ErgoPad® weightflex 2
EVALUATION OF COMFORT AND THE MOVEMENT PROCESS WHEN WEARING ORTHOPEDIC ORTHOSES

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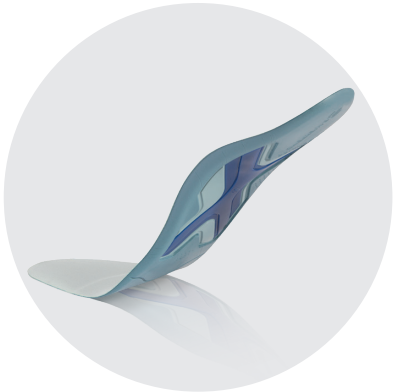
Orthopedic orthoses with a longitudinal and transversal arch support are used to correct the foot position and relieve the tarsal joints. They cushion the step and reduce pressure peaks. Until now, little research has been done into the importance of the fit of the shoes and orthoses and the properties of the foot orthoses when it comes to perceived comfort and whether this can also change the movement process. The aim of this study was therefore to examine the influence of orthopedic orthoses with three different levels of support and firmness (with soft, medium, and strong orthotic cores) on perceived comfort and the movement process of the foot and the lower leg.



ErgoPad® weightflex 2
Foot orthosis for natural mobility of the feet

METHODOLOGY

Prospective, randomized, controlled clinical study

Sample:	n = 52 (27 = male, 25 = female), age: 47–61 years
Test foot orthoses:	Orthopedic orthosis (ErgoPad weightflex 2 with a soft (E1), medium (E2), and strong (E3) orthotic core), (Bauerfeind AG)
Test method:	• Comfort questionnaire, evaluation of the foot orthoses with regard to heel support, arch support, flexibility, fit, comfort, and stability • Examination of the fit between the foot and the shoe, capturing a three-dimensional image of the foot and toe area using a scanner system (DynaScan4D): classification of the fit according to "wide," "good," "narrow." • Kinematic gait analysis (Vicon): checking the angle of the joint between the lower leg and hindfoot as well as between the hindfoot and forefoot • Responder analysis, differentiated view of the individual test subjects' responses with regard to the variables being investigated
Inclusion criteria:	Test subjects who are 40 years of age or older

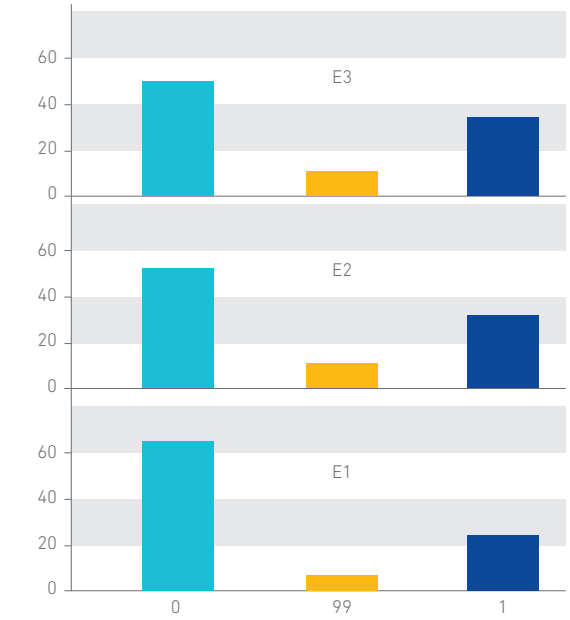
RESULTS

Improved guidance of the movement process
The responder analysis1 showed that the foot orthoses could reduce the total extent of foot movement in the frontal plane by a statistically significant 27% ("soft" core), 34% ("medium" core), and 36% ("strong" core). As the test subjects generally responded positively to the foot orthoses, they could help guide the foot to move in the desired manner.

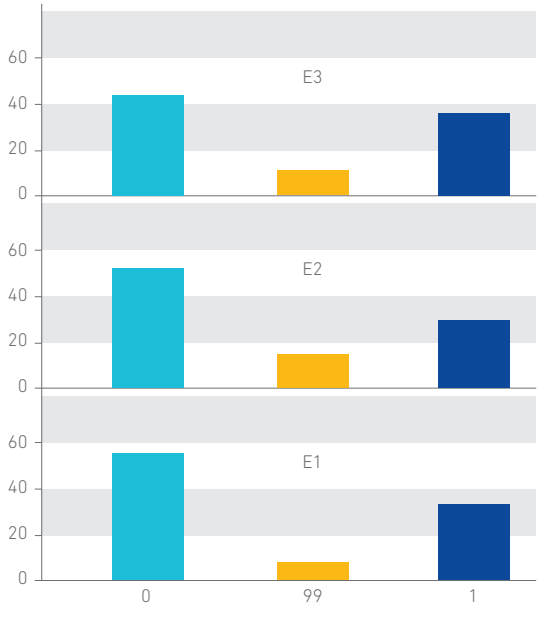
Reduced eversion
Increasing fatigue and/or high levels of strain (being very overweight/carrying heavy loads) increase the buckling or inward-sinking of the lower ankle.
The responder analysis showed that the use of the foot orthoses resulted in a clinically significant reduction (> 2°) in maximum eversion compared to the control condition in 34% to 39% of all test subjects (soft: 34%, medium: 32%, strong: 39%).

→ **ErgoPad weightflex 2 improves movement process guidance**
→ **ErgoPad weightflex 2 reduces eversion**
→ **The physiological movement process is maintained**

Responder analysis: improved guidance of the movement process



Responder analysis: reduced eversion



Positive responder: the test subject responded in line with the aim of the foot orthosis treatment
Negative responder: the test subject responded contrary to the aim of the foot orthosis treatment
Neutral response: the test subject showed no clinically relevant difference between the foot orthosis treatment and the control condition