

Smart Wellness Housing Project to promote Low Carbon and Healthy Cities in Japan

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In Healthy Japan 21, “a reduction in average systolic blood pressure by 4 mmHg” prevents an estimated 14,000 deaths from cardiovascular disease over a year. So, prevention of hypertension is a prime task for Japan. Therefore, the purpose of this research was to clarify the relation between indoor thermal environment and blood pressure. Field surveys on home blood pressure, ambulatory blood pressure and indoor temperature were conducted in summer and winter from 2012 to 2015 (n=450). Controlling for personal factors, systolic blood pressure was seen to increase by 4.3mm Hg per 10°C decrease in indoor air temperature.

Sleep quality has various influences on financial loss and health. The purpose of study was to elucidate the effect of indoor thermal environment on sleep in both summer and winter.

Physical activity was measured using a physical activity monitor. Participants wore the activity monitors daily. The indoor temperature and humidity were measured with thermo-hygrometers installed in the living room, bedroom, lavatory and the corridor of each participant’s house. The analysis showed that after adjusting for biological factors, socio-economic status, living style etc., the higher the minimum temperature of the lavatory and corridor were, the more physical activity was performed by inhabitants.