

**Commentary on:** Jauchem J. Increased hematocrit after applications of conducted energy weapons (including TASER devices) to *Sus scrofa*. *J Forensic Sci* 2011;56(S1):S229–33.

Sir,

We read with interest the article by Dr. Jauchem “Increased hematocrit after applications of conducted energy weapons (including TASER devices) to *Sus scrofa*” (1). We would like to acknowledge our high regard for the work of Dr. Jauchem and thank him for raising this intriguing finding in swine experiments. Dr. Jauchem is correct in that the effect of TASER device exposures on hematocrit in humans has not been published; however, we have collected this data since 2008. This data was mostly incidentally collected since it was included in the i-STAT cartridges we used for other specifically measured parameters. We noted no specific changes across our experiments and did not feel it was an important variable for publication (perhaps our mistake given the thoughtful literature review by Dr. Jauchem here). In light of Dr. Jauchem’s recent publication, we re-examined our database.

In our studies since 2008, we have collected hematocrit data on 133 subjects over four experiments including an alcohol study (15-sec exposure while intoxicated), an exertion study (15-sec exposure after a subjectively exhaustive treadmill run), a standard device exposure (10-sec exposure), and a multiple, simultaneous exposure study (2–3 simultaneous 5-sec exposures) (2–5). The median pre-exposure hematocrit was 46 (range 36–54). The median post-exposure hematocrit was 46 (range 36–53). The median 24-h post-exposure hematocrit was 46 (range 35–51). The median change in hematocrit from baseline to post exposure was 0 (range –7 to 8). Wilcoxon rank sum test of the baseline versus the post-exposure hematocrit showed a significant decrease in hematocrit ( $z = -2.7$ ,  $p = 0.007$ ).

In field studies, most exposures involve less than three exposures (in Bozeman et al., 93% were three or fewer; in Strote et al., 94% had two or fewer in the probe mode, and 77% had two or fewer in the drive stun mode), making our results relevant, and very long exposure swine study results less relevant, for most street uses (6,7).

We do not disagree with the pathophysiologic discussion by Dr. Jauchem and found it to be interesting. We would remark, however, that the literature cited was regarding exertional changes. We have found significantly worsened changes in physiologic variables with exertional arrest-related scenarios compared to a TASER device exposure (8). While we feel our results do not support the treatise by Dr. Jauchem with regard to TASER devices, we do find

this interesting as a general consideration in the study of the mechanisms of sudden arrest-related death with regard to physical struggle and flight. Multiple case reports and series have shown physical struggle to be a common thread in these deaths (6,9–13).

## References

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Donald M. Dawes,<sup>1</sup> M.D.; Jeffrey D. Ho,<sup>2</sup> M.D.;  
and James R. Miner,<sup>2</sup> M.D.

<sup>1</sup>Lompoc Valley Medical Center, Emergency Department,  
1515 East Ocean Avenue, Lompoc, CA 93436, USA

<sup>2</sup>Hennepin County Medical Center, Department of Emergency  
Medicine, 701 Park Avenue South, Minneapolis, MN 55415, USA