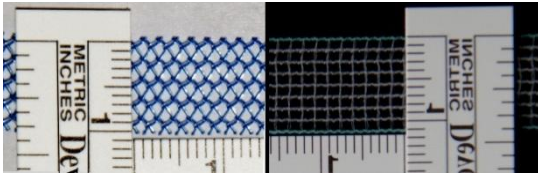


## COMPARING DIFFERENT TYPES OF SUBURETHRAL SLINGS USING PERINEAL ULTRASOUND

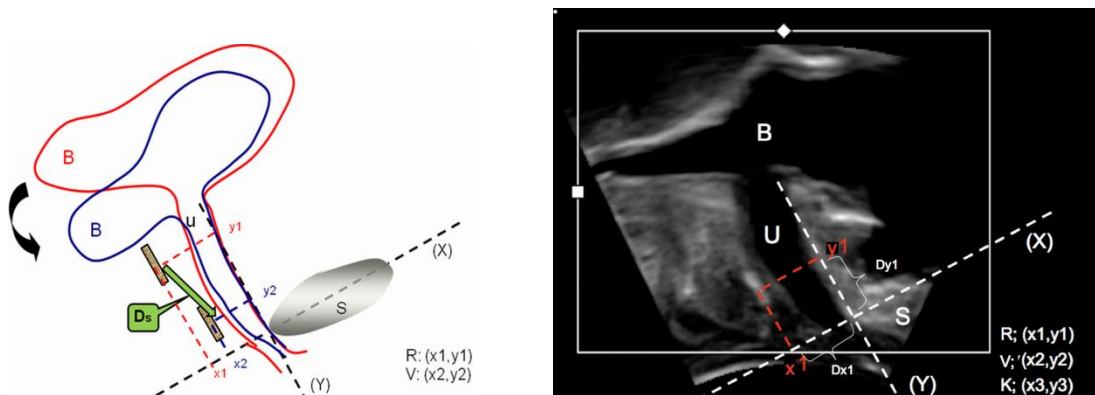
### Hypothesis / aims of study

Complications and malfunctioning after TOT can occur due to several factors, such as material and structure of the sling used. The aim of the present study is to evaluate morphology and functionality of two types of slings (PVDF, DynaMesh® SIS, Dahlhausen, right side of the picture; Polypropylene, GyneCare TVT™, Ethicon, left side of the picture) *in vivo* using perineal ultrasound.



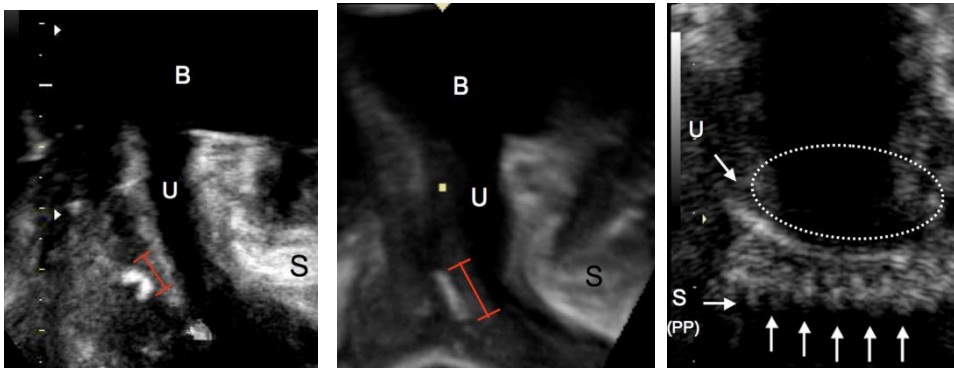
### Study design, materials and methods

In n=47 women with TOT four criteria for perineal sonographic measurement were taken: (1) Vertical stability of the sling position during Valsalva and contraction; (2) distance “sling – urethra”; (3) width of the sling; (4) condition of the selvages. As two different types of slings were implanted (PVDF/Polypropylene), they were compared for sonographic visibility in gelatine and then checked for possible differences in the above mentioned four criteria.



### Results

Visibility of the slings embedded in gelatine was equal. We observed (1) an increased vertical displacement of the PP-slings, a significantly smaller variance to the extent of the displacement in PVDF-slings ( $p < 0.01$ ), (2) a significantly larger distance between sling and urethra ( $p < 0.001$ ) in PVDF-slings, (3) a significantly smaller width of the PP-slings ( $p < 0.0001$ ). 10.5% of all PVDF-slings and 84.6% of all PP-slings were curled up. (4) In all PP-slings, sharp pointing selvages were observed, all PVDF-slings had smooth selvages.



### Interpretation of results

This is the first study comparing PP and PVDF slings for sonographic behavior. Conditions for sonographic evaluation are equal in both slings. All four criteria could be assessed using perineal ultrasound and significant differences were found between the slings. Slings made of PP seem to be more elastic and lose their structure (curl up, decrease in width, show sharply-pointing selvages) when under tension; PVDF slings provide better structural integrity. These points confirm the *in vitro* testing of a

*vitro* material study [1], resulting in elasticity values of up to 46% for PP and up to 7.1% for PVDF as well as curled up PP-tapes with smaller width under pressure.

PUS may help to link differences in the morphology and functionality of *in vivo*-slings to their material properties.

#### Concluding message

There are significant differences between sling types concerning structure and dynamic behaviour *in vivo*.

#### References

1. Göretzlehner M, Müllen A (2007) PVDF als Implantat-Werkstoff in der Urogynäkologie. *Biomaterialien* 8 (S1):28-29

#### Disclosures

**Funding:** The Department of Urology (University Hospital, Aachen) has accepted payment for research from FEG Textiltechnik mbH (Aachen, Germany) to finance Julia Hennemann's work on this study. **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethik-Kommission an der Medizinischen Fakultät der Rheinisch-Westfälischen Technischen Hochschule Aachen (RWTH Aachen) **Helsinki:** Yes **Informed Consent:** Yes