Abstract
The purpose of this study was to investigate skin blood flow at rest and the effects of electrical stimulation on skin blood flow during the menstrual cycle and after menopause. Nineteen subjects participated in the study. Nine volunteers with normal menstrual cycles (mean age = 25.6 ± 3.5 years, height = 162.6 ± 5.8 cm, weight = 55.8 ± 7.6 kg, Body Mass Index (BMI) = 21.1 ± 2.9) and 10 postmenopausal volunteers (mean age 59.2 ± 4.7 years). The effect of electrical stimulation on skin blood flow was studied in a thermoneutral room (25 ± 0.5°C) and a warm room (35 ± 0.5°C) for eight subjects. Electrical stimulation was applied on the right thigh for 15 min at an intensity below the threshold of muscle contraction. Skin blood flow measurements were taken using a Laser Doppler Imager. Sweat rate and skin temperature were monitored at the forehead, chest, and each thigh. Tympanic temperature was taken every 5 min. In the thermoneutral environment, there was no significant effect of electrical stimulation on skin blood flow ($p > 0.05$). In the warm environment, however, the skin blood flows were significantly different in both groups of subjects ($p < 0.01$). Here skin blood flow was significantly lower in the older group of subjects and did not vary during the menstrual cycle.

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