

# Inflatable Shorts

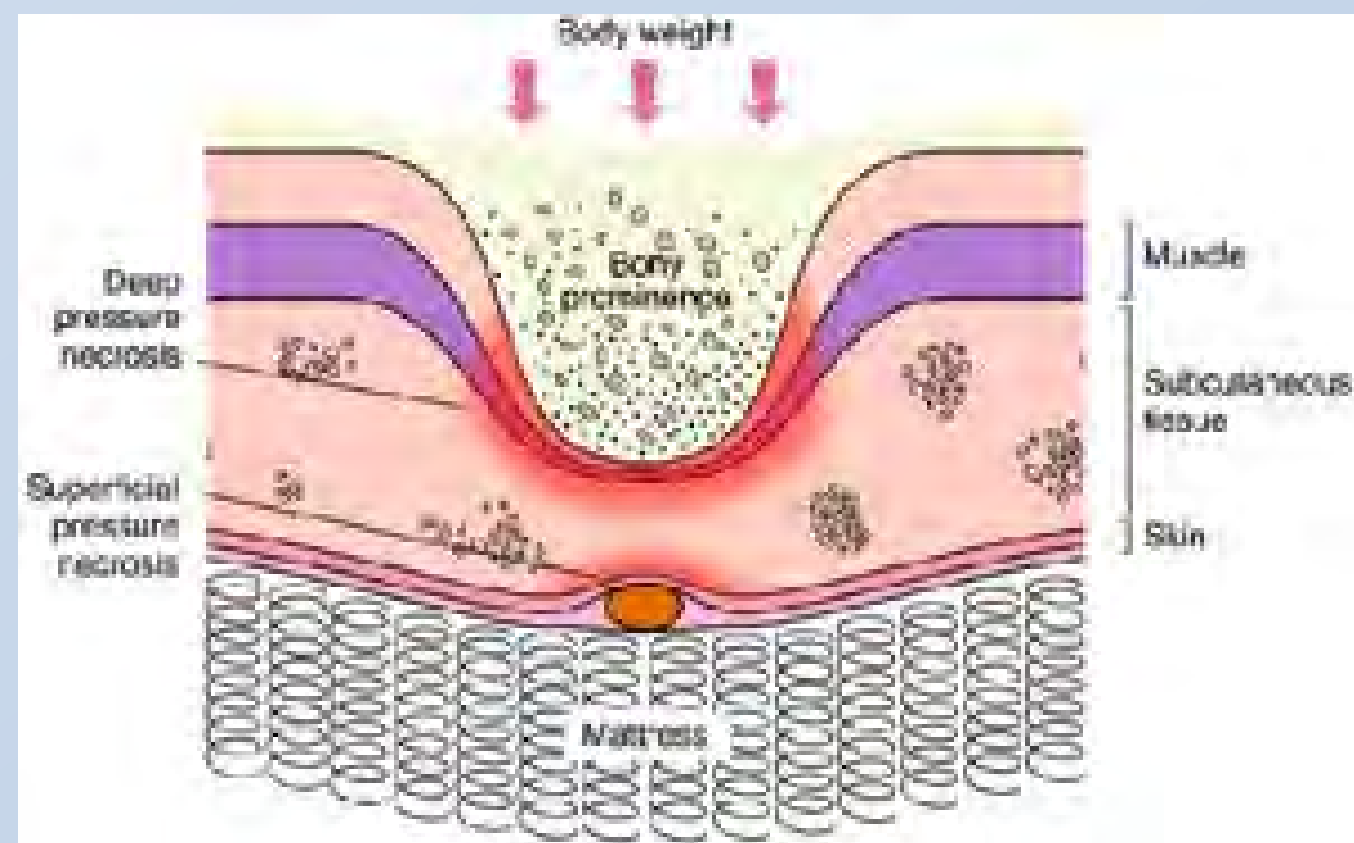
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## Introduction

### What are bed sores?



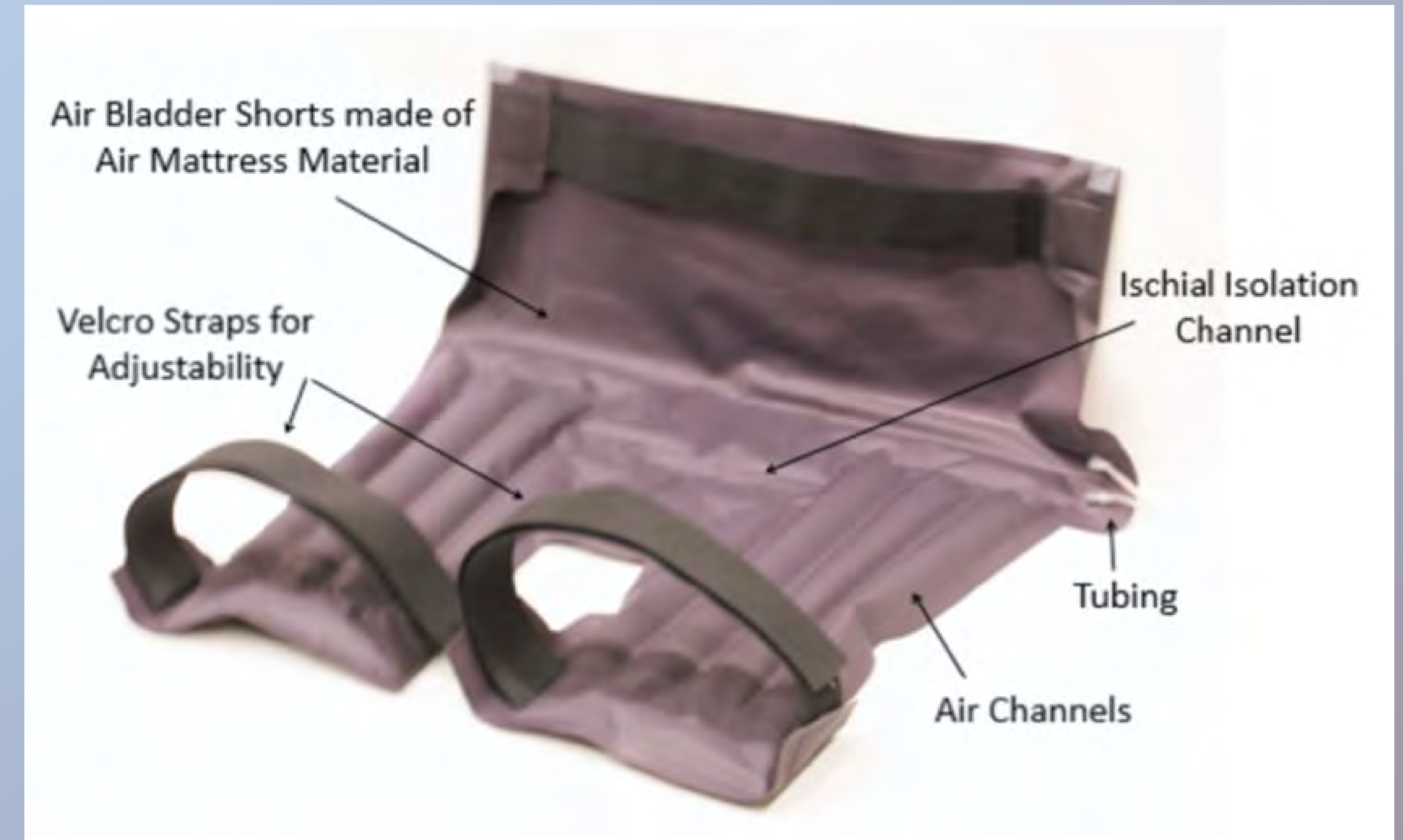
- Bed sores are injuries to skin and underlying tissue resulting from prolonged pressure
- Quadriplegic and paraplegic individuals are at highest risk
- Current solutions include manual position adjustment and specialty beds
- The ischial bones are high pressure regions in the buttocks that must be kept below the capillary pressure of the blood vessels (roughly 35 mmHg) in order to prevent development of bed sores

### Current Mitigation

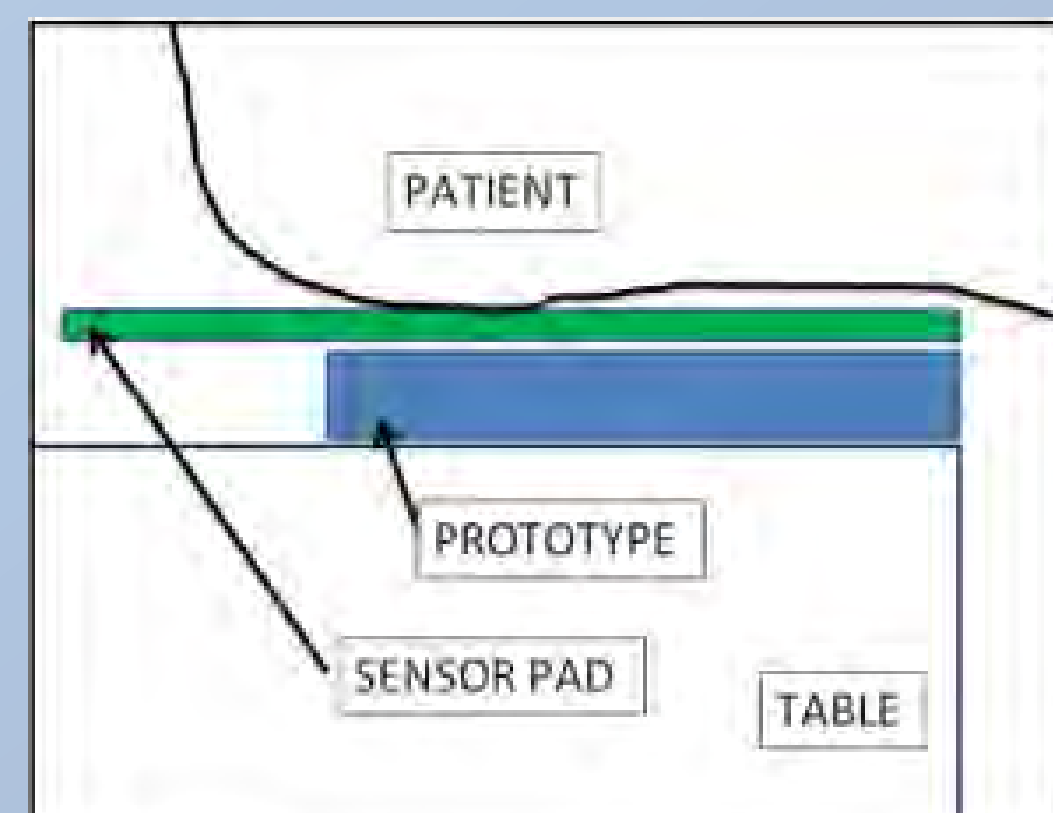


**Goal:** To create an autonomous, wearable, portable bed sore mitigation device that can reduce the pressure at the ischial regions below capillary pressure for a sustained period of time.

## Design

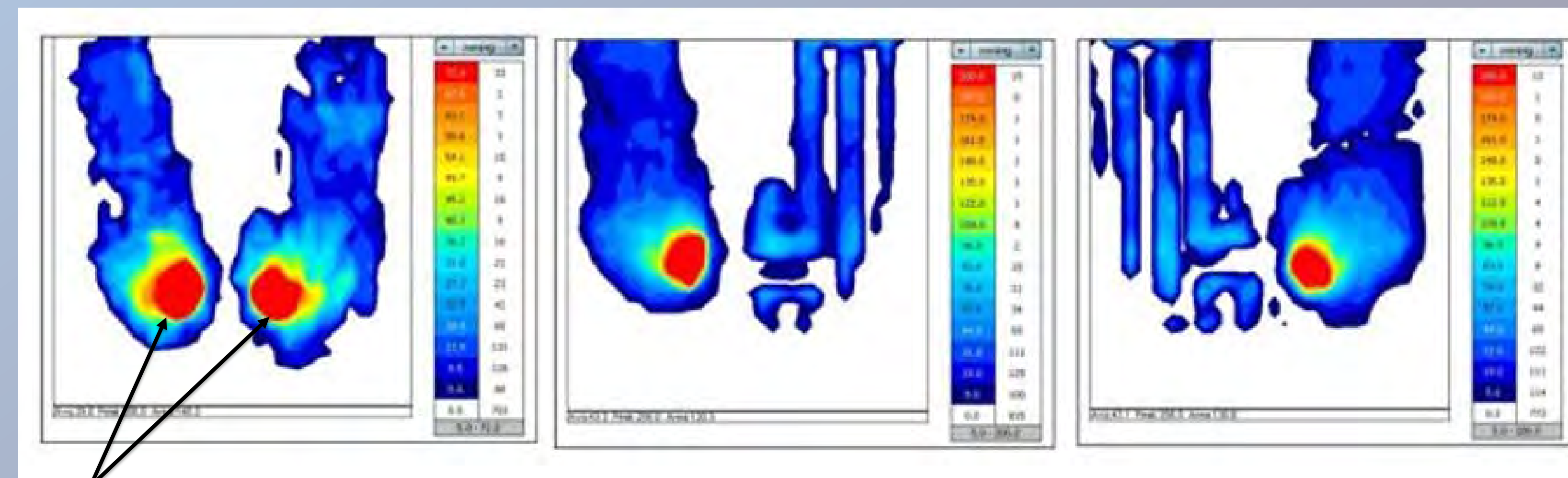


## Testing



- Maintain standard posture (Observed by Sue Sandwick RN at Rehabilitation Clinic)
- Perform testing on hard surface to eliminate external variables

## Results



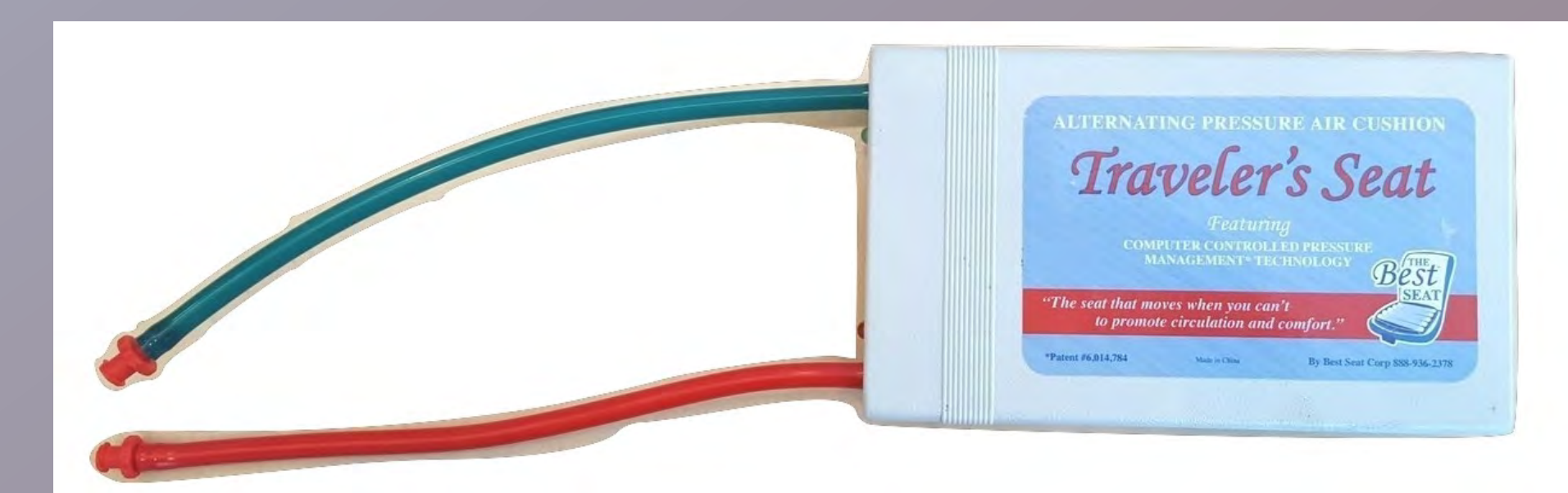
Ischial Bones  
(High Pressure Regions)

Inflated: Right

Inflated: Left

- Ischials successfully isolated
- Pressure reduction constant throughout 3 minute cycle
- Pressure at Ischials reduced to 5 mmHg
- Pressure distributed throughout user's legs

## Portability



### Ease Cushion Pump

- Air Supply
- Timing Control
- Weight: 2 lbs.
- Fits in Fanny-Pack
- 48 Hour Battery Life