

## Re: Tourniquet Effectiveness When Placed Over the Joint Service Lightweight Integrated Suit Technology

Christopher Picard, CD, BSN, RN, ENC(C)<sup>1\*</sup>;  
Matthew J. Douma, MN, RN, ACCN, ENC(C), CNCC(C), CCN(C)<sup>2</sup>

### To the Editor:

We thank Peponis et al.<sup>1</sup> for their work evaluating the effectiveness of the Combat Application Tourniquet (C-A-T; C-A-T Resources Inc.; <http://combattourniquet.com/>) over the Joint Service Lightweight Integrated Suit Technology (Lanx Fabric Systems). Their work validated the training doctrine of applying the tourniquet over top of the protective clothing, it adds to the body of evidence that assesses tourniquets outside of a controlled laboratory setting, and provides an evidence base for not removing protective clothing or delaying tourniquet application.

The authors asserted that all tourniquet testing before their study had been conducted over a single-layer standard uniform; however, we would like to draw their attention to a tourniquet trial conducted by the Canadian military. A 2013 study by Savage et al.<sup>2</sup> assessed the C-A-T, as well as the Special Operations Forces (SOF) tactical tourniquet (SOFTT) and the SOF tactical tourniquet-wide (SOFTT-W; both Tactical Medical Solutions, <https://www.tacmedsolutions.com>) over a double layer of fleece and insulated wind pants to simulate tourniquet application in arctic environments. This was a three-arm study that used military medics as simulated patients, as well as providers; it used both palpation and audible Doppler occlusion as definition of success. Savage et al.<sup>2</sup> calculated a pooled tourniquet efficacy rate of 86.4% when applied over winter clothing, with the C-A-T being more effective than

the SOFTT and SOFTT-W (97% versus 72.7% and 73.8%, respectively). The C-A-T also was more quickly applied (37.0 seconds) than the SOFTT (45.4 seconds) or SOFTT-W (38.1 seconds). The C-A-T received better ratings for perceived ease of use, but consistently was rated as more painful than the SOFTT or SOFTT-W.<sup>2</sup>

The findings of Savage et al. correlate well with the work of Peponis et al. The data indicate that although the tourniquet applicators were researchers, there is likely good external validity in generalizing the findings to skilled providers. Both studies are important: They validate doctrine, they may bring into question whether protective clothing need be removed in hostile environments of any sort, and they suggest more work is required to assess the broad range of tourniquet devices used atop the wide array of protective clothing.

### References

1. Peponis T, Ramly E, Roth KA, et al. Tourniquet effectiveness when placed over the Joint Service Lightweight Integrated Suit Technology. *J Spec Oper Med.* 2016;16(2):17–19.
2. Savage E, Pannell D, Payne E, et al. Re-evaluating the field tourniquet for the Canadian forces. *Mil Med.* 2013;178(6):669–675.

**KEYWORDS:** *letter; tourniquets; Joint Service Lightweight Integrated Suit Technology*

\*Correspondence to: 15417 76 Ave NW, Edmonton, Alberta, Canada T5R 3A2; or [picard.ct@gmail.com](mailto:picard.ct@gmail.com).

<sup>1</sup>Mr Picard is a clinical nurse educator at the Misericordia Community Hospital Emergency Department, Alberta Health Services, Alberta, Canada. <sup>2</sup>Mr Douma is an assistant adjunct professor in the Department of Critical Care Medicine, Faculty of Medicine and Dentistry, University of Alberta, Alberta, Canada.