

# Calcaneal lengthening osteotomy for pes planovalgus using artificial bone graft material

## Avoiding donor site morbidity

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### Purpose

Calcaneal lengthening osteotomy can be used for correction of painful pes planovalgus. Requires graft material to be inserted as a bone wedge at the osteotomy site.



Obtaining autologous graft material from the iliac crest in children;

- painful procedure
- puts the child at risk for growth arrest and iliac wing deformity.

New structural bone graft materials;

- mixture of porous hydroxyapatite (HA) and tricalcium phosphate (TCP) being developed
- can prove useful in paediatric orthopaedic surgery.

We hypothesized; structural artificial graft can be used for calcaneal lengthening osteotomy.

### Methods

Prospective cohort study with ethical approval conducted October 2010 – September 2011.

Calcaneal lengthening;

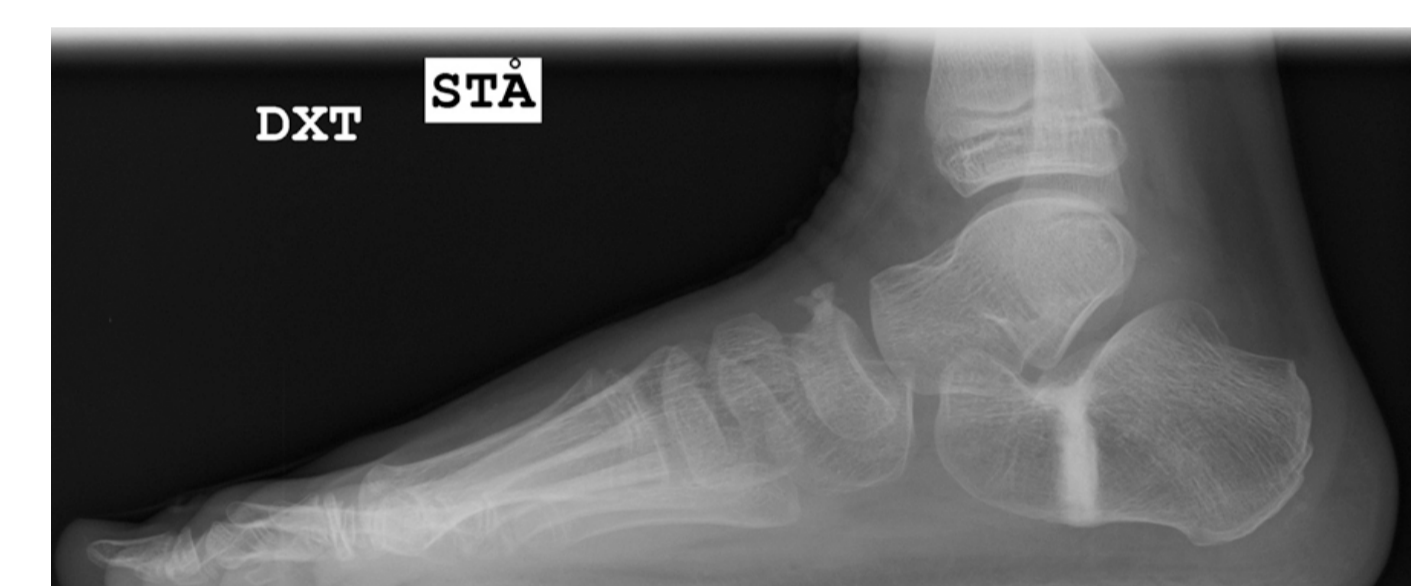
- 8 children and adolescents (9 feet), mean age 13.1 years (range 6.6-19.2)
- using wedge shaped HA/TCP graft material
- cast applied for 6-7 weeks after surgery.
- internal fixation of the osteotomy was not used.

Follow up; radiographs, computed tomography (CT) and paedobarography.

### Results

Healing of the osteotomy obtained in all cases on radiographs and CT images.

Radiograph showing graft inserted in calcaneus



Sagittal CT image with healing in osteotomy



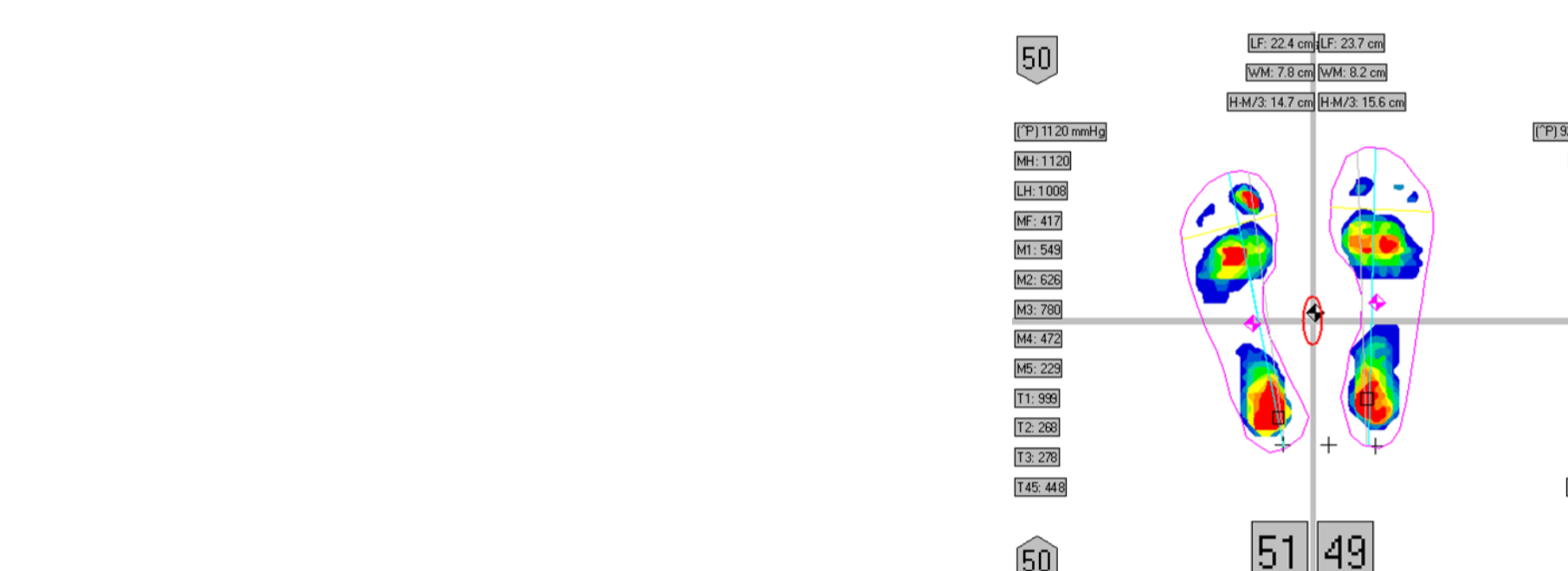
CT-3D showing healing in osteotomy



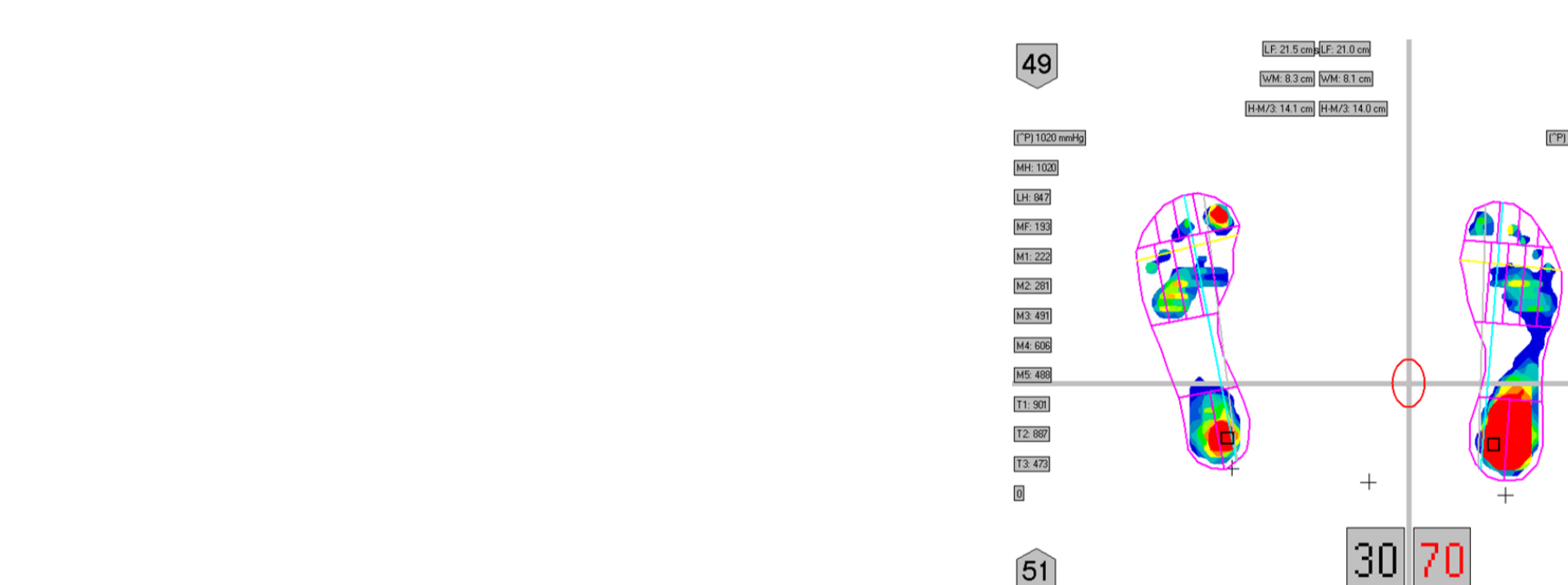
At one year follow-up;

- clinical examinations
- paedobarography

showing satisfying results of surgery.



Pre-op paedobarography



Post-op paedobarography

No graft failure or wound related infections observed.

### Conclusion

Harvesting of autologous graft from the iliac crest may be avoided for calcaneal lengthening procedures using HA/TCP graft material.

We report satisfying short term results;

- prospective study
- one year follow-up
- healing of the osteotomy achieved in all cases.