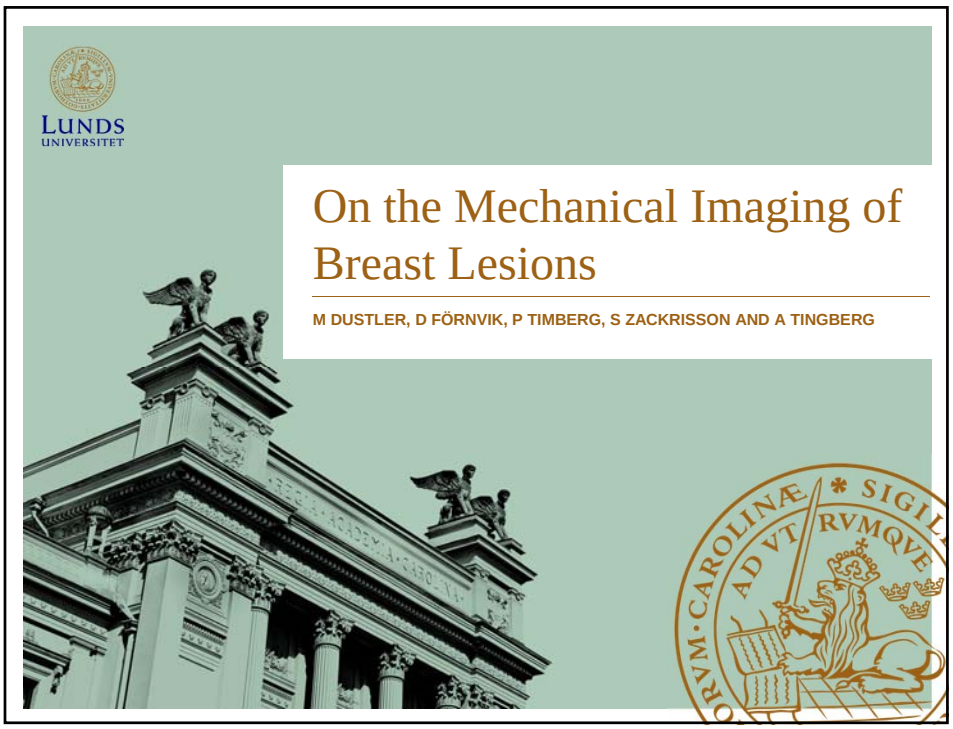


Introduction

- Diagnose breast cancer
- Mammography
- Breast tomosynthesis (3D-mammography)
- Both need: breast compression

LUNDS
UNIVERSITET

Background

- Screening
- Suspicion
- Recall
- Extra mammogram, tomo etc…
- Palpation and ultrasound
- Both measure mechanical properties

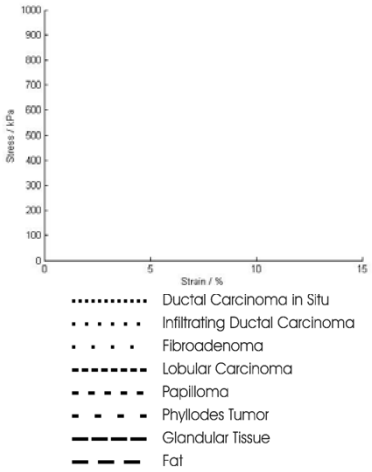
LUNDS UNIVERSITET

Structure of the breast

- Different tissue types
  - Fat
  - Glandular tissue
  - Cooper's ligaments and connective tissue
- Tumours and other lesions
- Mechanical properties vary

LUNDS UNIVERSITET

Mechanical properties



E - young's modulus

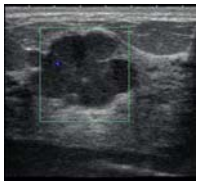
Wellman 1999

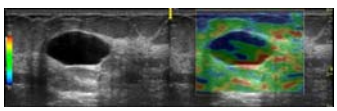
fat < glandular tissue < benign lesions < malignant lesions

Important for diagnosis

LUNDS UNIVERSITET

Measuring stiffness

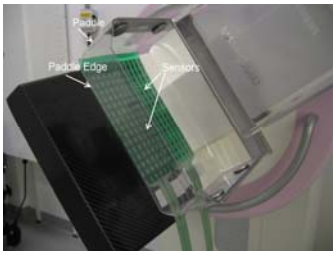




- Direct or indirect
- Palpation
- Ultrasound
- Elastography
- … mechanical imaging

LUNDS UNIVERSITET

Our idea – and our system



- Mechanical imaging
- Use the compression paddle
- Pressure sensors on the paddle
- Compress the breast
- Relative pressure propoprtional to *E*
- Can be done at screening
- Reduction of recall?
- Better detection?

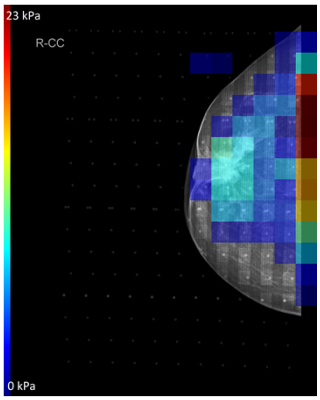
LUNDS UNIVERSITET

The study

- Screening cases
- Recalled patients
  - 10% cancer risk
  - Benign cysts and lesions?
- Match mechanical images and mammograms
- Sensitivity and specificity

LUNDS UNIVERSITET

Results from our previous study



- Förnvik 2013
- CTC-study
- 22 cancer cases
- Pressure significantly higher over lesions than background
- 1 benign lesion
- Pressure slightly higher than backgro

LUNDS UNIVERSITET

Significance

- What does this mean?
- Can we distinguish benign from malign?
- Any extra information is useful
- Easy and cheap addition to mammogram

LUNDS UNIVERSITET

In the pipeline

- Complete the study
- Decide on usage
  - Problem solver
  - Pre-screening/CAD
- Try to find a better sensor
- Radiolucent sensors?
- We will see

LUNDS UNIVERSITET

LUNDS UNIVERSITET