

DYNEELAX

Dynamic Knee Laximetry Arthrometer

Assess Knee Ligaments

- ✓ Objective Results
- ✓ Translation Laxity
- ✓ Rotation Laxity



DYNEELAX Technical Characteristics



Accuracy

Foot Locker: lock the patient's foot in the device.



Accuracy Objectivity

Goniometer: precisely assess the rotation of the top of the tibia.



Accuracy Objectivity

Displacement sensor: accurately assess the displacement of the top of the tibia.



Reproducibility

Knee Cup: lock the knee to test patients. The tightening force should be the same for both knees for optimal test comparability.



Accuracy

Assess Translation & Rotation using the latest software. Choose forces & Torques.

Reproducibility

Automatically saves patient & device positions to ensure result comparability.

User-Friendly

The software is easy to use and guides the user for optimal testing.

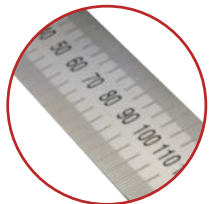
Objectivity

Analyse patient results using graphs and tables charts.



Accuracy Objectivity

Rotary Actuator: perform tibial rotations with chosen torques.



Reproducibility

Ruler: adjust the device & save the position before each test to ensure result comparability.

Accuracy

Translation plate: perform anterior translation on the tibia with chosen forces.



Accuracy

Knee Locker: lock the patient's knee in the device and save the tightness.

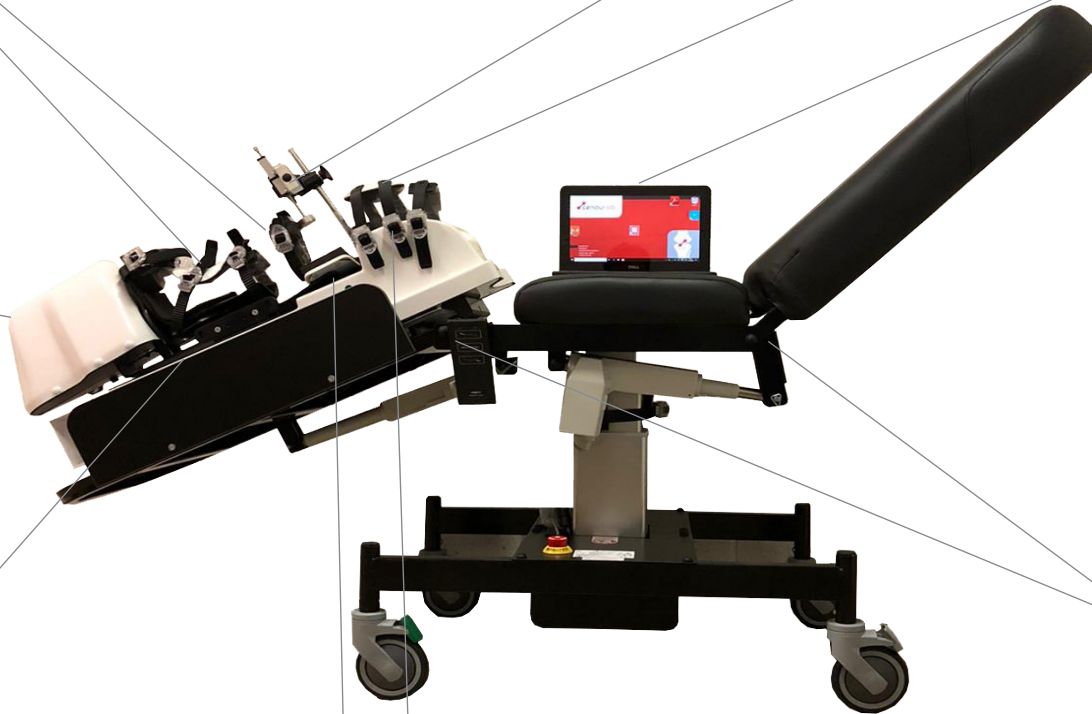
Additional Option



PCL Option: apply posterior translation on the tibia with chosen forces.

Accuracy Reproducibility

LDA Couch: couch specifically designed for the DYNEELAX. Remotely adjust angles for optimal testing.



DYNEELAX Exclusive Features

DYNEELAX® is an automated arthrometer/laximeter that performs translation & rotation assessments on the knee to accurately analyse the various ligament structures.

Objectivity & Accuracy:

It is an objective method to perform both the Lachman test to measure knee anterior translation but also rotation to assess knee rotation laxity.

DYNEELAX® applies adjustable forces & torques to obtain compliance curves. It performs dynamic tests that offer a precise & innovative diagnosis of knee stability:



The analysis of the slope of the compliance curves (see Patient 1 & 2) in addition to rotation & translation differentials.

Reproducibility:

Accurate sensors and parameters to ensure reproducibility have been incorporated in the system. The patient is hence placed in the same position each time he is test which allows precise result comparison over time.

User-Friendly:

DYNEELAX® and its software have been designed to ensure user-friendliness. The user is guided to ensure optimal knee assessment.

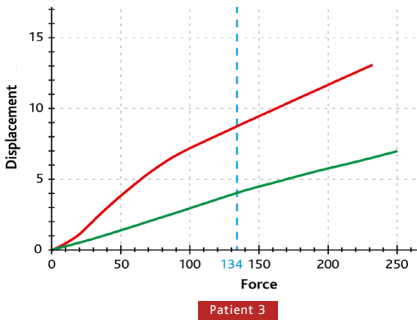
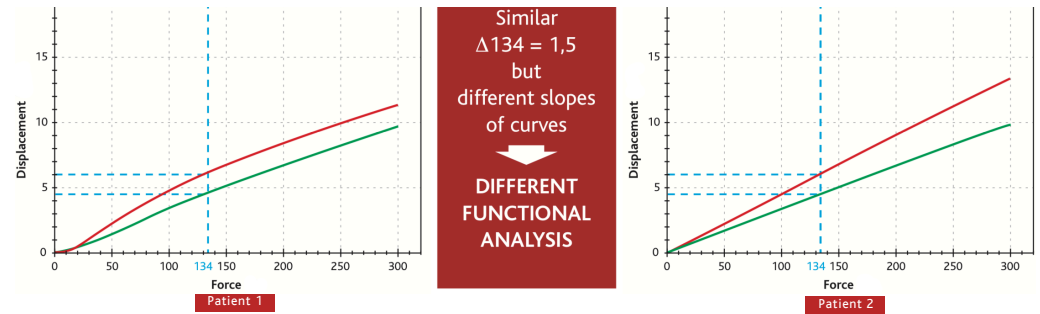
Tests results & patient positioning are automatically saved after each assessment in a database that can easily be exported.

Safety : Pre-Op / Post-Op Use:

All the forces & torques applied by the unit are precisely chosen before each test. DYNEELAX® is hence safe to use pre-surgery but also post-surgery.

Deliver personalized rehabilitation programs to maximise the chances of gaining knee stability after knee ligament reconstruction surgery thanks to post-surgery tests !

Translation Laxity



Automated tibial translation parameters DYNEELAX®

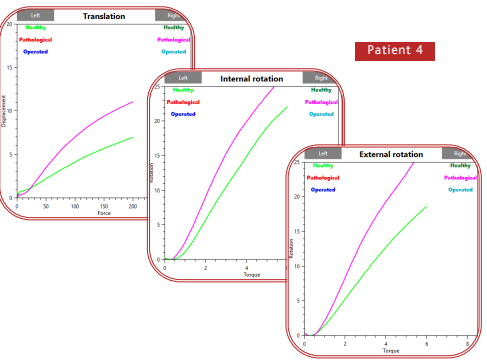
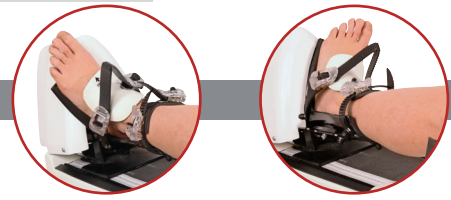
Differential of displacements at 134 N ($\Delta 134$)	Ligament State
$\Delta 134 > 3$	Complete lesion (according to $\Delta P2$)
$1 < \Delta 134 < 3$	Partial lesion (according to $\Delta P2$)
$\Delta 134 < 1$	No lesion
Differential of slopes ($\Delta P2$)	Risk of functional instability
$\Delta P2 > 10$	High
$5 < \Delta P2 < 10$	Medium
$\Delta P2 < 5$	Low

(H.Robert, Isakos, Rio 2011)

Knee

- Healthy (Green line)
- Pathologic (Red line)
- Operated (Blue line)

Rotation Laxity



Induced tibial rotation parameters DYNEELAX®

Test DYNEELAX® at 5 in controlled rotation	Differential of rotation $\Delta r > 3$	Differential of rotation $\Delta r < 3$
Analysis	Severe affection of the anterior-lateral peripheral structures	No Severe affection of the anterior-lateral peripheral structures
Surgery (plastic) extra-articular	Recommended	Not Recommended

(O.Lorbach, KSSTA, 2011/Robert, ESSKA-SFA, 2014)

Simultaneous display of the three knee stability assessment curves (Translation, Medial & Lateral Rotation).

DYNEELAX

Dynamic Knee Laximetry Arthrometer

DYNEELAX® is the conclusion of 15 years of Research & Development by the company GENOUROB.

Before, two separate arthrometers were needed to perform translation (GNRB®) & rotation (ROTAM®) assessments.

Today, DYNEELAX® is the only device in the world that provides reliable, precise, reproducible and objective analysis of knee translations and rotations.

Research Studies:

Pre-Surgery & Post-Surgery Studies

- 1) "The approach of combining static rotational laxity measurements as well as the slope of the load-displacement curve to the usual anterior knee laxity measurements improved the diagnosis of ACL injuries to a comparable extent than MRI or clinical examinations as reported in the literature."

2014 – Luxembourg – C. Mouton – Combined anterior and rotation laxity measurements allow characterizing personal knee laxity profiles in healthy individuals.

- 2) The differences between the measurements taken by the GNRB® and the navigation system were small". We recommend using this system for all knee evaluations, before or after ACL reconstruction."

2017- France - J.-Y. Jenny - Experimental validation of the GNRB® for measuring anterior tibial translation

- 3) "All diagnostic values of the GNRB® were better than other diagnostic tools in acute ACL injuries. The GNRB® was more effective in acute ACL injuries examined within 10 days of injury."

2018 – South Korea- Seung Min Ryu – Diagnostic Tool for Acute Anterior Cruciate Ligament Injury: GNRB, Lachman Test, and Telos.

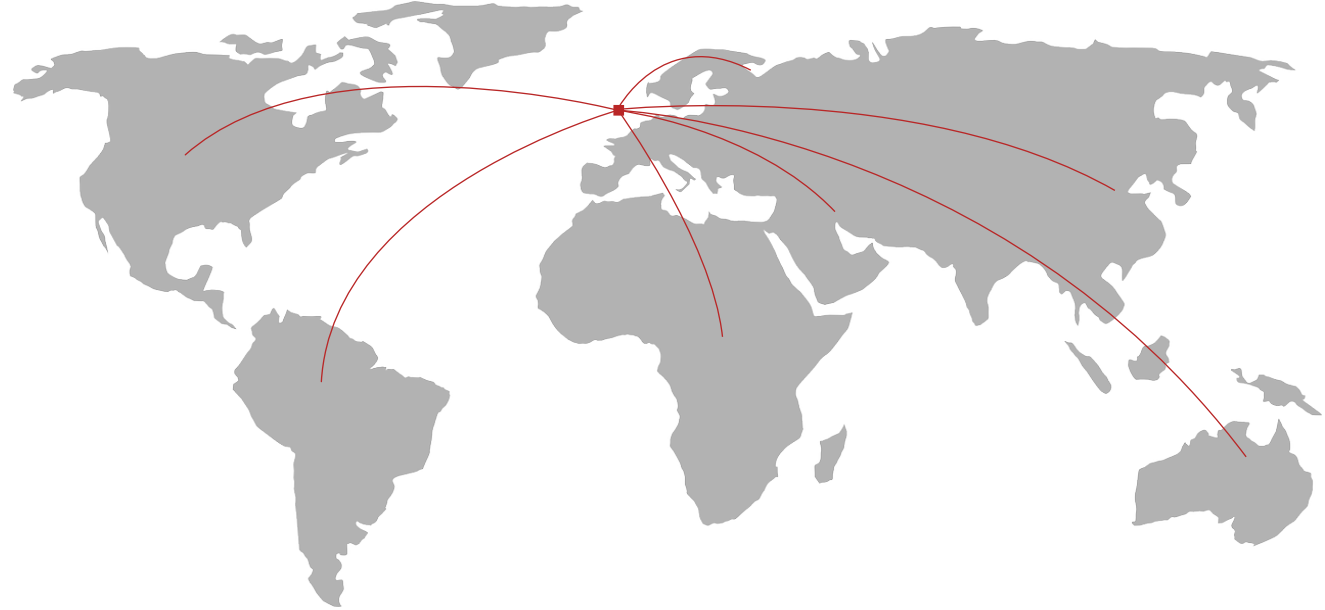
- 4) "This clinical study demonstrates the superior intra- and inter-examiner reproducibility of the GNRB® over the KT-1000. Additionally, the GNRB® is not examiner dependent."

2012 – Belgium – Michel Colette – Objective evaluation of anterior knee laxity; comparison of the KT-1000 and GNRB® arthrometers.

- 5) "GNRB has better consistency of results when compared to the KT1000."

Bâtiment 60, Rue Henri G ret 53000 Laval -
FRANCE
+33 (0)2 43 90 43 01

Our products are already present in more than 50 countries around the globe.



2020 – Australia – A. Klasan – Anterior Knee Translation Measurements after ACL Reconstruction Are Influenced by the Type of Laximeter Used.

- 6) "So, it seems that in sports recovery decision, the analysis of the ligament laxity is a relevant parameter to use."

2016 – France – B. Semay – Evolution of the anteroposterior laxity by GNRB at 6, 9 and 12 months post-surgical anterior cruciate ligament reconstruction.

- 7) "A non-invasive and objective knee rotational measurement device has been developed, which offers good potential for objective quality control in knee ligament injuries and their treatment."

2012 – Germany – O. Lorbach - Objective measurement devices to assess static rotational knee laxity: focus on the Rotameter.

yves.crystal@genourob.com
contact@genourob.com
www.genourob.com