

加齢に伴う温度感覚の減弱は 全身持久力の向上で改善できるか？

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Does the Increased Physical Fitness Enhance the Age-Related Deterioration in Thermal Sensation?

by

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ABSTRACT

To elucidate the effects of age-related decrease in aerobic capacity on the blunted thermal sensation observed in the seniors, we compared thermal sensation between seniors (mean age 69 yrs) and young counterparts (mean age 22 yrs) who have similar maximal oxygen uptake and physical characteristics. Under normothermia and mild-

hyperthermia (esophageal temperature, $+0.7 - +0.9^{\circ}\text{C}$, lower legs immersion in 42°C water) , warm and cold detection threshold at the forearm and chest and also whole body thermal sensation (VAS) were determined in addition to thermoregulatory responses. We found that there were no significant differences in esophageal and mean skin temperatures while warm detection threshold at the forearm was significantly higher (blunted) in the seniors than the young. On the other hand, there were no significant differences in warm detection threshold at the chest, cold detection threshold at the forearm and chest, and also whole body thermal sensation between the groups. These results may suggest that age-related decrease in aerobic capacity causes the decreased whole body thermal sensation while does not associate with the blunted warm detection threshold at the extremities with normal aging. Thus, the blunted thermal sensation with aging would be improved, at least in part, with the enhanced aerobic capacity in the seniors.

要 旨

きる.

老化に伴う温度感覚の減弱に及ぼす全身持久力低下の影響を明らかにすることを目的とし、最大酸素摂取量および身体的特性の等しい健常な高齢男性6名(平均年齢69歳)および若年男性7名(平均年齢22歳)において温度感覚を比較した。平常体温時および受動加温(下腿温浴 42°C)による軽度高体温(食道温 $+0.7 \sim 0.9^{\circ}\text{C}$)時に、体温調節応答に加えて前腕部および胸部の温覚・冷覚閾値($\pm 0.1^{\circ}\text{C}/\text{秒}$)、および、全身の温熱感覚(VAS法)を測定した。その結果、両体温条件において、食道温および平均皮膚温に群間の有意差を認めなかったが、前腕部温覚閾値は若年者に比べて高齢者で有意に高値(鈍化)を示した。一方、胸部温覚閾値、両部位の冷覚閾値および全身の温熱感覚には、両体温条件において群間の有意差を認めなかった。これらの結果は、老化に伴う全身持久力の低下は、全身の温熱感覚の減弱の原因となるが、末梢部の温覚閾値の劣化には関与しないことを示唆し、全身持久力の向上によって老化に伴う温度感覚の減弱が一部改善することが期待で