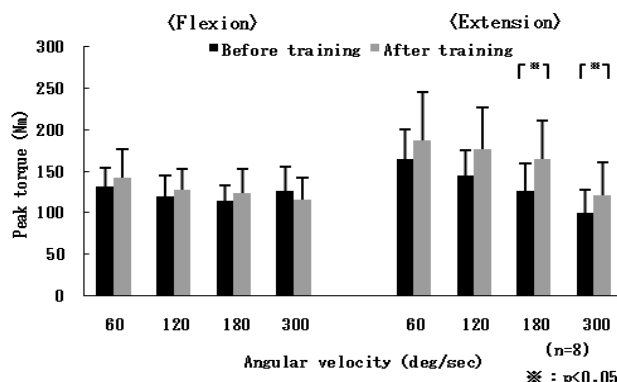


Fig 1. The changes of isokinetic hip Flex/Ext strength on training group. ※ :  $p<0.05$