

Supplementary table. Characteristics of the included studies.

Study	Design	Sample and/or sport	Number or rate of HSI, or the number of studies	Factors examined	Specific outcome	Length of tracking
Arnason et al. ⁴²	Prospective	306 elite football players (Icelandic)	n=31 HSI	Age, body size, composition, passive knee extension (PKE), Squat mean power, standing jump, counter-movement jump (CMJ), single leg CMJ, peak O ₂ uptake, ankle stability, knee stability, previous injury history, player exposure	Clinical diagnosis of HSI by physiotherapist	17 weeks
Bengtsson et al. ⁶³	Mixed cohort	27 elite European football teams	Not specified	Recovery time, performance, match characteristics	Clinical diagnosis of HSI and recording on injury registry by team medical staff	2001-2012
Bennell et al. ⁶⁴	Prospective	102 elite Australian Football players	n=14 HSI	Leg dominance, previous HSI, isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic strength imbalances/ asymmetries	HSI diagnosed by team medical staff	25 weeks
Bennell et al. ⁶⁵	Prospective	67 elite and amateur Australian Football players	n=8 HSI	Toe touch distance, hip and lumbar flexion angles, lumbo-femoral ratio	HSI diagnosed by team medical staff	32 weeks
Bourne et al. ²³	Prospective	178 rugby union players (Australian: Super Rugby, Queensland Rugby Union)	n=20 HSI	Previous injury (hamstring, anterior cruciate ligament, calf, quadriceps, chronic groin), Nordic hamstring exercise strength testing, age, height, weight	HSI confirmed by magnetic resonance imaging (MRI) or clinical examination by team physiotherapist	1 season
Bradley & Portas ⁶⁶	Prospective	36 elite football players (English Premier League)	29% of injuries were HSI	Age, limb dominance, body size, playing position, range of motion (ROM): supine hip flexion, prone hip extension, seated knee flexion, supine knee extension, supine ankle plantar flexion, supine ankle dorsiflexion	HSI diagnosed by team physiotherapist	40 weeks
Brooks et al. ¹²	Prospective	546 elite rugby union players (English Premiership Rugby)	n=122 HSI (index: 96, recurrent: 26)	Age, ethnicity, body mass index (BMI), height, number of training sessions, training volume, occurrence during matches	HSI diagnosed by medical staff of each team	52 weeks over 2 seasons
Brooks et al. ⁶⁷	Prospective	899 elite rugby union players (English Premiership Rugby)	Not specified	Playing position, match-related injury characteristics	HSI diagnosed and reported by team medical personnel	4 seasons
Cameron et al. ⁶⁸	Mixed cohort	20 elite Australian Football players	n=6 HSI	Previous HSI, motor control, movement discrimination test, isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios	Clinical and MRI diagnosis of index and/ or recurrent HSI	2 seasons, 50 weeks
Carling et al. ⁶⁹	Prospective observational	25 elite football players (first team squad of a French Ligue 1 club)	Not specified	Exposure time, congestion cycles, match periods, previous injuries, occurrence of other injuries	Diagnosis of index and/ or recurrent HSI by same sports physician over study period	6 seasons

Christensen & Wiseman ⁷⁰	Prospective	9 track and field athletes (University varsity team)	n=2 HSI	Cable tensiometer strength testing: isometric knee flexion, isometric knee extension, and strength ratios. Previous injury, flexibility	HSI diagnosed by team physician	30 weeks
Croisier et al. ⁴³	Prospective	462 elite football players	n=35 HSI	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic strength asymmetries/ imbalances	HSI diagnosed by medical staff of each team	40 weeks
Dauty et al. ⁷¹	Prospective	194 elite football players	n=36 HSI	Isokinetic strength testing, including cut-offs; age, weight, height, BMI, playing position	HSI diagnosed clinically and confirmed with ultrasound (US)	15 seasons
de Visser et al. ¹⁸	Systematic review	Athletes from Australian Football, track and field, and 'various sports'	n=5 studies	Characteristics of index HSI: strain length, strain volume, time taken to return to sport, muscle involved, location of trauma, Visual Analogue Scale pain score 12-18hrs post index HSI, presence of haematoma, leg dominance, weight, height, age	Included studies investigated risk factors associated with recurrent HSI	
De Vos et al. ⁴⁴	Prospective	64 athletes with an acute HSI from football, futsal, field hockey, track and field, tennis, American football, and fitness	n=64 HSI, 17 recurrences	Previous injury (previous HSI, previous ipsilateral HSI, previous HSI within 12 months, previous ipsilateral HSI within 12 months, the number of previous HSI), level of competition, injury mechanism (sprinting vs non sprinting), muscle(s) injured, MRI findings at baseline, findings just after return to play: self-reported completeness of recovery, tenderness to palpation, AKE, pSLR, isometric knee flexion (HHD), HaOS	Recurrent HSI within 12 months of the index HSI. At baseline index HSI were diagnosed clinically by a physician and confirmed with MRI. During follow-up remote diagnosis of recurrent HSI using subjective and objective reporting during phone conversation with injured athlete.	1 year
Duhig et al. ²⁸	Prospective	51 elite Australian Football players	n=22 HSI	Playing experience/ playing age, total distance travelled, high-speed running distance, distance covered while accelerating, distance covered while decelerating, two yearly sessional averages	HSI diagnosed clinically and/or using MRI	102 weeks
Elliot et al. ⁷²	Descriptive epidemiological	Elite American football players (1989-94: 28 teams, 1995-98: 30 teams)	n=1716 HSI (index: 1433; recurrent: 283)	Severity, type of training session, temporal aspects, recurrence, player position, player activity, team activity, stage of the season	HSI clinically diagnosed and reported by team 'athletic trainer'	10 years
Emery ¹⁰⁰	Systematic review	Athletes from Australian Football, track and field, football, sprinters, and lacrosse	n=7 studies	Measures of strength and their association with future HSI: cable tensiometer, isokinetic testing, strain gauge		
Engbretsen et al. ⁴⁵	Prospective	508 elite football players (Norwegian: 1 st to 3 rd division)	n=76 HSI	Age, height weight, BMI, player position, CMJ testing, 40 metre sprint test, Nordic hamstring exercise strength test, hip range of motion, PKE, time since previous injury, HaOS score	HSI diagnosed clinically by a physiotherapist	40 weeks
Foreman et al. ¹⁰¹	Systematic review	Athletes from football, Australian Football, rugby	n=7 studies	Strength, strength asymmetry/ imbalances, motor control, flexibility, mobility, and range of motion, previous injury (HSI, knee, groin), age, ethnicity, muscle fatigue		
Fousekis et al. ⁷³	Mixed cohort	100 professional football players	n=16 HSI	Isokinetic knee flexor strength testing, isokinetic knee extensor strength testing, isokinetic strength ratios, isokinetic strength asymmetries/ imbalances, leg length discrepancy, flexibility testing, previous HSI, height, weight, joint stability, anthropometrics, proprioception, age	HSI diagnosed by team physiotherapist	1 season

Franettovich Smith et al. ⁷⁴	Prospective	26 elite Australian Football players	n=9 HSI	Gluteus medius muscle volume, gluteus maximus muscle volume, gluteus medius electromyography (EMG) during running, gluteus maximus EMG during running, previous HSI	Clinical and MRI diagnosis of HSI	1 season
Freckleton et al. ⁴⁶	Prospective	482 semi-elite and amateur Australian Football players	n=28 HSI	Single leg hamstring bridge strength endurance, single leg hamstring bridge strength endurance asymmetry, age, previous injury (HSI, knee), leg dominance, ankle dorsiflexion lunge test, occupation	HSI diagnosed by physiotherapist or doctor	1 season
Gabbe et al. ⁷⁵	Prospective	126 community level Australian Football players	n=26 HSI	Age, previous HSI, active slump test, Modified Thomas test, playing experience/ playing age, player position, active knee extension (AKE), passive straight leg raise (pSLR), sit and reach test, standing lumbar extension, hip internal rotation active ROM, hip external rotation active ROM, training history	HSI diagnosed by team physiotherapist or other medical staff	25 weeks
Gabbe et al. ⁷⁶	Prospective	174 elite and community level Australian Football players	n=21 HSI	Age, previous HSI, ankle dorsiflexion lunge test, hip internal rotation active ROM, hip external rotation active ROM, sit and reach test, AKE test, modified Thomas test, height, weight, BMI	HSI diagnosed by team physiotherapist or other medical staff	25 weeks
Gabbe et al. ⁴⁷	Prospective	222 elite Australian Football players	n=31 HSI	Age, previous injury, height, weight, BMI, ankle dorsiflexion lunge test, hip internal rotation active ROM, hip external rotation active ROM, sit and reach test, modified Thomas test, AKE, slump test	HSI diagnosed by team medical staff	25 weeks
Gibbs et al. ⁷⁷	Prospective	77 elite Australian Football players	n=31 HSI (recurrent: 6/ 35.3% of MRI positive HSI)	HSI location (proximal, mid, distal tissue), muscle(s) involved, HSI injury length, HSI injury cross sectional area (CSA)	MRI diagnosis of index and/ or recurrent HSI	45 weeks
Goossens et al. ²²	Prospective	102 physical education students from various sports	n=16 HSI; 0.46 HSI/1000hrs exposure	Single leg hop for distance, hand held dynamometry (HHD): eccentric hamstring strength, isometric hamstring strength, hip extensor strength, quadriceps strength, HHD strength ratios	Self-report of acute HSI using online registry and retrospective interview	1 academic year
Green et al. ²⁶	Systematic review	Athletes from football, Australian Football, sprinters, and rugby	n=12 studies	Isokinetic strength testing: knee flexors, knee extensors, hip extensors, strength ratios, strength asymmetries/ imbalances, other mixed ratios	Included studies investigated the association between isokinetic strength testing and risk of future HSI	
Hagglund et al. ⁴⁸	Prospective	263 elite football players	n=66 HSI	Age, height weight, BMI, previous HSI	Index or recurrent HSI diagnosed by medical staff	80 weeks, 2 seasons
Hagglund et al. ⁴⁹	Prospective	1401 elite football players	n=900 HSI (index: n=630 (70%); recurrent: n=270 (30%))	Previous injury (HSI, quadriceps, adductor, calf), age, playing position, venue, time period of season, leg dominance, recurrence, injury circumstance	HSI diagnosed by team medical staff	2001-2010

Henderson et al. ⁵⁰	Prospective	36 elite football players (English Premier League)	n=14 HSI	Isokinetic knee flexor strength testing, isokinetic knee extensor testing, isokinetic strength ratios, Yo-Yo intermittent running test, standing vertical jump, CMJ, aSLR, pSLR, aSLR: pSLR ratio, agility test, active hip flexion ROM, passive hip flexion ROM	Clinical (doctor, physiotherapist, or 'sports therapist') and MRI diagnosis of HSI	45 weeks
Iguchi et al. ⁷⁸	Mixed cohort	153 collegiate American football players (Japanese)	n=23 HSI	Height, weight, BMI, 1-repetition maximum back squat, 'power': calculated from vertical jump height and player mass, CMJ, playing position, previous injury	HSI diagnosed by team medical staff	1 season
Koulouris et al. ⁷⁹	Prospective	41 elite Australian Football players who sustained a HSI	Index injury only: n=31 (75.6%); recurrent: n=10 (24.3%)	Age, height, weight, previous injury (HSI, ACL), characteristics of index HSI: injury location, strain length, strain cross-sectional area, muscle injured	MRI diagnosis of index and recurrent HSI	25 weeks
Lawrence et al. ⁸⁰	Case-control	Elite American football players (32 teams)	n=367 HSI	Mean game-day temperature, playing surface, altitude, playing altitude, length of week, game outcome, opponent, injury week, time zone change prior to game	Prospective injury reporting by medical staff	2 seasons
Lee et al. ⁸¹	Prospective	146 elite football players	n=41 HSI (12.2% recurred)	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic strength asymmetries/ imbalances, previous HSI, age, weight, height, playing position	Monthly collection of injury data reported by team physiotherapists or athletic trainers	1 season
Malliaropoulos et al. ⁸²	Prospective	165 elite track and field athletes	n=188 HSI (recurrent: n=23 (13.9%))	Characteristics and clinical grade of index HSI (I-IV), return to sport, recurrence	Index and recurrent HSI diagnosed by a sports medicine physician	6 years
Malliaropoulos et al. ⁵¹	Observational	367 track and field athletes	n=245 HSI	Athletic discipline, previous injury (HSI, ankle), age, gender, clinical grade of injuries	HSI diagnosed by sport and exercise physician	17 years
Olivier et al. ¹⁰²	Systematic review	Elite and non-elite cricket fast bowlers	n=16 studies	History of lumbar spine stress fractures	Included studies investigated risk factors for non-contact injuries in adult cricket players	
Opar et al. ⁸³	Observational	48473 track and field athletes	n=118 HSI	Gender, running event, competition level, environmental conditions	Clinically diagnosed HSI	3 years
Opar et al. ²⁵	Prospective	210 elite Australian Football players	n=28 HSI (recurrent: n=6 (21.4%))	Nordic hamstring exercise strength testing, period of season, age, previous injury (HSI, calf strain, ACL, quadriceps strain, chronic groin), height, weight	Clinical and MRI diagnosis of HSI	1 season
Orchard et al. ⁸⁴	Prospective	37 elite Australian Football players	n=6 HSI	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, treadmill VO ₂ running test, anaerobic cycle test, 40m sprint characteristics, CMJ, skin-folds, sit and reach test, abdominal strength, height, weight, leg dominance	HSI diagnosed by team medical staff	22 weeks

Orchard ⁵²	Prospective	1607 elite Australian Football players	n=672 HSI	Previous injury (HSI, calf strain, quadriceps strain), recent injury history, age, height, weight, BMI, race, level of competition, time of match, month, maximum game-day temperature, minimum game-day temperature, maximum game-day wind speed, rainfall, evaporation	HSI diagnosed by team medical staff	8 years, 2255 matches
Orchard et al. ²⁹	Mixed cohort	Elite Australian Football players (16 clubs)	Not specified	Previous injury (HSI, calf strain, ACL), recent injury history opposition interchanges > 60, player being interchanged 7 or more times in previous 24 days, having played 3 or more matches in previous 24 days, opposition median interchange break less than 200 seconds	Clinical and MRI diagnosis of HSI	9 seasons
Orchard et al. ³⁰	Mixed cohort	5656 elite Australian Football players	n=416 HSI	Activity, opposition interchanges, player interchanges/ match characteristics, previous injury (HSI, calf strain, ACL), recent injury history	Clinical and MRI diagnosis of HSI	8 seasons
Orchard et al. ⁸⁵	Cohort	Elite Australian male cricket players (n= not specified)	n=276 HSI	Match format, role within team (fast bowler, spin bowler, batting, fielding, wicketkeeping), level of competition, location of match, season, previous HSI, recent HSI	Diagnosis by relevant state or national level medical professional	20 years
Pollock et al. ⁸⁶	Mixed cohort	230 elite track and field athletes (British)	n=65 HSI (recurrent: n=13 (20%))	Age, gender, characteristics of index HSI: British Athletics Muscle Injury Classification, time to return to full training, injury location, muscle affected, recurrence	Smartabase and EMR recording. Retrospective MRI analysis by musculoskeletal radiologist of index and/or recurrent HSI	3.5 years
Prior et al. ¹⁰³	Systematic review	Athletes from football, Australian Football, American football, and track and field	n=24 studies	Age, previous injury (HSI, calf strain, knee, osteitis pubis) ethnicity, level of competition, strength (isokinetic testing), and flexibility, mobility, and range of motion	Included studies investigated risk factors for index and/or recurrent HSI	
Reurink et al. ⁸⁷	Mixed cohort	108 athletes from football, futsal, field hockey, track and field, and 'other'	n=108 HSI (recurrent: n=26 (24.1%))	Age, gender, sport, competition level, previous HSI, characteristics and MRI findings of index HSI	MRI diagnosis of index and/ or recurrent HSI	2009 and 2013 cohorts
Roe et al. ⁸⁸	Longitudinal	Elite male Gaelic football players (15 teams)	n=391 HSI, 2.2 HSI/1000hrs (index: n=250 (63.9%); recurrent: n=141 (36.1%))	Stage of the season, muscle injured, injury type, age, any previous injury, previous HSI, playing position, season	HSI diagnosed by doctor or physiotherapist	2008 – 2015
Rolls & George ⁸⁹	Prospective	93 academy football players (Chelsea Football Club)	n=20 HSI	Age, height, leg dominance, previous HSI, sit and reach test, pSLR, AKE, PKE, seated knee extension test	HSI diagnosed by team doctor	44 weeks
Ruddy et al. ²⁷	Prospective	220 elite Australian Football players (6 teams)	n=30 HSI	Playing position, previous injury (HSI, ACL), age, height, weight. Global positioning system data: speed bandwidths of 1) >10km.hr and 2) > 24km.hr: weekly distance, two-weekly distance, three-weekly distance, four-weekly distance, absolute week-to-week change in distance, acute:chronic workload ratio, relative week-to-week change in distance, weekly distance covered >24km.hr relative to distance covered >10km.hr (%)	Clinical and MRI diagnosis of HSI	1 season
Schuermans et al. ²¹	Prospective	54 male football players	n=10 HSI (index	Hierarchical tissue/ metabolic response from bilateral eccentric	Self report survey and MRI analysis of index	1.5 seasons

			injuries: 4 (40%); recurrent: 6 (60%)	loading bout, 5kg outer range eccentric single leg hamstring curl strength-endurance test	and/or recurrent HSI	
Schuermans et al. ⁹⁰	Case control	51 male amateur football players	n=15 HSI	Previous HSI, leg dominance, muscle activity during sprinting: gluteus maximus, external obliques, lumbar erector spinae, thoracic erector spinae, biceps femoris, medial hamstrings	Index HSI via self-report online injury survey/ diary	1.5 seasons
Schuermans et al. ⁹¹	Prospective	51 male amateur football players	n=15 HSI	Age, weight, BMI, height, leg dominance, flexibility, mobility, and ROM: hip flexion, iliopsoas, rectus femoris, hip external rotation, hip internal rotation, hamstring, standing reach, unilateral standing reach, active slump. Muscle activation during prone hip extension task: gluteus maximus, biceps femoris, medial hamstrings, contralateral lumbar erector spinae	Index HSI via self-report online injury survey/ diary	1.5 seasons
Schuermans et al. ⁹²	Prospective	29 male football players	n=4 HSI	Three-dimensional lower limb and trunk kinematic analysis during sprinting	Self-reported HSI registration using online survey/ diary	1.5 seasons
Sugiura et al. ⁵³	Prospective	30 elite male sprinters	n=6 HSI	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic hip extensor testing, isokinetic strength ratios, isokinetic mixed ratios	HSI diagnosed by a sports physician	52 weeks
Timmins et al. ²⁴	Prospective	152 elite football players	n=27 HSI (29.6% recurred (n=8))	Nordic hamstring exercise strength testing, isometric hamstring strength testing, biceps femoris architecture: fascicle length, muscle thickness; under active and passive conditions), previous injury (HSI, calf strain, ACL, quadriceps strain, chronic groin), age, height, weight	HSI diagnosed by medical staff	1 season
van der Made et al. ⁹³	Prospective	70 athletes with an acute HSI from track and field, basketball, decathlon, football, futsal, handball, hockey, and volleyball	n=70 HSI (35.7% recurred (n=25))	Characteristics of HSI: muscle injured, MRI grade of injury, oedema, intramuscular tendon involvement, longitudinal tendon disruption, 'waviness', return to play, recurrence	Index and/or recurrent HSI diagnosed by MRI within 5 days of strain event	N/A
van der Made et al. ⁵⁴	Prospective	165 athletes with an acute HSI from football, hockey, futsal, track and field, and 'other' sports)	n=165 HSI (19.3% recurred (n=32))	Age, level of competition, sport, previous HSI, MRI grade of injury (modified Peetron's), muscle injured, oedema dimensions (CC length, CSA), intramuscular tendon involvement, longitudinal tendon disruption, 'waviness', recurrence	Index and/or recurrent HSI diagnosed by MRI within 5 days of strain event	Median 372 days
van Beijsterveldt et al. ¹⁰⁴	Systematic review	Elite male football players	n=7 studies	Age, height, BMI, player position, side dominance, percentage body fat, hamstring function, previous HSI, isokinetic strength testing, flexibility, 40 metre sprint test, agility test, peak O ₂ uptake, YoYo test, Nordic hamstring exercise strength testing, CMJ, non-CMJ, flexibility, mobility, and range of motion	Included studies investigated risk factors for HSI in football players	
van Doormal et al. ¹⁹	Case-control	450 male amateur football players	n=98 HSI (23 subsequent HSI (5.1%))	Sit and reach test, age, previous HSI, years of soccer experience, playing position	Clinical diagnosis of HSI by medical staff	1 season
van Dyk et al. ²⁰	Prospective	614 elite football players	n=190 HSI (recurrences: 36)	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic asymmetries/ imbalances, age, weight, BMI, previous HSI, player position, leg dominance	Clinical and imaging (US or MRI) diagnosis of HSI	4 seasons

van Dyk et al. ⁵⁵	Prospective	413 elite football players	n=69 HSI	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic mixed ratios, isokinetic asymmetries/ imbalances, Nordic hamstring exercise strength testing, age, BMI, playing position, previous HSI, leg dominance, ethnicity, height, weight	Index and/or recurrent HSI reported to the Aspetar Injury and Illness Surveillance Programme. When required, clinical diagnosis confirmed with US or MRI	2 seasons
van Dyk et al. ⁵⁶	Prospective	438 elite football players	n=78 HSI	AKE, PKE, ankle dorsiflexion lunge test, age, weight, height, BMI, previous HSI, limb dominance, player position	Clinical +/- imaging diagnosis (MRI, US) by team medical staff	2 seasons
van Dyk et al. ⁵⁷	Prospective	367 elite football players	n=65 HSI	Isokinetic concentric torque onset, isokinetic eccentric torque onset, isokinetic rate of torque development, surface EMG, age, weight, height, BMI, previous HSI, player position, limb dominance	Clinical +/- imaging diagnosis (MRI, US) by team medical staff.	2 seasons
van Hueman et al. ¹⁰⁵	Systematic review	Athletes from football, Australian Football, and track and field	n=11 studies	Baseline MRI findings and risk of recurrence. MRI findings at return to play and risk of recurrent HSI	Included studies investigated the utility of MRI to determine risk of recurrent HSI	
Venturelli et al. ⁹⁴	Prospective	84 academy football players (ChievoVerona)	n=14 HSI	Previous injury, exposures, age, playing position, height, weight, BMI, per cent body fat, flexibility, non-CMJ, CMJ, sit and reach test, YoYo intermittent running test	HSI diagnosis and reporting by team physiotherapist	1 season
Verrall et al. ⁵⁸	Prospective	162 elite Australian Football players	n=37 HSI (recurrences: 12 within the same; 7 in the subsequent season)	Age, height, BMI, leg dominance, index HSI characteristics: strain CSA, strain volume, muscles involved, strain location, biceps femoris involvement, number of muscles injured; recurrence, convalescent interval	Clinical and MRI diagnosis of index and recurrent HSI	≈ 50 weeks over 2 playing seasons
Verrall et al. ⁹⁵	Prospective	114 elite Australian Football players	n=34 HSI	Age, height, weight, ethnicity (Indigenous, non-Indigenous), previous injury (HSI, knee, groin, back), level of competition	Clinical and MRI diagnosis of HSI	25 weeks
Warren et al. ⁵⁹	Prospective	59 elite Australian Football players with a recent HSI	Recurrences within 3 weeks of RTP: n=9 (21% of lateral HSI (n=42)	Demographic information, functional progression (including time taken to walk and ascend stairs pain-free), use of NSAID's within 3 days of index HSI, mechanism of index HSI, previous HSI, pSLR, AKE, slump test, pain provocation with isometric contraction, site of the injury, height, weight	Index and recurrent HSI	
Watsford et al. ⁶⁰	Case-control	136 elite Australian Football players	n=14 HSI	Submaximal hamstring stiffness, leg stiffness during unilateral hopping, age, mass, height	HSI diagnosis and recording by team medical staff	1 season
Witvrouw et al. ⁹⁶	Prospective	146 elite male football players	n=31 HSI	pSLR test, flexibility of the hamstring, quadriceps, adductor, and gastrocnemius muscles	HSI diagnosis by team physician	40 weeks
Woods et al. ⁹⁷	Prospective	2376 football players (English football leagues: Premier to 3 rd division, 91 teams)	n=749 HSI (recurrence rate: 12%)	Incidence, nature, mechanism of injury, age, playing position, ethnicity, level of competition, month of injury	HSI diagnosed by physiotherapist and/or doctor	100 weeks
Yamada & Mastumoto ⁹⁸	Prospective	21 university level rugby players	n=7 HSI	Isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, mental rotation, straight leg raise angle, centre of gravity agitation in one leg standing position and during a perpendicular jump, height, weight, BMI	HSI diagnosed by physician	26 weeks

Yamamoto ⁹⁹	Prospective	64 male collegiate track and field athletes	n=31 HSI	Isometric strength assessment (strain gauge): prone knee flexion, seated knee extension, standing hip extension, standing hip flexion, 'forward leg pull', 'backward leg pull'	Method for HSI diagnosis not reported fully	104 weeks
Yeung et al. ⁶¹	Prospective	44 sprinters	n=12 HSI	Previous HSI, age, weight, height, years running experience, weekly hours sprint training, pSLR, isokinetic knee flexor testing, isokinetic knee extensor testing, isokinetic strength ratios, isokinetic asymmetries/ imbalances	Index and/or recurrent HSI diagnosed by physiotherapist	52 weeks
Zvijac et al. ⁶²	Case-control	1252 elite American football players	n=172 HSI	Playing position, isokinetic knee flexor strength testing, isokinetic knee extensor strength testing, isokinetic strength ratios	NFL mandatory injury reporting system records of HSI	6 seasons

HSI= hamstring strain injury, MRI= magnetic resonance imaging, US= ultrasound imaging, range of motion (ROM), body mass index (BMI), ACL= anterior cruciate ligament, CMJ= countermovement jump, AKE= active knee extension, PKE= passive knee extension, HaOS= Hamstring Outcome Score, EMG= electromyography, pSLR= passive straight leg raise, CSA= cross-sectional area, HHD= hand held dynamometry

