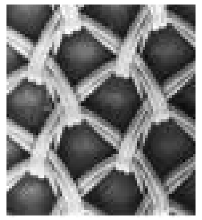
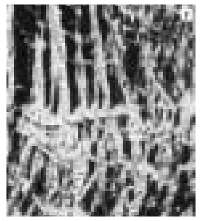
Based on their *pore size,* meshes can be classified into 4 types

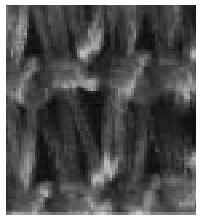
(Classification of Biomaterials, Amid 1997)[1]



Type I Totally macroporous prostheses
(pores >75µ)



Type II Totally microporous prostheses
(pores <10µ)



Type III Macroporous prostheses with multifilamentous or microporous components

Type IV Submicronic pore size
(not a suitable prosthesis)

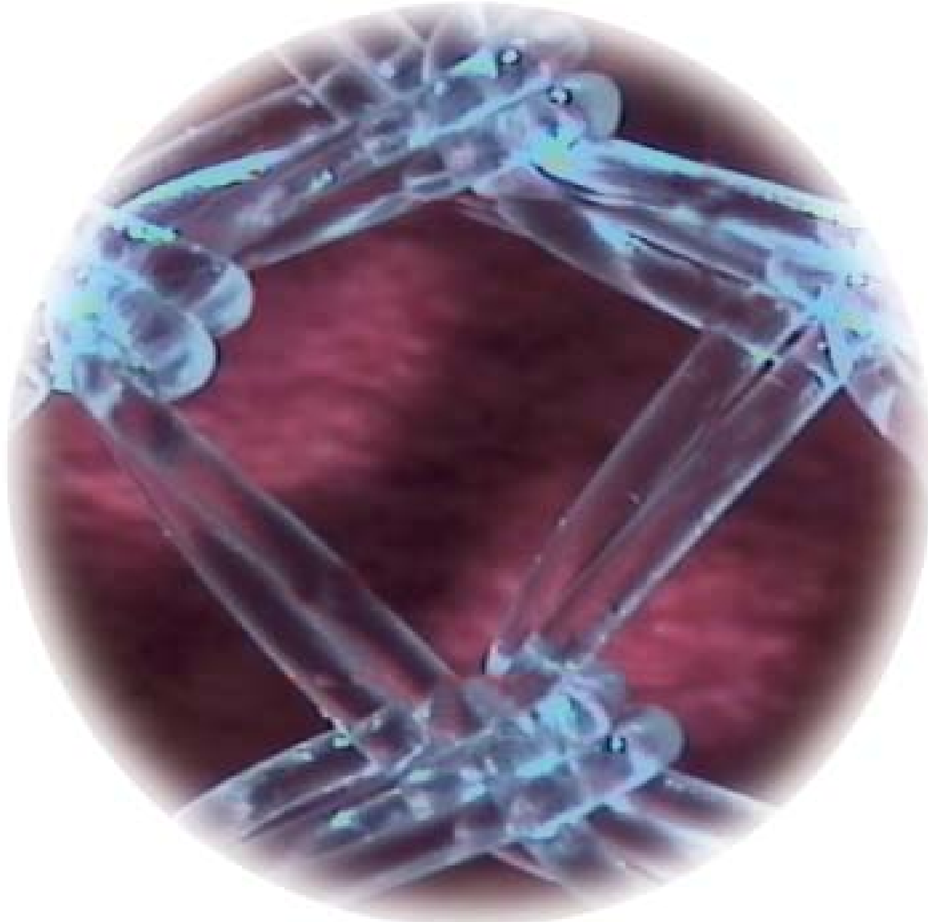
Type I meshes are preferable over all other types of meshes

Advantages of Type I vs. Type II & III & IV: [1-3]

- Less foreign body reaction
- Less infection risk
- Rapid fibrinous fixation
- Greater tissue ingrowth

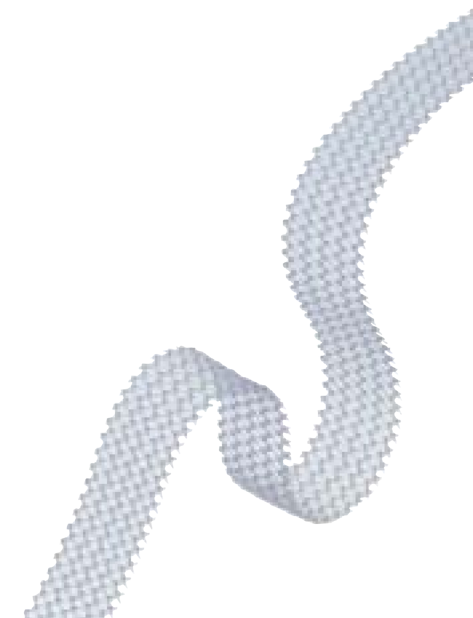
Gynecare WOMEN'S HEALTH SOLUTIONS

Gynecare TVT™
WOMEN'S HEALTH SOLUTIONS



Selecting the Right Mesh

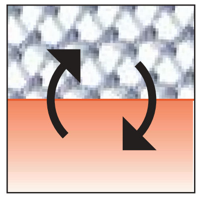
Important properties *of implant materials used in* urogynecological surgery



The most important *mesh properties:*

...and how the TVT Prolene™ Mesh *fulfills those properties:*

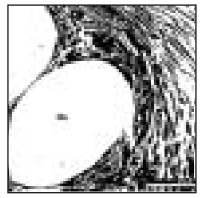
Inertness



- Meshes should be non-absorbable and permanent[2, 3]
- Polypropylene is the least reactive of all plastic materials[1–3]

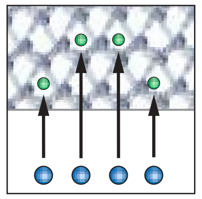
TVT Prolene™ Mesh:

- Due to its unique chemical properties as a non-absorbable and permanent polypropylene suture, TVT Prolene™ causes a very limited foreign body



G. Beets[8]

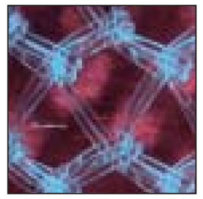
Resistance to infection



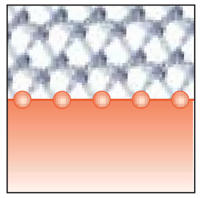
- Pores or interstices <10 μ prevent entry of macrophages and neutrophils, whereas bacteria which average only 1μ can hide and proliferate in the mesh[1–3, 10]
- Macroporous biomaterials with pore size larger than 75 μ do not promote or harbor infection[1–3, 9]
- Totally macroporous meshes have the least risk of chronic infection[1–3]

TVT Prolene™ Mesh:

- The macroporous, monofilament TVT (Type I) mesh allows macrophages entry into its pores and thus do not promote or harbor infection[1–3, 9, 10]



Rapid fibrinous fixation

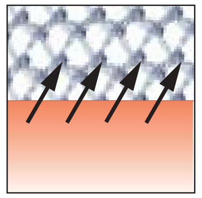


- The ability of rapid fibrinous fixation is the function of sufficient molecular permeability of macroporous biomaterials[1, 2]
- This decreases the chance of seroma collection of potential dead spaces between the mesh and the host tissue. It results in formation of proper scaffolding for the future fibrocytic infiltration into the mesh[1, 2]
- Risk of seroma formation is virtually avoided by using macroporous prostheses[1]

TVT Prolene™ Mesh:

- Due to its macroporous configuration, TVT minimizes the risk of seroma formation and allows the formation of a proper scaffolding[1, 2]

Host tissue incorporation



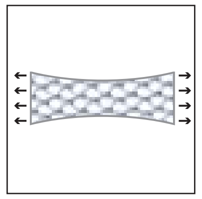
- Proper incorporation of fibroblasts, collagen and blood vessels require pore size >75 μ [1, 2] (macroporous mesh, Type I)
- Slight roughness of the surface stimulates fibroplasia[2]
- Strength of attachment increases with pore size[5]

TVT Prolene™ Mesh:

- TVT's uniform Interlock® structure with a pore size of 164 x 96 μ (Type I mesh) offers an excellent incorporation of the surrounding tissue during the healing process[1–5, 7]

G. Flesh[11]

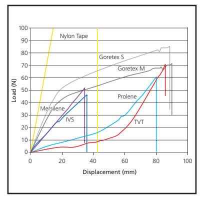
Elasticity



- Polypropylene meshes have a high tensile and bursting strength (resistance to breakage)[4]
- The elastic limit of the materials is unlikely to be clinically relevant as the forces exerted by intra-abdominal pressure increases are thought not to exceed 10-16 N[6]
- Macroporous polypropylene materials have the lowest initial stiffness i.e. the lowest resistance to deformation at forces below the elastic limit[7]

TVT Prolene™ Mesh:

- Of all tested materials, TVT has the lowest resistance to deformation. TVT and other wide-weave Prolene tapes have unique biomechanical characteristics that may be at least partly responsible for the apparent clinical succes of the implants and the very low erosion rates



H.-P. Dietz[7]

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11. Flesh G. TVT for SUI: *optimizing outcomes*

1μ = 0.001 mm
1N ≙ ca. 0.1 kg