七281 Characteristics of plasma particle image in long distance runner

Lujian XING, Suketsune IWAGAKI
Graduate School of Physical Education,
Tokai University

<Objective>
The purpose of this study was to clarify the characteristics of plasma particle images obtained using flow cytometry.
<Methods>
The subjects were student long distance runners,(LDR),(n=15), general students (n=12) and patients with myocadiac infarction. Blood was drawn from the cubital vein in the postabsorptive state and centrifuged at 4500×g for 20min. Plasma was diluted in phosphate buffer solution(PBS, pH7.4), and the plasma particle image (PPI) was measured using EPICS-ALTRA (Beckman Coulter).
<Results and discussion>
PPI composed of FS(forward scatter) and PMT1(photo multiplier tube 1=side scatter) were observed. FS of LDR was significantly smaller than that of the control group, and FS in the myocardiac infarction group was larger than that of the control group. Using sorting technique, we found no difference in lipid composition between high and low FS fraction particles. However, the high FS fraction particles of myocardiac infarction patients contained large amonuts of triglyceride(TG) and cholesterolester(CE). These findings suggest that PPI is useful to show the metabolic characteristics of subjects.
<Key words>Plasma particle image, flow cytometry, plasma TG

七282 Relationship between Rowing Performance and Blood Lactate, pH and HCO_3^-

Goken SAKAMOTO and
Jun SATOMI
Ritsumeikan University

<Objective>
Recent studies have shown that VO_2max and OBLA correlate to 2000m rowing performance. In this study, to find a better predictor of 2000m rowing performance, blood lactate (LA), pH, and HCO_3^- response to Incremental Step Test (IST) and 2000m Time Trial (2000mTT) performance were compared.
<Method>
Eight rowers performed 2000mTT and IST (3 min /step) on a rowing ergometer to determine rowing power (RP) associated with LA2, 3, 4, 6, 8mM, pH7.3, 7.2, HCO_3^-15, 20mM.
<Results and Discussion>
RPpH7.2 (Ave. 330.2W), RPHCO_3^-15mM (Ave. 320.2W), RPLA8mM (Ave. 327.5W) showed high correlation to RP2000mTT (Ave. 312.5W, r=0.97, 0.96, 0.93, respectively), higher than that of RPLA4mM (OBLA)(Ave. 260.6W, r=0.87). By comparing RPpH7.2 and RPLA8mM, which have almost the same RP, there is also possibility that RPpH is a better predictor of rowing performance than RPLA.

<Keywords>
Rowing, Blood Lactate, pH, HCO_3^-