# Spinal orthosis

- Lumbar Spinous Process Impaction Injuries Caused by Extension Stress in Adolescent Athletes: A Report of Two Cases
- PullExo: An orthosis-based mobile hand exoskeleton with on-device visual biofeedback
- Effects of Active Spinal Orthosis on Fatty Infiltration in Paraspinal Muscles in Kyphotic Women with Osteoporotic Vertebral Fracture-Sub-Analysis of a Randomized Controlled Trial
- Clinical case study on custom 3D printed collars for dropped head syndrome patients
- Short-Term Effects of Kinesio Taping on Pain and Functionality in Patients With Cervical Spine Surgery
- Pediatric Halo Use: Indications, Application, and Potential Complications
- Randomized, crossover clinical trial on the safety, feasibility, and usability of the ABLE exoskeleton: A comparative study with knee-ankle-foot orthoses
- Dynamic Bonds Reinforced Polyamide Elastomer for Biomedical Orthosis

A Spinal orthosis or back brace is a device designed to limit the motion of the spine in cases of fracture or in post-operative fusions, as well as a preventative measure against some progressive conditions.

While frequently prescribed to patients following fixation for spine trauma, the utility of spinal orthoses during the postoperative period is poorly described in the literature

Common back braces include:

Rigid (Hard) braces: These braces are form-fitting plastic molds that restrict motion by as much as 50%; and

Soft braces: Elastic braces that limit the forward motion of the spine and assist in setting spinal fusions or supporting the spine during occasions of stress (for example, employment requiring the lifting of heavy loads).

see Thoracolumbosacral orthosis.

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Retrospective population-based database analysis from the Physician/Supplier Procedure Summary Medicare/Medicaid Dataset.

Objective: To provide a comprehensive analysis of trends in spinal orthosis utilization over a 12-year period.

Summary of background data: Widespread prescription of spinal orthosis persists, despite evidence suggesting equivocal efficacy in many spinal conditions. The utilization of spinal orthosis on a national level, including prescribing specialty data, has not been previously analyzed.

Healthcare common procedure coding system (HCPCS) codes for cervical (CO), thoracic-lumbar-sacral (TLSO), lumbar (LO), lumbar-sacral (LSO), and cervical-thoracic-lumbar-sacral (CTLSO) orthosis were used to determine spinal orthosis utilization from 2010 to 2021. Provider specialty codes were utilized to compare trends between select specialties. Additionally, a neurosurgical CO analysis, based on subclassifications of cervical bracing, was performed. Linear trendlines were implemented to elucidate and present trends by slope (β).

Among 332,241 claims, decreases in CO (β=-0.3387), TLSO (β=-0.0942), LO (β=-0.3485), and LSO (β=-0.1545) per 100,000 Medicare Part B enrollees and CTLSO (β=-0.052) per 1,000,000 Medicare Part B enrollees were observed. Decreases among neurosurgery (β=-7.9208), family medicine (β=-1.0097), emergency medicine (β=-2.1958), internal medicine (β=-1.1151), interventional pain management (β=-5.0945), and chiropractic medicine (β=-49.012), and increases among orthopedic surgery (β=5.5891), pain management (β=30.416), physical medicine and rehabilitation (β=4.6524), general practice (β=79.111), and osteopathic manipulative medicine (β=45.303) in total spinal orthosis use per 100,000 specialty claims were observed. Analysis on subclassifications of cervical orthosis among neurosurgeons revealed decreases in flexible (β=-1.7641), semi-rigid (β=-0.6157), and collar bracing (β=-2.7603), and an increase in multi-post collar bracing (β=2.2032) per 100 neurosurgical cervical orthosis claims.

While utilization of spinal orthosis decreased between 2010-2021, increased utilization was observed among a subset of specialties. Identifying these specialties allows for focused research and educational efforts to minimize unnecessary durable medical equipment use for effective healthcare spending [1)]

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Dholaria N, Bauer I, Kelbert J, Barbagli G, Pico A, Deaver C, Quiceno E, Nosova K, Hussein A, Mayeku J, Soto Rubio DT, Alhalal IA, Heinzmann E, Pacheco N, Al-Arfaj A, Li C, Prim M, Baaj A. Trends in Spinal Orthosis Utilization Among Patients Insured through Medicare Part B. Spine (Phila Pa 1976). 2023 Nov 16. doi: 10.1097/BRS.0000000000004875. Epub ahead of print. PMID: 37970709.