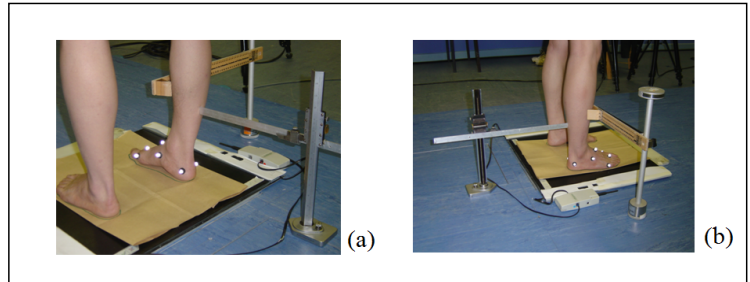


## Biomechanical Research on Human Foot

### Objective

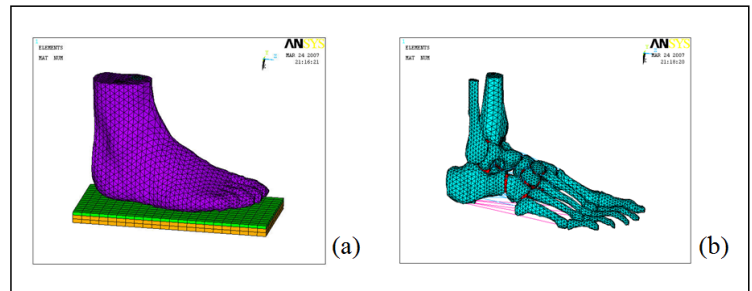
The inner biomechanical behaviours of the whole foot are still not very clear up to date. The purpose of this study was to create a comprehensive numerical model of the foot and ankle, using 3D actual geometry of both skeletal and soft tissues components.



### Methodology

A realistic, systemic, geometrical detailed 3D FE model of the human foot was built based on MRI images of the right foot of a male volunteer subject, under the neutral unloaded position. All tissues were idealized as homogeneous, isotropic and linearly elastic.

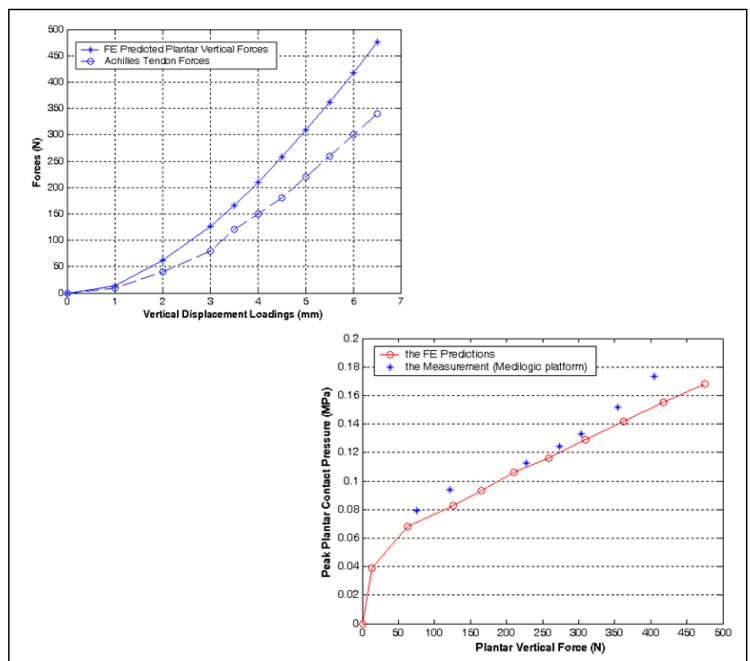
A series of calculations were run to simulate the action of standing under different loadings.



### Outcome

Vertical displacement measurements together with plantar force measurements and plantar pressure measurements were used to validate the combined compliances of the bony arches and soft tissues.

The combined compliances were shown to be approximately correct, whereas the relative contributions of the bony arches and the soft tissues needed further investigation



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