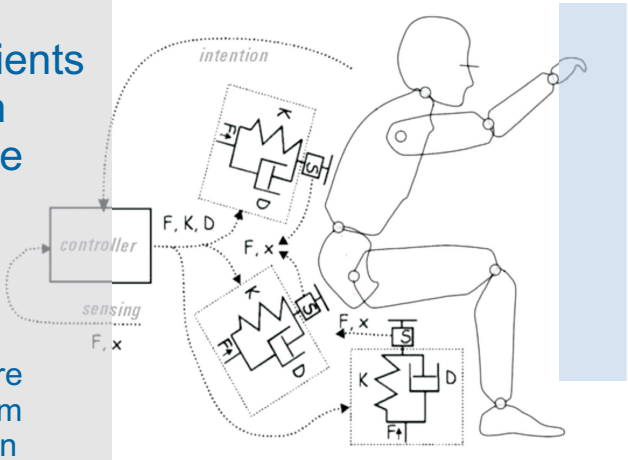
dynamic sitting device

Dutch collaborated research project funded by the Dutch Ministry of Economic Affairs, SenterNovem

Objective

A dynamic seating device for patients with limited trunk muscle function (SCI-patients) to prevent pressure ulcers and to improve functional movements



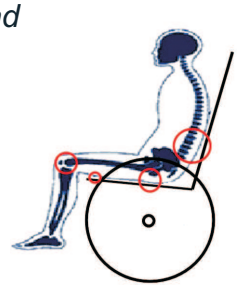
Background

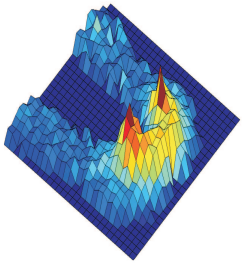
- Tissue breakdown from sustained pressure
  Pressure relief needed to recover from deformation and blood flow stagnation
- Current techniques are passive and tissue will not recover
- Dynamic system needed to regulate seating pressure by altering supporting areas relative to the body surface.

Methods

- Analyse healthy sitting behaviour for optimal pressure relief
- Independent body segment control
- Investigate mechanical and physiological effects
- Algorithm for postural change to regulate seating load

Physical problems due to passive sitting and high tuberal load





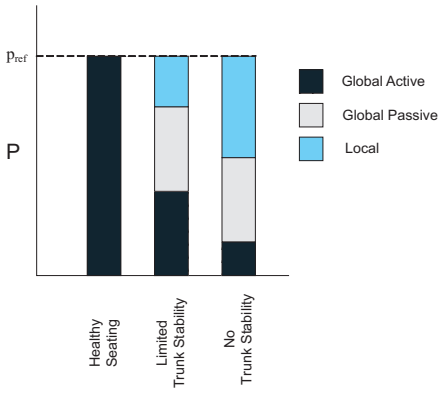
Dynamic Sitting Behaviour to Regulate Seating Pressure

1. Functional postural change (Global active).

2. Imposed postural change (Global passive)

3. Local pressure relief (Local)

Threshold p*ref* derived from healthy sitting behaviour



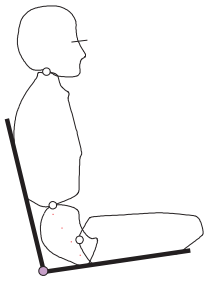
www.dynasit.nl

DYNASIT

dynamic sitting device

Concept for Postural Change (sagittal)

Contrary to a 'normal' chair, this concept makes independent segment control possible.

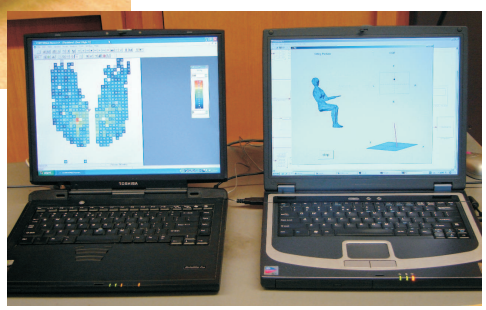


'normal' chair

Experimental Chair

Monitoring

- Sitting Posture
- Seating Force
- Lumbal Load
- Seating Pressure
- Tissue Viability
  - Oxygenation
  - Perfusion



Consortium

SenterNovem

DEMCON advanced mechatronics

BMTI Universiteit Twente de ondernemende universiteit

WELZORG

Roessingh Research and Development

SELLA

CONTACT

P. van Geffen, MSc
Laboratory of Biomechanical Engineering
Department of Engineering Technology
University of Twente
PO Box 217
7500 AE Enschede
The Netherlands

Tel: +31 53 489 3649
Fax: +31 53 489 3695
Email: P.vanGeffen@ctw.utwente.nl
Web: http://www.bw.ctw.utwente.nl/

www.dynasit.nl