



Effects of Contrast training on Lower Segment Movements and Isokinetic Torque in Throwers

Jeong-Min Park¹, Seung-Jae Heo¹, Hyeon-Jun Kim¹, Hun Jung¹ and Kwang-Suk Hyun^{1*}
¹Chungnam National University, Korea

INTRODUCTION

Contrast Training increases mobilization of exercise units for basic movement, allowing you to lift heavier ones during a workout set. When you do a neuromuscular exercise after a high-intensity set exercise, you are telling the brain to send more help. Sending more support improves your movement pattern, which increases your strength segment move and allows you to handle heavy loads. This study aimed to provide fundamental data of contrast training on lower segments and Isokinetic torque in throwers.

METHODS

In order to achieve the purpose of this study, 36 middle and high school student throwers at C and K city were selected at random and allocated 12 middle and high school student throwers each for the Non Exercise group (NEG), Deficient Exercise group (DEG), Over Exercise group (OEG). The exercise program was applied to DEG and OEG, and the lower segment movements and Isokinetic torque were checked before and after the experiment. The data obtained from this study were analyzed using the SPSS 24.0 statistical program and two-way repeated ANOVA was used.

Table 1. Demographic data

| | Age (yrs) | Height (cm) | Weight (kg) | BMI (kg/ m ²) | Body Fat (%) |
|-------------|---------------|---------------|--------------|---------------------------|--------------|
| NEG (n=12) | 27.16 ± 8.94 | 163.86 ± 4.23 | 48.32 ± 3.62 | 23.03 ± 2.06 | 21.64 ± 2.08 |
| PCEG (n=12) | 27.16 ± 8.94 | 163.36 ± 4.84 | 48.48 ± 3.68 | 22.12 ± 2.32 | 21.16 ± 2.22 |
| TPEG (n=12) | 28.32 ± 12.67 | 161.94 ± 5.02 | 50.26 ± 4.84 | 23.04 ± 2.22 | 22.28 ± 2.24 |

Table 2. Exercise program

| Stage | Exercise Program | Rest | | | Motion Frequency |
|-------------------|--------------------------------------|---------------------|---------------------|----------------------|------------------|
| | | 1-4 Week (reps/set) | 5-8 Week (reps/set) | 9-12 Week (reps/set) | |
| Warm-up (10 min) | Stretching | 10/3 | 10/3 | 10/3 | RPE 8-10 |
| | Water Bag exercise | | | | |
| Work-out (40min) | Ankle (pull & push) | | | | |
| | Ankle (side) | | | | |
| | Calf balance training | 10/2 | 10/3 | 10/5 | RPE 11-13 |
| | Balance training | | | | |
| Cool-down (10min) | Functional gait exercise kit walking | | | | |
| | Stretching | 10/3 | 10/3 | 10/3 | RPE 8-10 |

Figure 1. Isokinetic torque measurement methods



Figure 2. Lower segment movement measurement methods



RESULTS

Figure 3. Isokinetic torque

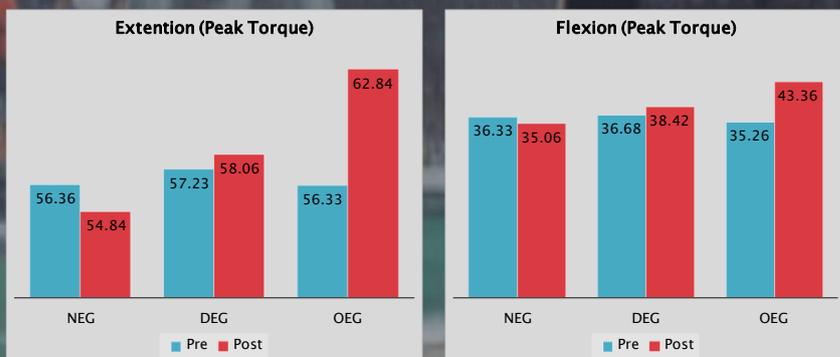
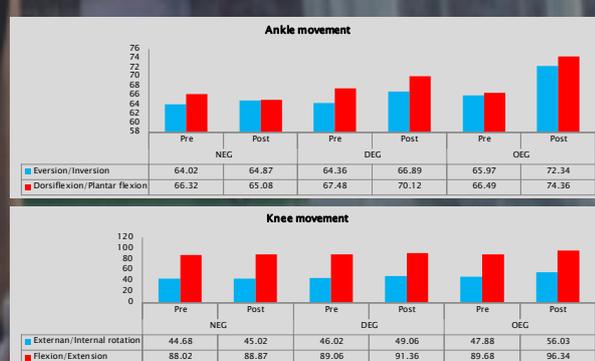


Figure 4. Lower segment movement



CONCLUSION

The conclusions obtained through this study are as follows. First, as a result of analyzing the change of lower segment movements to contrast training, OEG was significantly improved compared to NEG and DEG. Second, as a result of analyzing changes in Isokinetic torque according to contrast training, OEG was significantly improved compared to NEG and DEG. As conclusions, this study confirmed that the contrast training could improve the lower segment movements and Isokinetic torque in the middle and high school student throwers.