# Hip Replacement System to Eliminate Dislocations

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## Technology description

INNOVATION:
Researchers at the University of Missouri have developed a hip replacement system designed to eliminate dislocation after total hip replacement. The specially designed prosthetic head is connected at one end to a femoral stem, and at the other to a socket (acetabular liner) specially designed to prevent dislocation. By design, insertion of the femoral stem into the cavity of the head physically inhibits the removal of the head from the liner. The design also allows the directional loads associated with dislocation and impingement to be distributed across two faces, thereby decreasing the overall stress on the joint as stress is the quotient of force divided by area. Range of motion is improved producing over 120° of motion, and this device design can be used with a plurality of systems including two-, three-, and four-component systems.
BACKGROUND:
There are over 343,000 total hip replacements annually in the United States due to osteoarthritis, rheumatoid arthritis, osteonecrosis and other conditions. Devices on the market today are associated with decreased dislocation also come at the cost of decreased range of motion, increased manufacturing cost, and increased difficulty in assembly. This device is advantageous in all three of these categories.

## Application area

- Primary Hip Replacements
- Revision Hip Replacements

## Advantages

- Increased range of motion
- Reduced incidence of dislocation and hip impingement
- Applicable to two-, three-, and four-component systems
- Design features, such as a single manufactured surface on the head and dual liner extensions, reduce stress on the joint (Highlighted may be confidential)

- Easy to manufacture and assemble
- Increased femoral head diameter to stem shaft ratio

## Institution

University of Missouri, Columbia

## Inventors

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