Title: Glenoid Implant

INVENTORS: Prof. Dinesh Kalyanasundaram, Centre for Biomedical Engineering
KEYWORDS: Articular cartilage, Glenoid implant
DOMAIN: Healthcare (Implant)

SUMMARY:

Repeated shoulder movements and other pathological conditions, including those related to illness or aging, can lead to gradual loss of the normal articular cartilage and, hence, loss of joint functionality. Various interventions, including arthroplasty, resurfacing, and the replacement of deteriorated joint components, can restore the joint functionality.

The present invention talks about the intricate design of the glenoid implant, which is placed between the shoulder joint. The implant can replace the flawed shoulder joint and mimics the functionality of the natural glenoid. The implant is constructed using a 3D model of the specific shoulder of a patient. The body of the glenoid implant consists of a first articular surface with an adjustable curvature that interfaces with the humeral head. Additionally, it features a plurality of flanges protruding from the scapula-engaging surface, facilitating a press-fit into the scapula. The glenoid rim is configured to replicate the function of the glenoid labrum of the natural glenoid, providing stability and shock absorption within the joint.

ADVANTAGES:

1. Customizable to match specific intricate curvature and surface geometry of the patient's natural anatomy.
2. Design addresses the problem of glenoid implant loosening and provides better stability.
3. Designability for both anatomic and reverse shoulder joint replacements.
4. Enhances long-term fixation.
5. Offers versatility in terms of any existing manufactured techniques.
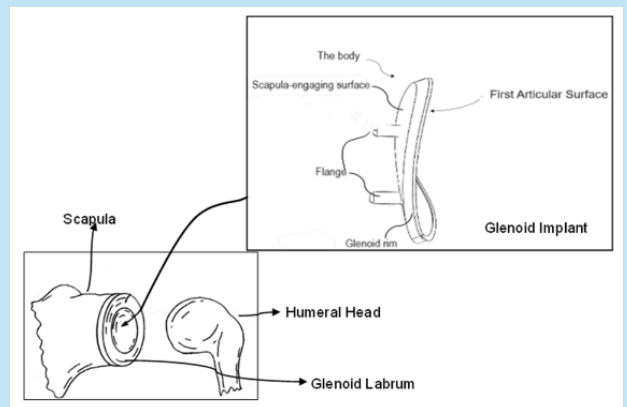6. Manufactured with any biocompatible material like polymer, ceramic, metal, etc.

Figure: Representation of the Glenoid Implant's Position in the Glenoid Labrum.

APPLICATION: Glenoid implant for a shoulder.

SCALE OF DEVELOPMENT: In-vivo animal study of a New Zealand white rabbit is done.

TECHNOLOGY READINESS LEVEL: TRL 4

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