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ABSTRACTS

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VIBRATION ARTHROGRAPHY OF THE KNEE JOINT

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Vibration arthrography is a sensitive, non-invasive technique for the objective study of the knee joint. Using computer assisted vibration sensitive equipment, we studied the vibrational patterns obtained from both normal and symptomatic knee joints. In 172 patients with arthroscopically proven meniscal lesions, characteristic signals were identified in 150 cases (diagnostic accuracy = 86%). In all cases the lesion was localised to the correct side and, in addition, an association was demonstrated between different signal patterns and the different types of meniscal tear. Surgery was shown to have a profound effect on the signals. In most cases, complete resolution of the symptoms was associated with the disappearance of the meniscal signal.

In normal subjects when the knee is moved slowly, a palpable patellar vibration is noted. This signal, which we have called "Physiological Patello-femoral Crepitus" (PPC), is the result of slip-stick friction at the cartilage interface and is therefore entirely cartilage dependant. As such, alteration in the state of the articular cartilage is accompanied by changes in the signal. In advanced degenerative disease, the signal of PPC is not observed. Vibration arthrography therefore represents the first non-invasive method whereby the health of the articular cartilage can be assessed.