DYNEELAX

Dynamic Knee Laximetry Arthrometer

Assess Knee Ligaments

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

www.genourob.com

genourob®

INNOVATIVE LAXIMETRY

Accuracy
Objectivity

Goniometer : Precisely assess the rotation of the top of the tibia

Accuracy
Objectivity

Displacement sensor: Precisely 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

Foot Locker: Lock the patient's foot in the device

Accuracy

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

Reproducibility

Automatically saves patient & device positions to ensure result comparability

User-Friendly

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

Objectivity

Analyze patient results using graphs and tables charts

Accuracy
Objectivity

Rotary Actuator: Perform tibial rotations with chosen torques

Accuracy
Reprodubility

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

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 : to lock the patient's knee in the device

Additional Option

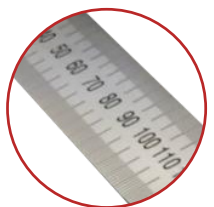PCL Option: Perform posterior translation on the tibia with chosen forces

DYNEELAX Exclusive Features

Genourob®

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**.

DYNNELAX 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) over time.

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 LDA 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 personnalized rehabilitation programs to maximise the chances of gaining knee stability after knee ligament reconstruction surgery tahnks to post-surgery tests !

Translation Laxity

Patient 1
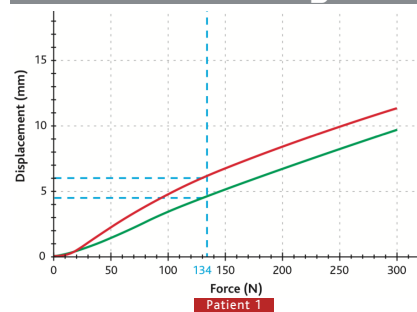
Similar Δ134 = 1,5 mm but different slopes of curves ➡ DIFFERENT FUNCTIONAL ANALYSIS

Patient 2

Patient 3

Knee

Healthy — Pathologic — Operated
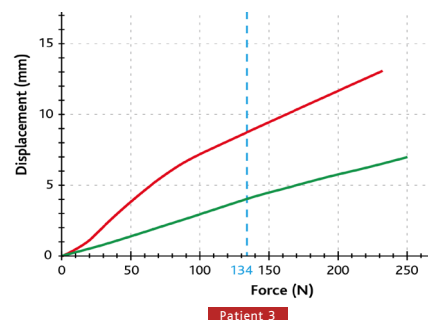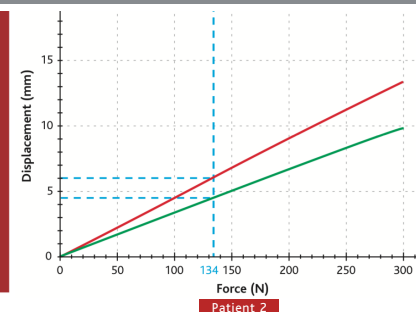
Automated tibial translation parameters DYNEELAX

Differential of displacements at 134 N (Δ134 in mm)	Ligament State
Δ134 > 3	Complete lesion (according to P2)
1< Δ134 < 3	Partial lesion (according to P2)
Δ134 < 1	No lesion
Differential of slopes (ΔP2 in µm/N)	Risk of functional instability
ΔP2 > 10	High
5 < ΔP2 < 10	Medium
ΔP2 < 5	Low

(H.Robert, Isakos, Rio 2011)

Rotation Laxity

Patient 4
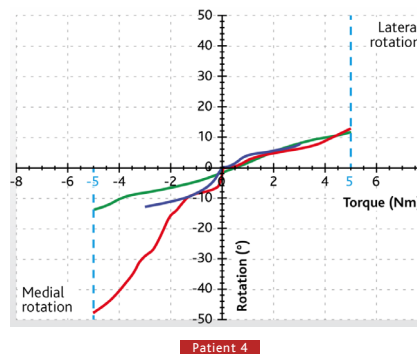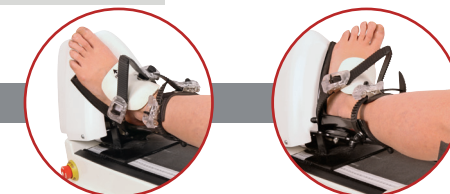
Induced tibial rotation parameters DYNEELAX

Test DYNEELAX at 5 Nm in controlled rotation	Differential of rotation ^{o}r > 3°	Differential of rotation ^{o}r < 3°
Anlaysis	Severe affection of the anterior-lateral peripheral structuress	No Severe affection of the anterior-lateral peripheral structures
Surgery (plastic) exrta-articular	Recommended	Not Recommended

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

DYNEELAX

Dynamic Knee Laximetry Arthrometer

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

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.

Nowadays, DYNEELAX is the outcome when merging the GNRB® & ROTAM® in a single medical unit.

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."

   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.