

## **Use of real-life data coming from connected scales and wireless blood pressure monitors to assess the impact of weight loss on blood pressure**

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Overweight is a strong risk factor for hypertension. Studies have shown that even a modest weight loss could yield substantial benefits for health. Moreover, with the advent of connected-health devices, weight and blood pressure (BP) can now be easily tracked on a daily basis. Our purpose was to assess the impact of a decrease of body mass index (BMI) on BP by a cross-sectional and longitudinal multivariate study.

We used an anonymous database from 27,000 adult owners of both a connected scale and a wireless BP monitor, in more than 100 countries. These devices measured the BMI and the systolic blood pressure (SBP) respectively. Analyses were adjusted on age, frequency of SBP measurements, and frequency of weight measurements. Multivariate linear regressions were used to study cross-sectional and longitudinal associations between BMI and SBP on the entire population.

The study cohort is characterized by a mean age of  $50.7 \pm 11.6$  years old and a BMI of  $28.6 \pm 5.1$  kg/m<sup>2</sup>, and is composed of 86% of men and 14% of women. Cross-sectional analyses showed a positive association between SBP and BMI in both sexes ( $p < 10^{-15}$  in both sexes). In longitudinal analyses, a one-month decrease of 1.0 kg/m<sup>2</sup> in BMI was associated with a SBP decrease of 1.79 mmHg in men ( $p < 10^{-15}$ ) and 1.81 mmHg in women ( $p < 10^{-15}$ ).

Epidemiological studies and the Framingham study have confirmed the positive relationship between overweight or obesity and high BP. Our study confirms these results using data measured in real life, using connected devices. Moreover, this study shows an objectively evaluated association between an exposure and an outcome in a longitudinal study.

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