

Effects of Forest Bathing on Cardiovascular and Metabolic Parameters in Middle-Aged Males

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Abstract : In the present study, we investigated the effects of a forest bathing program on cardiovascular and metabolic parameters. Nineteen healthy male subjects (mean age: 51.3 ± 8.8 years) were selected after obtaining informed consent. These subjects took day trips to a forest park named Akasawa Shizen Kyuyourin, Agematsu, Nagano Prefecture (situated in central Japan), and to an urban area of Nagano Prefecture as a control in August 2015. On both trips, they walked 2.6 km for 80 min each in the morning and afternoon on Saturdays. Blood and urine were sampled in the morning before and after each trip. Cardiovascular and metabolic parameters were measured. Blood pressure and pulse rate were measured by an ambulatory automatic blood pressure monitor. The Japanese version of the profile of mood states (POMS) test was conducted before, during and after the trips. Ambient temperature and humidity were monitoring during the trips. The forest bathing program significantly reduced pulse rate, and significantly increased the score for vigor and decreased the scores for depression, fatigue, and confusion in the POMS test. The levels of urinary noradrenaline and dopamine after forest bathing were significantly lower than those after urban area walking, suggesting the relaxing effect of the forest bathing program. The level of adiponectin in serum after the forest bathing program was significantly greater than that after urban area walking. There was no significant difference in blood pressure between forest and urban area trips during the trips.

Keywords : ambient temperature, blood pressure, forest bathing, forest therapy, human health, POMS, pulse rate

Conference Title : ICMAM 2016 : International Conference on Modern Medicine and Alternative Medicine

Conference Location : Zurich, Switzerland

Conference Dates : January 12-13, 2016