

عنوان مقاله:

Evaluation of a Viscoelastic Ankle-Foot Prosthesis at Slow and Normal Walking Speeds on an Able-Bodied Subject

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خلاصه مقاله:

**Objectives:** This paper describes further improvement and preliminarily evaluation of a novel viscoelastic ankle-foot prosthesis prototype. The objective was to control the ankle hysteresis at slow and normal walking speeds. **Methods:** Inspired by the ankle biomechanics, in which the hysteresis differs based on the gait speeds, a manually damping control mechanism imbedded in the prosthesis for adjusting the ankle damping at slow and normal walking speeds. The prototype was then preliminarily tested on an able-bodied subject wearing an adaptor which simulates the amputee walking. The ankle joint kinetics and kinematics were measured in a gait analysis lab at different walking speeds. **Results:** The results suggest that the viscoelastic ankle foot prosthesis prototype could provide a smooth normal-like walking for most of the measured gait characteristics in slow and normal speeds. **Discussion:** Therefore, it is suggested to apply a controllable damping mechanism based on the gait speeds in the design of new prosthetic feet.

کلمات کلیدی:

Ankle-foot prosthesis, Walking speed, Ankle damping, Viscoelastic

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