

## ACL grafts compliance during time: Influence of early solicitations on the final stiffness of the graft after surgery

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### Abstract

Following practices with the Lachman Test (subjective assessment), we observe how rehabilitation and daily stress applied on the ACL after ACL surgery impacts the stiffness (or the compliance of the ligament graft over time and the repercussion it has on the knee (stability or clinical instability of the patient's knee) but it was without any objective measurements and precise follow-up. The more the constraints applied on the graft are inadapted and harmful, the more the risk of functional instabilities is high when returning to pivot sport activities. The study design was to analyze with more accuracy the evolution of stiffness 'grafts during ligamentization (healing) time... We used a new compliance-meter and the first motorized device (GNRB arthrometer, Genourob company, France), which can assess with accuracy the force/displacement curves of the ACL graft over time. In addition, we know the close link between compliance-metry and knee stability, which is not the same as when only measuring laxity at one load applied. We did an early follow-up (from day 0 to 2-3 Y) with the help of automated dynamic laximetry (or compliancemetry to be more specific). First study (hamstring tendon surgery) involved: 53 patients (15F, 38 M). Second study (patellar tendon surgery) involved: 43 patients (8F, 32M). We want to know if, by applying biomechanical constraints on the knee, it would influence these grafts' compliance after surgery. This study has shown the influence of aggressive rehab and the influence of constraints applied outside rehab on the graft's compliance. In addition, it has a big role on the patient's knee instability following rehab. Also, the more you correct this earlier (we show that it's possible during the first 3 months), the more you decrease the risk of high instability in the future for patients (after 1 Y).

### Biography

Stephane Nouveau has completed his PhD in 1996 (after physiotherapy and osteopathy studies). He did medical studies after until 2005 where he decided to design the first motorized laximeter for the knee in the world: the GNRB device. Several publications were done for this new medical device with his colleague (Dr Henri ROBERT, surgeon).



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