

MAT Clinical Data – Summary and Introduction

What: NEDU Testing (April 2007) of Self-Applied Tourniquets for Combat Applications.

Summary of MAT Performance:

- ◆ **Fastest application time versus other Tourniquets (upper and lower extremities, combined)**
- ◆ **Best Occlusion, Doppler readings versus other Tourniquets (upper and lower extremities, combined)**
- ◆ **Best occlusion, IPG % readings versus other Tourniquets (upper and lower extremities, combined)**
- ◆ **#1 user preference ranking versus other Tourniquets**

MAT also provided superior performance differential to the next best performing Tourniquet tested in category:

- ◆ **Application times: 9.19% better than next-best performing tourniquet**
- ◆ **Occlusions, Doppler: 13.41% better than next-best performing tourniquet**
- ◆ **Occlusions, IPG%: 11.1% better than next-best performing tourniquet**
- ◆ **User preference: 21% better than next-preferred tourniquet**

Additionally, across 11 performance and preference metrics for the “A” group:

- ◆ **MAT scored 1st in 8 categories and 2nd in 3 categories**
- ◆ **The next-best performing tourniquet scored 1st in 2 categories, 2nd in 6, 3rd in 2, and 4th in 1 category**

Using a 1-4 ranking among “A” group tourniquets with 1=best, 4=worst performance/preference:
Avg. rank:

- ◆ **MAT: 1.27** (33% better ranking than 2nd best performing/preferred tourniquet)
- ◆ **Burke: 2.18**
- ◆ **TK3: 2.90**
- ◆ **TK4: 3.45**

These results document MAT overall superior performance in speed, occlusion and user preference.

Raw Data from test results are on pages that follow:

EVALUATION OF SELF-APPLIED TOURNIQUETS FOR COMBAT APPLICATIONS, SECOND PHASE

Statistical Information and Compilation: Performance and Evaluation Data: "Group A" + CAT

Failure rate:

Tourniquet	%	rank (A/all)
MAT	4	2/2
Burke	6	3/3
TK3	8	4/4
TK4	2	1/1
CAT	4	/2

Upper Extremity, Application times

Tourniquet	mean (sec.)	rank (A/all)	% differential (from best/ from MAT)
MAT	60.7	2/2	-1.4%
Burke	59.9	1/1	
TK3	70.4	3/3	-15.0%-13.78%
TK4	72.8	4/4	-17.72%-16.7%
CAT	97.1	/5 (all)	-38.4%-37.5%

Lower Extremity, Application times

Tourniquet	mean (sec.)	rank(A/all)	% differential (from best--MAT)
MAT	46.6	1/1	
Burke	48.8	2/2	-4.6%
TK3	54.2	3/3	-14.1%
TK4	65.3	4/5	-28.7%
CAT	57.9	/4 (all)	-19.6

Application times (sec.): Upper and Lower Extremities: aggregate performance

Tourniquet	mean Upper	mean Lower	cumulative/average	rank (A/all)	% differential (from best--MAT)
MAT	60.7	46.6	107.3/53.65sec.	1/1	
Burke	59.9	48.8	108.7/54.35 sec.	2/2	-1.3%
TK3	70.4	54.2	120.6/60.3 sec.	3/3	-11.1%
TK4	72.8	65.3	138.5/69.25 sec	4/4	-22.6%
CAT	97.1	57.9	145.0/72.5 sec	/5	-26.0%

Doppler Flow/Upper Extremity

Tourniquet	% no-flow	rank (A/all)	% differential (from best--MAT)
MAT	92%	1/1	
Burke	91.67%	2/3	-.035%
TK3	87.50%	3/4	-4.8%
TK4	80.0%	4/5	-13.1%
CAT	92%	/1 (all, tie)	

Doppler Flow/Lower Extremity

Tourniquet	% no-flow	rank (A/all)	% differential (from best/from MAT)
MAT	69.57%	1/2	-5.9%
Burke	69.57%	1/2	-5.9%/ -
TK3	50%	4/5	-33.4%/-28.2
TK4	54.17%	3/4	-26.8%/-22.2
CAT	73.91%	/1 (all)	

Doppler Flow (%): Upper and Lower Extremities: aggregate performance

Tourniquet	% no flow Upper	% no flow Lower	cumulative/average	rank (A/all)	% differential (from best--MAT)
MAT	92.0%	69.57%	161.57/80.78%	1/1	
Burke	91.67%	69.57%	161.24/80.62%	2/3	-0.2%
TK3	87.50%	50%%	137.5/68.75%	3/4	-14.9%
TK4	80.0%	54.17%	134.17/67.85%	4/5	-16.1%
CAT	92.0%	73.91%	163.91/81.955	/1 (all)	

IPG/Upper Extremity (% occlusion)

Tourniquet	mean Upper	median Upper	cumulative/average	rank (A/all)	% differential (from best/from MAT)
MAT	65.22%	85.56%	150.78%/75.39%	2/2	-0.3%
Burke	46.58%	64.80%	111.38%/55.69%	4/5	-26.3%/-26.2%
TK3	70.58%	80.93%	151.51%/75.55%	1/1	
TK4	59.54%	67.57%	127.11%/63.55%	3/4	-15.9%-15.8%
CAT	60.95%	71.60%	132.55%/66.25%	/3	-12.4%-12.3%

IPG/Lower Extremity (% occlusion)

Tourniquet	mean Lower	median Lower	cumulative/average	rank (A/all)	% differential (from best--MAT)
MAT	57.67%	72.55%	130.22%/65.11%	1/2	
Burke	28.04%	57.86%	111.38%/55.11%	2/3	-15.4%
TK3	36.95%	55.56%	95.51%/47.75%	3/4	-26.7%
TK4	29.53%	54.71%	84.24%/42.12%	4/5	-35.4%
CAT	61.08%	70.49%	131.57%/65.78%	/1	

IPG/Upper and Lower Extremity (% occlusion) cumulative/average aggregate performance

Tourniquet	mean+median Upper	mean+median Lower	cumulative/average	rank (A/all)	% differential (from best--MAT)
MAT	150.78%/75.39%	130.22%/65.11%	140.5%/70.25%	1/1	
Burke	111.38%/55.69%	111.38%/55.11%	110.8%/55.4%	3/4	-21.2%
TK3	151.51%/75.55%	95.51%/47.75%	123.3%/61.65%	2/3	-12.25%
TK4	127.11%/63.55%	84.24%/42.12%	105.67%/52.83%	4/5	-24.8%
CAT	132.55%/66.25%	131.57%/65.78%	132.03%/66.01%	/2 (all)	-6.1%

Subjective Ranking (Maximum possible score 325)

Tourniquet	score	% of max	rank(A/all)	% differential from best (MAT)
MAT	287	88.3%	1/1	
Burke	227	69.84%	2/2	-21%
TK3	225	69.23%	3/3	-21.6%
TK4	210	64.61%	4/4	-25.9%
CAT	207	63.69%	5/5	-26.4%

Performance Summary (11 categories) Ranking of Tested Tourniquets (1 Ranking=Best)

Tourniquet "A" group ranking : lower score=better avg. "A" group+CAT ranking: lower score=better avg.

	Performance rank (11 categories)											Performance rank (11 categories)												
MAT	2	2	1	1	1	1	1	2	1	1	1	1.27	2	2	1	1	1	2	1	2	2	1	1	1.45
Burke	3	1	2	2	2	1	2	4	2	3	2	2.18	3	1	2	2	2	2	2	5	3	4	2	2.54
TK3	4	3	3	3	3	3	3	1	3	2	3	2.90	4	3	3	3	3	3	3	1	4	3	3	3.10
TK4	1	4	4	4	4	2	4	3	4	4	4	3.45	1	4	5	4	4	4	4	4	5	5	4	4.10
CAT													2	5	4	5	1	1	1	3	1	2	5	2.72

"A" group: performance ranking scores (# of times scored in each rank, rank#1=best)					Rank	"A" group+CAT: performance ranking scores (# times scored in each rank, rank#1=best)					Rank
rank	#1	#2	#3	#4		#1	#2	#3	#4	#5	
MAT	8x	3x	-	-	1.27	6x	5x	-	-	-	1.45
Burke	2x	6x	2x	1x	2.18	1x	6x	2x	1x	1x	2.54
TK3	1x	1x	8x	1x	2.90	1x	-	8x	2x	-	3.10
TK4	1x	1x	1x	8x	3.45	1x	-	-	7x	3x	4.10
CAT						4x	2x	-	1x	3x	2.72

