HAMSTRING STRAIN INJURY: CLINICAL PRACTICE GUIDELINES LINKED TO THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY, AND HEALTH FROM THE ACADEMY OF ORTHOPAEDIC PHYSICAL THERAPY AND AMERICAN ACADEMY OF SPORTS PHYSICAL THERAPY OF THE AMERICAN PHYSICAL THERAPY ASSOCIATION

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Background: Hamstring strain injuries (HSI) are common in activities that involve high-speed running, jumping, kicking, and/or explosive lower extremity movements with rapid changes in direction, including lifting objects from the ground. Sports such as track, soccer, Australian Rules football, American football, and rugby have the highest frequency of reported injuries. HSI may result in considerable impairment, activity limitation, and participation restriction, including time lost from competitive sports. In professional sports, a HSI may be associated with significant financial costs.

Purpose: The Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association has an ongoing effort to create evidence-based clinical practice guidelines (CPGs). The aims of this review were to provide a concise summary of the contemporary evidence and to develop recommendations to promote evidence-based practice.

Study Design: A systematic review

Methods: A literature review was performed from 1967 to June 2021. Individual clinical research articles were graded to support specific for diagnosis, examination, injury prevention, interventions, re-injury risk, and return to play guidelines (RTP).

Results:

Diagnosis
Clinicians may diagnose a HSI when an individual presents with a sudden onset of posterior thigh pain during activity, that is reproduced pain when the hamstring is activated and/or stretched, associated muscle tenderness with palpation and loss of function. (Weak evidence)

Examination
Clinicians should quantify knee flexor strength following HSI by using either a HHD or isokinetic dynamometer. (Strong Evidence)

Clinicians should assess hamstring length measuring knee extension deficit with the hip flexed to 90º using an inclinometer. (Strong Evidence) Clinicians may measure the length of muscle tenderness and location from the ischial tuberosity to assist in predicting timing of RTP. (Weak Evidence)

Clinicians may assess for increased anterior pelvic tilt and abnormal trunk and pelvic control during functional movements. (Expert Opinion)

Clinicians may include objective measures of an individual’s ability to walk, run, and sprint when documenting changes in activity and participation over the course of treatment. (Weak Evidence)

Clinicians should use the Functional Assessment Scale for Acute Hamstring Injuries (FASH) to document changes from before and after interventions. (Moderate Evidence)

Injury Prevention Program
Clinicians should include the Nordic hamstring exercise with other components of warm-up, stretching, stability training, strengthening, and functional movements (sport-specific, agility and high-speed running). (Strong Evidence)

Intervention
Clinicians should use hamstring muscle eccentric training, added to stretching, strengthening, stabilization, and progressive running programs, to improve RTP time after a HSI. (Moderate Evidence)

Clinicians should incorporate progressive agility and trunk stabilization, added to a comprehensive impairment-based treatment program with stretching, strengthening, and functional exercises, to reduce re-injury after a HSI. (Moderate Evidence)

Clinicians may use soft-tissue mobilization, nerve glides, and therapeutic modalities to assist in the healing process and shorten the period of disability after a HSI. (Expert Opinion)

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Clinicians should consider the absence of an appropriately progressed, comprehensive impairment-based functional exercise program a risk factor for re-injury and programs that do not specifically include eccentric training a risk factor for re-injury as well as delayed RTP. (Moderate Evidence)

Clinicians should use hamstring strength, pain level at the time of injury, number of days from injury to pain-free walking, and area of tenderness measured at initial evaluation to estimate time to RTP. (Moderate Evidence)

**Discussion/Conclusion:** This CPG supports evidence-based physical therapy practice in the diagnosis, examination, injury prevention, intervention after injury, and risk assessment for re-injury and return to play decisions for those with a HSI.

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