

How does deep breathing affect office blood pressure and pulse rate? Mori H, Yamamoto H, Kuwashima M, Saito S, Ukai H, Hirao K, Yamauchi M, Umemura S. Hypertens Res. 2005 Jun;28(6):499-504.

Little is known about the relation between deep breathing (DB) and blood pressure (BP). We studied the relationship between DB and BP in a large Japanese population. The subjects were recruited from randomly selected clinics and hospitals that were members of a medical association, and divided into two groups. In one group, BP was measured before and after taking 6 DB over a period of 30 s, and in the other group BP was measured before and after a 30-s rest in a sitting position without DB. Before these measurements, all patients rested 10 min or more in the waiting room and another 2 min or more in the doctor's office. Analyses were performed on data collected from 21,563 subjects. In both groups, systolic blood pressure (SBP), diastolic blood pressure (DBP) and pulse rate (PR) were significantly reduced after DB or a 30-s rest compared with the baseline measurements ($p < 0.001$). SBP reductions were greater in the DB group than in the 30-s rest group (normotensives: -6.4 ± 8.3 vs. -3.0 ± 7.4 mmHg, $p < 0.001$; untreated hypertensives: -9.6 ± 10.2 vs. -5.9 ± 9.1 mmHg, $p < 0.001$; treated hypertensives: -8.3 ± 9.6 vs. -4.4 ± 8.3 mmHg, $p < 0.001$). Greater BP reductions were found in patients with a higher baseline BP in both the DB and 30-s rest groups. In conclusion, the present study showed a baseline BP-dependent BP reduction by DB, suggesting that BP measurement should be done without DB in the office because DB lowers BP.