Device for Real-Time Evaluation and Repair of Damaged Cartilage

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Technology description

Summary

Although arthroscopic surgery has revolutionized the treatment of damaged joints, the means are less advanced for assessing the extent of damage and for real-time optimization of the treatment. Various means of measuring local tissue damage include the assessment of stiffness by indentation probing and of structure by magnetic resonance, ultrasound, or optical coherence tomography imaging. However, none of these measurements test the functional interface between cartilage and bone, and few of these can be adapted for both real-time assessment and repair using existing arthroscopic devices.

Description

UC inventors have developed an arthroscopy-compatible device that can measure hydraulic resistance of the tissue, deliver material to tissue within a joint, and allow for in situ treatment and/or modification of the materials.

Advantages

The device has a maneuverable chamber that is designed to:
Seal against joint tissue surfaces, including cartilage.
Take on multiple configurations to conform to the shape of the tissue surface.
Resist compression and deformation.
Deliver materials (e.g., polymerizable hydrogel) to a site.
Treat (e.g., UV-polymerize) the material in situ.

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