

## Reference

Drewitz, H., Schmalz, T., Wille, N.,

Research Department, Otto Bock HealthCare GmbH, Goettingen, Germany.

# Conservative Treatment of Varus Osteoarthritis of the Knee with an Ankle-Foot-Orthosis

## Konservative Behandlung der Varusgonarthrose mit einer Unterschenkelorthese

OT: Orthopädie Technik 2017; 4: 36-41.

## Products

**Agilium Freestep, Lateral sole wedge, Insole (ErgoPad® Work, Bauerfeind AG, Germany)**

## Major Findings

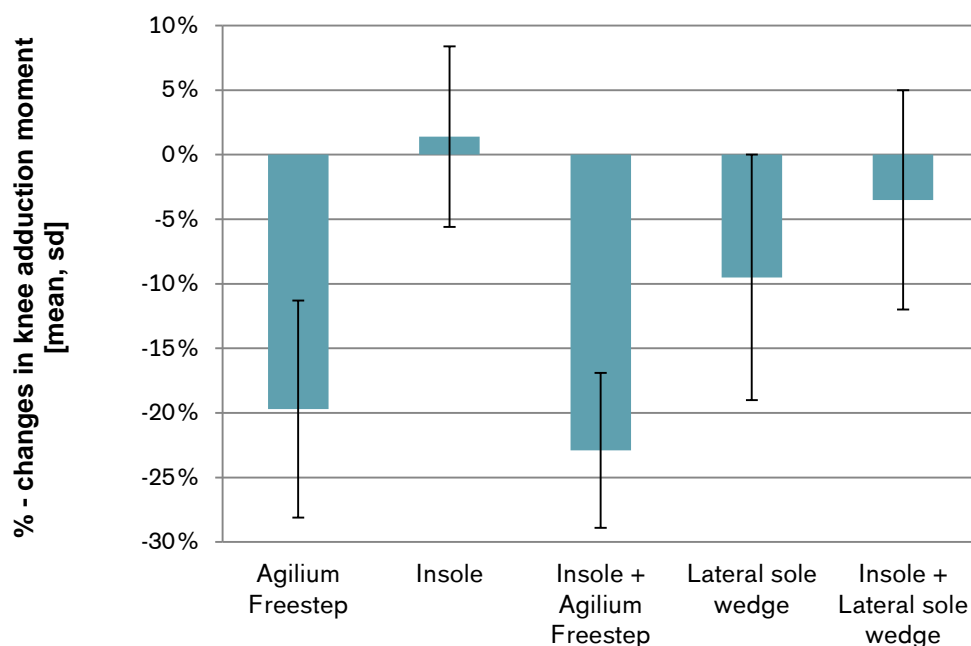
With Agilium Freestep

→ **Knee adduction moment is reduced by 20%**

With Agilium Freestep in combination with insoles

→ **Knee adduction moment is reduced by 23%**

## Percentage changes of knee adduction moment with orthopedic aids compared to no intervention

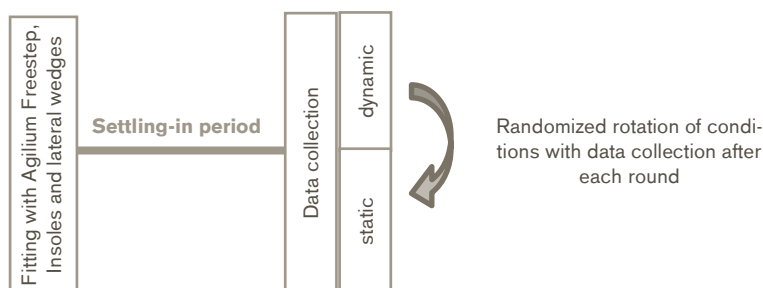


## Population

Subjects: 10 healthy subjects  
Mean age: 25.5 ± 3.1 years (range 19 to 30 years)  
Gender: 4 female, 6 male

## Study Design

Comparative, randomized:



## Results

Functions and Activities					Participation	
Biomechanics – Static measures	Biomechanics – Gait analysis	X-Ray	EMG	Functional tests	Clinical effects	Satisfaction

Category	Outcomes	Results compared to no intervention				
Biomechanics – Gait analysis	Knee adduction moment (KAM; compared to condition without intervention)					
	Subject	Agilium Freestep	Insole	Insole + Agilium Freestep	Lateral sole wedge	Insole + Lateral sole wedge
	1	-31.0%	-11.0%	-32.2%	-18.2%	-14.0%
	2	-11.1%	+1.8%	-30.3%	-17.2%	-10.1%
	3	-31.7%	+11.7%	-22.1%	-6.7%	+0.2%
	4	-8.1%	+0.8%	-18.2%	-3.3%	-0.2%
	5	-21.0%	+2.2%	-20.4%	-18.7%	-2.1%
	6	-23.1%	+10.8%	-23.5%	+7.1%	+10.1%
	7	-17.9%	-5.3%	-20.3%	-17.3%	-15.6%
	8	-22.4%	+2.4%	-21.9%	-14.6%	-8.9%
	9	-6.5%	+4.7%	-12.0%	+3.7%	+6.4%
10	-21.9%	-4.4%	-27.6%	-9.9%	-1.1%	
<b>Mean (±SD)</b>	<b>-19.7% (±8.4%)</b>	<b>+1.4% (±7.0%)</b>	<b>-22.9% (±6.0%)</b>	<b>-9.5% (±9.5%)</b>	<b>-3.5% (±8.5%)</b>	

■ reduction >10%, ■ reduction 5-10%, ■ reduction <5%, ■ increase

## Author's Conclusion

"In summary, the Agilium Freestep achieves a clear reduction in the load of the knee joint. [...] The combined use of Agilium Freestep with insoles (e.g. in case of pes valgus) is possible and recommended, since the knee-unloading effect is rather strengthened. [...] Due to the design, that does not span the knee, the good compatibility with the clothing and the easy handling, the orthosis represents an aid with high patient compliance and therefore an alternative to the known treatment options." (Drewitz et al. 2017)

*“Zusammenfassend ist festzustellen, dass mit der Agilium Freestep eine eindeutige Reduktion der Kniebelastungen erreicht wird. [...] Die Kombination der Agilium Freestep Orthese mit Einlagen (z.B. bei Knick-Senkfuß) ist möglich und empfehlenswert, da hier der knieentlastende Effekt eher verstärkt wird. [...] Aufgrund der nicht knieübergreifenden Bauweise, der guten Kompatibilität mit der Bekleidung und der einfachen Handhabung stellt die Orthese aus Sicht der Verfasser ein Hilfsmittel mit hoher Patienten-Compliance und damit eine Versorgungsalternative zu den bekannten Methoden dar.” (Drewitz et al. 2017)*

© 2017, Otto Bock HealthCare Products GmbH (“Otto Bock”), All Rights Reserved. This article contains copyrighted material. Wherever possible we give full recognition to the authors. We believe this constitutes a ‘fair use’ of any such copyrighted material according to Title 17 U.S.C. Section 107 of US Copyright Law. If you wish to use copyrighted material from this site for purposes of your own that go beyond ‘fair use’, you must obtain permission from the copyright owner. All trademarks, copyrights, or other intellectual property used or referenced herein are the property of their respective owners. The information presented here is in summary form only and intended to provide broad knowledge of products offered. You should consult your physician before purchasing any product(s). Otto Bock disclaims any liability related from medical decisions made based on this article summary.