

“We sought to compare the performance of IO devices placed in the sternum, humeral head, and proximal tibia using a fresh human cadaver model” Pasley et al (2015).

Reference:

Pasley, J., Miller, C.H., DuBose, J.J., Shackelford, S.A., Fang, R., Boswell, K., Halcome, C., Casey, J., Cotter, M., Matsuura, M., Relph, N., Tarmey, N.T. and Stein, D.M. (2015) Intraosseous infusion rates under high pressure: A cadaveric comparison of anatomic sites. *The Journal of Trauma and Acute Care Surgery*. 78(2), p.295-9.

Review of intraosseous infusion rates under high pressure [@ivteam](http://ctt.ec/c6qQI+) #ivteam

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Abstract:

BACKGROUND: When traditional vascular access methods fail, emergency access through the intraosseous (IO) route can be lifesaving. Fluids, medications, and blood components have all been delivered through these devices. We sought to compare the performance of IO devices placed in the sternum, humeral head, and proximal tibia using a fresh human cadaver model.

METHODS: Commercially available IO infusion devices were placed into fresh human cadavers: sternum (FAST-1), humeral head (EZ-IO), and proximal tibia (EZ-IO). Sequentially, the volume of 0.9% saline infused into each site under 300 mm Hg pressure over 5 minutes was measured. Rates of successful initial IO device placement and subjective observations related to the devices were also recorded.

RESULTS: For 16 cadavers over a 5-minute bolus infusion, the total volume of fluid infused at the three IO access sites was 469 (190) mL for the sternum, 286 (218) mL for the humerus, and 154 (94) mL for the tibia. Thus, the mean (SD) flow rate infused at each site was as follows: (1) sternum, 93.7 (37.9) mL/min; (2) humerus, 57.1 (43.5) mL/min; and (3) tibia, 30.7 (18.7) mL/min. The tibial site had the greatest number of insertion difficulties.

CONCLUSION: This is the first study comparing the rate of flow at the three most clinically used adult IO infusion sites in an adult human cadaver model. Our results showed that the sternal site for IO access provided the most consistent and highest flow rate compared with the humeral and tibial insertion sites. The average flow rate in the sternum was 1.6 times

greater than in the humerus and 3.1 times greater than in the tibia.

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