

Proceedings of the International Seminar of Physical Education, Leisure and Health, 17-19 June 2019. Castelo Branco, Portugal

Cite this article as:

Proceedings of the International Seminar of Physical Education, Leisure and Health; Castelo Branco, Portugal. (2019). *Journal of Human Sport and Exercise*, 14(4proc), S1169-S1823.

doi:<https://doi.org/10.14198/jhse.2019.14.Proc4.82>

Table of Contents

Muscle soreness and fatigue and their associations with internal and external load measures in professional soccer players	1181
Internal and external training load associations in professional soccer players	1185
Comparison of motivational factors for the practice of exercise at gyms and nature and adventure sports	1189
Association of physical activity, self-concept and self-efficacy in high school students	1193
Effect of the Internet and online social media on awareness of ACSM physical activity recommendations	1197
Physical activity level and perceptions about exercise in patients with Osteoporosis	1201
Parental perceptions of physical activity benefits for children with autism spectrum disorders ...	1205
Relationship of intrinsic motivation towards sport, with variables related to a healthy lifestyle....	1209
Differences between gender and population groups, motivational variables and healthy lifestyles	1213
Short-term effects of myofascial release on isometric knee extensors strength	1217
Iron, phosphorus and magnesium erythrocyte concentrations in men with a high, moderate or low level of physical training	1221
Possible relationship between some trace metals and the hormone insulin in high-level athletes	1225
Erythrocyte concentrations of chromium, manganese and zinc in men with a high, moderate or low level of physical training	1228

In-season internal training load quantification of an under-17 European male soccer team: Starters versus Non-starters	1518
Pre-season and in-season internal training load quantification of one-week schedules in under-17 European soccer team	1522
Bullying among medical students: Integrative literature review	1526
Perceived motivational climate and goal orientation in soccer athletes: A longitudinal perspective	1529
Bullying victimization and family interactions of Brazilian students: A mixed study	1533
Habitual physical activity patterns of pre-school children from Bragança	1537
The (In)discipline: Playtherapy as prevention	1541
Students' opinion on Physical Education and School: An association with academic performance	1545
The curricular identity of Physical Education: New perspective.....	1548
The effect of combining general warm-up with specific warm-up in bench press performance	1552
The importance of workplace health management in the context of skills shortage in small and medium-sized companies	1556
Case study of the programs for soccer teaching of two teachers in training versus the Tactical Game Approach model	1559
Social and personal skills in Physical Education: teachers and students' preception about an intervention program.....	1563
Is VO₂ kinetics influenced by swimming intensity in maximal and supramaximal velocities in young female swimmers?	1566
Training and leadership profile in adapted sport coaches and the implication in athletes with intellectual disabilities	1570
Adapted sports: An experience for initial skills development of sport professionals	1574
Perceived barriers and physical activity levels in older adults: The role of education	1578
Supervised vs. non-supervised physical activity: The impact on functional fitness in older adults	1582
Playfulness in education: A systematic review	1586
The 2019 Special Olympics World Games experience: Perspective of athletes who participated ..	1590
The importance of sports to the Inclusive Research Group of APPACDM Castelo Branco.....	1593
Adapted sports: Curricular traineeship	1596
The observation: Adapted table tennis.....	1600
Changing elderlies strength levels with a four months multicomponent training program	1604
Bone mineral density and muscle strenght in elderly: A cross-sectional study	1608
Effects of a multicomponent exercise program with duration of 12 weeks on the quality of life in breast cancer survivors	1612

Changing elderlies strength levels with a four months multicomponent training program

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ABSTRACT

The multicomponent training seems to positively influence elderly's physical fitness. It is unclear the effects of this type of training with less intervention time in strength levels. Thus, the aim of this study was to assess the effects of a multicomponent training program with four months in elderly's strength levels. The sample of this study was composed by 30 subjects with 69.30 (± 5.45) years old and 71.80 (± 8.97) Kg. Body weight was assessed with a bioimpedance balance. The knee flexion and extension, arm curl and abduction were assessed with a strain gauge in kilograms of force (Kgf). There were no significant differences between the two moments. However, the mean body weight, knee flexion and extension strength levels increased. A four months multicomponent training program seem to be insufficient to improve strength levels in elderlies.

Keywords: Strength; Elderlies; Multicomponent training.

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Supplementary Issue: Spring Conferences of Sports Science. International Seminar of Physical Education, Leisure and Health, 17-19 June 2019. Castelo Branco, Portugal.

JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202

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doi:10.14198/jhse.2019.14.Proc4.82

INTRODUCTION

Elderlies physical fitness seems to be determinant for daily life activities and quality of life. Thus, exercise programs are regularly prescribed to improve older people physical fitness (Marsh et al., 2009). The multicomponent training seems to positively influence elderly's physical fitness. However, the literature is scarce about the benefits of multicomponent training in strength levels (Nelson et al., 2004).

Different studies assessed the eight multicomponent training effects in body composition and physical fitness with a duration of eight months (Monteiro, Alves & Forte, 2019). It is unclear the effects of this type of training with less intervention time. Thus, the aim of this study was to assess the effects of a multicomponent training program with four months in elderly's strength levels.

MATERIAL AND METHODS

Participants

The sample of this study was composed by 30 subjects with 69.30 (± 5.45) years old and 71.80 (± 8.97) Kg. Among them, fourteen were males and sixteen were females. All the procedures were in accord to the Helsinki's declaration regarding human research. A written consent by the parents or tutors was obtained beforehand.

Measures

Body weight was assessed with a bioimpedance balance (Tanita, BC-601, USA). The knee flexion and extension, arm curl and abduction were assessed with a strain gauge in kilograms of force (Kgf).

Procedures

For body weight assessment the subjects wear light clothes and without shoes. Before the strength evaluations the subjects performed a 10 minutes walking warm up, combined with upper limbs rotations, elevations, flexions and extensions. The strength levels were assessed with a strain gauge fixed to the machines arms at 60°. The subjects performed three repetitions and the highest value was selected. Between repetitions, each subject rested 2 minutes. The multicomponent training was characterized by three sessions per week with exercises of resistance, strength, coordination and balance. Each session volume was sixty minutes (Monteiro et al., 2018).

Analysis

The Kolmogorov-Smirnov test allowed to assess the sample normality. T-Test assessed the statistical differences between groups. The significance level was 5%.

RESULTS

Table 1 present the mean, standard deviation (\pm SD), and the comparison between the baseline and after four months of multicomponent training in weight and strength levels.

There were no significant differences between the two moments. However, the mean body weight, knee flexion and extension strength levels increased.

Table 1. Mean, standard deviation (\pm SD), and the comparison between the baseline and after four months of multicomponent training in weight and strength levels

Variables	Baseline	Post-Training	T	p
	Mean (\pm SD)	Mean (\pm SD)		
Weight	71.80 (\pm 8.97)	71.83 (\pm 9.08)	-0.138	0.891
Knee flexion	13.82 (\pm 6.40)	14.07 (\pm 6.05)	-0.518	0.608
Knee extension	33.39 (\pm 12.77)	33.45 (\pm 12.62)	-0.119	0.906
Arm curl	13.82 (\pm 4.36)	13.68 (\pm 4.46)	0.494	0.625
Arm abduction	6.78 (\pm 2.58)	6.38 (\pm 2.66)	1.641	0.112

DISCUSSION

This study aimed to assess the effects of a multicomponent training program with four months in elderly's strength levels. The results shown that there were no significant differences between the baseline and after four months of intervention. That might be explained by the lack of specificity of multicomponent training in strength capacity (Carvalho et al., 2010). In fact, multicomponent training aim to train resistance, strength, coordination and balance in a single session (Carvalho et al., 2010; Monteiro et al., 2018). Even more, four months of multicomponent training might not be enough to improve strength levels by multicomponent training.

CONCLUSIONS

A four months multicomponent training program seem to be insufficient to improve strength levels in elderlies. It is recommended to assess the effect of different multicomponent training programs duration in strength level.

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