

## Reference

Lang, M., Schnake, J., Rembitzki, I.V., Lidolt, K., Vollbrecht, M., Wagner, K., Liebau, C.

# Effect of a Dynamic Lumbar Flexion Orthosis on Back Pain and Pain-free Walking Distance – Results of a Prospective Clinical Observational Study

Der Einfluss einer dynamischen Lumbalflexionsorthese auf Rückenschmerz und schmerzfreie Gehstrecke

OT: Orthopädie Technik 01 / 2017: 32-35.

## Products

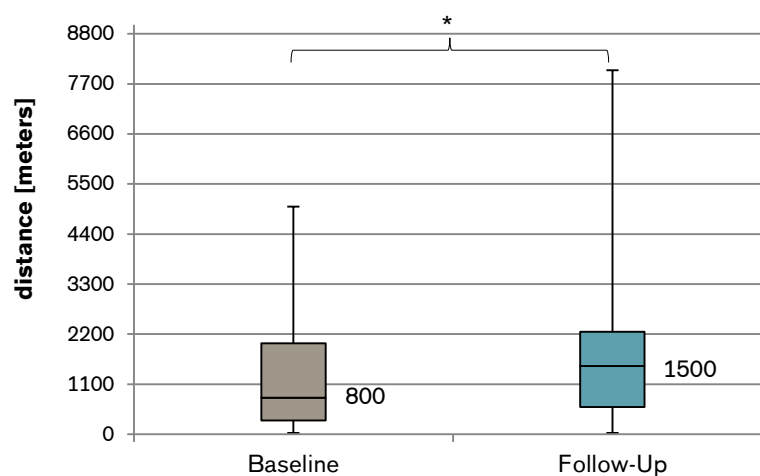
### Dyneva

## Major Findings

With Dyneva:

- **The pain was reduced significantly ( $p < 0,01$ ) by 21%**
- **The pain-free walking distance was increased significantly ( $p < 0,01$ ) by 88%**
- **The patient satisfaction was very high**
  - The *overall impression* was very good (42%) or good (58%)
  - The *stabilization effect* was very good (32%) or good (44%)
- **The compliance was high**
  - Dyneva was worn daily (54%) or 4-5 times / week (25%)
  - Dyneva was worn 5-8h (25%) or 2-4h (67%) per day

## Pain-free walking distance improved significantly with Dyneva



Significant improvement: \* $p < 0.01$

<b>Population</b>	Subjects:	31 patients (15 male, 16 female)
	Mean age:	65.0 ± 11.5 years
	Inclusion criteria:	- chronic back pain (lasting for at least 6 months) - limited pain-free walking distance

**Study Design**      Prospective before-and-after study with 4-week follow-up (with Dyneva):



**Results**

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

Category	Outcomes	Results for Dyneva			Sig.*	
Clinical effects	Pain level on NAS	- 21% (from 5.6 to 4.4 points)			++	
	Pain-free walking distance	+ 88% (from 800 to 1500 meters)			++	
		increase	no change	reduction		
		61%	39%	0%	of patients	
Satisfaction	Satisfaction	overall impression		stabilization back		
		very good	42%	32%	n.a.	
		good	58%	44%	n.a.	
		neutral	0%	24%	n.a.	
		bad / very bad	0%	0%	n.a.	
	Compliance	Wearing period during 4-week intervention				n.a.
		daily	4-5 times / week	2-3 times / week	<2 times / week	
		54%	25%	17%	4%	
		Daily wearing time				n.a.
		all-day	5-8 hours	2-4 hours	<1 hour	
	8%	25%	67%	0%		

\* no difference (0), positive trend (+), negative trend (-), significant (++/--), not applicable (n.a.)

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## Author's Conclusion

In summary, it can be stated that the new lumbar flexion orthosis shows the desired relief of the lumbar spine by reducing the muscular force-induced compression of the vertebral facet joints, intervertebral disc structures and the spinal foramina in the patients, reduces pain and increases the walking distance, sometimes even doubles it.

“Zusammenfassend kann festgestellt werden, dass die neue Lumbalflexionsorthese die gewünschten Effekte der Entlastung der LWS durch Reduktion der muskelkraft-induzierten Kompression auf Wirbelgelenke, Bandscheibenstrukturen und der spinalen Foramina am Patienten zeigt, Schmerzen reduziert und die Gehstrecke verlängern, zum Teil sogar verdoppeln kann.” (Lang et al. 2017)

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