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EFFECTS OF EXERCISE TRAINING ON ENDOTHELIAL DYSFUNCTION IN SUBJECTS WITH METABOLIC SYNDROME.

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Objectives

Metabolic syndrome (MS) is associated to impaired arterial vasoactivity, now recognized as an early marker of atherosclerosis burden and regular physical activity (PA) is an effective CVD prevention and treatment for subjects with type 2 diabetes mellitus and MS.

Methods

Twenty patients (13 females, mean age 51±9 years), affected by MS, underwent a 3 months, 2 sessions/week, mixed (aerobic-resistance) PA. Brachial-artery flow-mediated vasoactivity (FMV), by two-dimensional ultrasonography, and skin microvascular reactivity, by laser-Doppler flowmeter, were assessed.

Results

Physical activity decreased body mass index (from 34.8±4.7 to 33.9±5 kg/m², $p=0.02$) and fat mass (from 41.6±5.2 to 38.7±6.4 %, $p=0.002$) and improved cardiorespiratory fitness (VO_{2max} from 18.7±8.0 to 29.7±8.8 mLxKg⁻¹x min⁻¹, $p=0.001$). The area under the curve after postocclusive reactive hyperemia (PORH), at laser-Doppler examination, increased after PA (from 1593±665 to 2661±1270 U/s, $p=0.01$). Brachial FMV improved even if not significantly after PA (from 9.9±5.2 to 12.2±4.6 %, $p=0.25$).

Conclusions

Our results indicate that moderate mixed PA improves microvascular endothelial dependent vasorelaxation in patients with MS. Lifestyle modifications may be an useful approach to reduce high CVD risk associated to MS.