Prefectural University of Hiroshima

Training Sciences

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Research Topics and Research Theme in the future

In our laboratory, a variety of studies are conducted to better understanding the effect of exercise (i.e., acute and chronic) on human physical fitness and health. Recent research topics are summarized below with an outline of research and the published articles.

1. Effect of aerobic exercise training on limb composition: It has been recognized that regular aerobic training reduces adipose tissue. We focused on the local effect: whether leg exercise training affected the subcutaneous region in the trained limb alone.

2. Effect of prior heavy exercise on the parameter of the power-duration curve for cycle ergometry: The tolerable duration (t) for high-intensity cycle ergometry is well characterized as a hyperbolic function of power output (P) with an asymptote termed the critical power (CP), and a curvature constant (W') that is numerically equivalent to a fixed amount of work that can be performed above CP. We investigated the effect of prior heavy exercise on the CP and W'.

3. Measurement of venous compliance in human limb: We have developed a new technique for measuring the compliance in conduit venous vessels in human limbs. In our method, the compliance of the popliteal vein was measured from the relationship of the venous pressure and its cross sectional area measured from B-mode ultrasonography.

4. Effect of aerobic exercise training on limb compliance: Regular aerobic-endurance exercise attenuates age-associated reductions in large arterycompliance in sedentary adults. However, little information is available from studies in humans on the effect of exercise on venous compliance. Therefore, we investigated the effect aerobic leg exercise training on the compliance of the popliteal vein.

References :

1) Effects of aerobic exercise in early evening on the following nocturnal sleep and its haemodynamic response. Res Sports Med. 2016; 24(1):16-29.
2) Timing of post-resistance exercise nutrient ingestion: effects on gastric emptying and glucose and amino acid responses in humans. Br J Nutr. 2018; 120(9):995-1005.