

## ABSTRACTS

### **OP-01: Cardiovascular response to isometric handgrip in healthy long-term meditators: a comparative study**

L. J. U. Karunaratne, W. D. A. L. Amarasiri, A. D. A. Fernando

Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka

**Introduction:** Effects of meditation on the cardiovascular system are mediated through the autonomic nervous system. Meditators are thought to have lower sympathetic activity. We evaluated cardiovascular response to isometric handgrip test (IHG) in healthy long-term meditators (LTMs) and non-meditators.

**Methods:** This cross-sectional comparative study compared 18 healthy LTMs practising Buddhist meditation consistently >3 years, selected by a validated intake interview, with 18 age-sex matched healthy non-meditators, selected through purposive sampling as controls. Participants performed IHG at 30% of maximal voluntary contraction for three minutes with MLT004/ST Grip Force Transducer and Power Lab 4/26 (AD Instruments) in the supine position. Non-dominant arm systolic blood pressure (SBP) and diastolic blood pressure (DBP) was measured in the last 15 seconds of every minute, two minutes before, after and during IHG by a calibrated automated BP metre. The differences of parameters between the highest BP during IHG and at baseline were taken as the measure of response. Mann-Whitney U test assessed between-group comparisons.

**Results:** The LTMs (50% male; mean (SD) age 41.44 (12.73) years) and the controls (50% male; mean (SD) age 43.39 (8.51) years) were comparable. LTMs had meditated mean (SD) 12.28 (7.18) years, with mean (SD) frequency of 10.17 (4.57) hours per week. Mean (SD) of resting SBP [103.56 (5.43) vs. 116.94 (10.86) mmHg;  $p < 0.001$ ], DBP [63.56 (6.06) vs. 70.5 (7.38) mmHg;  $p < 0.01$ ] and heart rate (HR) [57.11 (5.72) vs. 66.17 (9.15) beats. min<sup>-1</sup>;  $p = 0.001$ ] were lower in LTMs compared to controls. In response to IHG, increase in DBP [mean (SD); 22.78 (5.07) vs. 28.67 (7.87) mmHg;  $p = 0.012$ ], SBP [median (IQR); 22.5 (14.75) vs. 33 (20.5) mmHg;  $p = 0.029$ ] and HR [mean (SD); 16.33 (8.07) vs. 17.33 (7.01) beats. min<sup>-1</sup>;  $p > 0.05$ ] were lower in LTMs than controls.

**Conclusions:** Smaller increase in DBP, SBP and HR on sustained grip indicates possible lower sympathetic activity in LTMs than non-meditators.

**Keywords:** long-term meditation, sympathetic nervous system function, sympathetic activity, isometric handgrip test, cardiovascular response