

Orthopedic implant for wrist fracture

Published date: Jan. 28, 2008

Technology description

Anatomically designed orthopedic implant for patient with wrist fractures (scaphoid bone)

Description

Wrist replacement or arthroplasty is currently difficult to achieve because of the complexity and multitude of bones, tendons and ligaments involved in the wrist/hand. State of the art dictates that patients who need this surgery received total wrist replacement. Such surgery is non-anatomic and destructive. It uses medical devices embedded in surrounding bones. Using this actual standard of care, patients do not retrieve functional flexibility and use of their hand. For younger patients the scaphoid bone accounts for 60% of wrist bone fractures. The scaphoid bone is particularly difficult to heal since blood circulation is limited. If not treated properly, it leads to bone necrosis and later requires further wrist treatment. Current invention describes custom arthroplasties based on contralateral wrist designed by tomography or magnetic resonance. Therefore, damaged bones could be replaced after an accident which would later limit arthritis. The invention could also apply to other damaged bones in the wrist instead of performing a total wrist replacement. Implant will have the shape of the same bone in the contralateral wrist. It will be modeled using CT-scan or MRI. The second feature is an implant designed (shape and texture) to have portion specifically devoted to ligament fixation, which is unique. The implant is fixed using screws and/or sutures to attach it to surrounding bones and other unique medical tools require to suit each patient anatomy.

Additional

In 2005 in the US over 2 million osteoporotic-fractures related were accounted for. Among them, 19% were wrist fractures or 380.000 fractures. This number was expected to increase because of the aging population.

Institution

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