

Mois	Titre	Abstract	Section cours
2023-04	2023-Han-Low back pain of disc, sacroiliac joint, or facet joint origin: a diagnostic accuracy systematic review	<p>Background: The accuracy of diagnostic tests available in primary care to identify the disc, sacroiliac joint, and facet joint as the source of low back pain is uncertain.</p> <p>Methods: Systematic review of diagnostic tests available in primary care. MEDLINE, CINAHL, and EMBASE were searched between March 2006 and 25th January 2023. Pairs of reviewers independently screened all studies, extracted data, and assessed risk of bias using QUADAS-2. Pooling was performed for homogenous studies. Positive likelihood ratios (+LR) ≥ 2 and negative likelihood ratios (-LR) ≤ 0.5 were considered informative. This review is registered with PROSPERO (CRD42020169828).</p> <p>Findings: We included 62 studies: 35 investigated the disc, 14 the facet joint, 11 the sacroiliac joint, and 2 investigated all three structures in patients with persistent low back pain. For risk of bias, the domain 'reference standard' scored worst, however approximately half the studies were of low risk of bias for every other domain. For the disc, pooling demonstrated MRI findings of disc degeneration and annular fissure resulted in informative +LRs: 2.53 (95% CI: 1.57-4.07) and 2.88 (95% CI: 2.02-4.10) and -LRs: 0.15 (95% CI: 0.09-0.24) and 0.24 (95% CI: 0.10-0.55) respectively. Pooled results for Modic type 1, Modic type 2, and HIZ on MRI, and centralisation phenomenon yielded informative +LRs: 10.00 (95% CI: 4.20-23.82), 8.03 (95% CI: 3.23-19.97), 3.10 (95% CI: 2.27-4.25), and 3.06 (95% CI: 1.44-6.50) respectively, but uninformative -LRs: 0.84 (95% CI: 0.74-0.96), 0.88 (95% CI: 0.80-0.96), 0.61 (95% CI: 0.48-0.77), and 0.66 (95% CI: 0.52-0.84) respectively. For the facet joint, pooling demonstrated facet joint uptake on SPECT resulted in informative +LRs: 2.80 (95% CI: 1.82-4.31) and -LRs: 0.44 (95% CI: 0.25-0.77). For the sacroiliac joint, a combination of pain provocation tests and absence of midline low back pain resulted in informative +LRs of 2.41 (95% CI: 1.89-3.07) and 2.44 (95% CI: 1.50-3.98) and -LRs of 0.35 (95% CI: 0.12-1.01) and 0.31 (95% CI: 0.21-0.47) respectively. Radionuclide imaging yielded an informative +LR 7.33 (95% CI: 1.42-37.80) but an uninformative -LR 0.74 (95% CI: 0.41-1.34).</p> <p>Interpretation: There are informative diagnostic tests for the disc, sacroiliac joint, and facet joint (only one test). The evidence suggests a diagnosis may be possible for some patients with low back pain, potentially guiding targeted and specific treatment approaches.</p>	Douleur lombaire
2023-03	2023-Dijkstra-Oxford consensus on primary cam morphology and femoroacetabular impingement syndrome: part 1-definitions, terminology, taxonomy and imaging outcomes	<p>Introduction: Primary cam morphology is a mostly benign bony prominence that develops at the femoral head-neck junction of the hip, but it is highly prevalent in many athlete populations. In the small proportion of athletes for whom it is not benign, the resulting hip osteoarthritis can be debilitating. Clinicians, athletes, patients and researchers do not yet agree on important primary cam morphology elements. We aimed to ascertain and improve the level of agreement on primary cam morphology definitions, terminology, taxonomy and imaging outcome measures.</p> <p>Methods: To collect and aggregate informed opinions, an expert panel-the Young Athlete's Hip Research Collaborative-rated primary cam morphology definition, terminology, taxonomy and imaging outcome statements through an online Delphi exercise followed by an online meeting to explore areas of tension and dissent. Reporting followed Conducting and REporting DElphi Studies.</p> <p>Results: A diverse and inclusive Delphi panel (n=65 for rounds 1 and 2, representing 18 countries; 6 stakeholder groups; 40% women) agreed on 35 of 47 statements in 4 domains, while surfacing areas of tension and dissent. This Delphi panel agreed on four key issues essential to moving research and clinical care forward around primary cam morphology. They agreed on: (1) definition, confirming its conceptual attributes (tissue type, size, location, shape and ownership); (2) terminology-use 'morphology' and not terms with a negative connotation like 'lesion', 'abnormality' or 'deformity'; (3) taxonomy, distinguishing between primary and secondary cam morphology, and (4) imaging outcomes, a continuous bone/cartilage alpha angle on radial femoral head-neck MRI for primary cam morphology aetiology research.</p> <p>Conclusion: This consensus provides athletes, patients, clinicians and researchers with a strong foundation to guide more precise communication, better clinical decision-making and higher value research about primary cam morphology and its natural history.</p>	FAI
2023-01	2023-Heijboer-Clinical examination for athletes with inguinal-related groin pain: interexaminer reliability and prevalence of positive tests	<p>Objectives To evaluate the interexaminer reliability of abdominal palpation and resistance tests in athletes with longstanding groin pain, and to identify the prevalence of positive clinical tests in athletes classified with inguinal-related groin pain.</p> <p>Methods Male athletes (18–40 years) with longstanding groin pain were prospectively recruited between March 2019 and October 2020 at a sports medicine hospital. Two examiners performed history taking and standardised clinical examination (including abdominal palpation, serotal invagination and abdominal resistance tests) blinded to each other's findings. Interexaminer reliability was calculated using Cohen's Kappa statistic (κ). Examiners classified groin pain using the Doha agreement meeting terminology. A differentiation was made between 'defined inguinal-related groin pain' (according to recommended definition criteria) and 'likely inguinal-related groin pain' (expert-based application of the Doha agreement classification when not all recommended criteria were present).</p> <p>Results Overall, 44 athletes were included (61 symptomatic sides). Interexaminer reliability of inguinal palpation pain provocation tests varied from fair to moderate ($\kappa=0.35-0.49$). Reliability of posterior wall structure palpation (firm/soft) was slight ($\kappa=0.01$), and posterior wall bulging (yes/no) fair ($\kappa=0.29$). Reliability for abdominal resistance tests varied from fair to substantial ($\kappa=0.35-0.72$). In athletes classified with defined inguinal-related groin pain, recognisable injury pain on palpation during serotal invagination when athletes performed a Valsalva manoeuvre was the most prevalent positive palpation test (79%). Abdominal resistance tests were positive in 21%–49% of these cases.</p> <p>Conclusion The interexaminer reliability for clinical examination tests used to classify inguinal-related groin pain in athletes varies from slight to substantial. There is no single perfect clinical examination test.</p>	Aine

2022-12	2023-Maniar-Incidence and prevalence of hamstring injuries in field-based team sports: a systematic review and meta-analysis of 5952 injuries from over 7 million exposure hours	<p>Objective: This study aimed to systematically review and meta-analyse the incidence and prevalence of hamstring injuries in field-based team sports. A secondary aim was to determine the impact of other potential effect moderators (match vs training; sport; playing surface; cohort age, mass and stature; and year when data was collected) on the incidence of hamstring injury in field-based team sports.</p> <p>Design: Systematic review and meta-analysis.</p> <p>Data sources: CINAHL, Cochrane Library, MEDLINE Complete (EBSCO), Embase, Web of Science and SPORTDiscus databases were searched from database inception to 5 August 2020.</p> <p>Eligibility criteria: Prospective cohort studies that assessed the incidence of hamstring injuries in field-based team sports.</p> <p>Method: Following database search, article retrieval and title and abstract screening, articles were assessed for eligibility against predefined criteria then assessed for methodological quality using the Critical Appraisal Tool for prevalence studies. Meta-analysis was used to pool data across studies, with meta-regression used where possible.</p> <p>Results: Sixty-three articles were included in the meta-analysis, encompassing 5952 injuries and 7 262 168 hours of exposure across six field-based team sports (soccer, rugby union, field hockey, Gaelic football, hurling and Australian football). Hamstring injury incidence was 0.81 per 1000 hours, representing 10% of all injuries. Prevalence for a 9-month period was 13%, increasing 1.13-fold for every additional month of observation ($p=0.004$). Hamstring injury incidence increased 6.4% for every 1 year of increased average cohort age, was 9.4-fold higher in match compared with training scenarios ($p=0.003$) and was 1.5-fold higher on grass compared with artificial turf surfaces ($p<0.001$). Hamstring injury incidence was not significantly moderated by average cohort mass ($p=0.542$) or stature ($p=0.593$), was not significantly different between sports ($p=0.150$) and has not significantly changed over the last 30 years ($p=0.269$).</p> <p>Conclusion: Hamstring injury represents 10% of all injuries in field-based team sports, with 13% of the athletes experiencing a hamstring injury over a 9-month period most commonly during matches. More work is needed to reduce the incidence of hamstring injury in field-based team sports.</p>	Hamstring strain
2022-09	2022-Narducci-Is There a Correlation Between Reported Knee Pain and Fluid at the Distal Insertion of the Iliotibial Band in Runners?	<p>Objective To determine whether there is a correlation between pain and the amount of fluid present at the distal insertion of the iliotibial band (ITB) in runners, as measured by USG.</p> <p>Method Our retrospective cross-sectional study evaluated 100 male and female runners prior to the start of a race. A valid and reliable questionnaire collected demographic, pain, and training data. If a runner reported knee pain, a numeric pain rating scale was used to record the degree of pain. Participants then underwent USG on both knees to determine the presence or absence of fluid at the distal insertion of the ITB. Result We found no statistically significant correlations of fluid measurements with pain score, running experience in years, or age. In addition, we found no other differences in fluid measurements between those with and without knee pain or between the sexes. Conclusions Our findings indicate that the presence or absence of fluid at the distal insertion of the ITB does not correlate with knee pain in runners, regardless of age, running experience, or sex.</p>	ITBS
2022-09	2022-Vuckovic-Inguinal-related groin pain in athletes: a pathological potpourri	<p>Athletes who have pain in the inguinal canal region with no actual hernia present as a common challenge in clinical practice. While the differential diagnosis of groin pain is broad, our editorial focuses on musculoskeletal causes.</p> <p>A survey of 23 international groin pain experts using the case of a male football player with pain in the inguinal region was performed in 2014. The experts were asked which term they would use to describe the diagnosis.¹ The 23 experts used 22 different terms, including inguinal-related groin pain, sportsman's hernia, incipient hernia, inguinal disruption, posterior wall weakness, Gilmore's groin and core muscle injury to name but a few.</p> <p>Following a subsequent expert consensus meeting on terminology and definitions, this group agreed on 'inguinal-related groin pain' as the preferred term.² While there is debate about the appropriate terminology, there is even more uncertainty surrounding the underlying pathology. There are numerous hypotheses on the pathology of inguinal-related groin pain. This 'pathological potpourri' causes confusion in the literature and in clinical practice.</p>	Pubalgia
2022-08	2022-Tanaka-Diagnostic Accuracy of Physical Examination Tests for Suspected Acute Anterior Cruciate Ligament Injury: A Systematic Review and Meta-Analysis	<p>Background: Many tests are used to examine the knee when anterior cruciate ligament (ACL) injury is suspected. However, evidence of diagnostic accuracy in the Lachman, anterior drawer, pivot shift, and lever sign tests is limited.</p> <p>Purpose: The purpose of this study was to perform a systematic review and meta-analysis of original research studies that assessed the diagnostic accuracy of four physical examination tests for ACL injury acutely after an injury.</p> <p>Study design: Systematic review and meta-analysis.</p> <p>Methods: A literature search was conducted in the PubMed, MEDLINE, CINAHL, Web of Science, and Ichushi databases. Original articles with prospective cohort and cross-sectional studies in English and Japanese were included. The searched words were "anterior cruciate ligament", "injury", "rupture", "tear", "lachman test", "pivot shift test", "anterior drawer test", "lever sign test". The methodological quality of the diagnostic studies was evaluated using QUADAS-2. Summary sensitivity, specificity, likelihood ratio (LR)+, and LR- with 95% confidence intervals were calculated.</p> <p>Results: Eight studies were included in this review. The methodological quality of the included studies was mostly favorable. For the domain of flow and timing in the QUADAS-2, three studies did not assess the timing between the reference and index tests. The pooled sensitivities were 0.79, 0.78, 0.55, and 0.82 in the Lachman, anterior drawer, pivot shift, and lever sign tests, respectively, and the pooled specificities were 0.91, 0.91, 0.96, and 0.88, respectively. The lever sign test had the lowest LR- (0.21) and the pivot shift test had the highest LR+ (11.60). The area under the curve for the four physical examinations was > 0.70.</p> <p>Conclusion: The lever sign and pivot shift tests are useful for diagnosing ACL injuries in an acute setting</p>	ACL

2022-06	2022-Pietsch-Risk Factors for Quadriceps Muscle Strain Injuries in Sport: A Systematic Review	<p>Objective: To identify risk factors for quadriceps muscle strain injury in sport.</p> <p>Design: Risk factor systematic review.</p> <p>Literature search: A systematic search was conducted in the MEDLINE/CINAHL, Embase, AMED, AUSPORT, SPORTDiscus, PEDro, and Cochrane Library databases (from inception to September 2021).</p> <p>Study selection criteria: Studies reporting prospective data to evaluate risk factors related to index and/or recurrent quadriceps muscle strain injury.</p> <p>Data synthesis: A risk-of-bias assessment (using a modified Quality in Prognosis Studies tool) was performed, and we used best-evidence synthesis to qualitatively synthesize the data to quantify relationships between risk factors and quadriceps muscle injury.</p> <p>Results: Sixteen studies were included, capturing 2408 quadriceps injuries in 11 719 athletes. Meta-analyses were not performed due to clinical heterogeneity. The dominant kicking leg (over 3154 individuals, 1055 injuries), a previous history of quadriceps muscle injury (6208 individuals, 975 injuries), and a recent history of hamstring strain (4087 individuals, 581 injuries) were intrinsic factors associated with quadriceps injury. Extrinsic factors relating to the preseason period and competitive match play increased quadriceps injury risk; participating at higher levels of competition decreased quadriceps injury risk. Age, weight, and flexibility (intrinsic factors) had no association with quadriceps injury.</p> <p>Conclusion: Previous quadriceps injury, recent hamstring injury, the dominant kicking leg, and competitive match play were the strongest risk factors for future quadriceps muscle injury in sport.</p>	Lésion quadriceps
2022-05	2022-Loder-Slipped Capital Femoral Epiphysis Associated With Athletic Activity	<p>Background: Little data exist regarding the association of slipped capital femoral epiphysis (SCFE) and sporting activities.</p> <p>Hypothesis: There is no association between SCFE and sporting activities.</p> <p>Study design: Retrospective review of all SCFE cases at our institution from 2010 through March 2021.</p> <p>Level of evidence: Level 3.</p> <p>Methods: All patients with idiopathic SCFE were reviewed looking for the presence/absence of sporting activities and symptom onset. Also collected were the age, symptom duration, and weight/height of the patient, sex, race, and stable/unstable nature of the SCFE. The severity of the SCFE was measured using the lateral epiphyseal-shaft angle.</p> <p>Results: There were 193 children (110 boys, 83 girls) with idiopathic SCFEs. The SCFE was stable in 147, unstable in 45, and unknown in 1. The average age was 12.1 ± 1.8 years, average SCFE angle $38^\circ \pm 20^\circ$ and symptom duration 4.0 ± 5.1 months. An association with a sporting activity was present in 64 (33%). The sporting activity was basketball (18), football (11), baseball/softball (10), and others (23). Football, basketball, and soccer predominated in boys, baseball and running sports were equal between boys and girls, and cheerleading/gymnastics/dancing predominated in girls. Differences showed that those involved in sports had a slightly lower body mass index (BMI) (88th percentile vs 95th percentile, $P = 0.00$). There were no differences between those involved and those not those involved in sporting activities for symptom duration, SCFE severity, sex, race, or stable/unstable SCFE type.</p> <p>Conclusion: Sporting activities are associated with the onset of symptoms in 1 of 3 of patients with SCFE, refuting the null hypothesis.</p> <p>Clinical relevance: A high level of suspicion for SCFE should be given when any peripubertal athlete presents with hip or knee pain regardless of BMI/obesity status, and appropriate imaging performed.</p>	Pédiatrique

2022-03	2022-Vogels-Association Between Intracompartmental Pressures in the Anterior Compartment of the Leg and Conservative Treatment Outcome for Exercise-Related Leg Pain in Military Service Members	<p>Objective: To explore the relationship between a single the intracompartmental pressure (ICP) value in the anterior compartment of the leg 1 minute after provocative exercise and the outcome of a conservative treatment program in a cohort of military service members with chronic exercise-related leg pain.</p> <p>Design: Retrospective cohort study.</p> <p>Setting: Department of military sports medicine at a secondary care facility.</p> <p>Participants: In the years 2015 through 2019, the conservative treatment program was completed by 231 service members with chronic exercise-related leg pain, of whom 108 patients with 200 affected legs met all inclusion criteria (N=108).</p> <p>Interventions: All patients completed a comprehensive conservative treatment program, consisting of 4-6 individual gait retraining sessions during a period of 6-12 weeks. In addition, patients received uniform homework assignments, emphasizing acquisition of the new running technique.</p> <p>Main outcome measures: The primary treatment outcome was return to active duty. The duration of treatment, occurrence of acute on chronic compartment syndrome, and patient-reported outcome measures were considered secondary treatment outcomes. Potential risk factors for the primary treatment outcome were identified with a generalized logistic mixed model.</p> <p>Results: Return to active duty was possible for 74 (69%) patients, whereas 34 (31%) needed further treatment. The multivariable analysis showed that the absolute values of ICP in the anterior compartment were not associated with the treatment outcome (odds ratio, 1.01; P=.64). A lower Single Assessment Numeric Evaluation score at intake was negatively associated with the potential to successfully return to active duty (odds ratio, 0.95; P=.01). No acute on chronic compartment syndromes were reported.</p> <p>Conclusions: A single postexercise ICP value in the anterior compartments of the lower leg of military service members with chronic exercise-related leg pain was not associated with the outcome of a secondary care conservative treatment program and can be safely postponed.</p>	Compartment antérieur
2022-02	2022-Martin-Hamstring Strain Injury in Athletes	<p>Hamstring strain injury (HSI) may result in considerable impairment, activity limitation, and participation restriction, including time lost from competitive sports. This CPG includes sports-related overloading and overstretching injuries to myofascial or musculotendinous structures in any combination of the 3 hamstring muscles (the semitendinosus, semimembranosus, and biceps femoris)</p>	Hamstring strain
2022-02	2022-Sokal-The diagnostic accuracy of clinical tests for anterior cruciate ligament tears are comparable but the Lachman test has been previously overestimated: a systematic review and meta-analysis	<p>Purpose: The diagnostic accuracy of clinical tests for anterior cruciate ligament injury has been reported in previous systematic reviews. Numerous studies in these reviews include subjects with additional knee ligament injury, which could affect the sensitivity of the tests. Meta-analyses have also been performed using methods that do not account for the non-independence of sensitivity and specificity, potentially overestimating diagnostic accuracy. The aim of this study was to report the diagnostic accuracy of clinical tests for anterior cruciate ligament tears (partial and complete) without concomitant knee ligament injury.</p> <p>Methods: A systematic review with meta-analysis was performed according to the PRISMA guidelines. Meta-analyses included studies reporting the specificity and/or sensitivity of tests with or without concomitant meniscal injury. Where possible, pooled diagnostic estimates were calculated with bivariate random-effects modelling to determine the most accurate effect sizes. Diagnostic accuracy values are presented for the anterior drawer, Lachman, Lever sign and pivot shift tests overall and in acute or post-acute presentations.</p> <p>Results: Pooled estimates using a bivariate model for overall sensitivity and specificity respectively were as follows: anterior drawer test 83% [95% CI, 77-88] and 85% [95% CI, 64-95]; Lachman test 81% [95% CI, 73-87] and 85% [95% CI, 73-92]; pivot shift test 55% [95% CI, 47-62] and 94% [95% CI, 88-97]; Lever sign test 83% [95% CI, 68-92] and 91% [95% CI, 83-95]. For specific presentations, the sensitivity and specificity of the Lachman test, respectively, were: complete tears 68% [95% CI, 54-79] and 79% [95% CI, 51-93]; post-acute injuries 70% [95% CI, 57-80] and 77% [95% CI, 53-91].</p> <p>Conclusions: The pivot shift and Lever sign were the best tests overall for ruling in or ruling out an anterior cruciate ligament tear, respectively. The diagnostic accuracy of the Lachman test, particularly in post-acute presentations and for complete tears, is lower than previously reported. Further research is required to establish more accurate estimates for the Lachman test in acute presentations and partial ligament tears using bivariate analysis.</p>	ACL
2022-01	2022-Hutchinson-The Iliotibial Band: A Complex Structure with Versatile Functions	<p>The development of a pronounced iliotibial band (ITB) is an anatomically distinct evolution of humans. The mechanical behaviour of this "new" structure is still poorly understood and hotly debated in current literature. Iliotibial band syndrome (ITBS) is one of the leading causes of lateral knee pain injuries in runners. We currently lack a comprehensive understanding of the healthy behaviour of the ITB, and this is necessary prior to further investigating the aetiology of pathologies like ITBS. Therefore, the purpose of this narrative review was to collate the anatomical, biomechanical and clinical literature to understand how the mechanical function of the ITB is influenced by anatomical variation, posture and muscle activation. The complexity of understanding the mechanical function of the ITB is due, in part, to the presence of its two in-series muscles: gluteus maximus (GMAX) and tensor fascia latae (TFL). At present, we lack a fundamental understanding of how GMAX and TFL transmit force through the ITB and what mechanical role the ITB plays for movements like walking or running. While there is a range of proposed ITBS treatment strategies, robust evidence for effective treatments is still lacking. Interventions that directly target the running biomechanics suspected to increase either ITB strain or compression of lateral knee structures may have promise, but clinical randomised controlled trials are still required.</p>	ITBS

2022-01	2022-Friede-Conservative treatment of iliotibial band syndrome in runners: Are we targeting the right goals?	<p>Objective: Iliotibial band syndrome (ITBS) is presumably caused by excessive tension in the iliotibial band (ITB) leading to compression and inflammation of tissues lying beneath it. Usually managed conservatively, there is a lack of scientific evidence supporting the treatment recommendations, and high symptom recurrence rates cast doubt on their causal effectiveness. This review discusses the influence of common physiotherapeutic measures on risk factors contributing to tissue compression beneath the ITB.</p> <p>Methods: The potential pathogenic factors are presented on the basis of a simple biomechanical model showing the forces acting on the lateral aspect of the knee. Existent literature on the most commonly prescribed physiotherapeutic interventions is critically discussed against the background of this model. Practical recommendations for the optimization of physiotherapy are derived.</p> <p>Results: According to biomechanical considerations, ITBS may be promoted by anatomical predisposition, joint malalignments, aberrant activation of inserting muscles as well as excessive ITB stiffness. Hip abductor strengthening may correct excessive hip adduction but also increase ITB strain. Intermittent stretching interventions are unlikely to change the ITB's length or mechanical properties. Running retraining is a promising yet understudied intervention.</p> <p>Conclusions: High-quality research directly testing different physiotherapeutic treatment approaches in randomized controlled trials is needed.</p>	ITBS 1,2
2021-11	2021-Buckthorpe-Three Main Mechanisms Characterize Medial Collateral Ligament Injuries in Professional Male Soccer-Blow to the Knee, Contact to the Leg or Foot, and Sliding: Video Analysis of 37 Consecutive Injuries	<p>Objective: To describe the mechanisms, situational patterns, and biomechanics (kinematics) of medial collateral ligament (MCL) injuries in professional male soccer players.</p> <p>Design: Case series.</p> <p>Methods: Fifty-seven consecutive MCL injuries across 2 seasons of professional soccer matches were identified. We obtained and reviewed 37 of 57 (65%) injury videos to establish the injury mechanism, situational pattern, and knee flexion angle. We used detailed biomechanical analysis to assess the indirect and noncontact injuries. Injury layoff times, timing of injuries during the match, and location of the injuries on the pitch were also reported.</p> <p>Results: Twenty-three (62%) injuries were direct contact, 9 (24%) were indirect contact, and 5 (14%) were noncontact. Three main sprain mechanisms were noted: (1) direct contact/blow to the knee (n = 16), (2) contact to the leg or foot (lever like) (n = 7), and (3) sliding (n = 9). Seventy-three percent of MCL injuries occurred during 2 main situations: (1) pressing/tackling (n = 14, 38%) and (2) being tackled (n = 13, 35%). For indirect and noncontact injuries, knee valgus loading (100% of cases), hip abduction (73% of cases), and external foot rotation (92% of cases) were prominent injury kinematics, often with lateral trunk tilt (median, 10°; 64% of cases) and rotation (64% of cases). Knee flexion angles were higher for indirect and noncontact injuries (median, 100°) than for direct-contact injuries (median, 22°; P<.01).</p> <p>Conclusion: Nearly two thirds of MCL injuries occurred after direct contact; 1 in every 4 MCL injuries occurred after indirect contact. Three sprain mechanisms characterized MCL injuries: (1) blow to the knee, (2) contact to the leg or foot (lever like), and (3) sliding.</p>	Genou traumatique
2021-11	2021-Beit Ner-Sacral stress fractures in athletes	<p>Purpose: Fatigue stress fractures are a common overuse injury, frequently associated with high load-bearing endurance activities such as running, military training and aerobic exercise. While these fractures can arise at any site, sacral stress fractures are poorly studied with evidence consisting mainly of case reports and limited case series. This review aims to analyze and summarize all reports published to date describing cases of sacral stress fracture in athletes.</p> <p>Methods: PubMed, Embase, Web of Science and the Cochrane Database were systematically searched for studies reporting on Stress Fractures of the Sacrum. Insufficiency fractures of the elderly were excluded.</p> <p>Results: The literature review revealed 49 studies reporting on 124 cases of sacral stress fractures. Seventy-six patients (61%) were professional or collegiate level athletes, and 37 (30%) were military recruits or police officers in training. Seventeen female athletes were identified as suffering from low bone mineral density (25%), 9 of which reported menstrual irregularities. Thirteen female patients (19%) had a history of eating disorders.</p> <p>Conclusion: While most sacral stress fractures occur in normal bones exposed to abnormal repetitive loads, the high percentage of lower bone mineral density can blur the lines between fatigue fractures and insufficiency fractures. The causes of these fractures are multifactorial. High endurance sports and the features of the female athlete triad were found in high percentage of the cases. Conservative treatment is the mainstay of treatment, consisting of ceasing of training and a period of rehabilitation and gradual return to training and competition.</p>	Fx stress sacrum

2021-10	2021-Dijkstra-Primary cam morphology; bump, burden or bog-standard? A concept analysis	<p>Background: Cam morphology, a distinct bony morphology of the hip, is prevalent in many athletes, and a risk factor for hip-related pain and osteoarthritis. Secondary cam morphology, FAI due to existing or previous hip disease (eg, Legg-Calve-Perthes disease), is well-described. Cam morphology not clearly associated with a disease is a challenging concept for clinicians, scientists and patients. We propose this morphology, which likely develops during skeletal maturation as a physiological response to load, should be referred to as primary cam morphology. The aim of this study was to introduce and clarify the concept of primary cam morphology.</p> <p>Design: We conducted a concept analysis of primary cam morphology using articles that reported risk factors associated with primary cam morphology; we excluded articles on secondary cam morphology. The concept analysis method is a rigorous eight-step process designed to clarify complex 'concepts'; the end product is a precise definition that supports the theoretical basis of the chosen concept.</p> <p>Results: We propose five defining attributes of primary cam morphology-tissue type, size, site, shape and ownership-in a new conceptual and operational definition. Primary cam morphology is a cartilage or bony prominence (bump) of varying size at the femoral head-neck junction, which changes the shape of the femoral head from spherical to aspherical. It often occurs in asymptomatic male athletes in both hips. The cartilage or bone alpha angle (calculated from radiographs, CT or MRI) is the most common method to measure cam morphology. We found inconsistent reporting of primary cam morphology taxonomy, terminology, and how the morphology is operationalised.</p> <p>Conclusion: We introduce and clarify primary cam morphology, and propose a new conceptual and operational definition. Several elements of the concept of primary cam morphology remain unclear and contested. Experts need to agree on the new taxonomy, terminology and definition that better reflect the primary cam morphology landscape-a bog-standard bump in most athletic hips, and a possible hip disease burden in a selected few.</p>	FAI
2021-09	2021-Matthews-The clinical diagnosis of Achilles tendinopathy- a scoping review	<p>Background Achilles tendinopathy describes the clinical presentation of pain localised to the Achilles tendon and associated loss of function with tendon loading activities. However, clinicians display differing approaches to the diagnosis of Achilles tendinopathy due to inconsistency in the clinical terminology, an evolving understanding of the pathophysiology, and the lack of consensus on clinical tests which could be considered the gold standard for diagnosing Achilles tendinopathy. The primary aim of this scoping review is to provide a method for clinically diagnosing Achilles tendinopathy that aligns with the nine core health domains.</p> <p>Methodology A scoping review was conducted to synthesise available evidence on the clinical diagnosis and clinical outcome measures of Achilles tendinopathy. Extracted data included author, year of publication, participant characteristics, methods for diagnosing Achilles tendinopathy and outcome measures.</p> <p>Results A total of 159 articles were included in this scoping review. The most commonly used subjective measure was self-reported location of pain, while additional measures included pain with tendon loading activity, duration of symptoms and tendon stiffness. The most commonly identified objective clinical test for Achilles tendinopathy was tendon palpation (including pain on palpation, localised tendon thickening or localised swelling). Further objective tests used to assess Achilles tendinopathy included tendon pain during loading activities (single-leg heel raises and hopping) and the Royal London Hospital Test and the Painful Arc Sign. The VISA-A questionnaire as the most commonly used outcome measure to monitor Achilles tendinopathy. However, psychological factors (PES, TKS and PCS) and overall quality of life (SF-12, SF-36 and EQ-5D-5L) were less frequently measured.</p> <p>Conclusions There is significant variation in the methodology and outcome measures used to diagnose Achilles tendinopathy. A method for diagnosing Achilles tendinopathy is proposed, that includes both results from the scoping review and recent recommendations for reporting results in tendinopathy.</p>	Tendon d'Achilles
2021-09	2021-Ishoi-Femoroacetabular impingement syndrome and labral injuries: grading the evidence on diagnosis and non-operative treatment-a statement paper commissioned by the Danish Society of Sports Physical Therapy (DSSF)	<p>This statement summarises and appraises the evidence on diagnostic tests and clinical information, and non-operative treatment of femoroacetabular impingement (FAI) syndrome and labral injuries. We included studies based on the highest available level of evidence as judged by study design. We evaluated the certainty of evidence using the Grading of Recommendations Assessment Development and Evaluation framework. We found 29 studies reporting 23 clinical tests and 14 different forms of clinical information, respectively. Restricted internal hip rotation in 0° hip flexion with or without pain was best to rule in FAI syndrome (low diagnostic effectiveness; low quality of evidence; interpretation of evidence: may increase post-test probability slightly), whereas no pain in Flexion Adduction Internal Rotation test or no restricted range of motion in Flexion Abduction External Rotation test compared with the unaffected side were best to rule out (very low to high diagnostic effectiveness; very low to moderate quality of evidence; interpretation of evidence: very uncertain, but may reduce post-test probability slightly). No forms of clinical information were found useful for diagnosis. For treatment of FAI syndrome, 14 randomised controlled trials were found. Prescribed physiotherapy, consisting of hip strengthening, hip joint manual therapy techniques, functional activity-specific retraining and education showed a small to medium effect size compared with a combination of passive modalities, stretching and advice (very low to low quality of evidence; interpretation of evidence: very uncertain, but may slightly improve outcomes). Prescribed physiotherapy was, however, inferior to hip arthroscopy (small effect size; moderate quality of evidence; interpretation of evidence: hip arthroscopy probably increases outcome slightly). For both domains, the overall quality of evidence ranged from very low to moderate indicating that future research on diagnosis and treatment may alter the conclusions from this review.</p>	FAI

2021-09	2021-Nussbaum-Evaluating the Clinical Tests for Adolescent Tibial Bone Stress Injuries	<p>Background: Tibial bone stress injuries are common among the athletic adolescent population. A thorough patient history and clinical examination are essential to identify the location and extent of injury. However, there has been little description or any validation of clinical tests to help guide clinicians. Consequently, a formal diagnosis is usually dependent on results from proper imaging.</p> <p>Hypothesis: Clinical examinations will be both highly sensitive and specific determining the incidence, grade, and location of tibial bone stress injury as compared with magnetic resonance imaging (MRI).</p> <p>Study design: Case-control.</p> <p>Level of evidence: Level 2.</p> <p>Methods: A total of 80 consecutive athletic adolescents, from various sports, with greater than 1-week history of shin pain were enrolled in this institutional review board-approved study. Exclusion criteria were age >19 years and history of traumatic injury. Patients underwent a standardized clinical examination, which included a fulcrum test (FT), tap/percussion test (TT), vibration test (VT) utilizing a 128-Hz tuning fork, weight bearing lunge test (WBLT) to determine degree of dorsiflexion range of motion (ROM), and vertical single leg hop test (VSLHT) for height, landing, and pain. Bilateral lower extremity MRI was completed on the same day as clinical evaluation and served as the injury reference. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated to evaluate each clinical examination for its ability to identify a bone stress injury.</p> <p>Results: A total of 159 tibiae in 80 patients were evaluated. No single test or combination of tests was both highly sensitive and specific. Individual clinical tests demonstrated sensitivity ranging from 0.11 to 0.72 and specificity ranging from 0.37 to 0.93. The VSLHT noting an increase in pain was the most sensitive test (0.72; 95% CI, 0.62-0.78); however, its specificity was only 0.37 (95% CI, 0.19-0.55), with a PPV of 0.84 (95% CI, 0.78-0.91) and NPV of 0.20 (95% CI, 0.089-0.31). The WBLT demonstrated a mean ROM of 8 cm, with side-to-side differences (range 0-4 cm) not influencing incidence of injury. Combinations of tests demonstrated low sensitivity (0.03-0.40), with better specificity (0.63-1.0). When considering ability to identify higher grades of injury (grade III/IV), all tests had a high NPV indicating that if clinical tests were negative, there was a high likelihood that the patient did not have a grade III or IV injury.</p> <p>Conclusion: No single test or combination of tests was both highly sensitive and specific. Clinicians cannot solely rely on clinical examination for determining extent or severity of bone stress injury in the athletic adolescent population, but when combinations of tests are negative, there is likely not a high-grade bone stress injury.</p> <p>Clinical relevance: Clinical tests utilized in the evaluation of adolescent tibial bone stress injury may help indicate the presence or absence of higher grade tibial bone stress injury.</p>	Fx stress
2021-08	2021-Dick-An approach to hip pain in a young adult	<p>Initial management of hip pain in young adults includes simple analgesics or non-steroidal anti-inflammatory medication (NSAIDs), activity modification, and an anteroposterior radiograph of the hip</p> <p>Refer young adults with persistent hip pain for orthopaedic/sports and exercise medicine specialist opinion, even if imaging studies in primary care are reported as normal</p> <p>Most common causes of persistent hip pain in young adults are femoroacetabular impingement syndrome (FAI), hip dysplasia, and early osteoarthritis</p> <p>Early referral and treatment can improve pain and function but might also enable joint preserving treatments before the onset of osteoarthritis</p> <p>Appropriate surgical correction of the anatomical abnormalities in FAI and dysplasia safely and reliably reduces pain and improves function; failure of these procedures usually reflects failure to identify pre-existing arthritic change in the joint or to correct the anatomical deformity</p>	Dx Diff hanche
2021-08	2021-Geisler-Current Clinical Concepts: Synthesizing the Available Evidence for Improved Clinical Outcomes in Iliotibial Band Impingement Syndrome	<p>The current paradigm of insidious lateral knee pain involving the iliotibial band (ITB) in repetitive knee-flexion activities has been termed ITB friction syndrome since 1975. The original model for ITB pain was based on a limited or incorrect understanding of the relevant anatomy, biomechanics, and tissue science, which gradually led to a plethora of frustrating and ineffective interventional strategies. Mounting evidence from arthroscopic, cadaveric, and biomechanical studies, as well as from diagnostic imaging and histologic reports, has helped deconstruct this long-held paradigm for ITB-related pathology and treatment. By outlining the historical paradigm for our understanding of ITB pain and gathering newer evidence through extensive research, I will synthesize the available data in this clinical update to present an updated, more informed model for understanding insidious-onset ITB-related pathology and treating patients. The result is called ITB impingement syndrome.</p>	SBIT

2021-07	2021-de Vos-Dutch multidisciplinary guideline on Achilles tendinopathy	<p>Objective: To provide a comprehensive, evidence-based overview of the risk factors, prevention, diagnosis, imaging, treatment and prognosis for Achilles tendinopathy. To make clinical recommendations for healthcare practitioners and patients.</p> <p>Design: Comprehensive multidisciplinary guideline process funded by the Quality Foundation of the Dutch Federation of Medical Specialists. This process included a development, commentary and authorisation phase. Patients participated in every phase.</p> <p>Data sources: Multiple databases and existing guidelines were searched up to May 2019. Information from patients, healthcare providers and other stakeholders were obtained using a digital questionnaire, focus group interview and invitational conference.</p> <p>Study eligibility criteria: Studies on both insertional and/or midportion Achilles tendinopathy were eligible. Specific eligibility criteria were described per module.</p> <p>Data extraction and synthesis: To appraise the certainty of evidence, reviewers extracted data, assessed risk of bias and used the Grading of Recommendations Assessment, Development and Evaluation method, where applicable. Important considerations were: patient values and preferences, costs, acceptability of other stakeholders and feasibility of implementation. Recommendations were made based on the results of the evidence from the literature and the considerations.</p> <p>Primary outcome measure: The primary and secondary outcome measures were defined per module and defined based on the input of patients obtained in collaboration with the Netherlands Patient Federation and healthcare providers from different professions.</p> <p>Results: Six specific modules were completed: risk factors and primary prevention, diagnosis, imaging, treatment prognosis and secondary prevention for Achilles tendinopathy.</p> <p>Summary/conclusion: Our Dutch multidisciplinary guideline on Achilles tendinopathy provides six modules developed according to the standards of the Dutch Federation of Medical Specialists. Evidence-based recommendations for clinical practice are given for risk factors, prevention, diagnosis, imaging, treatment and prognosis. This guideline can assist healthcare providers and patients in clinical practice.</p>	Tendon d'Achilles
2021-07	2021-Petushek-Drop Jump? Single-Leg Squat? Not if You Aim to Predict Anterior Cruciate Ligament Injury From Real-Time Clinical Assessment: A Prospective Cohort Study Involving 880 Elite Female Athletes	<p>Objective: To determine whether visually assessed performances of the single-leg squat (SLS) and vertical drop jump (VDJ) were associated with future noncontact anterior cruciate ligament (ACL) injury.</p> <p>Design: Prognostic accuracy cohort study.</p> <p>Methods: Elite female handball and football (soccer) athletes (n = 880) were tested from 2007 to 2014 and tracked through 2015. Trained physical therapists visually rated each leg during a SLS and overall control during a VDJ. Receiver operating characteristic curve, Pearson chi-square, and logistic regression analyses were used to determine the prognostic accuracy of the 2 screening tests.</p> <p>Results: Sixty-five noncontact ACL injuries occurred during the follow-up period. Fourteen percent of athletes who sustained an ACL injury had poor SLS performance, compared to 17% of the noninjured athletes (P = .52 and .67 for hip and knee ratings, respectively). Side-to-side asymmetry in the SLS was not different between injured and noninjured athletes (P = .10 and .99 for hip and knee asymmetry, respectively). Twenty-one percent of athletes who sustained an ACL injury had a poor VDJ rating, compared to 27% of the noninjured athletes (P = .09). Furthermore, area under the curve values ranged from 0.43 to 0.54 for the SLS and VDJ, demonstrating no to poor prognostic accuracy.</p> <p>Conclusion: Neither SLS nor VDJ test performance distinguished between athletes who sustained a subsequent noncontact ACL injury and those who did not.</p>	Évaluation mouvement
2021-07	2021-Saueressig-Diagnostic Accuracy of Clusters of Pain Provocation Tests for Detecting Sacroiliac Joint Pain: Systematic Review With Meta-analysis	<p>Objective: To assess the diagnostic test accuracy of pain provocation tests for the sacroiliac joint.</p> <p>Design: Systematic review of diagnostic test accuracy.</p> <p>Literature search: Eight electronic databases and reference lists of included studies and previous reviews.</p> <p>Study selection criteria: Studies investigating the diagnostic accuracy of clusters of clinical tests for sacroiliac joint pain.</p> <p>Data synthesis: Bivariate random effects meta-analysis was employed. Risk of bias and applicability concerns were assessed using the QUADAS-2 tool and the GRADE tool to judge credibility of evidence.</p> <p>Results: From 2195 records identified in the search, five studies were included that assessed clusters of pain provocation tests for the sacroiliac joint. The estimated likelihood ratios (LLR) and diagnostic odds ratio (DOR) were positive LLR (2.13, 95%CI: 1.2, 3.9), negative LLR (0.33, 95% CI: 0.11, 0.72) and DOR (9.01, 95% CI: 1.72, 28.4). GRADE ratings for the outcomes were of very low certainty. Assuming a point prevalence of sacroiliac joint pain of 20%, we calculated positive posterior probability of 35% (95%CI: 32%, 46 37%) and negative posterior probability of 8% (95%CI: 6%, 10%).</p> <p>Conclusions: A positive result on a sacroiliac joint pain provocation test cluster gives the clinician 35% certainty of having correctly identified sacroiliac joint pain. Clusters of pain provocation tests for the sacroiliac joint do not provide sufficient diagnostic accuracy for ruling in the sacroiliac joint as the source of pain. Clinicians can rule out the sacroiliac joint as the source of pain with more confidence-the negative post-test probability indicates the clinician can conclude with 92% certainty that a negative test result is correct.</p>	Sacro-iliaque

2021-06	2021-Miller-Popliteal Artery Entrapment Syndrome: A Diagnostic and Treatment Enigma for Orthopaedic Surgeons	<p>Popliteal artery entrapment syndrome (PAES) is an uncommon condition that causes recurrent posterior leg pain and foot paresthesia in running athletes. This condition occurs most commonly due to an accessory or abnormal implant of the medial head of the gastrocnemius muscle. It may mimic or coincide with other chronic conditions of the lower extremity including chronic exertional compartment syndrome but is most consistent with vascular claudication. Clinical features that distinguish PAES from other causes of leg pain include a sensation of coolness of the posterior leg during exercise and associated paresthesia of the plantar aspect of the foot. Physical examination often reveals decreased intensity of the posterior tibial or dorsalis pedis pulses with passive dorsiflexion or active plantarflexion of the ankle. Diagnostic tests that confirm the presence of PAES include lower extremity angiography during active resisted plantarflexion or maximal passive dorsiflexion, and magnetic resonance angiography done after exercise provocation. Nonsurgical treatment with physical therapy and stretching of the gastrocnemius complex should be done as the first line of treatment. When conservative treatments are ineffective, referral to a vascular specialist for surgical intervention with a muscular band excision or transection, vascular bypass, or arterial reconstruction is necessary.</p>	Vasculaire
2021-06	2021-Berg-On a Trajectory for Success- 9 in Every 10 People With a Degenerative Meniscus Tear Have Improved Knee Function in the 2 Years After Treatment	<p>Objective: To identify trajectories of patient-reported knee function over 5 years in patients with degenerative meniscal tears, and to explore whether baseline characteristics were associated with trajectories of sport and recreational function.</p> <p>Design: Prospective cohort study.</p> <p>Methods: We conducted a secondary exploratory analysis of the Odense-Oslo Meniscectomy Versus Exercise randomized controlled trial. Patient-reported knee function was assessed with the Knee injury and Osteoarthritis Outcome Score (KOOS) at baseline, 3 months, 1 year, 2 years, and 5 years. We used group-based trajectory modeling to identify subgroups of patients who followed distinctive patterns of change. Multinomial logistic regression was used to examine the associations of patient demographics, knee function, and disease-related factors with KOOS sport and recreational function subscale trajectories.</p> <p>Results: The analysis of data from a sample of 140 participants identified 3 trajectories for all KOOS subscales: (1) low, minimal improvement (10%-12% of the participants), (2) moderate, gradual improvement (20%-36%), and (3) high, early improvement (53%-70%). Baseline prognostic factors for deteriorating function in sport and recreational activities were higher body mass index, poorer mental health, greater knee pain, lower perceived knee function, poorer quadriceps and hamstrings muscle strength, poorer functional performance, more meniscal extrusion, and radiographic signs of knee osteoarthritis.</p> <p>Conclusion: We found 3 distinct trajectories of patient-reported knee function over 5 years: (1) low, minimal improvement, (2) moderate, gradual improvement, and (3) high, early improvement. Nine in every 10 participants improved at least gradually over 2 years after diagnosis of a degenerative meniscal tear.</p>	Pronostic ménisque
2021-06	2021-Hanlon-Beyond the Diagnosis: Using Patient Characteristics and Domains of Tendon Health to Identify Latent Subgroups of Achilles Tendinopathy	<p>Objective: To identify latent subgroups among patients with Achilles tendinopathy, describe patient characteristics and clinical attributes that defined each subgroup, and develop a clinical classification model for subgroup membership.</p> <p>Design: Cross-sectional study.</p> <p>Methods: 145 (73 men) participants (age (mean±SD) 51±14 years) with clinically diagnosed Achilles tendinopathy completed a baseline evaluation including demographics and medical history, patient-reported outcome measures, clinical exam, tendon structure measures using ultrasound imaging and continuous shear wave elastography, and a functional test battery. Subgroups were identified using Mixture Modeling. We compared the subgroups using one-way ANOVA or Chi-Square tests and Tukey's post-hoc test to identify defining attributes. We developed a clinical classification model using logistic regression and Receiver Operating Characteristics (ROC) curves.</p> <p>Results: Three latent subgroups were identified and named by their distinctive patient characteristics and clinical attributes. Activity-dominant (n=67) on average had the highest physical activity level, function, and quality of life, reported mild symptoms, and were youngest. Psychosocial-dominant (n=56) on average had the worst symptoms, impaired function, heightened psychological factors, poorest quality of life, minimal tendon structural alterations, and were obese and predominately female. Structure-dominant (n=22) on average had the most tendon structural alterations, severe functional deficits, moderate symptoms and psychological factors, reduced quality of life, were the oldest, obese, and predominately male. The clinical classification model correctly classified 85% (123/145) of participants.</p> <p>Conclusion: Three Achilles tendinopathy subgroups (activity-dominant, psychosocial dominant, structure-dominant) differed in patient characteristics and clinical attributes.</p>	Tendon d'Achilles
2021-05	2021-Shamji-Association of the British Athletic Muscle Injury Classification and anatomic location with return to full training and reinjury following hamstring injury in elite football	<p>Background The relationship between hamstring muscle injuries (HMIs) that involve the intramuscular tendon and prolonged recovery time and increased reinjury rate remains unclear in elite footballers.</p> <p>Objective To determine the association of time to return to full training (TRFT) and reinjury of HMIs using the British Athletic Muscle Injury Classification (BAMIC) and specific anatomical injury location in elite-level football players.</p> <p>Methods The electronic medical records of all players at an English Premier League club were reviewed over eight consecutive seasons. All players who sustained an acute HMI were included. Two experienced musculoskeletal radiologists independently graded each muscle using the BAMIC, categorised each injury location area (proximal vs middle vs distal third and proximal vs distal tendon) and reported second muscle involvement. TRFT and reinjury were recorded.</p> <p>Results Out of 61 HMIs, the intramuscular tendon (BAMIC 'c') was involved in 13 (21.3%). HMI involving the intramuscular tendon ('c') had a mean rank TRFT of 36 days compared with 24 days without involvement (p=0.013). There were 10 (16.4%) reinjuries with a significant difference of 38.5% reinjury rate in the group with intramuscular tendon injury ('c') and 12.5% in the group without (p=0.031). TRFT and reinjury involving a second muscle was statistically significantly higher than without. Most of the HMIs to the biceps femoris with reinjury (5 out of 9) were in the distal third section related to the distal tendon site involving both the long and short head.</p> <p>Conclusion TRFT in HMI involving the intramuscular tendon ('c') of the Biceps femoris is significantly longer with significantly higher reinjury rate compared with injuries without, in elite football players. The finding that most reinjuries of the biceps femoris occurring in the distal third muscle at the distal tendon site, involving both the long and short head, merits further investigation.</p>	Ischios

2021-05	2021-Friedman-Peeling off musculoskeletal labels: sticks and stones may break my bones, but diagnostic labels can hamstring me forever	Overdiagnosis in healthcare is a problem. A big one. Clinicians are skilled at labelling people in ways that do not necessarily benefit them. Too often we create harms from unnecessary labels and subsequent treatments that waste healthcare resources. Learning from Preventing Overdiagnosis conferences, Choosing Wisely1, the BMJ's Too Much Medicine2 and JAMA's Less is More3 campaigns, we opine that sport and exercise medicine is not exempt from overlabelling.	Importance (ou non) du Dx
2021-05	2021-Warden-Optimal Load for Managing Low-Risk Tibial and Metatarsal Bone Stress Injuries in Runners: The Science Behind the Clinical Reasoning	<p>Background: Low-risk bone stress injuries (BSIs) of the tibia and metatarsal diaphysis account for >50% of BSIs in runners. They interrupt training and are managed using non-invasive approaches. The desire by all involved is for a speedy, but safe return to running.</p> <p>Clinical question: What is the optimal load to manage low-risk tibial and metatarsal BSIs and safely return to running?</p> <p>Key results: Optimal load can be guided by knowledge of the BSI healing process and is symptom driven. At all stages, the optimal load does not produce symptoms during, after, or the day following loading.</p> <p>Clinical application: A period of initial load reduction, via partial- or non-weightbearing, is typically needed to alleviate presenting symptoms. Analgesics or NSAIDs may be used short-term (<7 days), but only in the presence of resting and/or night pain. Healing supplements (e.g. low-intensity pulsed ultrasound and/or recombinant parathyroid hormone therapy) may be attempted to influence tissue healing. Athletes can maintain cardiopulmonary fitness via cross-training, while simultaneously addressing musculoskeletal fitness. A return-to-run program can be initiated once an athlete is pain-free with daily activities for 5 consecutive days. Progress is directed by symptom provocation and initially focuses on increasing running volume before speed. Continue optimal loading following return to running and consider including jump training and/or gait retraining to reduce subsequent BSI risk. The optimal loading approach to managing low-risk tibial and metatarsal BSIs is clinically successful, but requires further scientific validation</p>	Fx stress
2021-05	2021-Mansfield-Moderate reliability of the lateral step down test amongst experienced and novice physical therapists	<p>Background/Introduction: The lateral step-down test is used to appraise movement quality in patients with patellofemoral pain (PFP), however, it is unclear if reliability of the test is affected by physical therapist experience.Objective: Determine if there is a difference in reliability between 'experienced' and 'novice' physical therapists appraising movement quality of patients with PFP during the lateral step-down test.Methods: Three 'experienced' and 3 'novice' physical therapists analyzed movement quality of 22 participants [mean age (SD) 28.25 (6.5) years] with PFP. Physical therapists viewed two-dimensional videos of participants performing the lateral step-down test and appraised the quality with a score (0-1 = 'good'; 2-3 = 'fair', and 4-5 = 'poor') at baseline and 1 week. Inter- and intra-rater reliability were calculated with kappa and percent agreement. Differences between the groups were assessed with the chi-square test with an a priori alpha level of < 0.05.Results: Inter- and intra-rater reliability ranged from fair to moderate ($\kappa = 0.40-0.65$). There was no difference in reliability between 'experienced' and 'novice' physical therapists at baseline ($p = .13$) or 1 week post testing ($p = .94$).Conclusions: There was no difference in reliability between 'experienced' and 'novice' physical therapists using categories to appraise movement quality during the lateral step-down test for patients with chronic PFP.</p>	Test fonctionnels
	2021-Korakakis-A systematic review evaluating the clinimetric properties of the Victorian Institute of Sport Assessment (VISA) questionnaires for lower limb tendinopathy	<p>Purpose: The evaluation of measurement properties such as reliability, measurement error, construct validity, and responsiveness provides information on the quality of the scale as a whole, rather than on an item level. We aimed to synthesize the measurement properties referring to reliability, measurement error, construct validity, and responsiveness of the Victorian Institute of Sport Assessment questionnaires (Achilles tendon-VISA-A, greater trochanteric pain syndrome-VISA-G, proximal hamstring tendinopathy-VISA-H, patellar tendon-VISA-P).</p> <p>Methods: A systematic review was conducted according to Consensus-based Standards for the Selection of Health Measurement Instruments methodology (COSMIN). PubMed, Cochrane, CINAHL, EMBASE, Web of Science, SportsDiscus, grey literature, and reference lists were searched. Studies assessing the measurement properties concerning reliability, validity, and responsiveness of the VISA questionnaires in patients with lower limb tendinopathies were included. Two reviewers assessed the methodological quality of studies assessing reliability, validity, and responsiveness using the COSMIN guidelines and the evidence for these measurement properties. A modified Grading of Recommendations Assessment Development and Evaluation (GRADE) approach was applied to the evidence synthesis.</p> <p>Results: There is moderate-quality evidence for sufficient VISA-A, VISA-G, and VISA-P reliability. There is moderate-quality evidence for sufficient VISA-G and VISA-P measurement error, and high-quality evidence for sufficient construct validity for all the VISA questionnaires. Furthermore, high-quality evidence exists with regard to VISA-A for sufficient responsiveness in patients with insertional Achilles tendinopathy following conservative interventions.</p> <p>Conclusions: Sufficient reliability, measurement error, construct validity and responsiveness were found for the VISA questionnaires with variable quality of evidence except for VISA-A which displayed insufficient measurement error.</p>	Évaluation tendinopathie

2021-04	2021-Teixeira-Concurrent Validation and Reference Values of Gluteus Medius Clinical Test	<p>Context: The hip abductor muscles, mainly the gluteus medius, are responsible for controlling hip adduction in a closed kinetic chain. Frontal plane knee alignment, assessed during functional activities such as squatting, jumping and running, may overload joint structures, like the anterior cruciate ligament and patellofemoral joint. The hand-held dynamometer is reliable and effective for testing the muscular strength of the hip abductors.</p> <p>Objectives: 1. To assess the concurrent validity between the gluteus medius clinical test and a maximum isometric force test of the hip abductors using the hand-held dynamometer; (2) to determine the intra and inter-examiner reliability for the application of the gluteus medius clinical test; and (3) to describe reference values of gluteus medius clinical test on a population of youth athletes.</p> <p>Design: Cross-sectional.</p> <p>Methods: Thirty healthy individuals were recruited for validity and reliability testing. On the first day, participants performed the maximal isometric test of the hip abductors, measured via hand-held dynamometry. On the following week, the gluteus medius clinical test was performed. Intraclass correlation coefficients (ICC2,2) were computed for the reliability analysis, with a 95% confidence interval. To generate reference values, the gluteus medius clinical test was performed on 273 athletes.</p> <p>Results: The results of this study indicated a weak positive correlation ($r = 0.436, p = 0.001$) between tests, which indicates that they examine different domains of gluteus medius muscle function, likely endurance and muscle strength. The magnitude of computed ICCs (>0.95) indicates excellent intra- and inter-examiner reliability.</p> <p>Conclusion: The findings of the current study indicate that the gluteus medius clinical test is reliable and examines a domain of muscular function not fully captured by HHD. The clinical test developed in this study is low-cost and can be included for gluteus medius assessment.</p>	Évaluation fessiers
2021-04	2021-Nasser-Proximal Hamstring Tendinopathy: A Systematic Review of Interventions	<p>Background: Proximal hamstring tendinopathy affects athletic and non-athletic populations and is associated with longstanding buttock pain. The condition is common in track and field, long distance running and field-based sports. Management options need to be evaluated to direct appropriate clinical management.</p> <p>Purpose/hypothesis: To evaluate surgical and non-surgical interventions used in managing proximal hamstring tendinopathy.</p> <p>Study design: Systematic review.</p> <p>Methods: Electronic databases were searched to January 2019. Studies (all designs) investigating interventions for people with proximal hamstring tendinopathy were eligible. Outcomes included symptoms, physical function, quality of life and adverse events. Studies were screened for risk of bias. Reporting quality was assessed using the Cochrane Risk of Bias Tool (Randomized Controlled Trials [RCT]) and the Joanna Briggs Institute Checklist (Case Series). Effect sizes (Standard mean difference or Standard paired difference) of 0.2, 0.5 and 0.8 were considered as small, medium and large respectively. Overall quality of evidence was rated according to GRADE guidelines.</p> <p>Results: Twelve studies (2 RCTs and 10 case series) were included ($n=424$; males 229). RCTs examined the following interventions: platelet-rich plasma injection ($n=1$), autologous whole-blood injection ($n=1$), shockwave therapy ($n=1$) and multi-modal intervention ($n=1$). Case series included evaluation of the following interventions: platelet-rich plasma injection ($n=3$), surgery ($n=4$), corticosteroid injection ($n=2$), multi-modal intervention + platelet-rich plasma injection ($n=1$). Very low-level evidence found shockwave therapy was more effective than a multi-modal intervention, by a large effect on improving symptoms (-3.22 SMD; 95% CI $-4.28, -2.16$) and physical function (-2.42 SMD; 95% CI $-3.33, -1.50$) in the long-term. There was very low-level evidence of no difference between autologous whole-blood injection and platelet-rich plasma injection on physical function (0.17 SMD; 95% CI $-0.86, 1.21$) to (0.24 SMD; 95% CI $-0.76, 1.24$) and quality of life (-0.04 SMD; 95% CI $-1.05, 0.97$) in the medium-term. There was very low-quality evidence that surgery resulted in a large reduction in symptoms (-1.89 SPD; 95% CI $-2.36, -1.41$) to (-6.02 SPD; 95% CI $-8.10, -3.94$) and physical function (-4.08 SPD; 95% CI $-5.53, -2.63$) in the long-term.</p> <p>Conclusions: There is insufficient evidence to recommend any one intervention over another. A pragmatic approach would be to initially trial approaches proven successful in other tendinopathies.</p>	Traitement tendinopathie ischios
2021-04	2021-Kuwabara-Narrative: Review of Anterior Knee Pain Differential Diagnosis (Other than Patellofemoral Pain)	<p>Purpose of review: This review presents a framework for constructing a differential diagnosis for chronic anterior knee pain associated with overuse other than patellofemoral pain. Traumatic, systemic, and pediatric injuries will not be covered.</p> <p>Recent findings: From superficial to deep, the anterior knee can be conceptually organized into four layers: (1) soft tissue, (2) extensor mechanism, (3) intracapsular/extrasynovial, and (4) intra-articular. From superficial to deep, diagnoses to consider include bursitis, patellar and quadriceps tendinosis, fat pad impingement, and plica syndromes.</p>	Douleur antérieure genou

2021-04	2021-Morrissey-Management of plantar heel pain: a best practice guide informed by a systematic review, expert clinical reasoning and patient values	<p>Objective: To develop a best practice guide for managing people with plantar heel pain (PHP).</p> <p>Methods: Mixed-methods design including systematic review, expert interviews and patient survey.</p> <p>Data sources: Medline, Embase, CINAHL, SPORTDiscus, Cochrane Central Register of Controlled Trials, trial registries, reference lists and citation tracking. Semi-structured interviews with world experts and a patient survey.</p> <p>Eligibility criteria: Randomised controlled trials (RCTs) evaluating any intervention for people with PHP in any language were included subject to strict quality criteria. Trials with a sample size greater than n=38 were considered for proof of efficacy. International experts were interviewed using a semi-structured approach and people with PHP were surveyed online.</p> <p>Results: Fifty-one eligible trials enrolled 4351 participants, with 9 RCTs suitable to determine proof of efficacy for 10 interventions. Forty people with PHP completed the online survey and 14 experts were interviewed resulting in 7 themes and 38 subthemes. There was good agreement between the systematic review findings and interview data about taping (SMD: 0.47, 95% CI 0.05 to 0.88) and plantar fascia stretching (SMD: 1.21, 95% CI 0.78 to 1.63) for first step pain in the short term. Clinical reasoning advocated combining these interventions with education and footwear advice as the core self-management approach. There was good expert agreement with systematic review findings recommending stepped care management with focused shockwave for first step pain in the short-term (OR: 1.89, 95% CI 1.18 to 3.04), medium-term (SMD 1.31, 95% CI 0.61 to 2.01) and long-term (SMD 1.67, 95% CI 0.88 to 2.45) and radial shockwave for first step pain in the short term (OR: 1.66, 95% CI 1.00 to 2.76) and long term (OR: 1.78, 95% CI 1.07 to 2.96). We found good agreement to 'step care' using custom foot orthoses for general pain in the short term (SMD: 0.41, 95% CI 0.07 to 0.74) and medium term (SMD: 0.55, 95% CI 0.09 to 1.02).</p> <p>Conclusion: Best practice from a mixed-methods study synthesising systematic review with expert opinion and patient feedback suggests core treatment for people with PHP should include taping, stretching and individualised education. Patients who do not optimally improve may be offered shockwave therapy, followed by custom orthoses.</p>	Douleur plantaire	
2021-04	2021-Martin-Ankle Stability and Movement Coordination Impairments: Lateral Ankle Ligament Sprains Revision	<p>This revised clinical practice guideline (CPG) addresses the distinct but related lower extremity impairments of those with a first-time lateral ankle sprain (LAS) and those with chronic ankle instability (CAI). Depending on many factors, impairments may continue following injury. While most individuals experience resolution of symptoms, complaints of instability may continue and are defined as CAI. The aims of the revision were to provide a concise summary of the contemporary evidence since publication of the original guideline and to develop new recommendations or revise previously published recommendations to support evidence-based practice.</p>	Entorse cheville	
2021-04	2021-Ross-Clinical Tests of Tibialis Posterior Tendinopathy: Are They Reliable and How Well Are They Reflected in Structural Changes on Imaging	<p>Objective: Determine the reliability of common clinical tests for tibialis posterior tendinopathy (TPT) and investigate their relationship with greyscale ultrasound findings in individuals who have medial foot/ankle pain.</p> <p>Design: Prospective cohort.</p> <p>Methods: 52 individuals reporting medial foot/ankle pain were clinically examined by two physiotherapists using four clinical tests for TPT: pain on tendon palpation, swelling around the tendon, pain/weakness with tibialis posterior contraction, and pain/inability to perform a single leg heel raise (SLHR). Individuals also underwent an ultrasound examination by a sonographer. Physiotherapists and sonographer were blind to each other's findings. Positive ultrasound examination included at least one of the following grey-scale changes: hypoechogenicity, fibrillar disruption, or thickening of the tendon. For reliability between two physiotherapists, we calculated kappa coefficients (95% confidence intervals (CI)). To gauge relationship between clinical and imaging findings, we calculated odds ratios (95% CI).</p> <p>Results: SLHR was most reliable with substantial agreement between physiotherapists (K 0.74 (95% CI 0.54 to 0.93)) - the other tests having moderate levels of reliability. Of all clinical tests, SLHR was most related to greyscale findings on ultrasound (odds ratio 5.8) - but imprecisely so with 95% CI spanning 1.7 to 20.4.</p> <p>Conclusion: Of all tests, SLHR was most reliable between clinicians and best related to imaging findings in individuals presenting with TPT - aligning with contemporary thinking of tendinopathy as a load-related clinical presentation. There was a disconnect between clinical findings and ultrasound greyscale changes in the tibialis posterior tendon in individuals with TPT.</p>	Tib post	1,3

2021-04	2021-Naderi-Foot Orthoses Enhance the Effectiveness of Exercise, Shockwave, and Ice Therapy in the Management of Medial Tibial Stress Syndrome	<p>Objective: Our aim was to assess the effects of adding arch-support foot-orthoses (ASFO) to a multimodal therapeutic intervention on the perception of pain and improvement of recovery from medial tibial stress syndrome (MTSS) in recreational runners.</p> <p>Design: A prospective randomized controlled trial.</p> <p>Setting: Sport training and medical centers.</p> <p>Participants: Fifty female recreational runners with MTSS were randomized into 2 groups.</p> <p>Interventions: Runners either received ASFO or sham flat noncontoured orthoses. Both groups received a multimodal therapeutic intervention, including ice massage, ankle muscle exercises, and extracorporeal shockwave therapy.</p> <p>Main outcome measures: Pain during bone pressure using a numerical Likert scale (0-10), MTSS severity using an MTSS scale, perceived treatment effect using the global rating of change scale, and quality of life using the short Form-36 questionnaire were determined at week 6, 12, and 18.</p> <p>Results: Pain intensity and MTSS severity were lower, and the perceived treatment effect and physical function were better in the ASFO than in the sham flat noncontoured orthoses group at week 6 and week 12. Cohen's dz effect size for between-group differences showed a medium difference. However, arch-support foot-orthoses did not add to the benefits of multimodal therapeutic intervention on pain, MTSS severity and perceived treatment effect at week 18.</p> <p>Conclusions: Adding ASFO to a therapeutic intervention leads to an earlier diminishment of pain and MTSS severity, and improved PF and perceived therapeutic effects.</p>	Périostite 1,2
2021-03	2021-Dolphin-Does the Direction of Kinesiology Tape Application Influence Muscle Activation in Asymptomatic Individuals?	<p>Background Despite the popularity of tape among athletes and rehabilitation practitioners, there is controversy regarding the specific effects of kinesiology tape. Based on conflicting results and limitations of the literature, a well-designed study was desired to examine kinesiology tape application direction on muscle activation.</p> <p>Hypothesis/Purpose The purpose of this pilot study was to determine if the direction of kinesiology tape application influences quadriceps activation. This study compared taping techniques with outcome measures selected to assess quadriceps muscle activation. The outcome measures included EMG, isokinetic strength, and functional hop and jump performance.</p> <p>Study Design Double-blind Crossover study</p> <p>Methods A total of fifteen asymptomatic participants (10 females and 5 males) completed the study. Mean age was 23.3 years. Kinesio® Tex Gold™ was applied to the dominant lower extremity of each participant using a Y-strip method. Two taping conditions (proximal to distal, distal to proximal) were applied to the quadriceps. Participants and testers were blinded to tape condition. Pretest and posttest measures included electromyographic output during isokinetic testing of quadriceps muscle torque at 60°s-1 and 120°s-1, single leg triple hop for distance, and vertical jump.</p> <p>Results Two-way, repeated measures analysis of variance resulted in no significant differences in baseline to taped condition for quadriceps electromyographic output, quadriceps isokinetic knee extension muscle torque at 60°s-1 and 120°s-1, single leg triple-hop distance or vertical jump height.</p> <p>Conclusion The results of this pilot study do not support the hypothesis that kinesiology tape application direction influences muscle performance as measured in this study.</p>	Taping 1,2
2021-03	2021-Heerey-The Size and Prevalence of Bony Hip Morphology Do Not Differ Between Football Players With and Without Hip and/or Groin Pain: Findings From the FORCe Cohort	<p>Objective: To compare the size and prevalence of bony hip morphology in football players with and without hip and/or groin pain.</p> <p>Design: Case-control.</p> <p>Methods: We recruited 184 soccer and Australian football players with self-reported hip and/or groin pain of greater than 6 months in duration and a positive flexion, adduction, and internal rotation (FADIR) test (290 hips, 21% women), and 55 football players with no pain and a negative FADIR test (110 hips, 26% women) as a control group. Bony hip morphology was identified by the alpha angle and lateral center-edge angle (LCEA) on anteroposterior pelvis and Dunn 45° radiographs. The alpha angle and LCEA were analyzed as continuous measures (size) and dichotomized using threshold values to determine the presence of bony hip morphology (cam, large cam, pincer, and acetabular dysplasia). Regression analyses estimated differences in the size and prevalence of bony hip morphology between football players with and without pain.</p> <p>Results: In all football players and in men, the size and prevalence of bony hip morphology did not differ between those with and without hip and/or groin pain. Cam morphology was evident in 63% of hips in players without pain and 71% of symptomatic hips in players with hip and/or groin pain. In female football players with hip and/or groin pain compared to those without pain, larger alpha angle values were observed on the Dunn 45° view (5.9°; 95% confidence interval: 1.2°, 10.6°; P = .014).</p> <p>Conclusion: The size and prevalence of bony hip morphology appear to be similar in football players with and without hip and/or groin pain.</p>	Examen de la hanche

2021-03	2021-Dutton-Stress Fractures of the Hip and Pelvis	<p>Stress fractures refer to overuse injuries of bone resulting from repetitive mechanical stress. Stress fractures of the hip and pelvic region, while relatively uncommon, have become increasingly recognized in certain populations, particularly long-distance runners and military recruits. The diagnosis of such injuries can be challenging, often hampered by a nonspecific physical examination and limited sensitivity of plain radiography. Early recognition is important to direct appropriate management, lessen time lost from sport, and avoid potential complications. The present article reviews the epidemiology, diagnosis, and management of bone stress injuries of the hip and pelvis, specifically the sacrum, pubic ramus, and femoral neck.</p>	Blessures hanche/bassin	
2021-03	2021-Wu-Incidence and Risk Factors of Low Back Pain in Marathon Runners	<p>Purpose: The occurrence of low back pain (LBP) in marathon runners has been poorly understood. This study aimed to describe the risk factors and identify whether these factors can cause LBP in these athletes.</p> <p>Methods: A self-developed questionnaire was randomly distributed to 850 runners of running a half or a full marathon. Participants responded with the questionnaire focusing on previous training and running conditions after their competitions.</p> <p>Results: On the basis of the remaining 800 valid questionnaires, the incidence of LBP was 4.50% (n = 36). A total of 572 (71.5%) males and 228 (28.5%) females, with an average age range of 33.9 ± 9.0 years, came from different occupations with different physical activity characteristics. However, no significant associations between occupation and runners with LBP ($p > 0.05$) were found. In the final models, risk factors, including warm-up activities ($p=0.012$, OR = 2.617), fatigue ($p = 0.008$, OR = 2.680), running gait posture ($p=0.041$, OR = 2.273), and environmental temperature ($p=0.020$, OR = 6.584), were significantly associated with LBP in marathoners.</p> <p>Conclusion: Although LBP was uncommon in marathoners, it was linked to the factors such as insufficient warm-up activities, fatigue, poor running gait posture, and uncomfortable environmental temperature. Future studies need to validate these results. Nevertheless, these findings could still be useful for protecting the lower back area of runners clinically.</p>		
2021-03	2021-Leao Almeida-Anteromedial versus posterolateral hip musculature strengthening with dose-controlled in women with patellofemoral pain: A randomized controlled trial	<p>Objective: To compare the effectiveness of adding anteromedial versus posterolateral hip musculature strengthening to knee strengthening in women with patellofemoral pain (PFP).</p> <p>Design: Randomized controlled trial.</p> <p>Setting: University physiotherapy clinic.</p> <p>Participants: Fifty-two women with PFP were randomized to receive either anteromedial (AMHG) or posterolateral (PLHG) hip musculature strengthening.</p> <p>Main outcome measures: The primary outcomes were pain intensity by the numeric pain rating scale and function by the Anterior Knee Pain Scale in six weeks. Secondary outcomes were pain and function at six months, global perceived effect at six weeks and six months, pain in step down, isometric torque of abductors, adductors and hip rotators measured with hand-held dynamometer, and dynamic knee valgus by step down in six weeks.</p> <p>Results: Both groups showed improvement in primary outcomes; however, no differences were found between groups in pain intensity and function in six weeks and the secondary outcomes. Group x time interaction found superior gains in abductor strength in the PLHG and increase in the strength of the adductors and internal rotators in AMHG.</p> <p>Conclusion: There was no difference between the addition of anteromedial or posterolateral hip musculature strengthening to knee strengthening in improving pain and function in women with PFP.</p>	Traitement SFP	1,2
2021-03	2021-Kho-MRI findings of tibialis anterior friction syndrome: a mimic of tibial stress injury	<p>Objective: To describe a distinct constellation of MRI demonstrated soft tissue abnormalities: centred around the tibialis anterior tendon in a subset of patients presenting as suspected tibial stress injury.</p> <p>Materials and methods: A retrospective review was performed of the clinical and MRI imaging findings from 5 selected patients referred for MRI with suspected tibial stress injury. MRI studies at presentation of each case were systematically reviewed for peritendinous fluid, tibialis anterior tendon change, tibialis anterior muscle and myotendinous junction oedema, periosteal oedema over the tibia and tibial marrow oedema.</p> <p>Results: All 5 cases were athletes (3 soccer players, 2 runners) of between 20 and 40 years of age. On MRI, all 5 cases demonstrated peritendinous fluid around an intact tibialis anterior tendon. This fluid was maximal at the junction of mid and distal thirds of the lower leg, and extended down to the superior extensor retinaculum, with a mean cranio-caudal length of 13 cm (range 8-17 cm). Associated oedema was present in the surrounding subcutaneous tissue, tibial periosteum and distal tibialis anterior musculotendinous junction.</p> <p>Conclusion: Peritendinous fluid around an intact tibialis anterior tendon over the mid-to-distal third tibia, with surrounding subcutaneous, periosteal and tibialis anterior myotendinous junction oedema is demonstrable on MRI in a subset of patients presenting as suspected tibial stress injury. A friction syndrome of tibialis anterior between the superior extensor retinaculum and the anterior tibia is proposed as the aetiology of this entity.</p>	Dx Diff jambe	1,3

2021-03	2021-Alfredson-Ultrasound and surgical inspection of plantaris tendon involvement in chronic painful insertional Achilles tendinopathy: a case series	<p>Objectives Chronic painful insertional Achilles tendinopathy is known to be difficult to manage. The diagnosis is not always easy because multiple different tissues can be involved. The plantaris tendon has recently been described to frequently be involved in chronic painful mid-portion Achilles tendinopathy. This study aimed to evaluate possible plantaris tendon involvement in patients with chronic painful insertional Achilles tendinopathy.</p> <p>Methods Ninety-nine consecutive patients (74 males, 25 females) with a mean age of 40 years (range 24–64) who were surgically treated for insertional Achilles tendinopathy, were included. Clinical examination, ultrasound (US)+Doppler examination, and surgical findings were used to evaluate plantaris tendon involvement.</p> <p>Results In 48/99 patients, there were clinical symptoms of plantaris tendon involvement with pain and tenderness located medially at the Achilles tendon insertion. In all these cases, surgical findings showed a thick and wide plantaris tendon together with a richly vascularised fatty infiltration between the plantaris and Achilles tendon. US examination suspected plantaris involvement in 32/48 patients.</p> <p>Conclusion Plantaris tendon involvement can potentially be part of the pathology in chronic painful insertional Achilles tendinopathy and should be considered for diagnosis and treatment when there is distinct and focal medial pain and tenderness.</p>	Dx Diff pied
2021-02	2021-Wallis-A Systematic Review of Clinical Practice Guidelines for Physical Therapist Management of Patellofemoral Pain	<p>Objective: The purpose of this study was to conduct a systematic review to evaluate clinical practice guidelines (CPGs) for the physical therapist management of patellofemoral pain.</p> <p>Methods: Five electronic databases (CINAHL, Embase, Medline, Psychinfo, Cochrane Library) were searched from January 2013 to October 2019. Additional search methods included searching websites that publish CPGs containing recommendations for physical therapist management of patellofemoral pain. Characteristics of the guidelines were extracted, including recommendations for examination, interventions, and evaluation applicable to physical therapist practice. Quality assessment was conducted using the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument, applicability of recommendations to physical therapist practice was examined using the AGREE Recommendation Excellence (AGREE REX) instrument, and convergence of recommendations across guidelines was assessed.</p> <p>Results: Four CPGs were included. One guideline evaluated as higher quality provided the most clinically applicable set of recommendations for examination, interventions, and evaluation processes to assess the effectiveness of interventions. Guideline-recommended interventions were consistent for exercise therapy, foot orthoses, patellar taping, patient education, and combined interventions and did not recommend the use of electrotherapeutic modalities. Two guidelines evaluated as higher quality did not recommend using manual therapy (in isolation), dry needling, and patellar bracing.</p> <p>Conclusion: Recommendations from higher-quality CPGs may conflict with routine physical therapist management of patellofemoral pain. This review provides guidance for clinicians to deliver high-value physical therapist management of patellofemoral pain.</p>	Traitement SFP 1,2
2021-02	2021-Hamstra-Wright-Risk Factors for Plantar Fasciitis in Physically Active Individuals: A Systematic Review and Meta-analysis	<p>Context: Plantar fasciitis (PF) is a common condition in active individuals. The lack of agreement on PF etiology makes treatment challenging and highlights the importance of understanding risk factors for preventive efforts.</p> <p>Objective: The purpose of this systematic review and meta-analysis was to determine what factors may put physically active individuals at risk of developing PF.</p> <p>Data sources: CENTRAL, CINAHL, EMBASE, Gray Lit, LILACS, MEDLINE (PubMed), ProQuest, Scopus, SPORTDiscus, and Web of Science were searched through April 2018 and updated in April 2020.</p> <p>Study selection: Studies were included if they were original research investigating PF risk factors, compared physically active individuals with and without PF, were written in English, and were accessible as full-length, peer-reviewed articles.</p> <p>Study design: Systematic review and meta-analysis.</p> <p>Level of evidence: Level 3, because of inconsistent definitions and blinding used in the included observational studies.</p> <p>Data extraction: Data on sample characteristics, study design and duration, groups, PF diagnosis, and risk factors were extracted. The methodological quality of the studies was assessed using the Strengthening the Reporting of Observational Studies in Epidemiology statement. When means and standard deviations of a particular risk factor were presented 2 or more times, that risk factor was included in the meta-analysis.</p> <p>Results: Sixteen studies were included in the systematic review and 11 risk factors in the meta-analysis. Increased plantarflexion range of motion (weighted mean difference [MD] = 7.04°; 95% CI, 5.88-8.19; P < 0.001), body mass index (MD = 2.13 kg/m²; 95% CI, 1.40-2.86; P < 0.001; I² = 0.00%), and body mass (MD = 4.52 kg; 95% CI, 0.55-8.49; P = 0.026) were risk factors for PF.</p> <p>Conclusion: Interventions focused on addressing a greater degree of plantarflexion range of motion, body mass index, and body mass and their load on the force-absorbing plantar surface structures may be a good starting point in the prevention and treatment of active individuals with PF.</p>	Étiologie fasciopathie plantaire

2021-02	2021-Johnston-Risk Factors for Stress Fractures in Female Runners: Results of a Survey	<p>Background: Few studies compare women with and without stress fractures and most focus on younger, elite runners.</p> <p>Hypothesis/purpose: Compare risk factors between female runners with and without a stress fracture history.</p> <p>Study design: Case control.</p> <p>Methods: An online survey targeting women age ≥18 years was distributed primarily via social media. Questions included demographics, running details, cross training, nutrition, injury history, medical/menstrual history, and medications. Women with stress fracture histories answered questions about location, number, and changes made. Data were compared between groups using t-tests, chi-square tests, or Fisher's exact tests. Multivariable logistic regression models simultaneously investigated associations of multiple factors using backward variable selection.</p> <p>Results: Data from 1648 respondents were analyzed. Mean age was 40 years, and 25.4% reported stress fractures. Significant differences were found between groups for days/week running, mileage/week, running pace, years running, having a coach, cycling or swimming, calorie consumption for activity, other running injuries, medical history, medication/supplement intake, age at menarche, and going ≥6 months without a menstrual period. Odds of having a stress fracture were increased with osteopenia (OR 4.14), shin splints (OR 3.24), tendon injuries (OR 1.49), running >20 miles/week (OR 1.74-1.77) compared to 11-20 miles/week, having a coach (OR 1.86), and cycling (OR 1.15). Women running 11:00-11:59 minutes/mile or slower were less likely to have a stress fracture compared to those running 9:00-9:59 minutes/mile (OR 0.43-0.54). The odds of having a stress fracture were 1.43 times higher for going ≥ 6 months without a menstrual period. Use of calcium, probiotics, and vitamin D increased odds. Post fracture, common changes made were with cross training (49%), mileage (49%), and strength training (35%).</p> <p>Conclusions: Multiple intrinsic and extrinsic factors were identified for female runners who sustained one or more stress fracture during running. Prospective studies are warranted to infer a cause and effect relationship amongst these variables and stress fracture risk.</p>	Fx stress
2021-02	2021-Agergaard-Clinical Outcomes, Structure, and Function Improve With Both Heavy and Moderate Loads in the Treatment of Patellar Tendinopathy: A Randomized Clinical Trial	<p>Background: Loading interventions have become a predominant treatment strategy for tendinopathy, and positive clinical outcomes and tendon tissue responses may depend on the exercise dose and load magnitude.</p> <p>Purpose/hypothesis: The purpose was to investigate if the load magnitude influenced the effect of a 12-week loading intervention for patellar tendinopathy in the short term (12 weeks) and long term (52 weeks). We hypothesized that a greater load magnitude of 90% of 1 repetition maximum (RM) would yield a more positive clinical outcome, tendon structure, and tendon function compared with a lower load magnitude of 55% of 1 RM when the total exercise volume was kept equal in both groups.</p> <p>Study design: Randomized clinical trial; Level of evidence, 1.</p> <p>Methods: A total of 44 adult participants with chronic patellar tendinopathy were included and randomized to undergo moderate slow resistance (MSR group; 55% of 1 RM) or heavy slow resistance (HSR group; 90% of 1 RM). Function and symptoms (Victorian Institute of Sport Assessment-Patella questionnaire [VISA-P]), tendon pain during activity (numeric rating scale [NRS]), and ultrasound findings (tendon vascularization and swelling) were assessed before the intervention, at 6 and 12 weeks during the intervention, and at 52 weeks from baseline. Tendon function (functional tests) and tendon structure (ultrasound and magnetic resonance imaging) were investigated before and after the intervention period.</p> <p>Results: The HSR and MSR interventions both yielded significant clinical improvements in the VISA-P score (mean ± SEM) (HSR: 0 weeks, 58.8 ± 4.3; 12 weeks, 70.5 ± 4.4; 52 weeks, 79.7 ± 4.6) (MSR: 0 weeks, 59.9 ± 2.5; 12 weeks, 72.5 ± 2.9; 52 weeks, 82.6 ± 2.5), NRS score for running, NRS score for squats, NRS score for preferred sport, single-leg decline squat, and patient satisfaction after 12 weeks, and these were maintained after 52 weeks. HSR loading was not superior to MSR loading for any of the measured clinical outcomes. Similarly, there were no differences in functional (strength and jumping ability) or structural (tendon thickness, power Doppler area, and cross-sectional area) improvements between the groups undergoing HSR and MSR loading.</p> <p>Conclusion: There was no superior effect of exercising with a high load magnitude (HSR) compared with a moderate load magnitude (MSR) for the clinical outcome, tendon structure, or tendon function in the treatment of patellar tendinopathy in the short term. Both HSR and MSR showed equally good, continued improvements in outcomes in the long term but did not reach normal values for healthy tendons.</p>	Traitement tendinopathie patellaire / utilité du Dx diff genou 1,2

2021-01	2021-Maselli-Low back pain among Italian runners: A cross-sectional survey	<p>Background: Low Back Pain (LBP) is commonly reported as a very frequent disorder in sports, but its prevalence in runners remains unclear.</p> <p>Objectives: To determine the prevalence of LBP in a wide sample of Italian runners.</p> <p>Design: A cross-sectional online survey.</p> <p>Setting: A national survey, according to the CHERRIES and STROBE guidelines, was performed in 2019.</p> <p>Participants: 2539 Italian runners.</p> <p>Methods: A sample of Italian runners registered with national running associations was recruited. The survey was conducted using an online survey development platform. The questionnaire was self-reported and included 38 questions.</p> <p>Main outcome measures: Descriptive statistics and frequencies were used to analyze results. Relationships between demographics, daily habits and running characteristics and the responses given was calculated with Cramer's V. Only correlation values higher >0.60 were deemed of interest.</p> <p>Results: 2539 questionnaires (63.5%) were valid for analysis. In total, 22.6% of runners reported having experienced LBP in the past year. Most participants (77.0%) reporting episodes of LBP believed it was not caused by running. No significant correlations (Cramer's V < 0.60) were found between LBP and demographics, training characteristics or lifestyle habits.</p> <p>Conclusion: The prevalence of LBP among Italian runners was 22,57%. LBP was not associated with training, equipment or lifestyle.</p>	Prévalence Douleur lombaire
2020-12	2020-Moran-HIP AND PELVIC STABILITY AND GAIT RETRAINING IN THE MANAGEMENT OF ATHLETIC PUBALGIA AND HIP LABRAL PATHOLOGY IN A FEMALE RUNNER: A CASE REPORT	<p>Background: Athletic pubalgia is a prevalent injury in athletes who kick, pivot, and cut, however it is poorly described in the literature. Many athletes with this diagnosis fail conservative management secondary to continued pain with activity and require surgical intervention for return to sport.</p> <p>Purpose: The purpose of this case report is to describe an intervention strategy focusing on gait retraining and hip and lumbopelvic stability for a female runner diagnosed with athletic pubalgia and a labral tear of the hip.</p> <p>Case description: This case report involved a 45-year-old female runner who was seen for 14 visits, from examination to return to sport, with a follow up at 12 months post discharge. Interventions included hip, pelvic, and lumbar stability exercises, and gait retraining. Outcomes measurements included: pain on the numeric pain rating scale, the Lower Extremity Functional Scale (LEFS), gait mechanics, strength, and participation in sport.</p> <p>Outcomes: At discharge the subject demonstrated improved strength of all muscle groups and changes in lower extremity running biomechanics. Changes in running mechanics included increased cadence, decreased pelvic drop, diminished over striding, and improved knee control with less valgus movement during the stance phase of gait. The subject reported no pain with running or recreational activities at discharge and follow up at 12 months post discharge.</p> <p>Discussion/conclusion: Most of the literature on conservative rehabilitation for athletic pubalgia focuses on athletes whose sports require pivoting and kicking. The literature provides little information on gait analysis and retraining for runners with a diagnosis of athletic pubalgia and/or hip labrum tears. The program used in this case report including gait retraining and hip, pelvic, and lumbar stability training allowed for full return to running in a 45-year-old female with a diagnosis of hip labrum tear and athletic pubalgia. Further research is needed to discern best conservative treatment for runners with athletic pubalgia and/or hip labral tears.</p>	Traitement hanche/bassin
2020-11	2020-McClinton-Physical Therapist Management of Anterior Knee Pain	<p>Purpose of review: Anterior knee pain is a common musculoskeletal complaint among people of all ages and activity levels. Non-operative approaches with an emphasis on physical therapy management are the recommended initial course of care. The purpose of this review is to describe the current evidence for physical therapist management of anterior knee pain with consideration of biomechanical and psychosocial factors.</p> <p>Recent findings: The latest research suggests anterior knee pain is a combination of biomechanical, neuromuscular, behavioral, and psychological factors. Education strategies to improve the patient's understanding of the condition and manage pain are supported by research. Strong evidence continues to support the primary role of exercise therapy and load progression to achieve long-term improvements in pain and function. Preliminary studies suggest blood flow restriction therapy and movement retraining may be useful adjunct techniques but require further well-designed studies. Anterior knee pain includes multiple conditions with patellofemoral pain being the most common. An insidious onset is typical and often attributed to changes in activity and underlying neuromuscular impairments. A thorough clinical history and physical examination aim to identify the patient's pain beliefs and behaviors, movement faults, and muscle performance that will guide treatment recommendations. Successful physical therapist management involves a combination of individualized patient education, pain management, and load control and progression, with an emphasis on exercise therapy.</p>	Traitement SFP 1,2
2020-11	2021-Troy-A Narrative Review of Metatarsal Bone Stress Injury in Athletic Populations: Etiology, Biomechanics, and Management	<p>Metatarsal bone stress injuries (BSI) are common in athletic populations. BSIs are overuse injuries that result from an accumulation of microdamage that exceeds bone remodeling. Risk for metatarsal BSI is multifactorial and includes factors related to anatomy, biology and biomechanics. In this paper, anatomical factors including foot type, metatarsal lengths, bone density, bone geometry, and intrinsic muscle strength, which each influence how the foot responds to load, are discussed. Biological factors such as low energy availability and impaired bone metabolism influence the quality of the bone. Finally, the influence of biomechanical loads to bone such as peak forces, load rates, and loading cycles are reviewed. General management of metatarsal BSI is discussed, including acute care, rehabilitation, treatment of refractory metatarsal BSI, and evaluation of healing/return to sport. Finally, we identify future research priorities and emerging treatments for metatarsal BSI.</p>	Fractures de stress

2020-11	2020-Esculier-A Contemporary Approach to Patellofemoral Pain in Runners	<p>Patellofemoral pain (PFP) is among the most common injuries in recreational runners. Current evidence does not identify alignment, muscle weakness, and patellar maltracking or a combination of these as causes of PFP. Rather than solely investigating biomechanics, we suggest a holistic approach to address the causes of PFP. Both external loads, such as changes in training parameters and biomechanics, and internal loads, such as sleep and psychological stress, should be considered. As for the management of runners with PFP, recent research suggested that various interventions can be considered to help symptoms, even if these interventions target biomechanical factors that may not have caused the injury in the first place. In this Current Concepts article, we describe how the latest evidence on education about training modifications, strengthening exercises, gait and footwear modifications, and psychosocial factors can be applied when treating runners with PFP. The importance of maintaining relative homeostasis between load and capacity will be emphasized. Recommendations for temporary or longer-term interventions will be discussed. A holistic, evidence-based approach should consist of a graded exposure to load, including movement, exercise, and running, while considering the capacity of the individual, including sleep and psychosocial factors. Cost, accessibility, and the personal preferences of patients should also be considered.</p>	Traitement SFP 1,2
2020-10	2020-Rabusin-Efficacy of heel lifts versus calf muscle eccentric exercise for mid-portion Achilles tendinopathy (HEALTHY): a randomised trial	<p>Objectives: To compare the efficacy of in-shoe heel lifts to calf muscle eccentric exercise in reducing pain and improving function in mid-portion Achilles tendinopathy.</p> <p>Methods: This was a parallel-group randomised superiority trial at a single centre (La Trobe University Health Sciences Clinic, Discipline of Podiatry, Melbourne, Victoria, Australia). One hundred participants (52 women and 48 men, mean age 45.9, SD 9.4 years) with clinically diagnosed and ultrasonographically confirmed mid-portion Achilles tendinopathy were randomly allocated to either a (1) heel lifts (n=50) or (2) eccentric exercise (n=50) group. The primary outcome measure was the Victorian Institute of Sport Assessment-Achilles (VISA-A) questionnaire at 12 weeks. Differences between groups were analysed using intention to treat with analysis of covariance.</p> <p>Results: There was 80% follow-up of participants (n=40 per group) at 12 weeks. The mean VISA-A score improved by 26.0 points (95% CI 19.6 to 32.4) in the heel lifts group and by 17.4 points (95% CI 9.5 to 25.3) in the eccentric exercise group. On average, there was a between-group difference in favour of the heel lifts for the VISA-A (adjusted mean difference 9.6, 95% CI 1.8 to 17.4, p=0.016), which approximated, but did not meet our predetermined minimum important difference of 10 points.</p> <p>Conclusion: In adults with mid-portion Achilles tendinopathy, heel lifts were more effective than calf muscle eccentric exercise in reducing pain and improving function at 12 weeks. However, there is uncertainty in the estimate of effect for this outcome and patients may not experience a clinically worthwhile difference between interventions.</p>	Traitement tendon Achilles 1,2
2020-10	2020-Maselli-Knowledge and management of low back pain as running-related injuries among Italian physical therapists: findings from a national survey	<p>Objectives: To investigate the beliefs, knowledge, attitudes, behavior, and the clinical management procedures of the Italian physical therapists specialized in orthopedic manipulative physical therapy (OMPT) toward running and its correlation with low back pain (LBP). Design: A cross-sectional online survey was conducted in 2019, according to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) and Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Setting: Italy. Participants: One thousand two hundred and eighteen Italian OMPTs.</p> <p>Methods: Survey Monkey software was used to administer the survey. The questionnaire was self-reported and included 26 questions. Descriptive statistics were used and related to the effective respondents for each question.</p> <p>Results: One thousand two hundred and eighteen questionnaires (60.9%) were included in the analysis. A considerable cohort of OMPTs working in private practice clinical settings (n = 845; 69.4%; 95% CI 66.7-71.9) has indicated running not to be a relevant risk factor for the onset of LBP (n = 806; 66.2%; 95% CI 63.4-68.8). Moreover, most of the participants (n = 679; 55.7%; 95% CI 52.9-58.5) adopted a combination of manual therapy techniques and therapeutic exercise for the management of runners with LBP.</p> <p>Conclusions: Widespread knowledge of clinical and theoretical management of LBP in runners-patients has emerged among Italian OMPTs. The OMPTs' academic background agrees with the recent literature and therefore highlights the paucity of studies related to LBP as running-related injuries.</p>	LBP
2020-10	2020-Danielsson-The mechanism of hamstring injuries - a systematic review	<p>Background: Injuries to the hamstring muscles are among the most common in sports and account for significant time loss. Despite being so common, the injury mechanism of hamstring injuries remains to be determined.</p> <p>Purpose: To investigate the hamstring injury mechanism by conducting a systematic review.</p> <p>Study design: A systematic review following the PRISMA statement.</p> <p>Methods: A systematic search was conducted using PubMed, EMBASE and the Cochrane Library. Studies 1) written in English and 2) deciding on the mechanism of hamstring injury were eligible for inclusion. Literature reviews, systematic reviews, meta-analyses, conference abstracts, book chapters and editorials were excluded, as well as studies where the full text could not be obtained.</p> <p>Results: Twenty-six of 2372 screened original studies were included and stratified to the mechanism or methods used to determine hamstring injury: stretch-related injuries, kinematic analysis, electromyography-based kinematic analysis and strength-related injuries. All studies that reported the stretch-type injury mechanism concluded that injury occurs due to extensive hip flexion with a hyperextended knee. The vast majority of studies on injuries during running proposed that these injuries occur during the late swing phase of the running gait cycle.</p> <p>Conclusion: A stretch-type injury to the hamstrings is caused by extensive hip flexion with an extended knee. Hamstring injuries during sprinting are most likely to occur due to excessive muscle strain caused by eccentric contraction during the late swing phase of the running gait cycle.</p>	Ischios

2020-10	2020-Nwakibu-Chronic Exertional Compartment Syndrome of the Leg Management Is Changing: Where Are We and Where Are We Going	Chronic exertional compartment syndrome (CECS) is one of the wide range of causes of exercise-related leg pain in athletes. It is defined as a transient increase in compartment pressures during activity, which causes pain, because of the inability of the fascial compartments to accommodate and is usually relieved by cessation of exercise. Exercise-induced leg pain in the athletic population is a common complaint, with reports of up to 15% of all runners arriving to initial evaluation with this presentation. Often, this lower-extremity exertional pain is grouped into the common term of "shin splints" by athletes, which is a nondiagnostic term that implies no specific pathology. It may, however, encompass much of the differential for CECS, including medial tibial stress syndrome, muscle strain, and stress fracture. Improving diagnostic techniques, as well as treatments, will continue to help athletes and patients with leg pain in the future.	Compartment	
2020-10	2020-Esh-Diagnostic accuracy of MRI for identifying posterior element bone stress injury in athletes with low back pain- a systematic review and narrative synthesis	Objective: To investigate the diagnostic accuracy of MRI for identifying posterior element bone stress injury (PEBSI) in the athletic population with low back pain (LBP). Study design: A systematic review searched for published sources up until July 2020. Eligibility criteria: prospective cohort design, MRI diagnosis, adolescents/young adults, chief symptoms of LBP, PEBSI as the clinical diagnosis and SPECT-CT as reference standard. Risk of bias and overall quality were assessed using QUADAS-2 and GRADE, respectively. A narrative synthesis was conducted. Results: Four studies were included, with three included in the quantitative synthesis. Compared with SPECT-CT, two studies involving MRI demonstrated sensitivity and specificity of 80% and 100%, and 88% and 97%, respectively. Compared with CT, one study involving MRI demonstrated sensitivity and specificity of 97% and 91%, respectively. Risk of bias was moderate to high although consistency across studies was noted. Conclusion: Findings support further research to consider MRI as the modality of choice for diagnosing PEBSI. MRI was consistent with SPECT-CT for ruling-in PEBSI, but the clinical value of cases where MRI had false negatives remains uncertain due to possible over-sensitivity by SPECT-CT.	LBP	
2020-10	2020-de Vos-Diagnosing Achilles tendinopathy is like delicious spaghetti carbonara- it is all about key ingredients, but not all chefs use the same recipe	Achilles tendinopathy is the term used to describe the clinical entity of localised Achilles tendon pain that is associated with load-bearing activities. Achilles tendinopathy as a term was agreed on the 2018 International Scientific Tendinopathy Symposium Consensus (ICON) statement—which followed an expert meeting in Groningen (the Netherlands). ¹ Having uniform terminology is important for many reasons. But a clinical term is not the same as a diagnosis with clear diagnostic criteria. Clear diagnostic criteria help patients understand their problem, guide treatment and determine prognosis. Naming a medical condition can be likened to naming a recipe, but the exact ingredients used can differ between chefs. In this editorial, we discuss the diagnostic challenges, where 'top chefs' disagree which ingredients are present in mid-portion Achilles tendinopathy.	Tendon d'Achilles	
2020-10	2020-Sihvonen-Arthroscopic partial meniscectomy for a degenerative meniscus tear- a 5 year follow-up of the placebo-surgery controlled FIDELITY (Finnish Degenerative Meniscus Lesion Study) trial	Objectives: To assess the long-term effects of arthroscopic partial meniscectomy (APM) on the development of radiographic knee osteoarthritis, and on knee symptoms and function, at 5 years follow-up. Design: Multicentre, randomised, participant- and outcome assessor-blinded, placebo-surgery controlled trial. Setting: Orthopaedic departments in five public hospitals in Finland. Participants: 146 adults, mean age 52 years (range 35-65 years), with knee symptoms consistent with degenerative medial meniscus tear verified by MRI scan and arthroscopically, and no clinical signs of knee osteoarthritis were randomised. Interventions: APM or placebo surgery (diagnostic knee arthroscopy). Main outcome measures: We used two indices of radiographic knee osteoarthritis (increase in Kellgren and Lawrence grade ≥ 1 , and increase in Osteoarthritis Research Society International (OARSI) atlas radiographic joint space narrowing and osteophyte sum score, respectively), and three validated patient-relevant measures of knee symptoms and function (Western Ontario Meniscal Evaluation Tool (WOMET), Lysholm, and knee pain after exercise using a numerical rating scale). Results: There was a consistent, slightly greater risk for progression of radiographic knee osteoarthritis in the APM group as compared with the placebo surgery group (adjusted absolute risk difference in increase in Kellgren-Lawrence grade ≥ 1 of 13%, 95% CI -2% to 28%; adjusted absolute mean difference in OARSI sum score 0.7, 95% CI 0.1 to 1.3). There were no relevant between-group differences in the three patient-reported outcomes: adjusted absolute mean differences (APM vs placebo surgery), -1.7 (95% CI -7.7 to 4.3) in WOMET, -2.1 (95% CI -6.8 to 2.6) in Lysholm knee score, and -0.04 (95% CI -0.81 to 0.72) in knee pain after exercise, respectively. The corresponding adjusted absolute risk difference in the presence of mechanical symptoms was 18% (95% CI 5% to 31%); there were more symptoms reported in the APM group. All other secondary outcomes comparisons were similar. Conclusions: APM was associated with a slightly increased risk of developing radiographic knee osteoarthritis and no concomitant benefit in patient-relevant outcomes, at 5 years after surgery.	Ménisque	1,2

2020-10	2020-Nelson-Construct Validity and Responsiveness of the University of Wisconsin Running Injury and Recovery Index	<p>Objectives: The University of Wisconsin Running Injury and Recovery Index (UWRI) is the first running-specific patient-reported outcome measure (PRO). The UWRI evaluates the key elements runners use to self-assess running ability during recovery. This study evaluated the construct-related validity and responsiveness of the UWRI as an evaluative PRO of running ability following running-related injury (RRI).</p> <p>Design: Prospective longitudinal study.</p> <p>Methods: Runners seeking care from a physical therapist for a RRI (n=396) completed PROs at baseline and 12 weeks later. UWRI change was validated against the global rating of change (GROC), VR-12 change, and change in body region-specific PROs. Responsiveness was evaluated using anchor-based and distribution-based techniques.</p> <p>Results: UWRI change (mean±SD 7.7±8.9) was correlated with GROC (r=0.67), as well as the changes in VR-12 physical component score (PCS) (r=0.54) and mental component score (MCS) (r=0.31). UWRI change was correlated with changes in the Foot and Ankle Ability Measure sport subscale (r=0.75), 12-item international hip outcome tool (r=0.75), and anterior knee pain scale (r=0.48), but not associated with the Oswestry Disability Index 2.0 (r=0.05). UWRI change was significantly different in runners reporting significant improvement (12.2±5.9), slight improvement (7.1±6.6), no change (0.0±9.1), and worsening (-14.6±7.4) on the GROC anchor-based responsiveness assessment. The UWRI minimal important change and minimal clinical important difference was 5 and 8 points, respectively.</p> <p>Conclusion: The UWRI is a valid clinical tool for evaluating running ability following RRI; it demonstrated longitudinal (GROC), convergent (PCS and body region-specific PROs), divergent validity (MCS), and responsiveness to changes in patient-perceived running ability.</p>	Évaluation courreur
2020-09	2020-Decary-Driving the musculoskeletal diagnosis train on the high-value track	<p>Clinicians who provide high-value musculoskeletal care offer evidence-based management that can improve pain, function, and quality of life. However, the current approach to improving outcomes emphasizes treatment strategies at the expense of accurate diagnosis. Guidelines rarely provide quality information on differential diagnosis and prognosis. The disconnect is worrying, because accurate diagnosis can lead to more appropriate care and improved patient outcomes. In this Viewpoint, we reflect on how the clinician can refine musculoskeletal diagnoses to provide high-value care. We (1) argue that the link between musculoskeletal diagnosis and patient outcomes must be strengthened, (2) introduce a diagnostic framework to help clinicians go beyond "special tests," and (3) present new methods for researchers to move forward from diagnostic accuracy studies.</p>	Dx
2020-08	2020-Nye-Evaluating an Algorithm and Clinical Prediction Rule for Diagnosis of Bone Stress Injuries	<p>Background: A novel algorithm and clinical prediction rule (CPR), with 18 variables, was created in 2014. The CPR generated a bone stress injury (BSI) score, which was used to determine the necessity of imaging in suspected BSI. To date, there are no validated algorithms for imaging selection in patients with suspected BSI.</p> <p>Hypothesis: A simplified CPR will assist clinicians with diagnosis and decision making in patients with suspected BSI.</p> <p>Study design: Prospective cohort study.</p> <p>Level of evidence: Level 3.</p> <p>Methods: A total of 778 military trainees with lower extremity pain were enrolled. All trainees were evaluated for 18 clinical variables suggesting BSI. Participants were monitored via electronic medical record review. Then, a prediction model was developed using logistic regression to identify clinical variables with the greatest predictive value and assigned appropriate weight. Test characteristics for various BSI score thresholds were calculated.</p> <p>Results: Of the enrolled trainees, 204 had imaging-confirmed BSI in or distal to the femoral condyles. The optimized CPR selected 4 clinical variables (weighted score): bony tenderness (3), prior history of BSI (2), pes cavus (2), and increased walking/running volume (1). The optimized CPR with a score ≥ 3 yielded 97.5% sensitivity, 54.2% specificity, and 98.2% negative predictive value. An isolated measure, bony tenderness, demonstrated similar statistical performance.</p> <p>Conclusion: The optimized CPR, which uses bony tenderness, prior history of BSI, pes cavus, and increased walking/running volume, is valid for detecting BSI in or distal to the femoral condyles. However, bony tenderness alone provides a simpler criterion with an equally strong negative predictive value for BSI decision making.</p> <p>Clinical relevance: For suspected BSI in or distal to the femoral condyles, imaging can be deferred when there is no bony tenderness. When bony tenderness is present in the setting of 1 or more proven risk factors and no clinical evidence of high-risk bone involvement, presumptive treatment for BSI and serial radiographs may be appropriate.</p>	Fx stress

2020-08	2020-Friede-Stiffness of the iliotibial band and associated muscles in runner's knee: Assessing the effects of physiotherapy through ultrasound shear wave elastography	<p>Objectives: To test the hypothesis that Iliotibial Band Syndrome (ITBS) is caused by excessive iliotibial band (ITB) tension, promoted by hip abductor and external rotator weakness, and evaluate the influence of 6 weeks of physiotherapy on ITB stiffness.</p> <p>Design: Interventional study with control group.</p> <p>Setting: Clinical.</p> <p>Participants: 14 recreational runners with ITBS and 14 healthy controls of both sexes.</p> <p>Main outcome measures: Ultrasound shear wave elastography, hip muscle strength, visual analog scale pain, subjective lower extremity function.</p> <p>Results: No statistical differences in ITB tension between legs as well as between patients suffering from ITBS and healthy controls were detected. Results showed significant strength deficits in hip abduction, adduction as well as external and internal rotation. Following six weeks of physiotherapy, hip muscle strength (all directions but abduction), pain and lower extremity function were significantly improved. ITB stiffness, however, was found to be increased compared to baseline measurements.</p> <p>Conclusion: Shear wave elastography data suggest that ITB tension is not increased in the affected legs of runners with ITBS compared to the healthy leg or a physical active control group, respectively. Current approaches to the conservative management of ITBS appear ineffective in lowering ITB tone.</p>	ITBS
2020-07	2020-Lagas-How many runners with new-onset Achilles tendinopathy develop persisting symptoms? A large prospective cohort study	<p>BACKGROUND: Achilles tendinopathy (AT) occurs in half of the elite runners. AT is a difficult-to-treat tendon disease, which may progress from new onset to a chronic state. It is unknown how many runners with new-onset AT develop persisting symptoms and which prognostic factors are associated with this course. OBJECTIVE: To describe how many runners develop persisting symptoms 1 year after onset of reactive AT. STUDY DESIGN: Prospective cohort study. METHODS: Runners registering for a Dutch running event (5-42.2 km) were eligible for inclusion. Runners reporting new-onset AT between registration for the running event and 1 month after received a 1-year follow-up questionnaire. The 1-year follow-up questionnaire inquired about persisting symptoms (yes/no), running activity, and metabolic disorders. We calculated the percentage of runners with persisting symptoms and performed a multivariable logistic regression analysis to study the association between potential prognostic factors and persisting symptoms. RESULTS: Of 1929 participants, 100 runners (5%) reported new-onset AT. A total of 62 runners (62%) filled in the 1-year follow-up questionnaire. Persisting symptoms were reported by 20 runners (32%). A higher running distance per week before new-onset AT was associated with a lower risk of developing persisting symptoms (odds ratio (OR): 0.9, 95% confidence interval (CI): [0.9;1.0]). There was a positive trend toward an association between metabolic disorders and persisting symptoms (OR: 5.7, 95% CI: [0.9;36.2]). CONCLUSION: One third of runners develop persisting symptoms 1 year after new-onset AT. Interestingly, a higher running distance per week before new-onset AT potentially lowers the risk of developing persisting symptoms.</p>	Achille
2020-07	2020-Charles-A LITERATURE REVIEW AND CLINICAL COMMENTARY ON THE DEVELOPMENT OF ILIOTIBIAL BAND SYNDROME IN RUNNERS	<p>BACKGROUND AND PURPOSE: Iliotibial Band Syndrome (ITBS) is the second leading cause of pain in runners and there are a number of theories related to its etiology. Multiple theories exist for the etiology of ITBS related symptoms including anterior-posterior friction of the IT band on the lateral femoral condyle during knee flexion and extension activities, compression of a layer of fat near the IT band distal attachment, and inflammation of the IT band bursa. The purpose of this literature review and clinical commentary was to explore the potential factors that contribute to ITBS development in runners. DESCRIPTION OF TOPIC WITH RELATED EVIDENCE: A literature review was performed to gather relevant evidence related to the topic and then categorized according to prospective and retrospective results. The electronic databases PubMed, EBSCOhost, CINAHL, and SportDiscus were utilized with the search terms iliotibial band, iliotibial band syndrome, iliotibial pain, and runners. The inclusion criteria included English-language, peer-reviewed journals; adult male or female runners, whether competitive or recreational with regard to mileage; subjects that either had a previous or existing diagnosis of ITBS or were at risk for developing ITBS; retrospective and prospective designs were included and the majority of studies reviewed were cohort or case-control designs. DISCUSSION/RELATION TO CLINICAL PRACTICE: The literature was either contradictory or inconclusive to support a link between ITBS and decreased muscle strength or endurance. A weak correlation existed between strain rate of the hip abductor muscles with hip adduction and knee internal rotation, increased knee internal rotation during the stance phase of gait, and a diminished rearfoot eversion angle at heel strike. Additionally, decreased hip adduction angles during stance phase were observed in individuals without active symptoms but who had a previous history of ITBS. Finally, the female gender may be a predisposing factor. LEVEL OF EVIDENCE: 5.</p>	ITBS
2020-07	2020-Douglas-Radiographic Pattern to Recognize of Overuse Injury in Runners: The Ipsilateral Pubic Ramus and Sacral Bone Stress Injury	No abstract	Stress Fx
2020-07	2020-Moley-Running with Femoral Acetabular Impingement: Operative vs Nonoperative Treatment	No abstract	Hanche
2020-07	2020-Maselli-Prevalence and incidence of low back pain among runners: a systematic review	<p>BACKGROUND: Running is one of the most popular sports worldwide. Despite low back pain (LBP) represents the most common musculoskeletal disorder in population and in sports, there is currently sparse evidence about prevalence, incidence and risk factors for LBP among runners. The aims of this systematic review were to investigate among runners: prevalence and incidence of LBP and specific risk factors for the onset of LBP. METHODS: A systematic review has been conducted according to the guidelines of the PRISMA statement. The research was conducted in the following databases from their inception to 31st of July 2019: PubMed; CINAHL; Google Scholar; Ovid; PsycINFO; PSYINDEX; Embase; SPORTDiscus; Scientific Electronic Library Online; Cochrane Library and Web of Science. The checklists of The Joanna Briggs Institute Critical Appraisal tools were used to investigate the risk of bias of the included studies. RESULTS: Nineteen studies were included and the interrater agreement for full-text selection was good (K = 0.78; 0.61-0.80 IC 95%). Overall, low values of prevalence (0.7-20.2%) and incidence (0.3-22%) of LBP among runners were reported. Most reported risk factors were: running for more than 6 years; body mass index > 24; higher physical height; not performing traditional aerobics activity weekly; restricted range of motion of hip flexion; difference between leg-length; poor hamstrings and back flexibility. CONCLUSIONS: Prevalence and incidence of LBP among runners are low compared to the others running related injuries and to general, or specific population of athletes. View the low level of incidence and prevalence of LBP, running could be interpreted as a protective factor against the onset of LBP.</p>	LBP

2020-07	2020-McKay-Iliotibial band syndrome rehabilitation in female runners: a pilot randomized study	BACKGROUND: Iliotibial band syndrome (ITBS) carries marked morbidity in runners. Its management is not standardized and lacks evidence base. We evaluated the effectiveness of three different exercises programs in reducing ITBS symptoms. METHODS: Patients were divided into three equal treatment groups: ITB stretching (group A), conventional exercise (group B), and experimental hip strengthening exercise (group C). Numeric pain rating scale (NPRS; every week), lower extremity functional scale (LEFS; every 2 weeks), dynamometer (DN; weeks 0, 2, 4, 6, 8), single-limb mini squat (SLMS; week 0, 8), and Y-balance test™ (YBT), between and within group's differences were evaluated using ANOVA model. RESULTS: Twenty-four female runners (age 19-45 years) were included into one of three groups (A, B, and C). Statistical significance ($p < 0.05$) within group C was observed for composite YBT and DN for injured and non-injured leg, the YBT (injured leg for the posterior medial), LEFS, NPRS, and the SLMS. Statistical significance ($p < 0.05$) was found between group A and group C. The stretching group exhibited statistically significant ($p < 0.05$) YBT anterior reach for the injured/non-injured leg and the LEFS. CONCLUSION: There were no statistical differences between the three groups. The subjects who underwent experimental hip strengthening exercises consistently showed improvements in outcome measures, and never scored less than the other two groups.	ITBS	1,2
2020-07	2020-Robinson-Nonsurgical Approach in Management of Tibialis Posterior Tendinopathy With Combined Radial Shockwave and Foot Core Exercises: A Case Series.	Tibialis posterior tendinopathy is a common debilitating condition seen by foot and ankle providers. Non-operative management is difficult as patients often present in later stages of the disease. This case series evaluated the combination of radial shockwave therapy and a foot core progression exercise regimen on 10 patients who had failed standard conservative treatment techniques. Median follow-up time was 4 months. Clinically important differences in the Foot and Ankle Ability Measure were met in 9 (90%) and 8 (80%) of patients for activities of daily living and sport sub-scores, respectively. No adverse effects were observed.	Tib post	1,3
2020-07	2020-Silbernagel-Current Clinical Concepts: Conservative Management of Achilles Tendinopathy	Achilles tendinopathy is a painful overuse injury that is extremely common in athletes, especially those who participate in running and jumping sports. In addition to pain, Achilles tendinopathy is accompanied by alterations in the tendon's structure and mechanical properties, altered lower extremity function, and fear of movement. Cumulatively, these impairments limit sport participation and performance. A thorough evaluation and comprehensive treatment plan, centered on progressive tendon loading, is required to ensure full recovery of tendon health and to minimize the risk of reinjury. In this review, we will provide an update on the evidence-based evaluation, outcome assessment, treatment, and return-to-sport planning for Achilles tendinopathy. Furthermore, we will provide the strength of evidence for these recommendations using the Strength of Recommendation Taxonomy system.	Achille	1,2
2020-07	2020-Knapik-Achilles Tendinopathy: Pathophysiology, Epidemiology, Diagnosis, Treatment, Prevention, and Screening	Achilles tendinopathy (AT) is a clinical term describing a nonrupture injury of the Achilles tendon where the patient presents with pain, swelling, and reduced performance and symptoms exacerbated by physical activity. About 52% of runners experience AT in their lifetime and in the United States military the rate of clinically diagnosed AT cases was 5/1000 person-yr in 2015. The pathophysiology can be viewed on a continuum proceeding from reactive tendinopathy where tenocytes proliferate, protein production increases, and the tendon thickens; to tendon disrepair in which tenocytes and protein production increase further and there is focal collagen fiber disruption; to degenerative tendinopathy involving cell death, large areas of collagen disorganization, and areas filled with vessels and nerves. Inflammation may be present, especially in the early phases. Some evidence suggests AT pain may be due to neovascularization and the ingrowth of new nerve fibers in association with this process. Prospective studies indicate that risk factors include female sex, black race, higher body mass index, prior tendinopathy or fracture, higher alcohol consumption, lower plantar flexion strength, greater weekly volume of running, more years of running, use of spiked or shock absorbing shoes, training in cold weather, use of oral contraceptives and/ or hormone replacement therapy, reduced or excessive ankle dorsiflexion range of motion, and consumption of antibiotics in the fluorquinolone class. At least 10 simple clinical tests are available for the diagnosis of AT, but based on accuracy and reproducibility, patient self-reports of morning stiffness and/or pain in the tendon area, pain on palpation of the tendon, and detection of Achilles tendon thickening appear to be the most useful. Both ultrasound and magnetic resonance imaging (MRI) are useful in assisting in diagnosis with MRI providing slightly better sensitivity and specificity. Conservative treatments that have been researched include: (1) nonsteroidal anti-inflammatory medication, (2) eccentric exercise, (3) stretching, (4) orthotics, (5) bracing, (6) glyceryl trinitrate patches, (7) injection therapies (corticosteroids, hyaluronic acid, platelet-rich plasma injections), (8) shock wave therapy, and (9) low-level laser therapy. Nonsteroidal anti-inflammatory medication and corticosteroid injections may provide short-term relief but do not appear effective in the longer term. Eccentric exercise and shock wave therapies are treatments with the highest evidence-based effectiveness. Prevention strategies have not been well researched, but in specific populations balance training (soccer players) and shock-absorbing insoles (military recruits) may be effective. Ultrasound scans might be useful in predicting future AT occurrences.	Achille	no access
2020-07	2020-Johnston-Perceptions of risk for stress fractures: A qualitative study of female runners with and without stress fracture histories.	OBJECTIVES: To gain insight into perceived factors related to bone health and stress fracture (SF) prevention for female runners and to understand their experiences within the medical community. DESIGN: Cohort qualitative study. SETTING: University health system. PARTICIPANTS: Forty female runners, 20 who had SF histories and 20 age-and-running-distance matched women without SF. MAIN OUTCOME MEASURES: Women participated in audiotaped qualitative semi-structured interviews. For women with a SF history, questions sought their perspectives on factors that they felt contributed to SF, experiences with the medical community, and changes made post SF. For women without a SF history, questions sought perspectives on factors felt important to perceived running-related bone health. RESULTS: Six themes emerged: 1) Previous/Recurrent Musculoskeletal Injuries, 2) Activity Patterns and Training Regimens, 3) Nutrition, 4) Prevention and Intervention, 5) Pain, and 6) Mindset. Within these themes, between group differences are characterized by differences in knowledge and/or application of knowledge for health and wellness. Compared to women without SF, women with SF histories increased training load more quickly, had poorer nutrition, performed less cross-training, and kept running despite pain. CONCLUSIONS: More education is needed for female runners to decrease risks for SF.	Fx stress	
2020-07	2020-Salzler-Outcomes of Surgically Treated Chronic Exertional Compartment Syndrome in Runners.	BACKGROUND: Chronic exertional compartment syndrome (CECS) is primarily seen in running athletes. Previous outcomes of surgical treatment with fasciotomy have suggested moderate pain relief, but evidence is lacking regarding postoperative return to running. HYPOTHESIS: Running athletes with limiting symptoms of CECS will show high rates of return to running after fasciotomy. STUDY DESIGN: Case series. LEVEL OF EVIDENCE: Level 4. METHODS: Running athletes treated with fasciotomy for CECS at a single institution were identified using a surgical database and asked to complete a questionnaire designed to assess postoperative pain, activity level, return to running, running distances, overall satisfaction, and rate of revision fasciotomy. RESULTS: A total of 43 runners met the inclusion criteria, and 32 runners completed outcomes questionnaires at a mean postoperative follow-up of 66 months. In total, 27 of these 32 patients (84%) returned to sport(s) after fasciotomy. However, 9 (28%) of these patients pursued nonrunning sports, 5 (16%) due to recurrent pain with running. Of the 18 patients who returned to running sports (56%), the mean weekly running distance decreased postoperatively. Recurrence of symptoms was reported in 6 patients (19%), 4 of whom had returned to running and 2 of whom had been unable to return to sports. All of these 6 patients elected to undergo revision fasciotomy surgery. Twenty-five (78.1%) patients reported being satisfied with their procedure. In the overall cohort, the mean visual analog scale scores for pain during activities/sports decreased from 7.9 preoperatively to 1.7 postoperatively. CONCLUSION: Fasciotomy for CECS in runners may provide significant improvement in pain and satisfaction in over three-quarters of patients and return to sports in 84% of patients. However, only 56% returned to competitive running activity, with a subset (19%) developing recurrent symptoms resulting in revision surgery. CLINICAL RELEVANCE: Fasciotomy has been shown to decrease pain in most patients with CECS. This study provides outcomes in running athletes after fasciotomy for CECS with regard to return to sports, maintenance of sports performance, and rates of revision surgery.	Syndrome compartment	1,2

2020-07	2020-Song-Bone Stress Injuries in Runners: a Review for Raising Interest in Stress Fractures in Korea.	A bone stress injury (BSI) means that the bones cannot tolerate repeated mechanical loads, resulting in structural fatigue and local bone pain. A delay in BSI diagnosis can lead to more serious injuries, such as stress fractures that require longer treatment periods. Therefore, early detection of BSI is an essential part of management. Risk factors for BSI development include biological and biomechanical factors. Medical history and physical examination are the basics for a BSI diagnosis, and magnetic resonance imaging is helpful for confirming and grading. In this paper, the authors review the overall content of BSI and stress fractures which are common in runners. Through this review, we hope that interest in stress fractures will be raised in Korea and that active researches will be conducted.	Fx stress
2020-01	2020-Lagas-Incidence of Achilles tendinopathy and associated risk factors in recreational runners: A large prospective cohort study	<p>Objectives – To determine the incidence of Achilles tendinopathy in a large group of recreational runners and to determine risk factors for developing AT.</p> <p>Design – Observational cohort study.</p> <p>Methods - Runners registering for running events (5-42 km) in the Netherlands were eligible for inclusion. Main inclusion criteria were: age \geq 18 years, and registration \geq 2 months before the running event. The digital baseline questionnaire obtained at registration consisted of demographics, training characteristics, previous participation in events, lifestyle and previous running-related injuries. All participants received 3 follow-up questionnaires up to 1 month after the running event with self-reported AT as primary outcome measure. To study the relationship between baseline variables and AT onset, multivariable logistic regression analyses were performed.</p> <p>Results - In total, 2378 runners were included, of which 1929 completed >1 follow-up questionnaire, and 100 (5.2%, 95%CI [4.2;6.2]) developed AT. Runners registered for a marathon (7.4%) had the highest incidence of AT. Risk factors for developing AT were use of a training schedule (odds ratio(OR)=1.8 (95%Confidence Interval(CI)[1.1;3.0])), use of sport compression socks ((OR=1.7, 95%CI[1.0;2.8]) and AT in the previous 12 months (OR=6.3, 95%CI[3.9;10.0]). None of the demographic, lifestyle or training-related factors were associated with the onset of AT.</p> <p>Conclusion – One in twenty recreational runners develop AT. AT in the preceding 12 months is the strongest risk factor for having AT symptoms. Using a training schedule or sport compression socks increases the risk of developing AT and this should be discouraged in a comparable running population.</p>	Achille