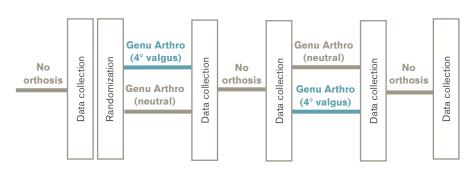
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Population

Subjects: Mean age: Mean body mass: Inclusion criteria: 12 patients (7 female, 5 male) 56.0 ± 4.6 yrs 80.9 ± 13 kg medial knee osteoarthritis from grade II to IV

Study Design

Observational, comparative:



The patients were not informed about the different adjustments of the orthosis.

Results							
Functions and Activities						Particip	ation
Biomechanics – Biomechanic Static measures Gait analysis		EMG		Functional tests	Clinical effects	Satisfa	ction
Category	Outcomes		Result	s for Genu Arth	iro		Sig.
EMG	Amplitude parameters – Quadriceps group		In the pre-activation phase of the gait cycle the muscle activity of the rectus femoris decreased by 13.6% with the neutral ad- justment.		++		
			In the late stance phase the muscle activity of the rectus femoris decreased by 16.3% with the 4° valgus and by 18.5% with the neutral adjustment.		++		
			cant ch	anges were four	ne gait cycle no s nd for the rectus vastus medialis.	femo-	
	Amplitude param Hamstrings grou		was sig (31.1%)	gnificantly low	f the lateral har er with the 4° va al adjustment (se.	algus	++
			gait cyc	•	ne other phases edial hamstring c		
		Amplitude parameters – Gastrocnemii groupThe muscle activity of the lateral gas- trocnemius was significantly lower in loading phase with the 4° valgus adju ment (23.8%). In the early stance phase 4° valgus (17.7%) and the neutral adju ment (16%) led to decreased muscle at ty of the lateral gastrocnemius.		n the ust- ase the just-	++		

Category	Outcomes	Results for Genu Art	hro	Sig.*	
		The muscle activity in the other phases of the gait cycle and of the medial gastrocnemius did not differ significantly.			
	Co-contraction ratios <i>Medial/lateral</i>	The co-contraction ratios were 12.3% lower with the 4° valgus adjustment in the late stance phase.			
		Inter individual differer	nces:		
		4° Valgus vs without orthosis	Neutral vs without orthosis	_	
		83%*: decrease 17%: increase *of patients	50%: decrease 17%: no change 33%: increase		
	Co-contraction ratios <i>Flexors/extensors</i>	The co-contraction r in the loading phase late stance phase wi justment.	atios were 15.1% lower and 21.5% lower in the ith the 4° valgus ad-	++	
	Co-contraction ratios (late stance phase) <i>Muscle pairs</i>	Inter individual differer <i>Loading phase:</i> Lateral Vastus / late 28.4% decrease (4° v	ral gastrocnemius:	++	
		Pre-activation phase: Lateral Vastus / later (4° valgus) and 16.89 Medial Vastus / med (4° valgus) and 19.69	% (neutral) decrease lial hamstring: 10.4%	++	
		-	ces for medial vastus / and medial hamstring /	0	
Satisfaction	Questionnaire about comfort, acceptance and subjective changes in gait	Perception of comfort during rest or gait did d not differ significantly between the 4° valgus and neutral condition nor the perception of changes in gait and acceptance as treatment option.		0	
* no difference (0), positiv	re trend (+), negative trend (-),	significant (++/), not	t applicable (n.a.)		
Author's Conclusion	"In summary, significant decreases in muscle activity and co-contraction ratios observed with the use of the knee brace in both adjustments, indicating a med cal stabilization of the knee by the brace. The results of our study support the of a possible beneficial effect of knee braces in reducing knee loading by dec ing muscle activation and co-contraction levels. This additional mechanism of ing reduction in conjunction with the load reduction induced by the three-poin bending system of valgus braces could further contribute to avoid disease pro- sion in patients with knee osteoarthritis." (Fantini Pagani et al. 2012)				

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