Intramyocellular or extramyocellular contents are associated with arterial stiffness in low level of cardiorespiratory fitness in middle and older women

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**Purpose:** This study aimed to clarify whether the cardiorespiratory fitness level affects the relationship between intramyocellular (IMCL) or extramyocellular (EMCL) contents and arterial stiffness with a cross-sectional study. **Methods:** Two-hundred forty five healthy young, middle-aged and older subjects (18–81 years) were enrolled in this study. The study subjects were divided into 2 groups according to fitness level (high-fitness: HF and low-fitness: LF groups). IMCL and EMCL contents of the right vastus lateralis muscle were evaluated by 1H-magnetic resonance spectroscopy. Arterial stiffness was estimated by using brachial-ankle pulse wave velocity (baPWV). **Results:** There were significant correlations between baPWV and IMCL content and EMCL content in all subjects. In middle and older female of LF group, significant negative correlation was observed between baPWV and IMCL (r=−0.562, p<0.05), while EMCL was positively correlated with baPWV (r=0.452, p<0.05). However, there was no significant correlation in HF female group or HF and LF male groups. **Conclusion:** These results suggest that EMCL and IMCL contents may be associated with arterial stiffness in low level of cardiorespiratory fitness in middle and older women.

**Key words:** intramyocellular lipid, extramyocellular lipid, brachial-ankle pulse wave velocity

Changes in brachial-ankle pulse wave velocity and blood pressure after short-term hypobaric hypoxic training

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**Purpose:** The present study examined the changes in brachial-ankle pulse wave velocity (baPWV) and resting blood pressure (BP) after short-term hypobaric hypoxic training. **Methods:** Forty-one healthy male adults (22±2 yrs) had a 30 min aquatic exercise at the intensity of around 50% VO2max for 5 consecutive days or 4 of 5 days under hypobaric hypoxic conditions corresponding to 2000m above sea level. Before and after the training, systolic (SBP), diastolic (DBP) and mean BP (MBP) at rest and baPWV were determined. **Results:** After the training, baPWV significantly improved. A negative correlation was found between baPWV at baseline and changes in baPWV after the training. Also, SBP, DBP and MBP at baseline were significantly correlated to baPWV, respectively. However, no significant correlations were found between changes in baPWV and blood pressure or changes in blood pressure. **Discussion:** Our findings suggest that short-term hypobaric hypoxic training improves baPWV and that changes in baPWV depends on baPWV at baseline in healthy men, but are not related to BP or changes in BP. **Key words:** hypoxia, arterial stiffness, baPWV, blood pressure

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