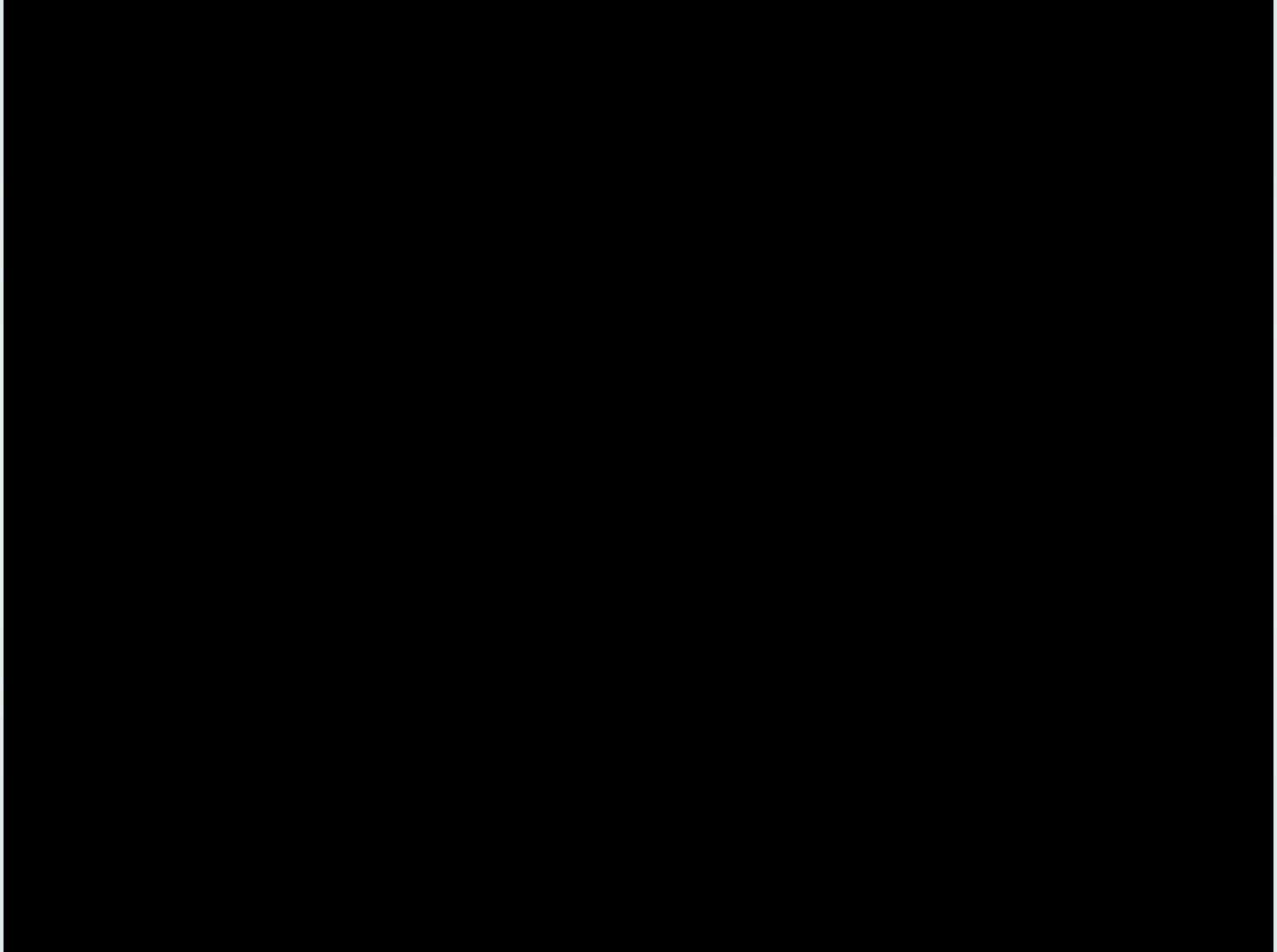
SPLINT-X

R&D and Customer Development Team
Ahsan Waseem (Interdisciplinary Engineering, sophomore)
Allison Scott (Chemical Engineering, senior)
Kyle King (Mechanical Engineering, graduate student)

Sponsored by Michael Sedillo



INITIAL PROBLEM

- Lack of splinting device in air crew survival aid kits.
- The market size for splints, braces and other casting systems is expected to reach about 8.9 million by 2026.

COMPETITOR SOLUTIONS

SAM Splint

- Structural, Aluminum, Malleable
- Immobilizes in 203 sec
- Extra wrap needed
- Difficult for one person to use

Fast Cast

- 1 - step 2 part foam
- Immobilizes in 70 sec
- No extra wrap needed
- A difficult design that requires further training

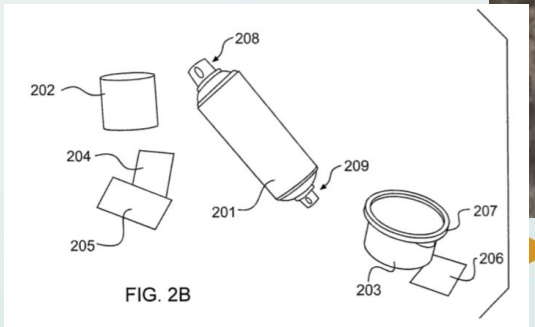


FIG. 2B

DESIGN REQUIREMENTS

Derived from Dr. Kevin Martin's work

Table 2. Mean Scores for the Providers on the Technical Evaluation Score Sheet.

Technique	Neurovascular Structures	Motion	Traction	Soft Tissue Structures	Durability	Reproducibility	Lay Personnel	Gravity Stress	Repeated Exams	Standard of Care	Total
Fast Cast	5.0	5.0	4.5	5.0	5.0	4.5	5.0	5.0	4.5	5.0	48.5
Splint	3.0	2.9	1.0	3.0	3.6	3.1	3.0	4.3	3.5	4.7	32.1

The implementation of both Fast Cast and SAM Splint on a lower leg fracture was evaluated in a high stress situation by 21 US Special Operations medical personnel.

Table From: *Prospective Study of Military Special Operations Medical Personnel and Lower Extremity Fracture Immobilization in an Austere Environment*

CUSTOMER DISCOVERY

Total Interviews: 52

01

Military Personnel

Sponsor-provided-contacts to field scope of initial problem statement.

02

Medical Professionals

Sought medical expertise in the military and commercial world.

03

Athletes

Pursued the customers of our customers to gain specific injury knowledge.

04

Hikers/Climbers

Pursued the customers of our customers to gain specific injury knowledge.

05

Animal Care

Pivoted to a new market based on solution research and development.

Key Partners

- Department of Defense - Air Rescue
- Air Flight Equipment Organization
- TEEX (testing facilities/business development)
- BAYER (foam supplier)
- TAMU Engineering Research Lab (testing facilities)
- Certified Safety Mfg, Inc. (distributor?)

Key Activities

- Problem Solving: engineering, research
- Supply Chain Management: connection through interviews

Key Resources

- CC Challenge Survival Kit Component Brief
- ACES II Safety/Sustainability program Document
- NDIA's Business and Technology Presentation

Value Propositions

- ***Quick fix to allow immediate mobility upon applying***
- ***Small size and weight to fit in compact bags/kits***
- ***Easy to utilize by one person without the help of others***

Buy-in & Support

Provide DOD with patent and potentially a physical product. Advertising through trade shows.Ex: Forum Labo, Strategic Outreach Division. High research and startup costs. Pressurized system (air spray can) could be an obstacle for the DOD.

Deployment

D.O.D. relationship with Air Crew Members, interaction point with Michael Sedillo. Other partners will be reached out either through larger organizations or trade shows specializing in medical care.

Beneficiaries

- **Ejected Air Crew Members/ Military Personnel**
- **Athletes**
- **Medical Personnel/ First Responders**
- **Hikers/ Mountain Climbers**
- **Animal Care**

Mission Budget/Cost

- Material research
- Manufacturing process

Mission Achievement/Impact Factors

Implementing two part foam design through clinical trials and FDA approval to provide splint access in the Air Force survival aid kits.
Provide multi-use capabilities to support other industries such as outdoor hiking and animals.
Item should be sold through a transactional model.

BUSINESS THESIS

Our two part foam splint enables an individual to support an injured ligament and gain mobility until proper medical help is available.

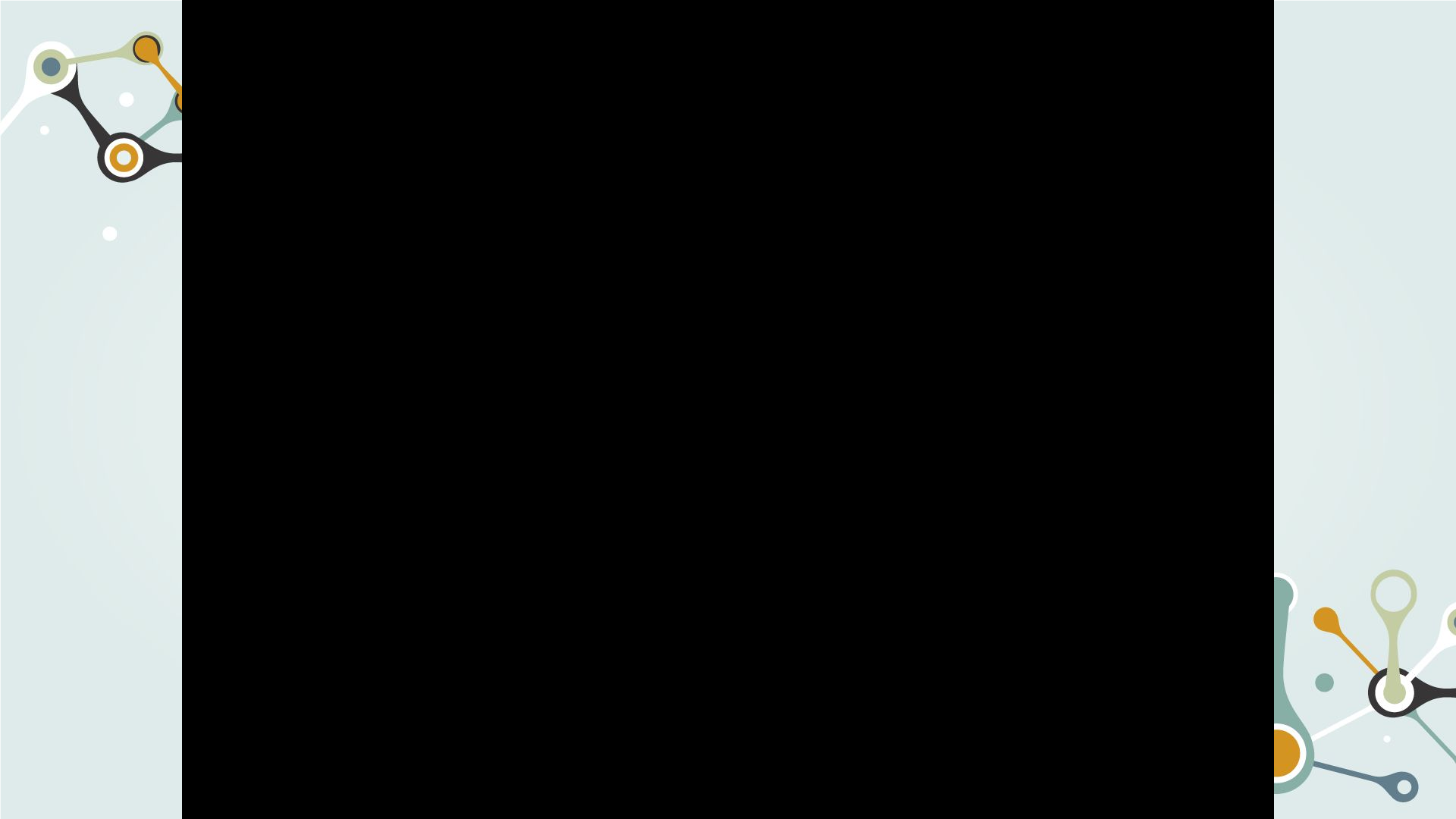
SPLINT - X DESIGN

- Two part foam of 50% polyol and 50% isocyanate
- Single aerosol combines both chemicals at the nozzle to create a foam that solidifies under 60 seconds
- Total weight is less than 1 lb
- Withstand temperatures of -40F to 135F

MVP TESTING

- Clinical Trial and Case Study: On a cadaver leg to evaluate solution; implement in SERE/PJ training
- Potential prototyping:
  - Chemicals: BASF AutoFroth; BAYER sells individual chemicals through Triiso (quote is necessary)
  - Can: 3D print the unique lid and two compartment base; mechanically build (use TEEX or hacked aerosol can)

It is a Go!



THANK YOU

Do you have any questions?

splintXhelp@gmail.com
+1 979 688 2487
splintX.com

APPENDIX

Frequently Asked Questions:

- What was the fracture point of foam?
- Did it maintain complete traction of limb?
- How long did it take to cure? (near 1 min)
- Were there pressure sores on fracture?
- Any heat reaction between leg and foam?
- Was the limb easily moveable after foam splint used?