Toward the Development of a Unique, Mobile, Hanging, Tennis Practice Backboard: A Case Study

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Abstract
A new and unique mobile, hanging, tennis backboard prototype (HTB) has been developed to aid players in practicing tennis independent of other players. An examination of existing return mechanics from stand alone backboards, such as the popular Tennis Partner™ and Miracle Tennis™, were conducted and it was determined that slow, near shot returns and quick, far shot returns were required. In addition, it was determined that to utilize space in tennis court more efficiently, the device must be capable of being installed on chain link fences typically found in such courts. While chain link fences are strong enough to withstand rebounding forces, their slightly flexible, interwoven characteristics make them a challenging substrate to anchor a backboard. This case study examined the engineering steps taken to overcome these challenges and allow the prototype to perform returns reliably.

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