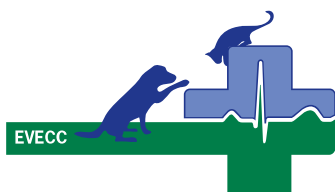# EVECC CONGRESS
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Comparison between external jugular vein diameter, and morphologic and physiologic variables in dogs towards developing an external jugular vein collapsibility index for healthy dogs

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Introduction: Interindividual morphologic and physiologic variation in dogs is very large. The development of a normalized external jugular vein (EJV) collapsibility index (CI) as a quantitative tool for identifying normovolemia in every dog, regardless breed, body weight and morphological structure, is challenging. Nevertheless, it would allow veterinarians to objectively direct intravenous fluid administration towards a quantitative normovolemic goal.

Methods: Twenty-six client-owned mixed breed healthy dogs were studied during clinical routine. The maximum and minimum ventrodorsal diameters of the EJV were measured during inspiration and expiration, respectively, using an ultrasound transducer with a linear probe placed perpendicularly over the EJV, at the middle third of the cervical region. Cervical circumference measurement, weight and heart rate were also registered. Body surface area (BSA) was calculated. Spearman's Rank correlation was used for comparing the variables with EJV maximum and minimum diameters, and polynomial regression equations were used for better curve fit for variables with significant Spearman's Rank correlation. Data are mean±SD and significance $P<0.05$.

Results: Fifteen females and eleven males were studied. Weight 13.1±8,8 kg, age 5.3±3 years, BSA 0.54±0,25 m^2, cervical circumference 31.9±8,5 cm and heart rate 123±18 bpm. The EJV maximum and minimum diameters were 4.84±1.21 mm and 4.50±1.18 mm, respectively. Correlations were observed between EJV maximum diameter and cervical circumference (rho= 0.816; $P<0.0001$), and BSA (rho= 0.848; $P<0.0001$); and between EJV minimum diameter and cervical circumference (rho= 0.79; $P<0.0001$), and BSA (rho= 0.833; $P<0.0001$). Significant polynomial regression correlations were observed between EJV maximum diameter and BSA (R^2= 0.66), and cervical circumference (R^2= 0.61).

Conclusions: EJV measurements using ultrasounds was easy and swiftly performed. Data suggest that it is possible to develop a standardized EJV CI for normovolemic dogs by increasing the number of dogs, and by using multiple regression analysis with additional morphologic data, in order to improve the curve fit.