

Influence of percentage of body weight support on gait in patients with traumatic incomplete spinal cord injury.

Abstract

Background: Body-weight-supported treadmill training (BWSTT) is a treatment method to help patients with incomplete spinal cord injuries to restore the capability to walk again.

Objective: This study aimed to assess the effects of different percentages of body-weight-support locomotor training on the enhancement of gait for persons with incomplete spinal cord injuries.

Subjects and methods: Twenty male paraplegic persons, with the statistical parameters [mean \pm SD] age 32.53 ± 1.793 years, height 175.71 ± 1.658 cm, weight 71.59 ± 2.442 kg, and body mass index 23.18 ± 0.828 kg/m $_2$) were picked by convenience sampling. Ten patients were randomly allocated to the body-weight treadmill training 30% group (Group A); and ten patients to the body-weight treadmill training 40% group (Group B). The two groups were exercised for 1h every set, at two sets weekly for 1.5 months. Body-weight-supported treadmill training was divided into a 15-min warm-up on a stationary bicycle, 45-min body-weight-supported treadmill training with 30 and 40% body weight and finally, a 10 min cool down as we started loading with 10% of body weight of each patient until reach 30% or 40% according to his group.

Results: The resultant data revealed that there are significant distinctions between the body-weight treadmill training 30% and the with body-weight treadmill training 40% groups in regards to alterations in the walking speed, step length, and stride length ($p < 0.001$), cadence ($p = 0.009$).

Conclusion: Body-weight-supported treadmill training 40% in comparison with body-weight-supported treadmill training 30% can enhance both the quantity and quality of gait in paraplegic patients (ASIA B, C, and D classification).

Keywords: Body-weight-support treadmill training, Gait, Locomotor training, Incomplete spinal cord injury, Central pattern generator

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