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### **Validation of volume-pressure recording tail-cuff blood pressure measurements.**

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#### **Abstract**

**BACKGROUND:** The American Heart Association has recommended tail-cuff blood pressure measurement for high throughput experimental designs, including mutagenesis screens and genetic crosses. However, some tail-cuff methods show good agreement with radiotelemetry and others do not, indicating that each tail-cuff method requires independent validation.

**METHODS:** We validated the volume-pressure recording (VPR) tail-cuff method by comparison to simultaneous radiotelemetry measurements.

**RESULTS:** Bland-Altman analysis of 560 cycles from 26 independent measurement sessions showed good agreement between VPR and radiotelemetry measurements, with tail-cuff measurements being 0.25 mm Hg lower than telemetry measurements on average. However, the VPR method was less accurate, compared to radiotelemetry, at extreme high and low (i.e., <110 or >180 mm Hg) systolic blood pressures (SBPs).

**CONCLUSIONS:** We conclude that the VPR tail-cuff method provides accurate blood pressure measurements over the physiological range of blood pressure in mice.