

A MISSING LINK FOR AN EFFECTIVE REHABILITATION

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An increase in quantity and improvement in quality of sports rehabilitation related research has contributed to establishing an effective rehabilitation strategy and protocols for common sports injuries. There used to be variations in rehabilitation protocols for sports injuries among allied health professionals but with the effort to implement evidence-based medicine in athletic training field, now there seems to be a consensus on how sports injuries should be both acutely and chronically treated and how rehabilitation process should progress. The common rehabilitation protocols recommended by literature include patient education, pain management during and after inflammatory process, range of motion exercises, muscle strengthening, neuromuscular control training, functional training, and sport specific training or active daily life related exercises. For instance, the shoulder specific rehabilitation protocols are implemented based upon this literature and experts' knowledge based models and some of the detail strategies in the rehabilitation protocols include performing limited range of motion exercises before full range of motion exercises, shoulder adduction exercises before abduction exercises, using stable surface before unstable surface, performing closed chain exercises before open chain exercises, using barbells before dumbbells, isometric exercises before regular speed exercises for muscle strengthening, and traction before approximation. These theoretically sound rehabilitation protocols have helped many athletes recover from injury and return to sports but it is not without limitations. Although these steps are consequentially implemented and each phase of rehabilitation process is carefully monitored if the allied health professionals such as athletic trainers and sports physiotherapists overlook some of the adaptations occurred not only in musculoskeletal system but also in the central nervous system, the efficacy of rehabilitation process could be compromised. Kinematic factors such as joint angle, muscle activation, peak moment and force are definitely important to monitor athletes' progress and determine the efficacy of a treatment and rehabilitation. In order to improve these kinematic variables, biomechanical and kinesiological approaches have been applied. Joint mobilizations for range of motion limitation and consequential strengthening exercises from isometric to eccentric mode for muscle imbalance restoration are commonly implemented in the rehabilitation settings. However, neurological and neuromuscular alterations or deficits caused by the primary injury tend to be overlooked and seldom addressed by the most of athletic trainers and physiotherapists. Neurological deafferentation by injuries is already well documented and it is a contributing factor for causing muscle imbalance and movement dysfunction. Not only receiving no neural input from the central nervous system but also altered muscle recruitment pattern caused by joint mechanoreceptors and muscle receptors could cause prolonged joint dysfunction and pain. Delayed joint function restoration and chronic pain delays rehabilitation process. In this presentation, neurological mechanisms of how injury can cause altered muscle activation and recruitment patterns, which could be negatively affecting rehabilitation process, will be discussed. Also some of the strategies for effectively addressing aforementioned limitations during the rehabilitation process will be introduced.

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