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Effects of low volume resistance training on blood pressure changes, glycemic levels, fatigue scores, bone mineral density, and muscle strength: a case study at a university hospital

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Objective: This study aimed to evaluate the effects of one resistance training (RT) session per week on indicators of blood pressure, glycemic levels, fatigue scores, bone mineral density, and muscle strength. **Methodology:** A case study was conducted with an elderly patient (78 years old; body mass: 82.8 kg; height (m): 1.54; body mass index: 34.7 kg/m²), breast cancer survivor, with mastectomy, undergoing hormone therapy, diagnosed with type II diabetes, hypertension, and grade I obesity. The RT consisted of one session per week for 8 weeks. The sessions consisted of only four exercises: bench press, lat pulldown, leg press, and crunch exercises, with progressive intensity increase throughout the sessions, which lasted an average of 30 min. Before and after the period of training, resting blood pressure, fasting blood glucose, fatigue scores, bone mineral density, and muscle strength were evaluated (CEP: 50717115.4.0000.5083). **Results:** Systolic blood pressure did not change significantly between pré and post moment (152 and 147 mmHg, respectively) as did diastolic blood pressure (77 and 76 mmHg, respectively), as well as total bone mineral density (pre=2.3 g/cm² and post=2.4 g/cm²). However, fasting blood glucose changed the classification values (pre=129 mg/dL and post=97 mg/dL). Fatigue levels classified at the pre-moment as moderate in the behavioral (2.2), affective (2.8), and sensory (0.4) domains reduced to the absence of fatigue after the intervention, although without classification change in the cognitive domain (pre=3.5 and post=1.6, respectively). Additionally, performance in the muscle strength test increased by 33% between pre-moment (90 kg) and post-moment (120 kg). **Conclusion:** A low volume of RT was able to improve glycemic levels, fatigue scores, and muscle strength performance in an elderly breast cancer survivor with diabetes, hypertension, and obesity.

Keywords: resistance training; breast neoplasms; exercise.