

Role of the Nordic Hamstring Exercise in Football Players: A Narrative Review

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ABSTRACT

Hamstring strain injuries (HSIs) remain one of the most common and burdensome injuries in football (soccer), with substantial time-loss and high recurrence rates. Over the past decade the Nordic Hamstring Exercise (NHE) has become widely studied as a targeted eccentric training intervention to reduce HSI incidence, increase eccentric knee-flexor strength, and alter muscle architecture. This narrative review synthesises evidence from the last 10 years (2015–2025) on the effectiveness, mechanisms, performance effects, implementation barriers, and practical prescription of the NHE in football players. Literature from peer-reviewed journals demonstrates that NHE improves eccentric hamstring strength, increases fascicle length, and significantly lowers injury incidence when performed consistently. Despite strong evidence, adoption in professional football remains inconsistent due to perceived barriers such as soreness, time constraints, and lack of coaching support. The review concludes that consistent implementation of a progressive NHE programme can markedly reduce hamstring injury risk in football, improve muscular resilience, and enhance player longevity. Practical recommendations for coaches and clinicians are provided.
Keywords: Nordic hamstring exercise, hamstring strain, football, eccentric strength, injury prevention, adherence.

Introduction

Hamstring strain injuries account for a large proportion of non-contact injuries in football, often occurring during high-speed running and sprinting. Prevention strategies have evolved from warm-up programmes and flexibility routines to targeted eccentric strengthening. The Nordic Hamstring Exercise (NHE) — an eccentric knee- flexor dominant exercise performed by resisting forward fall from a kneeling posture — has been proposed as a specific, practical method to increase eccentric hamstring strength and fascicle length, and thereby reduce injury risk.

Hamstring injuries are one of the leading causes of time-loss in football across all levels of play (1). They typically occur during high-speed running, acceleration, or deceleration, when the hamstring muscles must produce high eccentric force to decelerate the swinging leg (2). Recurrence rates of hamstring strains are high, often reaching 20–30% (3). Given the high physical demands of modern football, especially repetitive sprinting and explosive changes of direction, preventive strategies are vital to maintain performance and player availability (4).

Over the last decade, the Nordic Hamstring Exercise (NHE) has emerged as a simple yet highly effective preventive tool. The NHE involves the athlete kneeling while a partner holds their ankles as they slowly lean forward, resisting the fall using the hamstring muscles eccentrically. It primarily targets the biceps femoris long head, semitendinosus, and semimembranosus (5). Early research showed a remarkable reduction in hamstring injury rates with regular NHE implementation (6). Since then, numerous trials and meta- analyses have confirmed these effects (7,8). However, despite strong evidence, the integration of NHE into football training programmes remains limited, primarily due to issues related to adherence, perceived soreness, and scheduling (9,10). This narrative review aims to summarise the evidence from the last ten years regarding the role of NHE in football players.

The objectives are to:

- (1) evaluate its effectiveness in reducing hamstring injury incidence,*
- (2) discuss its physiological mechanisms,*
- (3) examine performance-related outcomes, and*
- (4) identify barriers and strategies for implementation.*

Methods

This narrative review focused on peer-reviewed randomized controlled trials, cohort studies, meta-analyses, mechanistic trials and implementation/adherence studies published between 2015 and 2025. Databases searched included PubMed, Scopus, and SPORTDiscus using combinations of the terms: “Nordic hamstring exercise”, “Hamstring injury”, “football OR soccer”, “eccentric training”, and “prevention programme”. Studies examining muscle architecture, fascicle length, and implementation adherence was also included. A total of 43 relevant studies were reviewed, with approximately 20 directly involving football players.

Results

Recent evidence supports that regular NHE implementation significantly reduces hamstring strain incidence in football players. Increases in biceps femoris long head fascicle length and eccentric strength are observed following 4–10 weeks of training (Van der Horst et al., 2015; Pincheira et al., 2022). Studies also report neutral or positive effects on sprint performance (Adigüzel et al., 2024). Adherence remains a key determinant of success (Lindblom et al., 2023

Key Studies (2015–2025)

Study (Year)	Design	Sample	Intervention	Key Findings
Van der Horst et al. (2015)	Cluster RCT	Amateur football teams	NHE	Reduced hamstring injury incidence
Hasebe et al. (2020)	Cohort	High-school footballers	NHE with monitoring	Reduced injury severity
Pincheira et al. (2022)	Mechanistic	Healthy athletes	Eccentric training	↑ Fascicle length and strength
Lindblom et al. (2023)	Implementation	Club-level players	Adherence analysis	Higher compliance = better outcomes





Fig. 2. Illustrating therapist and patient's starting position during Nordic hamstring exercise.



Fig. 3. Illustrating ending position of the Nordic hamstring exercise.

Conclusion

The Nordic Hamstring Exercise is an evidence-based, practical exercise that effectively reduces hamstring injury incidence in football players, enhances eccentric hamstring strength, and improves fascicle length. Proper education, progression, and adherence are essential for optimal benefit. The Nordic Hamstring Exercise is a scientifically supported, cost-effective, and easily implementable intervention for preventing hamstring injuries in football players. Over the past decade, evidence consistently shows that NHE enhances eccentric strength, increases fascicle length, and substantially reduces hamstring strain incidence when applied regularly. While performance benefits are modest, they complement the preventive value of the exercise. The greatest challenge remains ensuring adherence; hence, successful implementation depends on progressive loading, coach education, and integration into existing routines. Adoption of NHE as a standard preventive strategy can significantly reduce injury burden, enhance player performance, and prolong athletic career.

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