Effect on Horse Riding Exercise for Improvement of Muscle Strength


Abstract—This research was to verify improvement effect of muscle strength in horse riding exercise using indoor equipment. Subjects performed a horse riding exercise using SRider (Neipplus Co., Korea). Twenty male and twenty female subjects were included. Exercise was performed for 40 min a day, 3 days a week during 8 weeks in a constant temperature and humidity environment. We measured lumbar joint torque using the BIODEX System3 to verify improvement in muscle strength. Our results of the muscle strengthen showed that peak lumbar joint torque after exercise was higher than that before exercise. Moreover, horse riding exercise stimulates sensory and motor nerves, which improved muscle reaction. We found that horse riding exercise through the use of indoor equipment improved flexibility, muscle strength, and muscular reaction. We suggest that indoor horse riding could provide patients undergoing rehabilitation or treatment with exercise.

I. INTRODUCTION

Horse riding exercise has been known to whole body exercise with outstanding exercise effect in the world until before. Horse riding exercise not only use but also rehabilitation and treatment of disabled people[1]. Also as whole body exercise, horseback riding can strengthen of flexibility in hip and correcting their posture even physical fitness. Especially, That use whole body muscle, and there have been known to be effective in improvement of postural balance, muscle strength and flexibility with fitting movement of dynamic horse[2]. However, there most instruments of horse riding exercise have lack of exercise effect because that research in possibility of horse riding using indoor equipment. Our study was to verify improvement effect of muscle strength in horseback riding exercise using indoor equipment.

II. METHODS

The subjects included ten males and ten females in their twenties. Subjects performed the horse riding exercise for 40 minutes a day and progressed to 3 days a week during the 8 weeks of using the SRider. We used Biodex system3 (Biodex Medical Systems Co., USA) for observing the variance of lumbar joint peak torque for muscle strength according to the range of motion 60° from the vertical condition with the waist forward.

III. RESULTS & DISCUSSION

We measured lumbar joint torque using the BIODEX System3 to evaluate improvements in muscle strength. Joint torque is defined as that force on a rotated joint due to muscle contraction; that is, the total force on the muscle-related joint during the range of motion. Results of peak lumbar joint torque showed movement within a narrow range for 2 weeks at 61.45 ± 4.35, but improved sharply after 4 and 8 weeks to 103.90 ± 6.87, which was an increase of 67.16%. Figure 14 shows the variations in peak lumbar joint torque before and after the horse riding exercise.

IV. CONCLUSION

The horse riding exercise improved muscle strength and endurance in 6 weeks, because the abdominal and lumbar muscles must be strong to maintain posture during the 3D movement. Beside the rhythmic and repetitive movement may have affected sensory and motor nerves to improve muscle strength. The results suggest that horse riding exercise using equipment such as the SRider could be applied to provide exercise for patients with disabilities.

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REFERENCES