# 3D-Printed Surgical Meshes with Variable Stiffness

## Overview:

This project involved designing, developing, and testing surgical meshes with variable stiffness using 3D printing technology. The goal was to reduce the risk of tissue damage and improve patient outcomes by customizing the stiffness of the mesh to better match the requirements of different surgical scenarios.

## Key Steps:

- **Design**: Used SolidWorks to design the mesh samples.
- **3D Printing**: Employed SLA Photon Mono X 6K and UV-sensitive resin to create the meshes.
- **Testing**: Conducted stress-strain tests using a Universal Testing Machine (UTM) to determine the stiffness of the meshes.

## Results:

The tests indicated that meshes with lower stiffness are more suitable for wound areas, reducing the risk of tissue damage and improving patient comfort.

## Conclusion:

Variable stiffness meshes can be more effective than uniform stiffness meshes in surgical applications, minimizing the risk of damage and improving healing.