

Title (capital letters)	Effects of resistance training on body composition and muscle strength in older women
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Centre	<sup>1</sup> Escola Superior de Desporto, Instituto Politécnico de Santarém, Portugal <sup>2</sup> Centro de Investigação em Desporto, Saúde e Desenvolvimento Humano, Vila Real, Portugal. <sup>3</sup> Laboratório de Investigação em Desporto – Escola Superior de Desporto de Rio Maior

Presentation preference: ☒ Oral communication ☐ Poster

Topic: resistance training in older women

<div>TOPICS</div> <ul style="list-style-type: none"><li>○ Sports Medicine.</li><li>○ Training and performance improvement.</li><li>○ Biomechanics.</li><li>○ Sports cardiology.</li><li>○ Exercise physiology.</li><li>○ Nutrition and sports supplementation.</li><li>○ Kinanthropometry.</li><li>○ Genetics and molecular biology.</li><li>○ Diagnostics, management and treatment of sports injuries.</li><li>○ Sports injuries prevention.</li><li>○ Management and treatment of illness through physical exercise.</li><li>○ Health improvement and aging delay through physical activity.</li><li>○ Athlete's care.</li><li>○ Doping.</li><li>○ Imaging Diagnostics in Sports Medicine.</li></ul>	<b>Introduction</b> <p>The purpose of this study was to compare the effects of low intensity resistance training (LRT) and high intensity resistance training (HRT) on body composition and muscle strength in twenty-eight active postmenopausal older women.</p>																																																																																																																													
	<b>Methods</b> <p>Participants aged 59-75 years (mean age 66,9 ± 4,69 yr., mean height 152,7 ± 5,85 cm, mean weight 63,2 ± 7,44, postmenopausal years 19,1 ± 7,2), were matched on initial total bone mineral density and assigned on the ABBA procedure. The LRT group (n=9) performed the training at an intensity of 60% of one repetition maximum (1RM), and the HRT group (n=7) at 80% of 1RM. Both groups performed 2 sets per exercise, 8 exercises per session, twice a week, during 7 months. The control group (n=12) maintained calisthenics exercise for 2 sessions a week. Pre and post tests of 1RM were conducted at progressive resistance equipment, muscle strength was measured in a Cybex II isokinetic dynamometer, namely, peak torque of the non-dominant knee and elbow extensors and flexors at 60°.s<sup>-1</sup>. Measurements of lean body mass (LBM) and fat mass (FM) were made by dual-energy X-ray absorptiometry (DXA, model QDR-1500, Hologic Inc., Waltman, MA).</p>																																																																																																																													
	<b>Results</b> <p>The results are expressed (table 1) by the determinations of the regression coefficients for the initial value of each variable, the partial regression coefficient, determination coefficient for the initial value and incremental determination coefficient for the years after-menopause and group, using as dependents variables the final values of the weight, lean body mass (LBM), percentage of the fat mass (MG%), isocinetic force and isotonic force.</p>																																																																																																																													
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	<table><tr><th rowspan="2"></th><th colspan="2">Initial value</th><th colspan="2">Years</th><th colspan="2">Grup</th></tr><tr><th>β</th><th>R<sup>2</sup> (%)</th><th>β</th><th>iR<sup>2</sup>(%)</th><th>β</th><th>iR<sup>2</sup>(%)</th></tr><tr><td><b>Weight (g)</b></td><td>0,961*</td><td>92,3*</td><td>-0,014</td><td>1,7*</td><td>0,043</td><td>0,2</td></tr><tr><td><b>LBM (g)</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Total</td><td>0,949*</td><td>90,1*</td><td>-0,041</td><td>0,2</td><td>0,005</td><td>0,0</td></tr><tr><td>Braços</td><td>0,870*</td><td>75,5*</td><td>-0,044</td><td>0,2</td><td>-0,159</td><td>2,5</td></tr><tr><td>Pernas</td><td>0,916*</td><td>83,9*</td><td>-0,049</td><td>0,2</td><td>-0,023</td><td>0,1</td></tr><tr><td><b>MG (%)</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Braços</td><td>0,923*</td><td>81,1*</td><td>-0,013</td><td>0,0</td><td>0,115</td><td>1,3</td></tr><tr><td>Pernas</td><td>0,948*</td><td>89,9*</td><td>0,043</td><td>0,2</td><td>0,014</td><td>0,0</td></tr><tr><td><b>Isocinetic Force</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td><b>Peak torque (Nm)</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Ext. Joelho</td><td>0,816*</td><td>66,6*</td><td>0,027</td><td>0,1</td><td>0,231</td><td>4,5</td></tr><tr><td>Flex. Cotovelo</td><td>0,670*</td><td>44,9*</td><td>0,324*</td><td>9,6*</td><td>0,043</td><td>0,1</td></tr><tr><td><b>Isotonic Force</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td><b>1RM (Kg)</b></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Ext. Pernas</td><td>-0,061</td><td>0,4</td><td>-0,062</td><td>0,4</td><td>0,143</td><td>1,9</td></tr><tr><td>Flex. Cotovelo</td><td>0,062</td><td>0,4</td><td>-0,077</td><td>0,6</td><td>0,227</td><td>4,9</td></tr></table>		Initial value		Years		Grup		β	R <sup>2</sup> (%)	β	iR <sup>2</sup> (%)	β	iR <sup>2</sup> (%)	<b>Weight (g)</b>	0,961*	92,3*	-0,014	1,7*	0,043	0,2	<b>LBM (g)</b>							Total	0,949*	90,1*	-0,041	0,2	0,005	0,0	Braços	0,870*	75,5*	-0,044	0,2	-0,159	2,5	Pernas	0,916*	83,9*	-0,049	0,2	-0,023	0,1	<b>MG (%)</b>							Braços	0,923*	81,1*	-0,013	0,0	0,115	1,3	Pernas	0,948*	89,9*	0,043	0,2	0,014	0,0	<b>Isocinetic Force</b>							<b>Peak torque (Nm)</b>							Ext. Joelho	0,816*	66,6*	0,027	0,1	0,231	4,5	Flex. Cotovelo	0,670*	44,9*	0,324*	9,6*	0,043	0,1	<b>Isotonic Force</b>							<b>1RM (Kg)</b>							Ext. Pernas	-0,061	0,4	-0,062	0,4	0,143	1,9	Flex. Cotovelo	0,062	0,4	-0,077	0,6	0,227	4,9
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<b>Conclusions</b> <p>Although there were no significantly statistics results, the data indicate substantial increases in strength of knee extension and elbow flexion in the HRT group, and on the arms LBM in the LRT group. These results</p>																																																																																																																														

	<p>call for further research to determine the optimal training prescription for obtaining strength gains in older women.</p> <p><b>Key Words:</b> postmenopausal women, strength training, muscle strength, lean body mass, fat mass</p>
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