Wearable Technology for Joint Health Assessment

A set of sensing modalities for providing an in-depth assessment of knee health

Georgia Tech researchers have developed a set of sensing modalities for providing an in-depth assessment of knee health. These modalities include the sounds and swelling of the joint; parameters which can only be measured currently in clinical settings and typically in a qualitative manner. The wearable system quantifies features from these modalities in software, and has demonstrated sensitive bio-markers of knee's healing progress. By objectively quantifying the knee health frequently during the rehabilitation progress, decisions regarding the treatment program can be made on a continual basis with therapies adjusted based on the changing needs of the patient. This allows for a more efficient determination of whether physical therapy is sufficient, and an important return-to-play assessment for athletes.

Summary Bullets

- Sensitive bio-markers of knee healing process
- Can be used outside of clinical settings
- Provides quantitative measurements as opposed to qualitative ones

Solution Advantages

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- Can be used outside of clinical settings
- Provides quantitative measurements as opposed to qualitative ones

Potential Commercial Applications

- Create a new class of knee braces, sleeves, and wraps that can sense the health of the joint dynamically
- Provide informed decision aids to the user and caregiver alike regarding rehabilitation progress

Background and More Information

Knees are among the most commonly injured body parts, and account for the most severe injuries for athletes and sedentary populations alike. Current tools for diagnosing knee injuries are expensive, inconvenient for the patient, and limited to clinical settings . After the injury is diagnosed and a treatment plan generated, the rehabilitation progress is not well tracked and often involves infrequent visits to the physical therapist for adjustments. There is a need for a wearable device patients can utilize from home to track knee health.

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IP Status

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Publications

GEEKOUT: Cracking Bats and Bones: Inside Sports Medicine with Omer Inan, -

Images

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