Bandage Stabilizer

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Overview

- Project Summary
- Design Requirements
- Current Practices
- Alternative Designs
- Design Matrix
- Testing and Future Work

http://www.harlandlawfirm.com/PracticeAreas.htm

Project Summary

- Dr. Michael Bentz
  - Department of Surgery at UW School of Medicine and Public Health
- Create device to stabilize surgery dressings
- Replace current elastic bandage wrap
- Primary area is upper leg

http://www.clker.com/clipart-map-symbols-exercise-fitness-white.html

Background

- Skin grafting
  - Transplantation of skin from one area to another
- Procedure
  - Dermatone used to extract epidermis and dermis
  - Graft placed at recipient site and held via stitches and staples
  - Donor site covered via dressing
    - Provides uniform pressure
    - Prevents infection

Ref: http://emedicine.medscape.com/article/876290-overview

Primary Design Requirements

- Must hold dressings in place on thigh
- Must be easily applied by the patient without help
- Cannot cause a tourniquet effect or excessive chaffing and/or rubbing
- Tension and size should be customizable
- Must be hypoallergenic

http://operson.en.made-in-china.com/product/woZEpYsOwlkK/China-Spandex-Elastic-Bandage.html

Secondary Design Requirements

- Allow for varying aesthetics
- Can be machine washable
- Can be applicable for
  arms or legs
- Can be applied to
  veterinarian surgeries

http://quest.mda.org/article/product-peeks-fall-2010

Current Practices

- Ace Bandage stabilized by:

  - Tape
  - Creativity

Alternate Designs

- Compression Shorts
- Bandage Support System
- Elastic Leg Wrap

Compression Shorts

- Shorts which utilize a nylon material to create constant pressure as well as ensuring stability

Pros

- Will stay up 100% of the time
- Applies proper pressure
- Simple design

Cons

- Not ergonomically sound
- Poor adjustability

Slip Guard

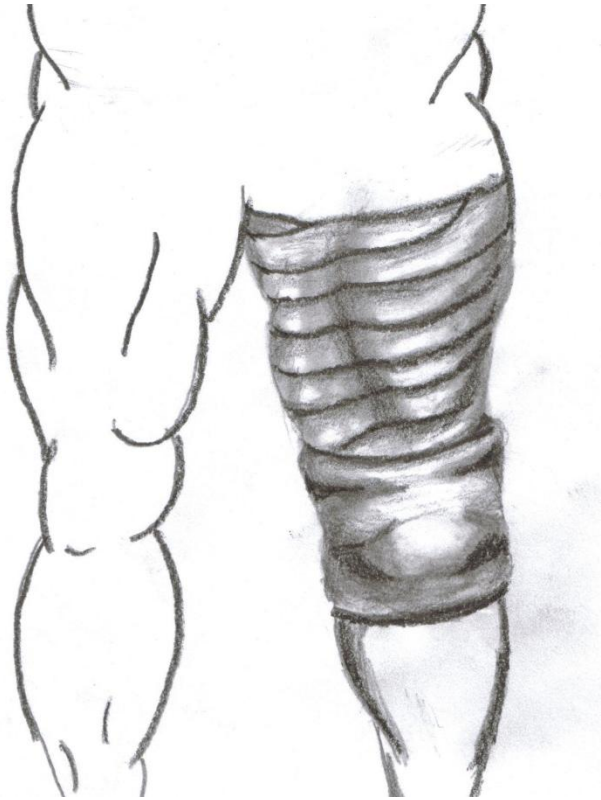
- Utilizes the knee as a fulcrum for a bandage supporting device

Pros

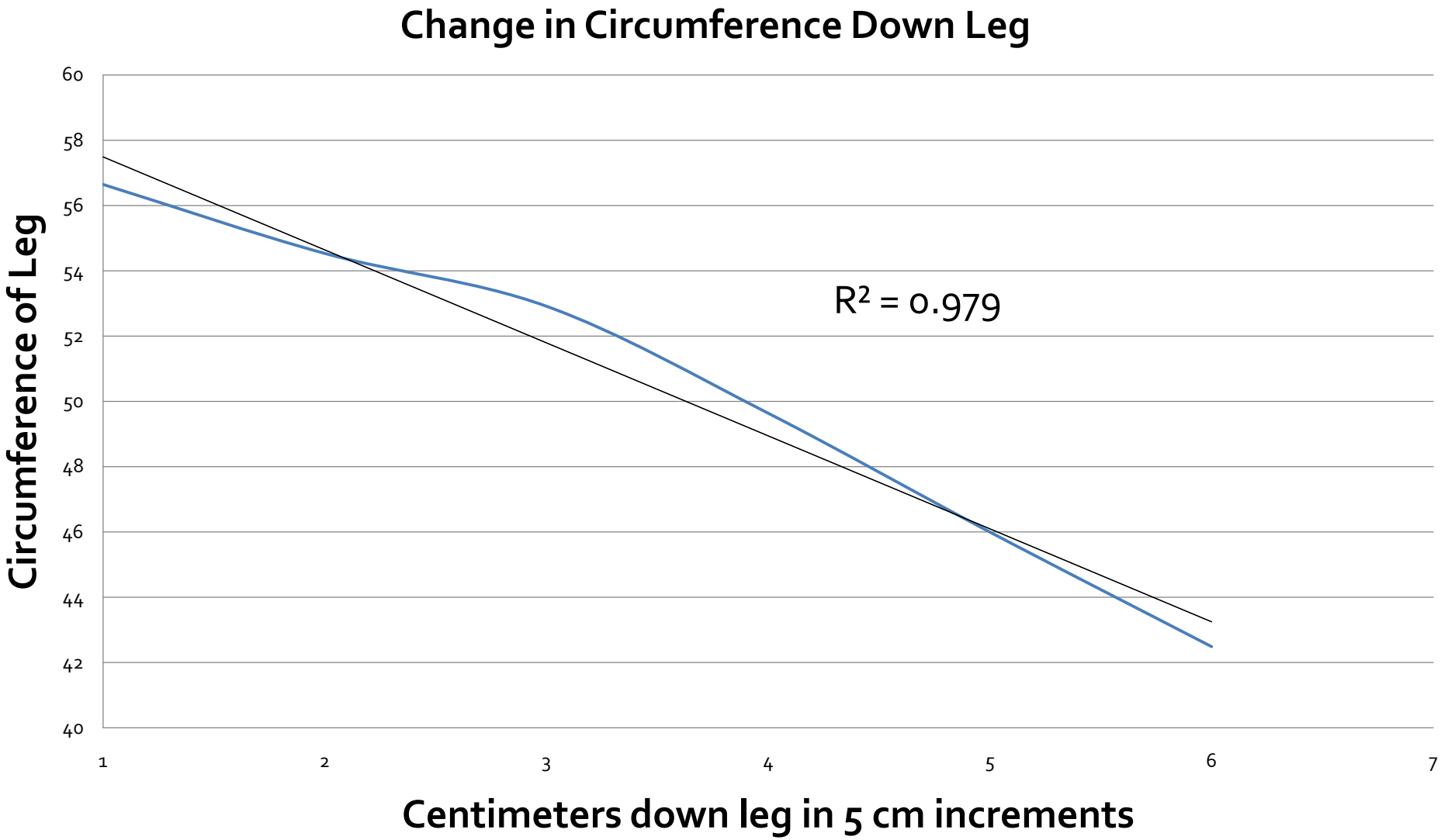
- Uses natural landmarks on body
- Ergonomically friendly
- Easy

Cons

- Upper thigh specific
- No site of protuberance
  - Original hypothesis false



Research Data



Elastic Leg Wrap

- Adjustable elastic layer wrap for the upper and lower leg and the upper and lower arm.

Pros

- Easily Adjustable
- Comfortable
- Stable
- Hypo Allergenic
- Easy to put on without assistance

Cons

- Possible Slippage
- Breathability

Potential Additions

- Internal elastic band
- Optional belt attachment
- High resistance lining

http://thehouseofel.blogspot.com/2007/08/coolest-belt-ever-made.html

Design Matrix

Criteria		Possible Designs		
Considerations	Weight	Elastic Wrap	Compression Shorts	Slip Guard
Feasibility	20	19	16	5
Ease of Fabrication	10	9	6	9
Durability	10	8	8	9
Ergonomics	20	19	13	15
Safety	15	15	15	15
Adjustability	10	9	6	8
Client Preference	15	15	12	10
Total	100	94	76	71

Testing and Future Work

- Determine proper lining to prevent slipping
- Fabrication
- Test Design

http://articles.whmsoft.com/getimage.php?fullimage=http%3A%2F%2Fcache.gawkerassets.com%2Fassets%2Fimages%2F8%2F2008%2F12%2F340x_Chemistry.jpg

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Questions????

http://smallbiztrends.com/2010/02/5-great-questions-to-ask-franchise-company-executives-before-buying-a-franchise.html