E-Poster

EP-373

Comparison of Efficacy, Tolerance and Professionals' Opinions Between Plaster Casting and 3D Scanning in Manufacturing the Garches Brace

Topic: Prosthetics and Orthotics

Lisa Viallard[1], Dominique Vincent-Genod[2], Manon Verroul[3], Pascal Rippert[3], Shotaro Tachibana[2], Bertrand Fleury[4], Anne Berruyer[2], Shams Ribault[5], Carole Vuillerot[2]

[1]*Physical Medicine and Rehabilitation, CHU Rennes, Rennes, France*
[2]*Pediatric Physical Medicine and Rehabilitation, Hospices Civils de Lyon, Bron, France*
[3]*Service Recherche et Epidémiologie cliniques, Hospices Civils de Lyon, Bron, France*
[4]*Orthopaedic centre, Fleurieu-sur-Saône, France*
[5]*Physical Medicine and Rehabilitation, Hospices Civils de Lyon, Lyon, France*

BACKGROUND

Neuromuscular diseases cause hypotonia and axial weakness, leading to a high incidence of severe, progressive scoliosis usually initially treated by bracing. The Garches brace is the most widely used brace in France for children with severe congenital neuromuscular disease. We compared two methods for Garches brace manufacturing, 3D scanning and plaster casting, in terms of efficacy, acceptability and tolerance.

METHODS

We conducted a retrospective, non-interventional single-centre study on 101 braces made between January 2013 and October 2023 for 32 children. We compared changes in Cobb angle with the brace, manufacturing delay, number of fittings, skin tolerance, daily wearing time and time until brace replacement between plaster casting and 3D scanning. Semi-structured interviews collected professionals' opinions of the methods.

RESULTS

Change in Cobb angle did not differ between the methods ($p = .169$). Manufacturing delay was similar ($p = .657$), as was the number of fittings ($p = .744$) and number of skin disorders ($p = .596$). Interviews with professionals highlighted the necessity to move on from plaster casting methods and emphasized the comfort provided to children and the improved work conditions brought by 3D scanning.

CONCLUSION

Demonstrating the non-inferiority of 3D scanning compared with plaster casting in the manufacturing of a Garches brace, in terms of tolerance, lifespan and effectiveness, will promote the widespread adoption of this technique.

Statement of Disclosures

None

Doi: 10.5606/archisprm.2026.EP-373

Corresponding Author:
Lisa Viallard
Physical Medicine and Rehabilitation, CHU Rennes, Rennes, France
Email: lisa.viallard@chu-rennes.fr