

LOAD PROGRESSION IN STRENGTH EXERCISES THROUGH A PHYSICAL COMBINED TRAINING PROGRAM FOR ELDERLY PEOPLE

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Abstract

The objective of this study was to investigate how many strength training sessions would be necessary to achieve significant increase in load. A group of 7 men and 14 women over 60 years old were recruited for the survey. The participants underwent combined training (strength and aerobic exercise), with 2 sessions of strength exercise and 3 sessions of aerobic exercise per week during 16 weeks. The strength exercise was composed of 5 exercises for the main muscle groups (knee extension, knee curl, leg press, bench press, high pull), 1 set of 15 repetitions was performed for each exercise. The aerobic exercise consisted of continuous walking/running on a treadmill, at 60% of the VO₂ reserve, for 50 minutes. The loads were recorded at each training session. Participants were encouraged to always score between 7 and 8 on the effort perception scale (0 to 10). In the present study we observed that both genders had an increase in the amount of load used. The combined training protocol used is capable of increase the load in the strength training in the first 8 training sessions differentiating between exercises and gender.

Key words: strength training; elderly; muscular strength.

Introduction

Both strength (ST) and aerobic (AT) exercise training are complementary to maintain and improve health in elderly. AT improves cardiorespiratory fitness, and there is the best health indicator. ST also plays an important role in individual's health, mainly in muscle strength and is highly recommended for the elderly. Some benefits and improvements in the human organic systems are obtained through this type of exercise training program. According to the literature, ST improve body composition, bone mineral density, blood glucose levels and insulin sensitivity, besides the strength gain. In this way, the present study aims to identify the minimum number of training sessions to achieve increase of loads in the ST sessions within a combined training program in elderly. This is important to precise exercise prescription of combined training in this population.

Results and Discussion

We recruited 21 sedentary individuals over 60 years of age. These individuals underwent a combined training program (ST and TA) for 16 weeks, based on the American College of Sports Medicine (ACSM) guidelines for the elderly. ST was prescribed twice per week and AT was prescribed three times per week. The ST was composed of five exercises for the main muscle groups (knee extension, knee curl, leg press, bench press, high pull). Participants were encouraged to score between 7 and 8 on the effort perception scale ranging from 0 (effortless) to 10 (maximal effort) and when it was not achieved the load of the next session was adapted. In the present study we observed that both genders had an increase in the amount of load used in each exercise in the resistance training, for the women, the results found for lower limb exercises and the high pull exercise were seen from the 4th training session and for the bench press exercise only in the 8th session, for men the results were found for knee extension and leg press was noted from the 5th session but for knee curl only in the 7th session. For upper limbs the high pull exercise was seen from the 6th training session and for the bench press exercise only in the 7th session a significant load progression.

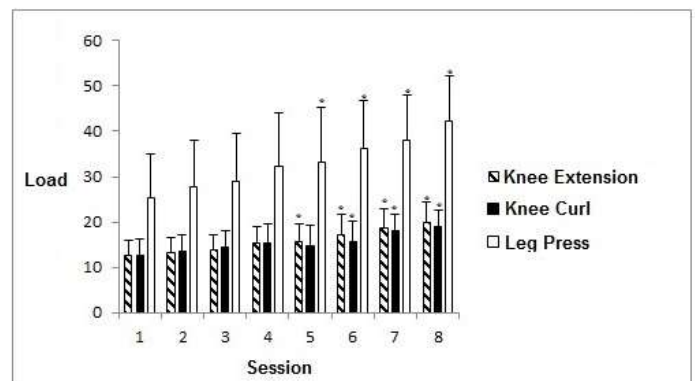


Figure 1. Load progression over eight training sessions of lower limb exercises.* Significance value $p < 0.05$ when compared to the load used in the first training session.

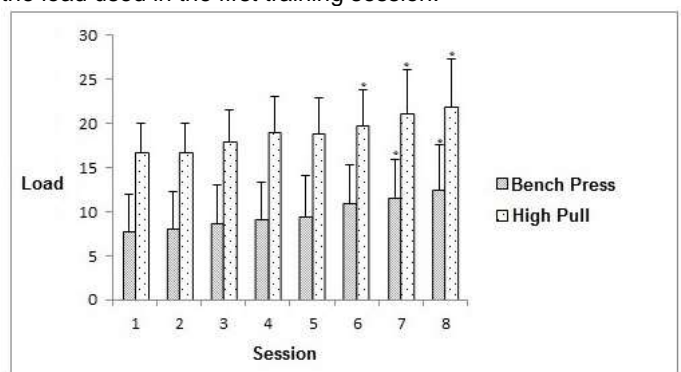


Figure 2. Load progression over eight upper limb exercises sessions.* Significance value $p < 0.05$ when compared to the load used in the first training session.

Conclusions

In view of the discovery of the present study, the combined training protocol used was able to promote significant changes in training loads within the first 8 training sessions differentiating between exercises and gender.

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