

Encoder Linkage for Tracking Position of Surgical and Imaging Device

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Technology description

While arthroscopic surgery has many advantages over traditional surgery, this minimally invasive surgical technique is not often applied to the hip joint. There are two main reasons for this: the difficulties of navigating within the joint and of correctly placing portal incisions without damaging critical neurovascular structures. We introduce a computer-aided navigation system to address the challenges of arthroscopic hip surgery. Unlike conventional arthroscopic methods, this system uses encoder linkages to track the position and orientation of surgical instruments. The encoder position information is used to generate a computer display of patient anatomy to supplement the restricted view from a typical arthroscopic camera. Additionally, visual warnings can be displayed to inform the surgeon if tools move to a region that endanger the patient.

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