

Reproducibility of Central Systolic Blood Pressure, Augmentation Index, Measurements Calculated with the Omron HEM-9000AI Device in a Mexican Population of Young Individuals

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Objective: To assess the agreement and reproducibility of the non-invasive measurement of the central systolic blood pressure (cSBP), second systolic shoulder (SYS2), and augmentation index (AIx) with the HEM-9000AI.

Methods: This cross-sectional study was conducted in 36 healthy Mexican individuals (20 men and 16 women). The cSBP, SYS2, and AIx were measured using the HEM 9000AI device. All values are expressed as mean ± SD; the correlation was analyzed using Pearson’s correlation coefficient and the Bland Altman method for agreement. All p-values were two-tailed, and p<0.05 was accepted as statistically significant.

Results: The mean age of participants was 20.6 ± 1.6 years, mean BMI was 23.5± 3.5 and mean waist circumference was 82.5 ± 9.3 cm. Good correlation between the first and second measurements was exhibited by cSBP (r² Pearson = 0.680), SYS2 (r² Pearson = 0.680), and AIx (r² Pearson = 0.675) (p<0.001 for all). The Bland–Altman plots of the first and second SYS2 and AIx measurements also demonstrated good agreement (respective mean differences: 2.4±6.07 mmHg and 0.029±8.39%).

Conclusion: The results obtained by the OMRON HEM-9000AI device demonstrate that there are strong and significant correlations between the first and second measurements of cSBP, SYS2, and AIx, respectively.

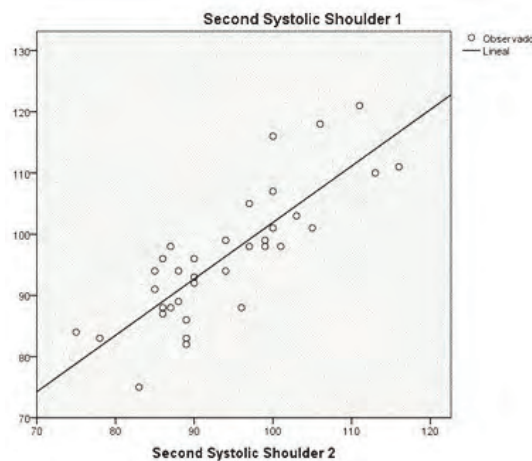


Figure 1. Second systolic shoulder 1, first measurement, vs second systolic shoulder 2, second measurement, Pearson’s r²=0.680, p<0.001

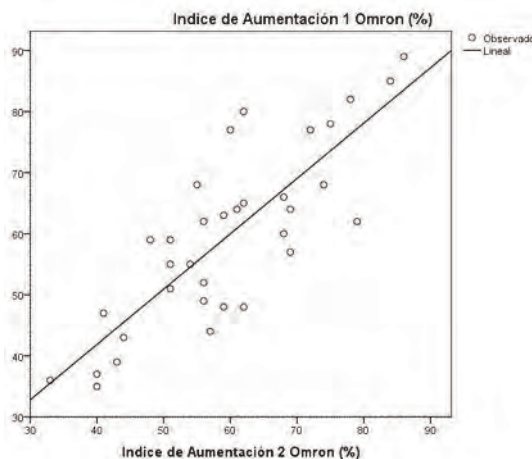


Figure 2. Augmentation Index 1, first measurement, vs Augmentation Index 2, second measurement, Pearson’s r²=0.675, p<0.001