

# ANGIOLOGY

## The Optimal Cuff Width for Measuring Toe Blood Pressure

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To determine the optimal cuff width for measuring toe blood pressure in patients with lower limb ischemia, this experimental prospective study examined 20 patients with symptoms of peripheral arterial disease referred for vascular examination or vascular surgery. Toe blood pressure was measured hydrostatically by the pole test using cuffs of different widths. Pole test reflects the true physiological blood pressure value and was the reference method. Blood pressures obtained using the cuffs were related to this value and to patients' toe circumference. With the 2.5-cm cuff, the patients had a mean pole test toe blood pressure of 28 mm Hg (range, 6-55 mm Hg). Compared with pole test results, the toe blood pressure was 15.6 mm Hg (95% confidence interval [CI], 8-23 mm Hg) higher when measured using the 2.0-cm cuff ( $P < .001$ ) and 4.5 mm Hg (95% CI, 0-9 mm Hg) higher when measured using the 2.5-cm cuff ( $P = .07$ ). Using the 1.5-cm and 3.0-cm cuffs, the differences were 27.0 mm Hg (95% CI, 13-43 mm Hg) and -2.0 mm Hg (95% CI, -11 to 8 mm Hg), respectively. The cuff width greatly affects the obtained toe blood pressure value, and larger cuffs correspond better to the hydrostatic pressure. For clinical use and as a reporting standard, we propose that toe blood pressure measurements should be made using a 2.5-cm-wide cuff.