

ASSESSMENT OF THE STABILIZING EFFECT OF A KNEE ORTHOSIS

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INTRODUCTION

Frame orthoses provide targeted stability and protection during the rehabilitation phase. They limit knee movement to a safe extent and prevent undesired rotational movements or shifts. The partly flexible SecuTec Genu Flex knee orthosis adapts to the patient's anatomy during movement, therefore providing a great fit and increased wearing comfort in the long term, which improves patient compliance.

The objective of the examination is to compare the stabilizing effect of the SecuTec Genu Flex knee orthosis to a conventional hard-frame orthosis. To assess the stabilizing effect of the knee orthoses, their resistance against anterior-posterior translation (N/mm) and against internal/external rotation (Nm/°) was compared.

METHODOLOGY

Tested orthoses:

- SecuTec Genu Flex
- SecuTec Genu, dorsal

Test method:

- Standardized laboratory test procedure according to Hochmann (2010)¹
- Use of an anatomical leg model
- Anterior-posterior translation (± 40 mm; 2 mm/s)
- Internal and external rotation ($\pm 30^\circ$; 1.5°/s)



SecuTec Genu Flex
in a test set-up at FH Münster

RESULTS

The examination results show that the SecuTec Genu Flex has a similar stabilization effect as a conventional hard-frame orthosis.

- **Equivalent stabilization anterior-posterior translation (Fig. 1)**
- **Equivalent stabilization with internal and external rotation (Fig. 2)**
- **The SecuTec Genu Flex provides similar stability as a conventional hard-frame orthosis**

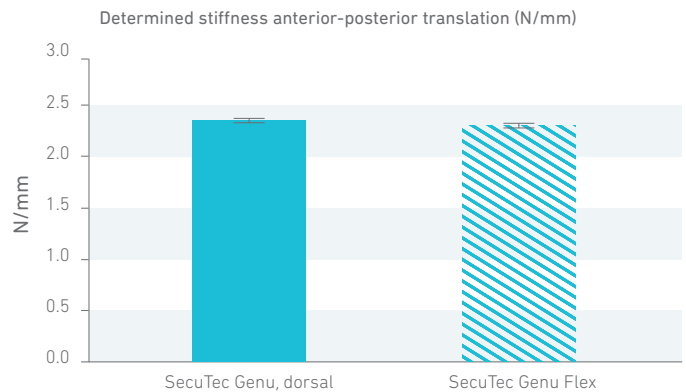


Fig. 1: Comparison of stiffness against anterior-posterior translation

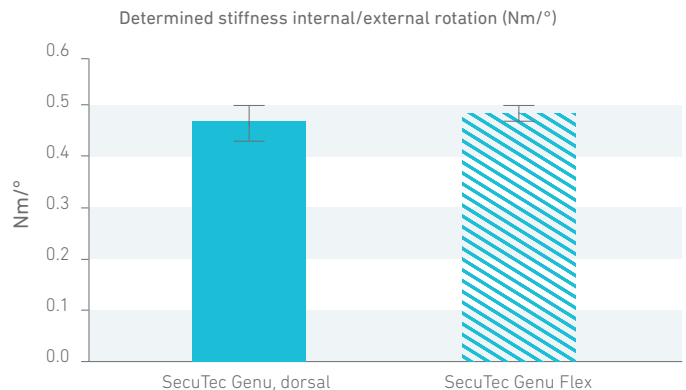


Fig. 2: Comparison of stiffness against internal/external rotation

¹Source: Hochmann, David. Test and Assessment Methods for Knee Orthoses Dissertation, TU Berlin (2010)