

Thesis Title The Effect of Various Types of Exercise and Clothes on
 Scrotal Temperature

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ABSTRACT

The effects of different types of exercise and clothing on scrotal, rectal and skin temperature were investigated in twelve males healthy volunteers. Each subject was tested for general physical fitness consisting of vital signs at rest, anthropometric measurements and aerobic capacity, then performed one hour exercise at 75% max HR either on a treadmill or a bicycle ergometer and wore various types of clothing. Each test was separated by at least one week interval. Rectal (T_r), scrotal (T_{sc}) and skin (T_{sk}) temperatures were recorded continuously by using thermistor probes connected to telethermometers. Submaximal exercise either on a treadmill or a bicycle yielded insignificant differences in T_{sc} and T_r during the first half hour of exercise. During treadmill exercise, however, T_r was significantly higher than that during bicycle exercise only at the second half hour of exercise ($P < 0.05$). Whereas T_{sc} was significantly higher in treadmill compared to bicycle exercise at the 30-min through the end of exercise and the 12-min recovery period. On the other hand, T_{sk} was significantly lower in treadmill exercise than bicycle exercise at the 10-min through the 50-min of exercise. When comparisons were made between various types of clothing, T_r was not different at any time

point, whereas T_{sc} while wearing bicycle racing suit (Bike) or T-shirt, shorts, underpant and supporter (Bus) was significantly higher than those during wearing T-shirt, shorts and underpant (B) or with no underpant (Bn) throughout the exercise period, but the increase in T_{sc} (ΔT_{sc}) was significantly higher while wearing athletic supporter than those the others three types. However, there were no differences in T_{sc} and also in S-R temperature differential between B and Bn, and between Bus and Bike throughout the experimental periods. S-R temperature differential during wearing athletic supporter and bicycle suit were significantly lower than those during wearing underpant or no underpant.

The results indicate that different types of exercise and clothing, especially underwear and insulating athletic supporter affect scrotal temperature. Since high scrotal temperature impairs spermatogenesis, exercises that raise scrotal temperature may affect male fertility. Further studies are needed to clarify the extent and effective mode of exercise on reproductive function in men.