

# **Intraclass correlation intra- and inter-observer of the pivot-shift maneuver through mobile application: "pivot-shift meter"**

## **Abstract**

The anterior cruciate ligament is an anatomical structure that tends to cause problems for specialists when formulating an accurate diagnosis. There are measurement tools that support the diagnosis such as the KT1000; however, it still has some limitations, since it only manages to measure a single axis of movement, while the "pivot-shift" maneuver manages to capture more information about the state of the ligament, as it allows to evaluate the three axes of movement of the joint. The "pivot-shift" maneuver lacks a standard execution, therefore it can produce disagreement between evaluators; this creates the need for a tool capable of standardizing the maneuver, while providing an interpretable measurement.

Pivot-shift meter application, a mobile software capable of capturing information on the movements made when executing a pivot maneuver. Intraclass correlation coefficient to measure the intra- and inter-observer correlation of the information captured by the application. The data was obtained from 66 random participants, using the mobile phone's built-in gyroscopes.

With the 66 tests carried out, it was observed that the evaluators tend to achieve high reproducibility when executing the maneuvers within the time period established by the application, which reached an intraclass correlation coefficient above 90%.

The intra- and inter-observer correlation is high enough to be able to perform a quantitative analysis of the pivot-shift maneuver, through a mobile phone.