

NOVATION[®]

Comprehensive Hip System



NOVATION[®] CROWN CUP[®] CONSTRAINED LINERS SYSTEM: STABILITY...IN MOTION

The main attributes associated with success of a constrained liner system are termed “lever-out” moment and range of motion (ROM). The lever-out moment is the moment required to dislocate the femoral head from the constrained liner. ROM is the maximum angle the femoral component can travel prior to impingement of the femoral neck on the liner, cup or bone.

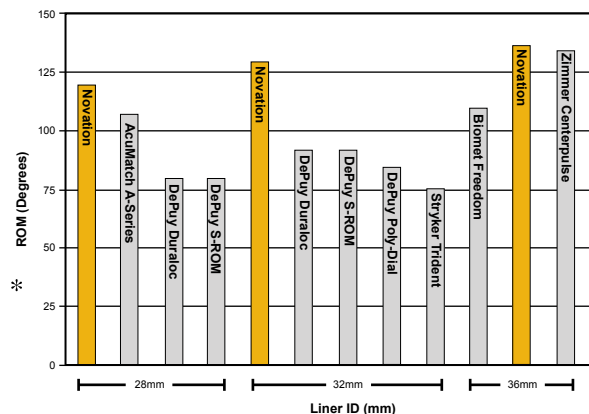
When these attributes are optimized there is potential to decrease the occurrence of common constrained liner failure modes:

- Dislocation of the femoral head from the liner
- Disassociation of the liner from the shell
- Disassociation of the constraining ring from the liner
- Disassociation of the femoral head from the neck
- Aseptic loosening due to constrained geometry.

OPTIMAL DESIGN

ROM: *Range of motion*

Increased ROM provides stability and decreased incidence of dislocation. The graph below shows the Novation[®] Crown Cup[®] Constrained Liner ROM versus other constrained devices. ⁽¹⁻⁷⁾

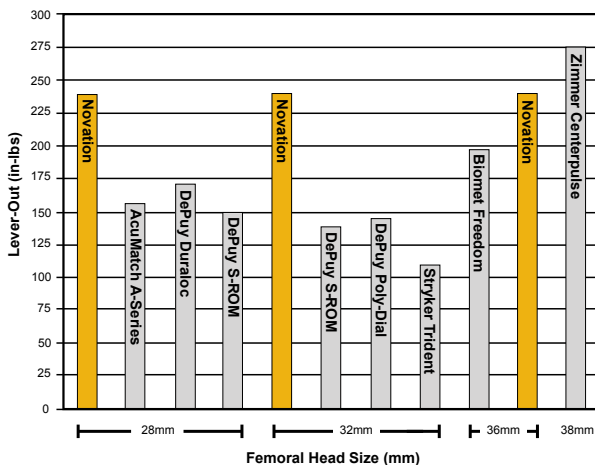


*These values are a mix of anatomical, click-to-click and unreported.

With a 36mm OD, +0mm offset head, the ROM is 137 degrees in flexion/extension, 150 degrees internal/external rotation and 89 degrees abduction/adduction.

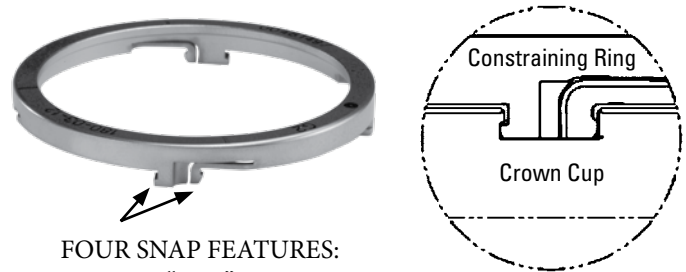
LEVER-OUT: *Right where we want to be*

Two of the main failure modes for constrained liners are aseptic loosening and dislocation of the femoral head. Because of this, it is important to optimize the lever-out value. To prevent dislocation, a higher value for lever-out is desired. To prevent loosening, a lower value of lever-out is desired. The Novation Crown Cup Constrained Liner is designed to fall within the range of other clinically acceptable constrained liners. The lever-out moment for the Novation Crown Cup Constrained Liner is on average 240 in-lbs, which falls between the highest and lowest reported lever-out values for other constrained devices.⁽¹⁻⁷⁾



DESIGN FEATURES

The Novation Crown Cup Constrained Liner and Constraining Ring were designed to fit perfectly with the Novation Crown Cup. The “snap” feature engages with the “crowns” on the Crown Cup for a secure fit preventing disassociation of the ring or liner from the cup.



FOUR SNAP FEATURES:
LEFT IS THE “TAB” AND RIGHT
IS THE “SNAP”

CONCLUSION

Most competitive acetabular systems on the market today have constraining mechanisms that were retrofitted to existing cup platforms. The Novation Crown Cup constraining mechanism was designed simultaneously with the acetabular shell allowing an optimization of both the lever-out value and the range of motion to provide the best option for patients that require additional constraint while maximizing the range of motion.

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