

# FEEDBACK TO THE FIELD (FT2F) #11:

## *Application of the Combat Application Tourniquet (CAT)*

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## BACKGROUND:

- The *Combat Application Tourniquet* (CAT) is the most commonly carried and used tourniquet in the US military
- A recent review published in *Military Medicine*\* prompted an analysis of data being collected by AFMES/DMMPO on tourniquet application in the field. These data are based on tourniquets recovered from deceased service members autopsied by AFMES at Dover AFB

\* Kragh JF, O'Neil ML , Walters TJ, Dubick MA, Baer DG, Wade CE, Holcomb JB, Blackbourne LH. The Military Emergency Tourniquet Program's Lessons Learned With Devices and Designs. *Military Medicine* 2011;176:1144-1152.

## BACKGROUND:

- This study focuses on the routing of the CAT friction band through its buckle. The friction band can be routed through one slit or both slits of the buckle
  - Recommended routing depends upon: (1) *application (one handed or two handed)* and (2) *placement of the tourniquet (upper or lower extremity)*



## BACKGROUND:

- Friction band routing through the CAT buckle: *3 possibilities...*



*1 Slit (Inside)*



*1 Slit (Outside)*



*2 Slits*



# BACKGROUND:



- Manufacturer ships the CAT with the friction band routed through **one slit (Inside)**
  - This is called the “ready to go” position



## Instructions for Use: One-handed Application

The C-A-T is delivered in its one-handed configuration. This is the recommended storage configuration.



1 Insert the wounded limb through the loop formed by the band.



2 Pull the band tight and securely fasten the band back on itself.



3 Adhere the band around the limb. Do not adhere the band past the rod clip.



4 Twist the rod until bright red bleeding has stopped and the distal pulse is eliminated.



5 Place the rod inside the clip locking it in place. Check for bleeding and distal pulse.



6 Adhere the band over the rod, inside the clip, and fully around the limb.



7 Secure the rod and band with the strap. Prepare for transport and reassess.



“Ready to go”

(CAT Packaging Insert)


Single slit routing is used with *one-handed application* in the *upper extremity*









Double slit routing is used with two-handed applications

**Combat Application Tourniquet®**  
NSN 6515-01-521-7976  
**C-A-T®** Featuring Red Tip Technology

The C-A-T is delivered in its one-handed configuration. This is the recommended storage configuration.



**Instructions for Use: Two-handed Application**

- 1** Route the band around the limb and pass the red tip through the inside slit of the buckle. Pull the band tight.
- 2** Pass the red tip through the outside slit of the buckle. The friction buckle will lock the band in place.
- 3** Pull the band very tight and securely fasten the band back on itself. When the band is pulled tight, no more than 3 fingers will fit between the band and the limb.
- 4** Twist the rod until bright red bleeding has stopped and the distal pulse is eliminated.
- 5** Place the rod inside the clip locking it in place. Check for bleeding and distal pulse. If bleeding is not controlled, apply a second tourniquet proximal to the first and reassess.
- 6** Secure the rod inside the clip with the strap. Prepare the patient for transport and reassess. Record the time of application.

(CAT Packaging Insert)

Lower extremity applications should always have two slit routing. Single slit routing is only acceptable in the upper extremities

## CASE SERIES:

A review of 100 CAT placements evaluated the routing of the friction band through the buckle:

- 34 (34%) were upper extremity
- 66 (66%) were lower extremity



# RESULTS: BY EXTREMITY LOCATION

Location	Single Slit Routing	Double Slit Routing	Total:
Upper Extremity	18	16	34
Lower Extremity	23	43	66
Total:	41	59	100



# RESULTS: SINGLE SLIT ROUTING PATTTERN

Location	Single Slit <i>INSIDE</i>	Single Slit <i>OUTSIDE</i>	Total:
Upper Extremity	11	7	18
Lower Extremity	16	7	23
Total:	27	14	41



## DOUBLE SLIT ROUTING:

- “Routing through both openings is indicated in lower extremity use...”
- “This double-routing also keeps the band from slipping when more torque is required in use on the thigh.”

[Kragh, et al. *Mil Med*, 2011]



## SUMMARY:

- Based on this sample of CAT usage, single slit routing was found in 23 of 66 (35%) of lower extremity applications
- In 7 of these 66 (11%) lower extremity applications, routing was through the outside slit, *preventing double slit use*



## DMMPO RECOMMENDATIONS / ACTIONS:

- Services should review tourniquet training techniques & procedures
- Studies of tourniquet applications should be continued

## NOTES of CAUTION:

- The clinical circumstances and details surrounding emergency treatment in these cases is unknown
- This presentation makes no association between tourniquet application and outcome of treatment

This material is intended for educational and training purposes. If portions are extracted, the following statement must be included:

“Source: Armed Forces Medical Examiner System and Defense Medical Material Program Office”



**For FT2F Comments / Questions / Requests:**

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