

“Six Degrees of Freedom” Monoaxial/Polyaxial Surgical Screw

Researchers at the University of South Florida have developed a unique monoaxial/polyaxial screw design with a new “saddle” component and modified rod rocker and screw head, which allows intraoperative manipulation of the screw in the sagittal direction once the rod has been placed. This device will allow sagittal manipulation of vertebrae that is required in situations such as that resulting from traumatic burst fractures and with flat back cases where additional lordosis is desired, among several others. This design, for the first time, will allow correction of any vertebral deformity, including rotational, malalignment, longitudinal angulation, compression or distraction, or burst fractures. This innovative design represents the first surgical screw that has 3 degrees of freedom in both rotation and translational motions, totaling 6 degrees of freedom.

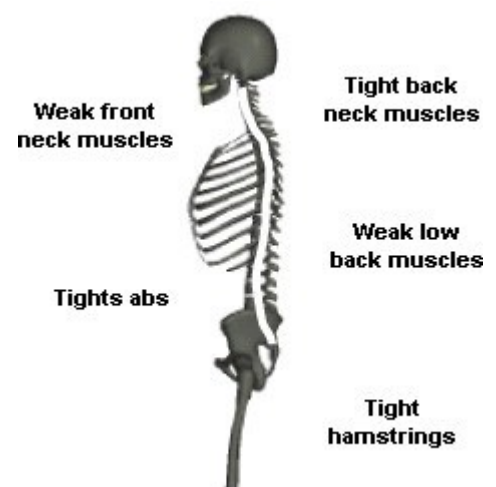
Current screw designs utilized for back surgery fall generally into two categories: rigid (monoaxial) screws and variable-angle (polyaxial) screws. Rigid screws have the advantage of being subject to manipulation relative to the stabilizing rod that links them together, while variable-angle screws afford great intraoperative flexibility (including adjustability to align for rod placement) and ease of use in the surgical correction of many spinal deformities.

Recently, several companies have developed a new category of screws that are capable of changing from a rigid to a variable-angle configuration at the will of the surgeon. These new screws provide many great advantages, but unfortunately lack the ability to be manipulated in the sagittal direction during surgery, introducing many limitations to their use.

ADVANTAGES:

- **Six degrees of freedom affords ultimate intraoperative flexibility**
- **Progressive design retains advantages of both monoaxial and polyaxial surgical screws**
- **No other screw allows for the ease of use of a polyaxial screw while still allowing sagittal manipulation**

Innovative surgical screw allows correction of any vertebral deformity



Flat back

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