Decades of Research Collaboration - Level 2 Evidence

- Ultraflex's pioneering low load prolonged stress (LLPS) and Adjustable Dynamic Response™ technology for increasing range of motion and gait function are backed by years of research and ongoing independent comparative effectiveness studies.
- The first comparative effectiveness study between static and dynamic nighttime bracing (Heymann, Laluc & Paysant, 2012) found significant evidence showing the superiority of Ultraflex LLPS range of motion nighttime bracing over static nighttime bracing in terms of efficacy, reduction of contracture, reduction of spasticity, and patient compliance in the treatment of pediatric cerebral palsy.

Solutions for Neuro Dynamic/Static Muscle Range of Motion Limitations and Common Gait Deviations

- Ultraflex's LLPS and Adjustable Dynamic Response™ technology improve dynamic and static muscle range of motion for:
  - Cerebral palsy (CP)
  - Cerebral vascular accident (CVA)
  - Traumatic brain injury (TBI)
  - Muscular dystrophy (MD)
  - Multiple sclerosis (MS)
  - Incomplete spinal cord injury
  - Other central nervous system diseases or disorders

Enhanced Aesthetics, Lighter Lower Profile LLPS Technology
DYNAMIC VS STATIC KAFO ORTHOSIZES IN THE TREATMENT OF KNEE FLEXION CONTRACTURES IN CHILDREN CP

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SCIENTIFIC BACKGROUND: Night time static positioning braces are recommended in the treatment of knee flexion contractures in cerebral palsy patients, but often not tolerated and quickly abandoned.

AIM: To compare the efficacy and the tolerance of static orthoses (ratchet KAFO) with dynamic orthoses (ULTRAFLEX KAFO) in the treatment of the knee flexion contracture in children with cerebral palsy.

SUBJECTS AND METHODS: This randomized, prospective, single center study included 30 children with cerebral palsy (age 11.2 years±4.2, 14 ambulant), presenting unilateral or bilateral knee flexion contracture greater or equal to 10° (in total: 48 legs, 24 dynamic & 24 static orthoses).

The whole study was done without the use of botulinum toxin or serial casting.

Main assessment criteria: goniometric measurement of knee extension.

Secondary criteria: measurement of the popliteal angle, dorsiflexion of the ankle with knee extended, hamstrings and triceps surae spasticity level, orthoses’ tolerance and compliance.

Measurements were performed by the same physiotherapist for consistency at 1, 3, 6 and 8 months. The test of Student, adjusted with the method of Tukey (α= 0.05) was used to compare groups at 6 and 8 months, with regard to inclusion.

RESULTS: Superior efficacy of the dynamic orthosis (both for ambulant and non-ambulant):
- For reduction of knee flexion contracture at 6 month (9.3° vs 2.8°; p < 0.001), at 8 month (12.5° vs 3.5°; p < 0.0001).
- For reduction of gastrocnemius contracture (p=0.0003) and reduction of the gastrocnemius spasticity (p=0.0003)
- Reduced hamstrings spasticity (p=0.0262).
- Orthoses tolerance (p=0.009).

DISCUSSION: The results of this study represent the first prospective comparative effectiveness evidence showing the superiority of dynamic versus static KAFO orthoses. Thus these orthoses should be a first line conservative intervention for dynamic and static hamstring and gastrocnemius contractures in children with cerebral palsy.

This research has also been presented at the 27th SOFMER Congress on 19 October, 2012 and the International Society of Prosthetics & Orthotics on 7 February, 2013.