Oscillometric and Doppler techniques can provide continuous noninvasive blood pressure readings in cats and dogs: an instructional video

Satoshi Haginoya, BVSc*, and Elizabeth J. Thomovsky, DVM, MS, DACVECC

College of Veterinary Medicine, Purdue University, West Lafayette, IN

*Corresponding author: Dr. Haginoya (shaginoy@purdue.edu)

Received January 18, 2024
Accepted March 21, 2024

doi.org/10.2460/javma.24.01.0039
©The authors

OBJECTIVE
To provide a video tutorial detailing how to perform continuous noninvasive blood pressure monitoring in dogs and cats.

ANIMALS
Any size dog or cat.

METHODS
To measure blood pressure noninvasively, a blood pressure cuff is selected on the basis of the circumference of the limb and placed at the level of the right atrium. For oscillometric blood pressure measurement, the cuff is connected to an oscillometric unit that will automatically inflate and deflate the cuff in order to measure the patient’s blood pressure using an internal algorithm. For Doppler blood pressure measurement, a sphygmomanometer is used to manually inflate the pressure cuff 30 to 40 mm Hg above the point where the audible arterial sounds disappear. Then, the cuff is gradually deflated until the audible arterial sounds return; the pressure at the first sound is recorded as the blood pressure. To generate continuous readings, the oscillometric machine is set to measure blood pressure as often as every minute. Alternatively, the Doppler crystal is taped to the patient’s leg to facilitate repeated cuff inflation/deflation and collection of blood pressure values as often as every minute.

RESULTS
Continuous blood pressure readings can be obtained by both the oscillometric and Doppler techniques.

CLINICAL RELEVANCE
Continuous blood pressure readings identify trends in a patient’s cardiovascular status. The most reliable oscillometric blood pressure reading is the mean arterial pressure. Doppler blood pressure values are considered systolic in dogs. Doppler values in cats underestimate systolic and overestimate mean blood pressure.

Keywords: oscillometric, Doppler, canine, feline, sphygmomanometer

Acknowledgments
None reported.

Disclosures
Dr. Thomovsky is a member of the JAVMA Scientific Review Board, but was not involved in the editorial evaluation of or decision to accept this Technical/Tutorial Video for publication.
No AI-assisted technologies were used in the generation of this video or Abstract.

Funding
The authors have nothing to disclose.