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Obesity Indices and Ventilatory Function Responses to High-Level Laser Therapy in Subjects with Abdominal Obesity

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Abstract

Objective: The aim of this study is to investigate the effectiveness of pulsed Nd:YAG high-intensity laser therapy (HILT) on body weight (Wt), body-mass index (BMI), waist circumference (WC), forced vital capacity (FVC), and forced expiratory volume in 1 sec (FEV1) in young adults with abdominal obesity (AO). **Materials and methods:** Thirty-seven young adult males (age 19-25 years) with BMI >30 kg/m² and WC >102 cm participated in this 12-week, randomized controlled study and were randomly allocated into either Group I [received pulsed Nd:YAG HILT plus moderate-intensity aerobic exercise training (AET) program] or Group II (received placebo pulsed Nd:YAG HILT plus the same AET program). The variables were evaluated pre- and poststudy. **Results:** Poststudy mean values and percentages of changes were calculated for Wt [83.7 ± 6.58 kg (-6.14%) and 88.71 ± 5.09 kg (-4.29%)], BMI [29.27 ± 1.06 kg/m² (-6.14%) and 30.09 ± 1.23 kg/m² (-4.24%)], WC [105.44 ± 5.84 cm (-3.78%) and 109.42 ± 4.9 cm (-1.74%)], FVC [4.79 ± 0.4 L (+13.6%) and 4.39 ± 0.66 L (+5.89%)], and FEV1 [4.04 ± 0.22 L (+16.4%) and 3.82 ± 0.39 L (+8.8%)] for Group I and Group II, respectively. Between groups, there were significant differences in mean values of Wt ($p = 0.014$), BMI ($p = 0.04$), WC ($p = 0.03$), FVC ($p = 0.03$), and FEV1 ($p = 0.04$) at the end of the study, but in favor of Group I. **Conclusions:** Utilizing the pulsed Nd:YAG HILT as an adjunctive therapeutic modality proved to be effective in improving the anthropometric indices and ventilatory functions in subjects with AO.

Keywords: body mass index; laser therapy; obesity; respiratory function tests; waist circumference.

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