

# Slacklining Rehabilitation

## - Neuro, MSK or Sports -

Quadriceps activation is critical for lower limb movement and subsequent rehabilitation. However, selective quadriceps activation is compromised by impaired neuro-motor activation, loss of function and pain. A recently introduced method of prehab and rehabilitation exercise to recruit quadriceps is 'Slacklining'.

This course introduce participants to the background, derivations and origins of slacklining and its relevance to physical therapy rehabilitation. You will receive practical input and intervention strategies for the use and provision of 'Slacklining' as a rehabilitation tool for injuries in the sports, orthopedic and neurological rehabilitation settings.

Slacklining provides a unique composite-chain activity with higher levels of quadriceps activation and recruitment than traditional exercises that are achieved with significantly less exertion. This enables a positive and progressive form of rehabilitation that achieves outcomes at a potentially faster rate.

Come along dressed for action and enjoyment, plus learn about this unique rehabilitation method for the sports, neuro and musculoskeletal arenas.

### Courses:

Brisbane November 15 Investment \$390  
Melbourne November 22 Investment \$390  
Sydney November 29 Investment \$390

### Your Presenter:

Dr. Phil Gabel (sports physiotherapist) is the author of several articles reporting on his research in the field of slackline rehabilitation, across a range of clinical groups.

### More information:

[www.aapeducation.com.au/courses/courses/slacklining.html](http://www.aapeducation.com.au/courses/courses/slacklining.html)

#### FUNCTIONAL REHABILITATION

### Slacklining for Lower Extremity Rehabilitation and Injury Prevention

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Slacklining can be defined as standing or moving on a tightened band,<sup>1</sup> while maintaining postural balance.<sup>2</sup> Originally developed by climbers as a leisure activity, slacklining has become a competitive activity. Performance of the task requires (1) integration of sensory input and neuromuscular response,<sup>3</sup> (2) balance (i.e., maintenance of the body center of mass over the base of support),<sup>3</sup> (3) postural control (i.e., positioning of the body in space),<sup>4</sup> and (4) muscle strength.<sup>5</sup>

#### KEY POINTS

- ▶ Slacklining is an emerging method for targeted training of neuromuscular performance capabilities.
- ▶ Slacklining can be readily incorporated into rehabilitation and injury prevention programs.
- ▶ A 4-stage protocol is proposed for training progression.

The motor learning process involved in becoming proficient in slacklining involves 3 phases.<sup>6,7</sup> The cognitive phase involves rejection of ineffective strategies and adoption of effective strategies, which usually produces rapid improvement. The associative phase lasts for weeks to months, during which skills are acquired and consolidated, and performance consistency improves. The autonomous phase lasts for months to years, during which skills can be executed without conscious effort. This motor learning process leads to improved control of the natural oscillations that occur when standing on an unstable suspended strap, which is believed to occur through a presynaptic mechanism that decreases motor neuron excitability.<sup>8</sup> However, the suppression of reflexive muscle activation to mediate postural oscillations and avoid loss of balance during slacklining may actually be detrimental to maintenance of balance in other situations. Movements that are performed quickly and subconsciously require greater reliance on stored motor programming (i.e., open-loop control), whereas some activities allow for an action to be modified during performance (i.e., closed-loop control).<sup>9,10</sup> Each individual develops optimal response strategies to maintain balance during the performance of various dynamic tasks, which may be specific to the nature of the task.<sup>9</sup> Slacklining recently was brought to the attention of a mass audience during the 2012 Super Bowl halftime show.<sup>11</sup> Slacklining primarily has been viewed as a leisure activity, but it has been used as a novel means to facilitate improvements in balance and proprioception.<sup>12</sup> Athletic trainers and therapists (ATs) should monitor a patient's progression through the sequential stages of motor learning, from the novice to the accomplished stage, when using slacklining in a clinical setting. Standardization of the methods used to promote the motor learning process can promote the safe and effective use of slacklining as a rehabilitation activity.