S.T.A.T. Data

2018

Automatic Overtightening Safety Feature

INTRODUCTION

S.T.A.T.' S overtightening safety feature is designed to self adjust into ideal pressure ranges when the tourniquet is applied in a hasty manner with extreme force.

This test is being conducted to see if over tightening can be avoided with an anti-overtightening self adjusting feature.

METHOD

Testing conducted by S.T.A.T. Medical Devices.

Instruments used for testing and data collection is a Vernier Bluetooth Go Direct Gas Pressure Sensor attached to a 1” Neonatal pressure cuff inflated with 2.5mL of air. Next, the Vernier Graphical analysis software application was calibrated to 0 mmHg and the pressure sensor was placed onto a high-density foam roll measuring 6” inches in diameter. Lastly, S.T.A.T. was placed over the 1” Neonatal pressure cuff and foam roll to begin testing.

RESULTS

During testing, pressures exceeding 1000mmHg, showed to automatically self adjust in the ranges of 584-610 mmHg, with an average of 597mmHg. Data collected from both tests are shown in FIGURES 1, and 2.

Total average amounts of pressure from both tests when overtightening took place: **1,144 mmHg**

Total average amounts of pressure from both tests when automatically self adjusting: **597 mmHg**

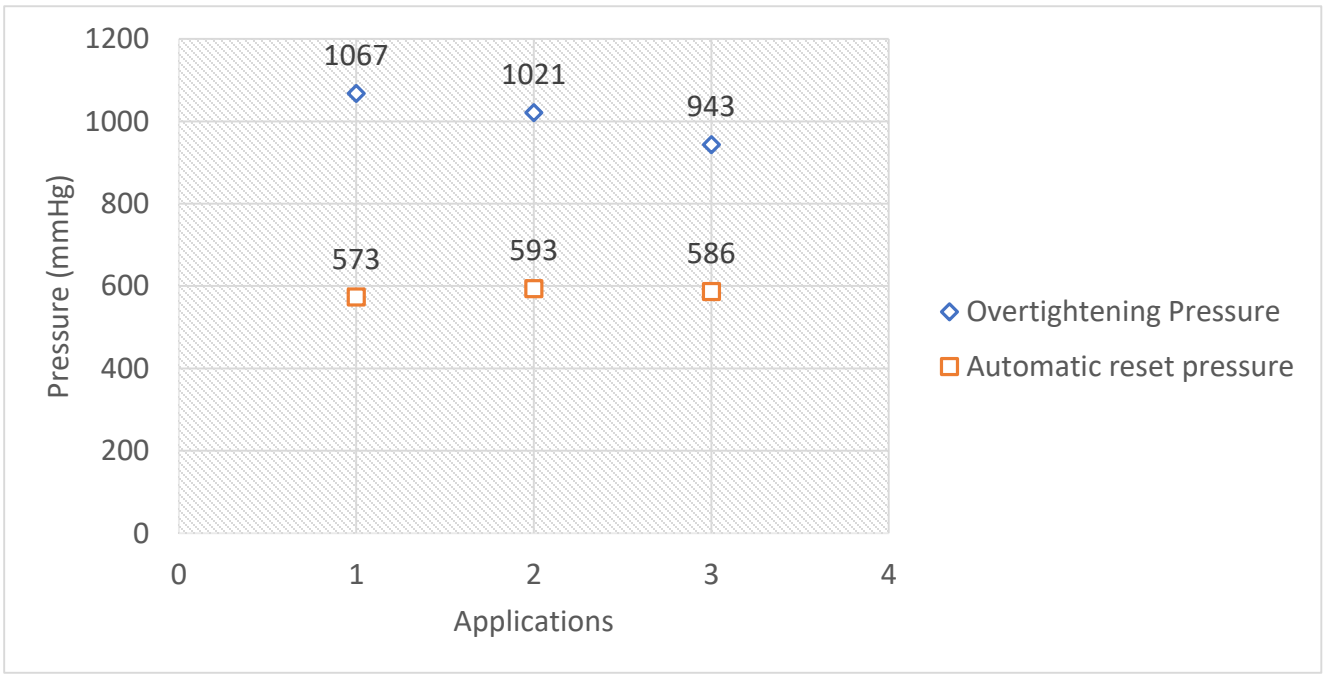

Figure 1.

Average amount of pressure when overtightened: **1010 mmHg**

Average amount of pressure when reset: **584 mmHg**

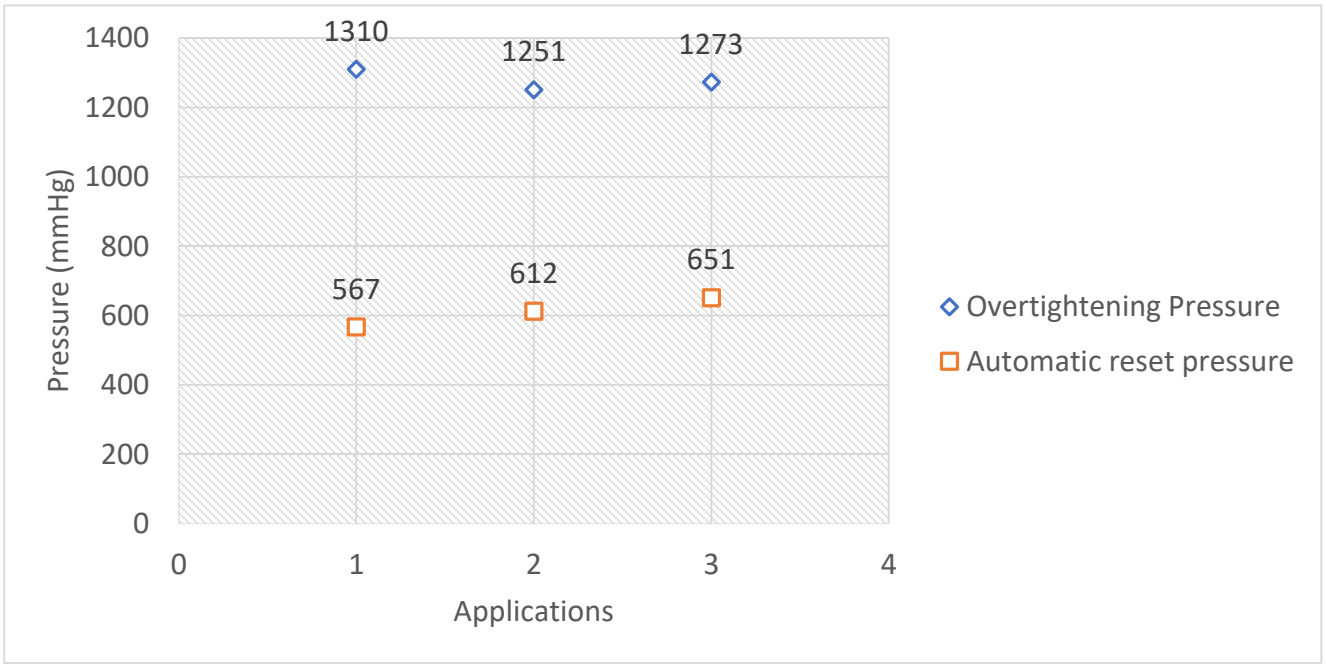

Figure 2.

Average amount of pressure when overtightened: **1278 mmHg**

Average amount of pressure when reset: **610 mmHg**

Live Tissue

Self Application

Live Tissue

INTRODUCTION

The purpose of this test is to see if S.T.A.T. can be self-applied to the femoral artery and achieve occlusion multiple times to the Dorsalis pedis artery after single use has been voided.

METHODS

Testing conducted by S.T.A.T. Medical Devices.

Instruments used for testing and data collection: a Vernier Bluetooth Go Direct Gas Pressure Sensor attached to a 1” Neonatal pressure cuff inflated with 2.5mL of air using a four-way stopcock. An Edan Sonotrax Vascular doppler was used to detect a pulse on the Dorsalis pedis artery of the right foot, along with a pulse and O2 meter on a toe. Before beginning the Vernier software was calibrated to 0 mmHg. Next, the pressure sensor was placed in between the subject’s right leg and the tourniquet in the high and tight position. The person self applying the tourniquet is a 34-year-old male weighing 220lbs.

RESULTS

Results show that a single S.T.A.T. was able to function and successfully occlude the distal pulse on the Dorsalis pedis artery multiple times after its single use was voided. S.T.A.T. does not recommend to use a tourniquet if the single use has been voided to insure each devices integrity. Data collected from tests are shown in FIGURES 7.

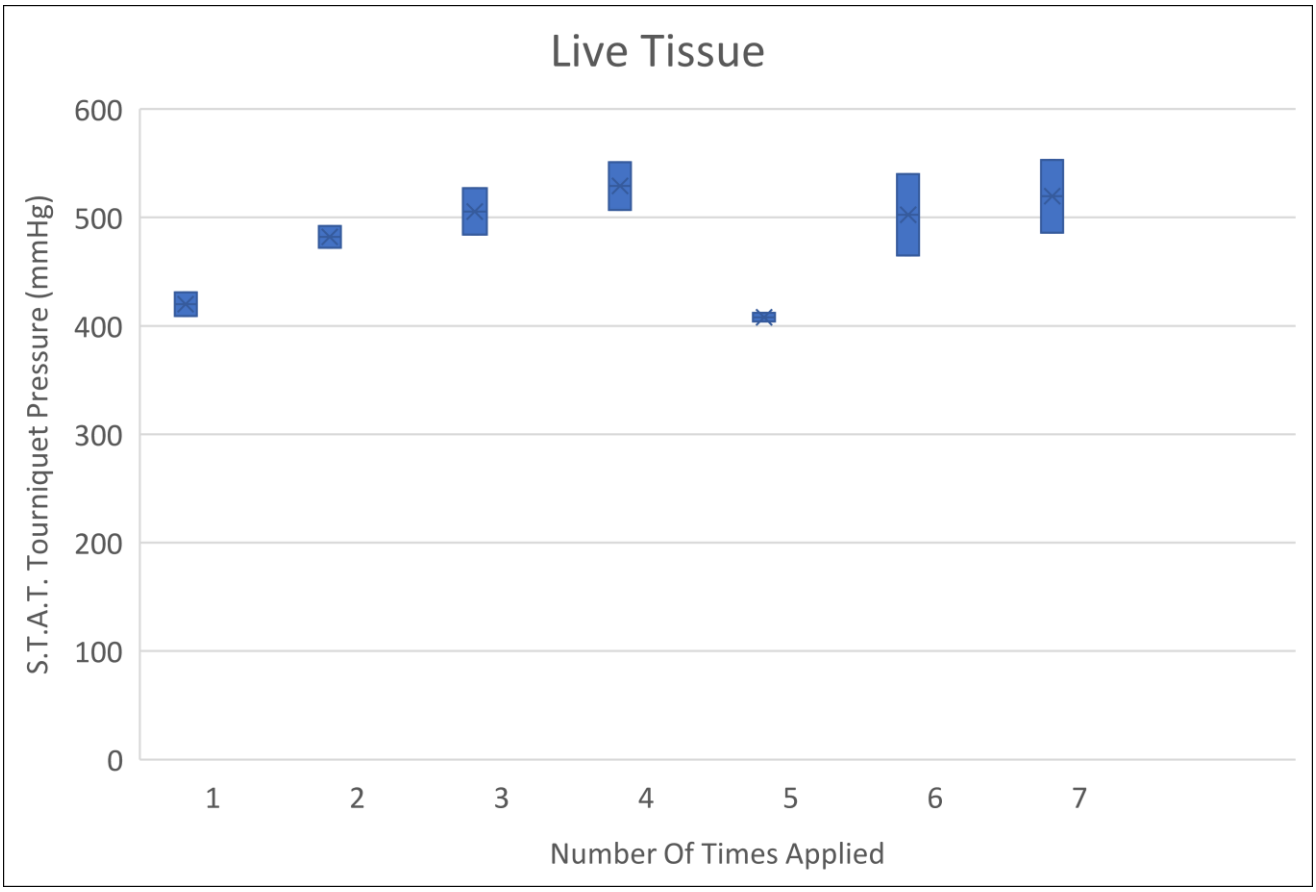

Figure 7. Chart indicates that S.T.A.T. held ideal occlusion pressures multiple times on a 34 year old male weighing 220lbs after single use was voided.

Hapmed Simulator

Scenarios 1,2,3,4

Effectiveness of S.T.A.T. On A Hapmed Simulator.

INTRODUCTION

The purpose of this test is to see the effectiveness of S.T.A.T. on a Hapmed simulator using all four scenarios.

Brief description of the Hapmed simulator:

- "HapMed has been used by both military and industry to conduct tourniquet testing research, the results of which have dramatically shaped the military and civilian tourniquet policies of today."

https://www.hapmedtraining.com/

METHODS

Testing conducted by S.T.A.T. Medical Devices.

Instruments used for testing and data collection was a Hapmed 0052 v2.17.25 tourniquet leg trainer .

RESULTS

Results show that S.T.A.T. was able to successfully complete all four scenarios that come preloaded from Hapmed.

Data collected from tests are shown in FIGURES 8, 9, and 10.

Video Link
https://youtu.be/pLuZylD_Vms

Scenario 1
Time: *10 Seconds*
Pressure: *241 mmHg*
Blood Loss: *71mL*

Scenario 2
Time: *8 Seconds*
Pressure: *288 mmHg*
Blood Loss: *61mL*

Scenario 3
Time: *8 Seconds*
Pressure: *373 mmHg*
Blood Loss: *56mL*

Scenario 4
Time: *5 Seconds*
Pressure: *521 mmHg*
Blood Loss: *48mL*

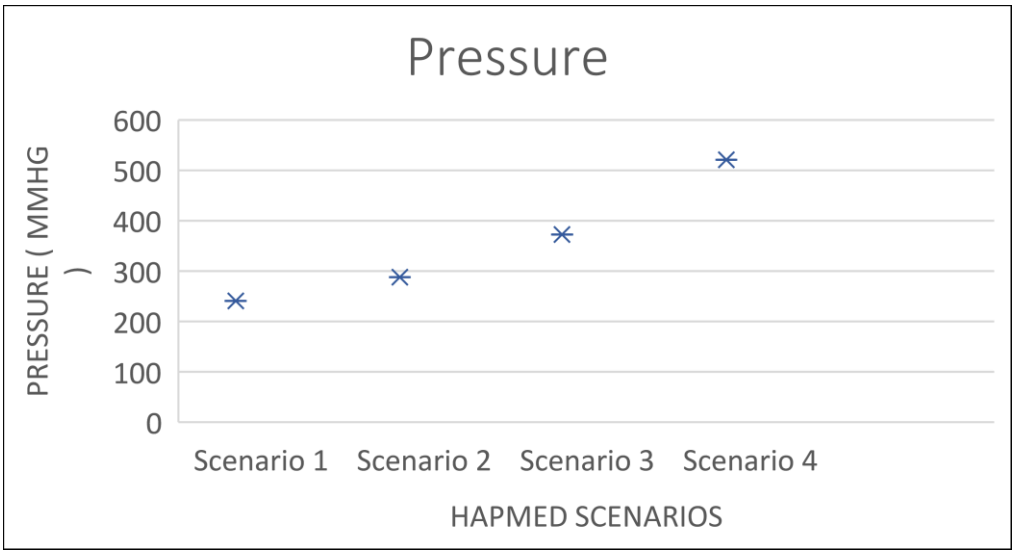

Figure 8. Chart indicates that S.T.A.T. was able to successfully complete all four of Hapmed's preloaded scenarios. This chart represents the tourniquet pressures upon completion.

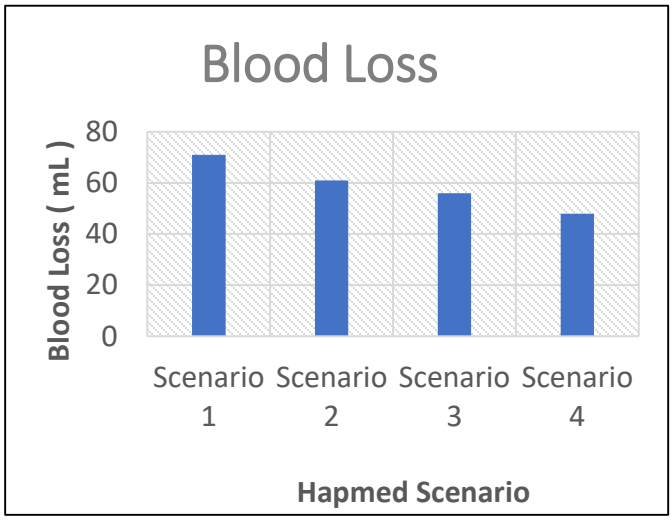

Figure 9.
Chart indicates that S.T.A.T. was able to successfully complete all four of Hapmed's preloaded scenarios. This chart represents the amount of blood loss upon each scenario completion.

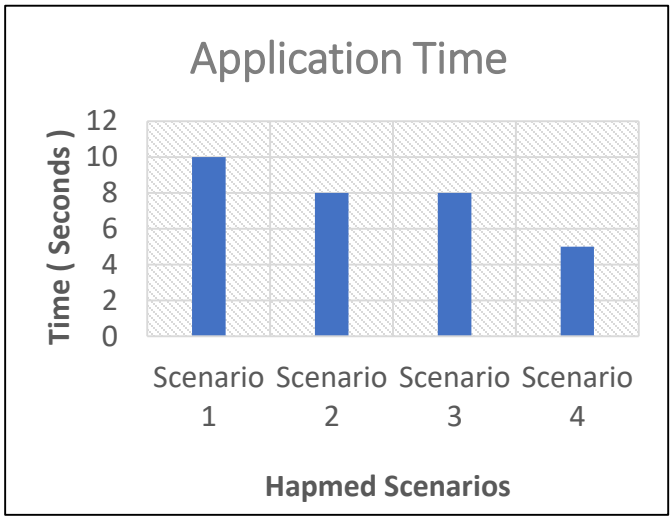

Figure 10.
Chart indicates that S.T.A.T. was able to successfully complete all four of Hapmed's preloaded scenarios. This chart represents the tourniquet application time upon each completion.

S.T.A.T. vs Windlass

Comparison Chart

S.T.A.T. vs Windlass

INTRODUCTION

This test is being conducted to measure the amount of pressures S.T.A.T. can exert in comparison to a standard windlass tourniquet.

METHOD

Testing conducted by S.T.A.T. Medical Devices.

Instruments used for testing and data collection is a Vernier Bluetooth Go Direct Gas Pressure Sensor attached to a 1” Neonatal pressure cuff inflated with 2.5mL of air. Next, the Vernier Graphical analysis software application was calibrated to 0 mmHg and the pressure sensor was placed onto a high-density foam roll measuring 6” inches in diameter. Lastly, S.T.A.T. was placed over the 1” Neonatal pressure cuff and foam roll to begin testing.

RESULTS

During testing, S.T.A.T. showed that it can achieve the same pressures as a standard windlass tourniquet reaching pressures over 500mmHg.

Data collected from both tests are shown in FIGURES 11

S.T.A.T. vs Windlass Comparison

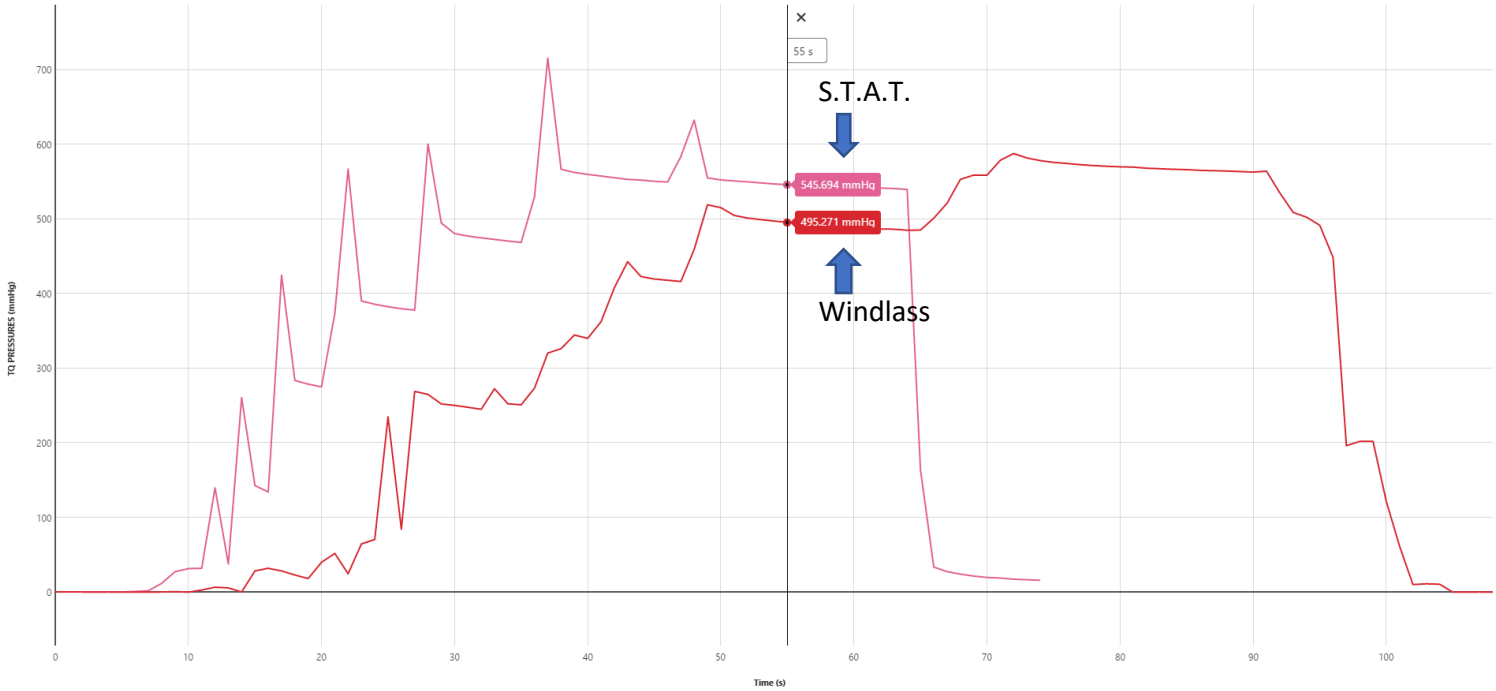

Figure 11.
This chart demonstrates the pressures S.T.A.T. can achieve in comparison to a windlass tourniquet. Pressures are measured in mmHg.