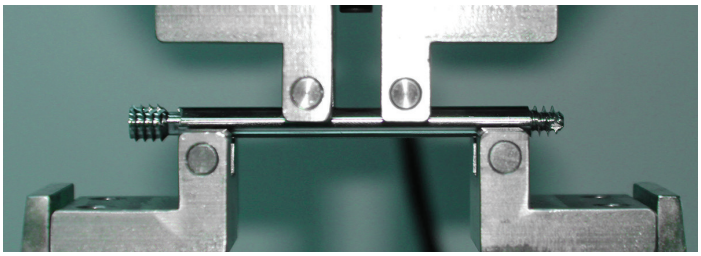
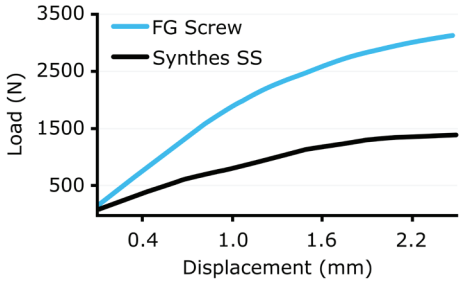
# BIOMECHANICS
## of the Free-Gliding SCFE Screw

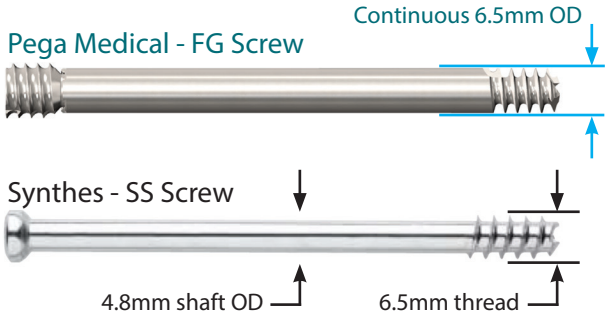
The Free-Gliding (FG) SCFE Screw by Pega Medical is an innovative "non-fusion" approach to the treatment of the most common hip problem in growing children: Slipped Capital Femoral Epiphysis. This innovation is achieved through a 2-part screw design that allows continued growth without the need of a proud screw placement.

Head-to-head biomechanics testing was conducted following ASTM standard F543 (Specification and Test Methods for Metallic Medical Bone Screws) to compare the Pega Medical FG Screw to predicates most commonly used in the market. Results demonstrate that the FG Screw is 2.9x stiffer and has a load and moment at yield 1.9x greater than the Synthes SS Screw of the same size. These results can be explained by the difference in diameter of the Screw shaft.

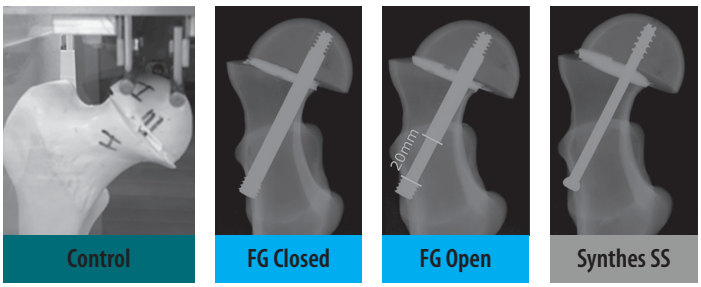




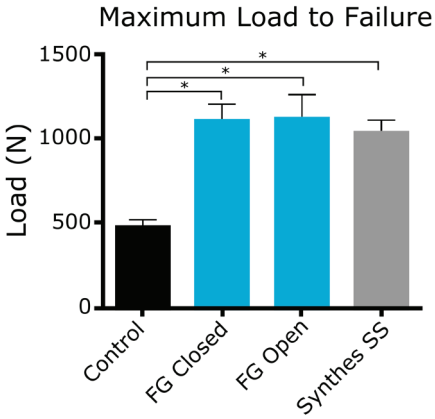

| 4 Point Bending Test Results | Structural Stiffness | Load at Yield | Moment at Yield |
|---|---|---|---|
| Pega Medical FG Screw | 7.2 Nm$^2$ | 2430 N | 24.3 Nm |
| Synthes SS Screw Cannulated | 2.5 Nm$^2$ | 1277 N | 12.8 Nm |
| Comparison | 2.9x | 1.9x | 1.9x |




Additional testing was conducted using a composite SCFE bone model.[1,2] The FG Screw was compared in both open (simulating growth) and closed configuration to the SCFE Screw System (Depuy-Synthes). All three tests showed similar load to failure values.




The Free-Gliding SCFE Screw by Pega Medical has shown to have equivalent or superior biomechanics performance with the added advantage of allowing continued growth.




[1] Leblanc E, Bellemore JM, Cheng T, Little DG, Birke O. Biomechanical considerations in slipped capital femoral epiphysis and insights into prophylactic fixation. J Child Orthop, 2017; 11:120-127
[2] Little DG (Dec. 2016) Free Gliding Screw Biomechanics and early clinical data. IPOS Annual meeting. Orlando, Fl.

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