

M.4[®]s OA comfort

4-point knee orthosis for varus or valgus pressure relief and stabilisation



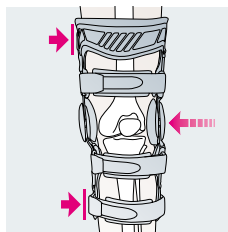
Indications

- severe medial or lateral gonarthrosis (at least level III) combined with ligament instability
- unicompartmental relief before HTO (brace test)
- for relief of painful stress fractures (e.g. tibiahead)
- cartilage surgery / chondroplasty / meniscus refixation with required postoperative relief of the medial or lateral compartment
- strong overloading of the medial or lateral compartment
- permanent relief, where surgery is contra-indicated

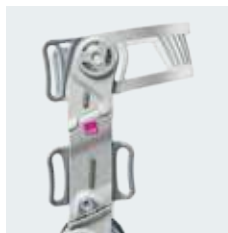
Mode of action

- relief of the lateral or medial compartment using the 3-point principle
- pain relief by reducing weight-bearing on the affected side of the joint
- optimal stabilisation using 4-point principle
- safe collateral stabilisation by rigid frame
- extension and flexion limitation protects against damaging joint movements and relieves injured structures
- limitations:
 - extension: 0°, 10°, 20°, 30°, 45°
 - flexion: 0°, 10°, 20°, 30°, 45°, 60°, 75°, 90°
 - immobilisation: 0°, 10°, 20°, 30°, 45°

Product benefits



3-point principle for guaranteed protection.



Movable thigh clamp for a perfect contact and positioning on the leg.



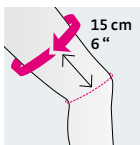
Double-layer condylar padding cover to increase comfort and reduce pressure friction.



Ultra-flat and lightweight frame and hinge construction.

Anatomically preformed and torsion-resistant frame geometry

grey / graphit



circumference thigh (cm)	31 – 37	37 – 45	45 – 51	51 – 57	57 – 65	65 – 74
size	XS	S	M	L	XL	XXL
article number	G.52□.◇01	G.52□.◇02	G.52□.◇03	G.52□.◇04	G.52□.◇05	G.52□.◇06

□ = fill in for variant: 7 = Varus, 8 = Valgus / ◇ = fill in for orientation: 2 = left, 3 = right



The "Brace Test"

A diagnostic tool for unclear indications for valgus high tibial osteotomy (HTO)*

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Introduction:

High tibial valgus osteotomy (HTO) is an established treatment option for varus gonarthrosis[1]. Patients with clear indication for surgery have isolated medial joint line pain, are active, between 40-60 years old and have a body mass index of less than 30 kg/m². Tenderness to palpation in the lateral compartment, lateral cartilage lesion in the MRI or the patients' scepticism about surgery constitutes a borderline indication. There is no predictive clinical test regarding the expectable pain reduction especially for these patients. A valgus knee brace results in a reduction of medial compartment loads [2] and has an effect comparable to HTO. This study aimed at identifying appropriate HTO patients from this group by using a valgus brace.

Materials and methods:

We performed a prospective examination of 56 patients with varus deformity (full leg weight bearing radiography, arthrosis classification according to Kellgren & Lawrence) and symptomatic medial cartilage lesions seen on MRI plus additional tenderness on palpation in the lateral compartment, laterally located low-grade cartilage lesions seen on MRI or patients skepticism regarding the postoperative outcome.

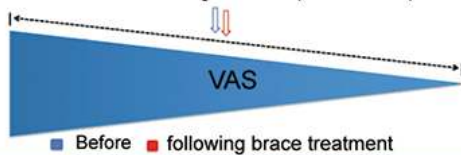


Figure 1a and 1b: 43-year-old patient, 4° varus deformity, osteochondral lesion of the medial femoral condyle, II° cartilage lesion of the lateral femoral condyle

We documented pain localisation and intensity according to VAS and provided a valgus brace (medi M4OA Varus) for 6-8 weeks (Brace Test).



Figure 2a and 2b: Varus deformity without and with fitted valgus brace (Medi M4OA)

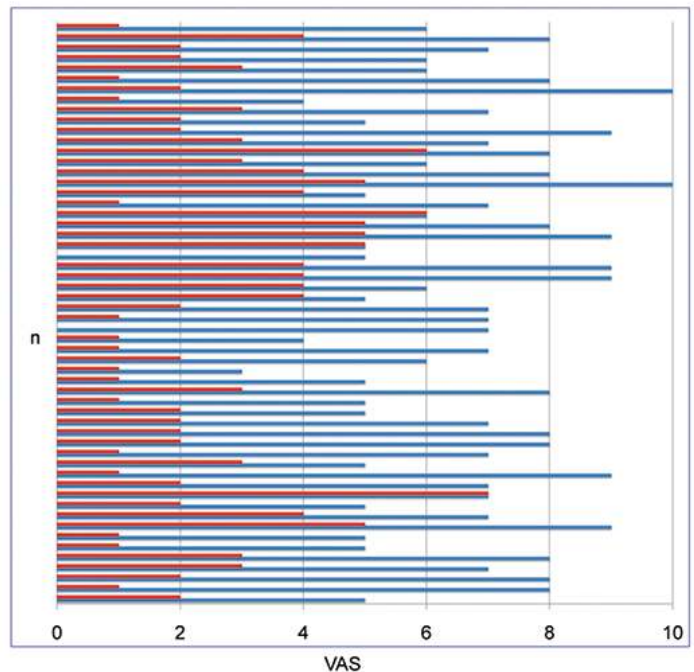


■ Before ■ following brace treatment

The test was positive in case of pain reduction in the medial compartment without initiated symptoms laterally during the brace treatment. In this case, we considered HTO to be promising. If the patients opted for HTO after a positive test result, they were followed up postoperatively and their VAS score was reevaluated 6 months after the surgery and/or after attaining full weight bearing. The Mann-Whitney U test ($p < 0.05$ significant) was used for statistical evaluation.

Results:

Age	Varus deformity	lateral joint line pain (in clinical examination)	I°/II° lateral cartilage lesion	Scepticism
50a (25 – 73)	4.6° (1-11.5)	14	27	46



■ before brace treatment ■ following brace treatment

The wearing of the brace significantly reduced the VAS score ($p < 0.001$) from 7 (3-10) to 3 (0-7). The test was positive in 50 and negative in six patients. 29 patients out of 50 underwent a valgus HTO, two out of six with a negative test were treated with a total knee arthroplasty. Four patients with a negative test result and 21 with a positive test result did not want to undergo surgery after completing the test. 13 patients out of 21 continued the brace treatment, five patients experienced pain relief without a brace. 25 out of 29 were followed up after surgery (HTO). The VAS score was lower than with the brace in twelve cases, identical in ten cases and higher in three patients.

Discussion:

The Brace Test seems to be well suited for predicting post-operative pain reduction in patients with borderline indication for valgus HTO. The brace treatment resulted in a significant pain reduction in the medial compartment. Some patients continued the brace treatment after finishing the test. 48% of the patients felt uncomfortable with the brace. Moreover, superficial skin irritations occurred regularly. Further investigations will show whether known lateral cartilage lesions constitute a negative prognostic factor for the long-term outcome of HTO.

References

- 1 Akizuki S et al. J Bone Joint Surg Br. 2008
- 2 Dennis DA et al. Journal of Arthroplasty 2006

*Original poster presentation (german) was published at II. Münchner Symposium für experimentelle Orthopädie, Unfallchirurgie und Muskuloskeletale Forschung 2012. Translated into english by med.