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Slacklining: A new concept of exercise based rehabilitation through composite-chain activity but a regulated progressive standard is needed

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Introduction: 'Slacklining' is a complex neuromechanical task. It involves balance retention on a tightened band where the whole body dynamically drives and responds to external environmental changes. Individualized optimal response strategies are used that are self-developed and follow recognised motor learning stages. The acquired skill is then used to achieve balance performance for the recognized open and closed-loop dynamic tasks in a composite chain setting. This involves the lower-limb and potentially core stability. Initially recreational slacklining is now entering main stream therapy. The prehabilitation and rehabilitation advantages of slacklining are rapidly becoming recognised, however no standardised protocol or progressions exist.

Methods: A four-stage, 20-step protocol with two supplementary stages is proposed by this presentation. This provides standardised progressions as optimal pathways for individualised rehabilitation or prehabilitation. This is postulated to be through down regulation of presynaptic rather than post-synaptic mechanisms and the Hoffman reflex. The protocols are sequential and progressive but recognize individual progression variation will occur.

Results: The 4 stages are broken into: Stage 1-Beginner-Stand'that has 6 steps progressing from step up to stand and balance; Stage 2-Moderate-Walk with 4 steps of forward and backward walking and a tandem stance; Stage 3 Intermediate-Tandem with 5 steps that include tandem and pivoting through to side stand or surfer position; Stage 4, Advanced-Squats with 5 steps that incorporate squats on 2 and 1 leg. There are also 2 supplementary Stages of 'Tricks' and 'Performance' that are self-explanatory. The 'slacklining' protocol offers progressions that build upon each previous level.

Discussion: Slacklining is an advantageous, stimulating rehabilitation and training method that may supplement recovery goals. The proposed four-stage 20-step protocol with two supplementary stages initiates a standardization of rehabilitation exercise therapy. Slacklining as a complex neuromechanical task can be adapted clinically for lower-limb and potentially core stability rehabilitation. The process of progression is postulated to be through the down-regulation of presynaptic rather than post-synaptic mechanisms and the Hoffman reflex. By proposing the four-stage 20-step protocol it is anticipated that a standardisation can be achieved that can be followed both in rehabilitation and research.

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