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Effects of far-infrared sauna bathing on recovery from strength and endurance training sessions in men

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Abstract

Purpose: This study investigated effects of far-infrared sauna (FIRS) bathing on recovery from strength training and endurance training sessions, but also possible differences between FIRS and traditional (TRAD) Finnish sauna bathing.

Methods: Ten healthy physically active male volunteers had on various days either a 60 min hypertrophic strength training session (STS) or a 34-40 min maximal endurance training session (ETS), which was following by 30 min bathing in special FIRS sauna at temperature of 35-50°C and humidity

of 25-35%. After the sauna, subjects sat for 30 min at room temperature (21°C and 25-30% humidity). In comparison, 30 min of TRAD took place at 35-50°C and in 60-70% humidity. Performance tests included maximal isometric bench press and leg press, counter movement jump (CMJ) and maximal oxygen uptake on a treadmill.

Results: After STS, there were decreases in maximal isometric bench press ($p < 0.001$), maximal isometric leg press ($p < 0.001$), CMJ ($p < 0.001$) and pH ($p < 0.001$), but increases in heart rate ($p < 0.001$) and lactate concentration ($p < 0.001$) as expected. During recovery there were no differences in any variables between FIRS and no sauna bathing (NO SAUNA). Maximal ETS increased oxygen uptake ($p < 0.001$), heart rate ($p < 0.001$), lactate concentration ($p < 0.001$) and decreased pH ($p < 0.001$) as expected. During recovery at 30 min, CMJ was significantly ($p < 0.05$) higher (0.34 ± 0.09 m) after FIRS bathing than after sitting with NO SAUNA (0.32 ± 0.0 m). After sauna heart rate was higher ($p < 0.05$) in TRAD (92 ± 13 beats/min) than in FIRS (71 ± 7 beats/min).

Conclusion: In conclusion, deep penetration of infrared heat (approximately 3-4 cm into fat tissue and neuromuscular system) with mild temperature (35-50°C), and light humidity (25-35%) during FIRS bathing appears favorable for the neuromuscular system to recover from maximal endurance performance. FIRS bathing is a very light loading for the body and provides a comfortable and relaxing experience.

Keywords: Exercise; Far-infrared; Neuromuscular; Performance; Sauna.

Figures

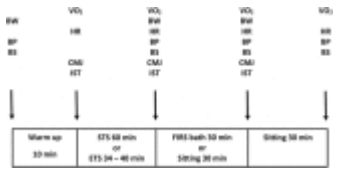

Figure 1 Experimental design. *BW* body weight,...

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