

Effect of cosmetics on sweating and selective brain cooling in hyperthermic humans

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Six healthy males were subjected to the following two experiments in a climatic chamber at ambient temperature of 28°C.

Experiment 1) To confirm whether the makeup of the face suppresses sweating responses during exercise at 1.5, 2.5 and 3.5 kp. The frequency of sweat expulsion (F_{sw}) and sweat rate (M_{sw}) on the forehead of right (makeup) and left (non-makeup) sides were measured. F_{sw} on the makeup side always synchronized with F_{sw} on the non-makeup side. There was no difference of M_{sw} between both sides.

Experiment 2) To investigate whether this suppression of evaporative heat loss from the head hinders the selective brain cooling during hyperthermia induced by head-out sauna Tympanic (T_{ty}) and esophageal (T_{es}) temperatures and blood flow in the angularis oculi vein (Q_{ov}) were measured. When a hood was applied over the head of subjects after thermal equilibrium was obtained, T_{ty} became to be higher than that of T_{es} , even with a gradual increase of Q_{ov} .

These results suggest that cosmetics on the face do not suppress evaporative heat loss from the face during exercise. When the whole head is covered, however, it would be dangerous for the brain cooling.