Cable Driven Multi-Articulating Fingers, Providing Compliant Grasp For The Partial Hand Amputee.

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This article will describe a new concept in fitting the partial hand amputee to offer them enhanced grasp and improve their overall functional ability with the prosthesis. The concept is to activate the mechanical fingers through existing wrist motion to provide active grasp that is compliant to any object. A passive thumb was used that allowed frictional positioning of both flexion/extension and rotation of the thumb. The mechanism that pulls the fingers into flexion provides an even distribution of pressure throughout each finger to ensure a secure grasp on the object being held. This concept was designed to offer the metacarpo-phalangeal level to trans-carpal level amputee the ability to achieve active grasp with their prosthesis and enhance their overall functional ability.