

**TITLE: Impaired sciatic nerve function in athletes suffered hamstrings strain injury**

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**Back ground:** Hamstrings strain occurs frequently in sports situation. Main cause has been regarded as eccentric contractions (ECs). Recently, Lee et al. has proven that ECs in rat gastrocnemius cause damage not only in gastrocnemius itself but also in sciatic nerve.

**Purpose:** We hypothesize that sciatic nerve dysfunction is accompanied with hamstrings strain injury.

**Study Design:** Cross sectional study.

**Methods:** Twenty-six collegiate athletes suffered hamstrings strain injury (age  $20.0 \pm 1.1$ , height  $170.0 \pm 9.2$  cm, weight  $72.5 \pm 16.3$  kg) participated in this study. We measured sciatic nerve conduction velocity (NCV) by using pulsed field magnetic stimulation. We also measured straight leg rising (SLR). Magnetic resonance imaging of injured area was also taken from athletes. Contralateral uninjured limb was used as a control.

**Results:** In injured limb, NCV of sciatic nerve was significantly lower (18%) than that in uninjured limb. Such nerve dysfunction occurred in all subjects. The degree of functional deficits in sciatic nerve was independent of muscle damage indicators such as SLR and MR imaging.

**Conclusion:** Impairment of sciatic nerve is accompanied with hamstrings strain injuries.

**Key Terms:** Hamstrings strain injury; sciatic nerve; magnetic stimulation; re-injury.