P13

EMG Reserch of Quadriceps Muscle Strength after Total Hip Arthroplasty

Young-Wan Jin

Department of Special Physical Education, Dong-Eui University, 995 Eomgwangno, Busan Jin-gu , Busan, Korea.

The purpose of this study was to examine the effect of hip joint EMG activity of the quadriceps muscle in individuals with THA. EMG data were divided by the gain factor that were used to magnify the EMG signal during data collection and adjusted to the baseline value. Rectified EMG values were expressed as a percentage of the mean rectified EMG obtained during the gait. Using the normalized rectified EMG, root mean squared data were generated. During the gait, the quadriceps contracts eccentrically in order to counteract the flexion torque and ensure the body has a comfortable touchdown on the ground. In the current study, we found that the M-RAD THA limb had or tended to have greater VM and VL EMG than the S-RAD THA limb. Great quadriceps eccentric EMG increased the hip extension force and therefore increased the hip extension torque. As the M-RAD THA limb had a shorter quadriceps moment arm than the S-RAD THA limb, all else being equal, the M-RAD THA limb would use greater quadriceps eccentric contraction to generate necessary hip extension torque. In addition, the N-THA limb of the M-RAD group demonstrated greater VM and RF eccentric EMG than those of the M-THA limb of the S-RAD group. The possible explanation is that, the M-RAD group also tried to increase the effort of the intact limb to compensate the relatively weak THA limb due to the disadvantage of the short moment arm in the THA.

Key words: Quadriceps muscle, Hip extension torque, EMG data

P14

Effect of Exercise on C-reactive Protein, Adiponectin and Insulin Resistance

Shon, Kyung-Hee* Jeon, Jae-Young[1] and Kwak, Yi-Sub[1]

**Department of Nursing, [1]Department of Physcial Education, Dong-Eui University, 995 Eomgwangno, Busan jin-gu, Busan, Korea.*

The purpose of the present investigation was to determine the effect of combine exercise on C-reactive protein (CRP) and adiponectin, and insulin resistance. Twenty two participants (BMI >95 percentile for age and sex) were recruited in this study (exercise group, n=12 and control group, n=10). Body composition, glucose, insulin, HOMA-IR, CRP and adiponectin levels were measured Pre and Post periods. 12 weeks' aerobic and resistance exercise program were performed with warm-up. The results were as follows; Improvements in body composition, insulin resistance markers were observed, however, adiponectin and CRP did not changes. These data suggest that adiponectin and CRP is not a important factor to exercise-related improvements in insulin resistance. Additional studies are needed to assess the effects of different duration, modes and intensities of exercise on inflammation markers.