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Morning exercise, breaks in sitting improve BP control

A new study involving 67 overweight/obese adults (ages 55 to 80 years) provides further evidence of how important regular, even small amounts of exercise are for an individual's overall health. In this study, walking briskly for 30 minutes in the morning led to an improvement in blood pressure (BP) as the benefit of exercise is sustained for several hours, according to researchers.

The researchers investigated whether there is an additive hypotensive effect when exercise is combined with subsequent breaks in sitting. Sex differences and changes in plasma catecholamines as a potential candidate mechanism underlying BP responses were also examined.

The researchers found that, in female subjects, following the morning walk with regular interruptions in sitting — that is, 3 minutes of less intense walking breaks every half hour — resulted in an even lower average systolic blood pressure during an 8-hour test period.

"Traditionally, the health effects of exercise and sedentary behaviour have been studied separately," lead author Michael Wheeler, PhD candidate at the University of Western Australia in Perth, said in a statement from the American Heart Association (AHA). "We conducted this study because we wanted to know whether there is a combined effect of these behaviours on blood pressure."

The study recruited 67 sedentary patients (including 35 women) who had a mean age of 67 and a mean BMI of 31 kg/m². Participants completed three conditions in random order:

• Sitting (SIT): uninterrupted sitting (8 hours, control)

• Exercise+Sitting (EX+SIT): sitting (1 hour), moderate-intensity walking (30 minutes), uninterrupted sitting (6.5 hours)

• Exercise+Breaks (EX+BR): sitting (1 hour), moderate-intensity walking (30 minutes), sitting interrupted every 30 minutes with 3 minutes of light-intensity walking (6.5 hours)

Serial BP and plasma epinephrine/norepinephrine measurements occurred during 8 hours. The 8-hour average systolic and diastolic BP (mm Hg 95% CI) was lower in EX+SIT −3.4 (−4.5 to −2.3), −0.8 (−1.6 to −0.04), and EX+BR −5.1 (−6.2 to −4.0), −1.1 (−1.8 to −0.3), respectively, relative to SIT (all P <0.05).

There was an additional reduction in average systolic BP of −1.7 (−2.8 to −0.6) in EX+BR relative to EX+SIT (P=0.003). This additional reduction in systolic BP was driven by women −3.2 (−4.7 to −1.7; P <0.001 EX+BR versus EX+SIT). Meanwhile, average epinephrine decreased in EX+SIT and EX+BR in women (−13% to −12%) but increased in men (+12% to +23%), respectively, relative to SIT (P<0.05). No differences in average norepinephrine were observed.

"Morning exercise reduces BP during a period of 8 hours in older overweight/obese adults compared with prolonged sitting," the researchers write. "Combining exercise with regular breaks in sitting may be of more benefit for lowering BP in women than in men."

The research team says longer-term studies are needed to corroborate their findings. Nonetheless, these results could inform clinical and public health discussions around tailored strategies to optimise BP targets in older adults with increased cardiovascular disease risk.

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