INTRODUCTION

Subtalar neutral has long been believed to be the posture of greatest stability in design considerations for Ankle Foot Orthoses (AFOs). The application of this concept is seen in everything from pediatric SMOs to adult AFOs. However for anyone who has ever walked in ski boots, we can appreciate that distal immobilization may, in fact, lead to proximal instabilities.

METHOD

A literature review was initiated to determine the level of support for the “subtalar neutral is stable” concept. A search was conducted in PubMed involving key words or phrases including AFO subtalar neutral, stability in AFO, AFO gait outcomes, and AFO functional outcomes.

RESULTS

Medline searches of over 400 articles and abstracts led to finding no published data to support the concept. All references stating STN as the posture did so without justification for that posture. There is reference to the need for studies. There are multiple data sources however to suggest that a “controlled motion” environment may enhance joint modeling and neuromuscular development and at the same time minimize disuse atrophy secondary to immobilization.

DISCUSSION

Managing soft tissue injuries or dysfunction through immobilization was discredited 20 years ago when managing grade ii ankle sprains was accomplished through plaster immobilization. Conceptually a “controlled stress” orthotic environment might be more appropriate to avoid the atrophy secondary to immobilization and to encourage joint modeling and neuromuscular function during the developmental process.

CONCLUSION

Although the effects of immobilization are widely recognized, immobilizing subtalar neutral AFOs are commonly used in managing the pediatric foot/ankle complex. While there are no data to support this practice, there are data to support a “controlled motion” AFO environment might work to enhance joint modeling, neuromuscular development, and enhance functional outcomes during gait. Early trials seem to suggest that a controlled motion AFO environment yields enhanced functional stability during gait.

REFERENCES


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