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CAFFEINE AND CARDIOVASCULAR DISEASE

Caffeine is a commonly consumed drug worldwide. This study reviewed the evidence of associations between caffeine and cardiovascular risk factors and outcomes.

The American Heart Association expert writing group examined observational cohort studies, meta-analyses, Mendelian randomization analyses, and randomized controlled trials. Emphasis was on distinguishing effects of caffeine itself from other bioactive compounds in coffee (such as chlorogenic acids), as well as comparing moderate intake of naturally occurring sources with synthetic forms such as energy drinks. Genetic influences on metabolism (e.g., CYP1A2 variants) and differences between acute and chronic exposure were considered.

Prospective cohort studies with long-term follow-up have revealed an inverse J-shaped association of habitual coffee consumption with hypertension risk, showing increased risk with 1 to 3 cups/d but a trend toward decreased risk with higher consumption. Habitual coffee intake was linked to lower type 2 diabetes risk (20% and 30% reductions with average 3.5 and 5 cups/d; 27% lower risk among 69,532 women consuming ≥3 cups/d). Randomized trial data showed caffeinated coffee reduced recurrent atrial fibrillation (A-Fib) risk by 39% among patients scheduled for cardioversion but increased premature ventricular contractions. Moderate intake (≈3–4 cups/d) was associated with a 21% lower stroke risk in a meta-analysis of 20 cohorts totaling more than 2.4 million participants. Energy drink data suggested harm.

Conclusion: This review from the American Heart Association found that moderate coffee or caffeine consumption (three to five cups per day) is safe for most adults and associated with lower risk of stroke, type 2 diabetes, and atrial fibrillation, with no effect on the risk of heart disease.

Marcus G., et al. Caffeine and Cardiovascular Disease: A Scientific Statement from the American Heart Association. **Circ.** 2026; 154: e345-e355.

CARDIOMETABOLIC MEDICATIONS AND COGNITIVE OUTCOMES IN ALZHEIMER'S DISEASE

Cardiometabolic medications are widely prescribed in patients with Alzheimer's disease (AD) because hypertension, type 2 diabetes, dyslipidemia, and cardiovascular disease (CVD) frequently coexist. This study examined the associations between seven classes of cardiometabolic medications and longitudinal cognitive outcomes.

Data from the National Alzheimer's Coordinating Center (n=28,044), the Australian Imaging, Biomarkers, and Lifestyle study (n = 1,708), and the Health and Aging Brain Study: Health Disparities (n=1,425) were reviewed for cardiovascular, endocrine, and psychiatric comorbidities. Subgroup analyses were performed by sex, APOE ε4 status, baseline age, and four cognitive progression groups.

In the combined sample of 31,177 participants, slower cognitive decline was found among those prescribed angiotensin-converting enzyme (ACE) inhibitors ($p<0.001$) and metformin ($p<0.01$). Diuretics showed comparable associations, although these effects were restricted to specific subgroups. The strongest ACE inhibitor effect was observed in the cognitively unimpaired/mild cognitive impairment-to-Alzheimer's dementia progression subgroup($p<0.05$). Slower cognitive decline with diuretics was restricted to the same progression subgroup ($p<0.001$) and APOE ε4 carriers ($p<0.001$). Statins exhibited stage-specific effects, with slower decline during progression to dementia ($p<0.01$) but faster decline in the dementia-stable subgroup ($p<0.001$). Angiotensin II receptor blockers, calcium channel blockers, and β-blockers showed no consistent associations.

Conclusion: This study linked angiotensin-converting enzyme inhibitors and metformin to slower cognitive decline across the Alzheimer's disease continuum. Other cardiometabolic medication classes showed mixed or no effects, depending on disease stage and genetic risk.

Wang, Y., et al. Cardiometabolic Medication Exposures and Cognitive Outcomes in Alzheimer's Disease. **Age Ageing**. 2026, Sept 14;[55(9)]: afag263.

EXTRACORPOREAL SHOCK WAVE THERAPY AND HIGH-INTENSITY LASER THERAPY FOR TRIGGER FINGER

Trigger finger (TF) is a stenosing tenosynovitis that causes localized pain and impaired hand function. This study compared the clinical efficacy of extracorporeal shock wave therapy (ESWT) and high-intensity laser therapy (HILT) as adjuncts to a home exercise program for patients with TF.

Participants were randomly assigned to receive ESWT plus home exercise, HILT plus home exercise, or home exercise alone. The modalities were administered three times per week for three weeks. All groups followed a standardized 12-week home exercise program consisting of range-of-motion, tendon-gliding, and stretching exercises. Blinded clinical evaluations were conducted at baseline, week three, and week 12.

The final analysis included data from 116 subjects (ESWT n=39, HILT n=45, and home exercise n=32). At week 12, Quick DASH scores differed significantly among groups (ESWT: 42.6±18.3; HILT: 26.6±16.5; and home exercise: 51.2±14.5; $p<0.001$), showing large effect sizes favoring HILT over home exercise alone and ESWT. The VAS pain scores were lowest in the HILT group at both week three and week 12 ($p<0.001$). Quinnell

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stage improvements favored HILT at week three (p=0.009) and week 12 (p=0.001). Grip strength was significantly higher in both active treatment groups than in the home exercise group at week three and week 12 (p=0.007 and p<0.001).

Conclusion: This study of patients with trigger finger found that added to standard treatment, high-intensity laser therapy provides superior short-term improvements in pain relief and patient-reported upper-extremity function, as compared to extracorporeal shock wave therapy. Both HILT and ESWT serve as effective adjuncts for improving hand grip strength.

Çetin Duru, E., et al. Comparative Effectiveness of Extracorporeal Shock Wave Therapy and High-Intensity Laser Therapy in Trigger Finger: A Randomized, Controlled Trial. **Rheumatol Int**. 2026; July 46: 211.

BODY WEIGHT AND ALTEPLASE EFFECTIVENESS IN ACUTE ISCHEMIC STROKE

The prognostic significance of body weight in patients receiving intravenous thrombolysis for acute ischemic stroke remains uncertain. This study determined whether body weight modifies comparative effects of low- versus standard-dose alteplase.

This *post hoc* analysis used data from the ENCHANTED (Enhanced Control of Hypertension and Thrombolysis Stroke Study) trial. In the alteplase-dose arm, patients with acute ischemic stroke treated within 4.5 hours were randomly assigned to receive low-dose (0.6 mg/kg) or standard-dose (0.9 mg/kg) intravenous alteplase. The primary outcome variable was poor functional outcome at 90 days (a modified Rankin Scale score of two to six). Logistic regression models were used to test treatment-by-weight interactions. Analyses were adjusted for baseline covariates, including age, stroke severity, and comorbidities.

Among 3,206 patients with available body weight data (mean age 66.6 years), body weight did not significantly modify the comparative effects of low- versus standard-dose alteplase on functional recovery (p = 0.60), death (p = 0.56), or symptomatic intracerebral hemorrhage (p=0.46). In the full cohort of 4,458 patients (mean age 66.7 years), a nonlinear relationship was observed between continuous body weight and 90-day outcomes, with an inflection point near 74 kg. Patients weighing ≤50 kg had a significantly higher likelihood of poor functional outcome [adjusted odds ratio (OR) 1.41, p=0.017] and death (OR 1.65, p=0.03) compared with the 71 to 80 kg reference group but had no increased risk of symptomatic intracerebral hemorrhage.

Conclusion: This study of adult stroke patients found that body weight did not modify the relative effectiveness or safety of low- versus standard-dose alteplase. However, low body weight independently predicted worse functional outcome and higher mortality without increasing hemorrhage risk after thrombolysis.

Ge, Y., et al. Body Weight in Relation to the Effectiveness of Intravenous Alteplase in Acute Ischemic Stroke: The ENCHANTED Trial. **Stroke.** 2026, August; 57: 2991-2999.

CATHODAL TDCS FOR UPPER EXTREMITY REHABILITATION AFTER STROKE

Upper extremity motor dysfunction is common after stroke. Cathodal transcranial direct current stimulation (ctDCS) over the contralesional primary motor cortex is a promising adjuvant based on the interhemispheric inhibition model. This study evaluated the efficacy, optimal parameters, and safety of ctDCS for upper extremity function in stroke survivors.

Ten databases were searched through January 2026 for randomized, controlled trials comparing ctDCS plus conventional rehabilitation versus sham or usual care. Subgroup analyses examined stimulation parameters and stroke phase.

Twenty-six trials involving 1,038 patients were included. Cathodal tDCS significantly improved Fugl-Meyer Assessment Upper Extremity scores (p<0.0001), Action Research Arm Test scores(p<0.0001), Box and Block Test scores(p=0.002), and Wolf Motor Function Test scores(p<0.0001), reducing Modified Ashworth Scale elbow scores (p<0.0001), and lowering National Institutes of Health Stroke Scale scores (p=0.01). Modified Barthel Index and Barthel Index scores also increased (both p<0.0001). Benefits were consistent at one to two mA, 20 min per session, five sessions per week, and ≥two weeks of treatment; short-term gains were preserved. Adverse events were mild and transient.

Conclusion: This study found that adjunctive cathodal transcranial direct current stimulation improves upper-limb motor function, activities of daily living, elbow spasticity, and global neurological status after stroke, with a favorable safety profile.

Chen, J., et al. Cathodal Transcranial Direct Current Stimulation for Upper Extremity Functional Rehabilitation in Stroke Survivors: A Meta-Analysis of Parallel, Randomized, Controlled Trials. **Brain Inj**. 2026, November; 40: 1054-1068.

GLP-1 RECEPTOR AGONISTS FOR SECONDARY STROKE PREVENTION

Glucagon-like peptide-1 receptor agonists have demonstrated cardiovascular benefits beyond glycemic control, including reductions in stroke in outcome trials. This study reviewed the emerging evidence regarding the potential role of these agents in secondary stroke prevention after a transient ischemic attack (TIA) or minor ischemic stroke.

Data were obtained from cardiovascular outcome trials (including SUSTAIN-6 and REWIND), a dedicated stroke trial (LAMP), meta-analyses, and a large real-world propensity-score-matched cohort study of more than 170,000 patients with TIA. The real-world analysis compared 5,071 glucagon-like peptide-1 receptor agonist users with matched controls over five years of follow-up.

In SUSTAIN-6, semaglutide reduced nonfatal stroke by approximately 39% (p=0.04). Dulaglutide reduced nonfatal stroke in the REWIND trial (hazard ratio (HR) 0.76, p=0.017). The LAMP trial reported a HR of 0.56 (p=0.02) for recurrent stroke at 90 days with liraglutide in patients with diabetes and recent TIA or minor stroke. In a real-world cohort, glucagon-like peptide-1 receptor agonist use was associated with a 24% lower risk of recurrent ischemic stroke and a 33% lower risk of all-cause mortality.

Conclusion: Accumulating evidence supports potential cerebrovascular benefits of glucagon-like peptide-1 receptor agonists, although randomized trials are still required before routine use for secondary stroke prevention.

Kwon, H., et al. Are Glucagon-Like Peptide-1 Receptor Agonists Suitable for Secondary Stroke Prevention? **J Clin Neurol**. 2026, Aug 25;22(5):495–497.

ANTITHROMBOTIC THERAPY IN SECONDARY STROKE PREVENTION

Recurrent ischemic stroke remains a major cause of long-term disability, cognitive decline, and vascular mortality, with the highest risk in the first weeks following the index event. This study was designed to synthesize current evidence into 10 practical clinical pearls to guide antithrombotic decision-making in secondary stroke prevention.

This narrative expert review organizes recommendations around stroke mechanism. It addresses matching antithrombotic intensity to risk, management of breakthrough events on antiplatelet therapy or anticoagulation, timing of anticoagulation initiation, resumption after intracranial hemorrhage, personalization based on patient factors, long-term follow-up, and global access barriers. Supporting evidence is drawn from recent trials and observational data on dual antiplatelet therapy, direct oral anticoagulants, factor XIa inhibitors, and colchicine.

The key recommendations include tailoring therapy to mechanism (oral anticoagulation for cardioembolism and antiplatelet therapy for noncardioembolism), using short-term dual antiplatelet therapy for 21 to 30 days after minor stroke or high-risk transient ischemic attack (or up to 90 days for intracranial atherosclerosis), preferring direct oral anticoagulants (DOACs) for nonvalvular atrial fibrillation, individualizing anticoagulation timing by infarct size and imaging, systematically reassessing breakthrough events before switching agents, carefully weighing ischemic versus hemorrhagic risk when restarting anticoagulation after intracranial hemorrhage, and emphasizing long-term adherence and access. Factor XIa inhibitors and low-dose colchicine are noted as emerging adjunctive options.

Conclusion: Antithrombotic therapy in secondary stroke prevention should be mechanism-driven, intensity-matched, and individualized, with particular attention to early dual antiplatelet therapy, appropriate anticoagulation timing and resumption, and long-term adherence.

Foschi, M., et al. Antithrombotic Therapy in Secondary Stroke Prevention: Ten Clinical Pearls Every Clinician Should Know. **Stroke**. 2026, Oct; 57(10): e491-e494.

ED REVISITS AND HOSPITAL READMISSIONS AFTER FALL-RELATED ED PRESENTATION IN OLDER ADULTS

Falls are a leading cause of emergency department (ED) visits among older adults, yet subsequent patterns of acute care utilization remain incompletely characterized. This study was designed to estimate the likelihood of emergency department revisits and hospital readmissions within one year after a fall-related ED presentation.

The authors of this systematic review and meta-analysis searched PubMed, Embase, and Scopus through November 30, 2025, for observational studies of adults aged ≥65 years presenting to the ED after an index fall. Data were also obtained from those reporting revisits or readmissions within one year. Random-effects meta-analyses of proportions were performed for each follow-up interval.

Nineteen studies (20 publications) were chosen for inclusion. For those with falls the cumulative ED revisits were 3.9% within three days, 8.8% within seven days, 15.0% within 30 days, 21.7% within 90 days, 37.5% at six months, and 41.3% at 12 months. Hospital readmissions increased from 10.4% in 30 days to 30.4% in six months and 31.9% in 12 months.

Conclusion: This review of studies reporting fall-related emergency department visits in patients ≥65 years of age found a substantial risk of hospital revisits after the index visit.

Larue, C., et al. Emergency Department Revisits and Hospital Readmissions following a Fall-Related Emergency Department Presentation in Older Adults: A Systematic Review and Meta-Analysis. **Age Ageing**. 2026, Sep 4;55(9):afag271.

PROPRIOCEPTIVE VERSUS AGILITY TRAINING FOR CHRONIC ANKLE INSTABILITY

Chronic ankle instability (CAI) is a common sequela of lateral ankle sprains. This study compared the effects of proprioceptive training to those of agility training on functional performance and balance parameters in patients with CAI.

The investigators conducted a single-blind, block-randomized trial at a tertiary facility in southern Thailand. Adults 18 to 35 years of age with unilateral CAI were randomized to an agility group or a proprioceptive group. Each performed 30-minute home-based sessions three times weekly for six weeks. Functional performance was assessed with single hop, triple hop, six-minute timed hop, and adapted crossover hop tests, while balance was measured with the single-leg stance and Y balance tests. Patient-reported ankle stability and recurrent sprains (three and six months) were also recorded.

Of 50 volunteers screened, 44 met inclusion criteria (22 per group) and completed the study. Both groups improved significantly across all functional and balance outcomes (all $p<0.05$), with no between-group differences on most measures (all $p>0.05$). A significant time×group interaction favored the proprioceptive group for triple hop for distance ($p=0.029$). The agility group improved in all Y balance directions, whereas the proprioceptive group did not improve in anterior reach. A trend toward greater subjective stability favored the proprioceptive group ($p=0.051$).

Conclusion: This study of patients with chronic ankle instability found that both agility and proprioceptive training effectively improve function and balance, each offering distinct, potentially complementary benefits.

Kaewmanee, T., et al. The Effect of Proprioceptive Training versus Agility Training on Functional Performance and Balance Parameters among Patients with Chronic Ankle Instability: A Randomized, Controlled Trial. **Sport Sci Health**. 2026 ;22: 287.

PREVALENCE OF CHRONIC LOWER-LIMB EDEMA IN OLDER ADULTS

Chronic lower-limb edema is associated with reduced health and quality of life as well as increased costs. Previous systematic reviews examining the prevalence of lower-limb edema have primarily focused on specific disease populations. This study evaluated the prevalence, characteristics, and risk factors of chronic lower-limb edema in the older population living in the community and in aged-care homes.

The authors of this systematic review searched MEDLINE, EMBASE, Scopus, Web of Science, and Cochrane Library through March 25, 2026. Eligible studies included adults aged ≥60 years in community or aged-care settings. The data were reviewed for prevalence and characteristics, or risk factors for lower extremity edema.

The prevalence of lower-limb oedema was reported in 13 studies, consisting of three community population-based, eight non-population-based outpatient or specialist services, and two aged-care home studies. Community population-based studies reported a prevalence of 22.7% to 26.4%. Aged-care home prevalence of lower extremity edema ranged from 10.0% to 27.5%. Chronic lower-limb oedema frequently co-occurred with diabetes, heart disease, obesity, cellulitis, and wounds. Lower-limb oedema appeared to be equally common among older adults who ambulated unaided, used a mobility aid, or were chairbound.

Conclusion: This study of adults >60 years of age found that chronic lower-limb edema affects approximately one in four community-dwelling adults and up to one in four residents of aged-care homes.

O'Connor, M., et al. Prevalence, Characteristics, and Risk Factors for Chronic, Lower-Limb Oedema in the Older Population Living in the Community or in an Aged-Care Home: A Systematic Review. **Age Ageing**. 2026, Sep 4; 55(9): afag277.

CARDIOVASCULAR RISK FACTORS AND CONCUSSION HISTORY IN FORMER NFL PLAYERS

Growing evidence suggests that cardiovascular dysfunction is one pathway by which recurrent concussion may lead to adverse long-term outcomes. This study investigated the interaction of concussion history and the prevalence of cardiovascular risk factors.

Former National Football League players (n=1,973) who completed a general health survey were dichotomized into younger (≤50 years, n=902) and older (>50 years, n=1,071) groups. Logistic and linear regression tested the interaction between self-reported concussion history (categorized as 0, 1–2, 3–5, 6–9, or ≥10) and age on diagnoses of hypertension, hyperlipidemia, diabetes, and sleep apnea. The data were examined for associations of cardiovascular risk factors with Patient-Reported Outcomes Measurement Information System and Quality of Life (Neuro-QoL scores).

Significant concussion-history-by-age interactions were observed for hypertension and hyperlipidemia ($p<0.001$). Greater frequency of concussion was linked to a greater prevalence of select cardiovascular risk factors (i.e., hypertension and hyperlipidemia), but only in those ≤50 years of age. In the younger cohort, an association was found between a history of concussion and hypertension $p=0.003$ (comparing 10+ versus 0 concussions) and hyperlipidemia ($p=0.004$). Sleep apnea prevalence rose with concussion history, irrespective of age ($p<0.001$). Age-by-risk-factor interactions showed that hypertension and hyperlipidemia were associated with worse depression, anxiety, cognitive-function, and emotional/behavioral scores, primarily in younger former players ($p<0.001$).

Conclusion: This study of former National Football League players found that higher cardiovascular risk-factor burden is associated with greater concussion history at younger, but not older, ages.

Brett, B. L., et al. Higher Cardiovascular Risk Factor Burden Associated with Cumulative Concussion History and Age-Related Differences. **J Head Trauma Rehabil**. 2026, Sep-Oct;41(5):e500-e512.

INTENSIVE BLOOD PRESSURE CONTROL AND BRAIN SMALL VESSEL DISEASE

Cerebral small vessel disease (SVD) accounts for up to 25% of ischemic strokes and is the leading vascular contributor to cognitive decline and dementia. The benefits of improved systolic blood pressure (SBP) on cerebral small vessel disease (SVD) burden is not completely understood. This study examined the effect of reductions in systolic BP (SBP) and SVD burden change.

This *post-hoc* analysis of the Systolic Blood Pressure Intervention Trial (SPRINT) included data from hypertensive adults, 50 years of age or older, without diabetes or prior stroke. The subjects were randomized to pursue an intensive SBP target of <120 mmHg or a standard target of <140 mmHg. Of 1,267 participants

screened, 663 completed baseline MRI and 442 completed follow-up MRI at a median of 3.9 years. The SVD burden was determined by a statistically derived latent factor combining visible white-matter scarring near the ventricles, extra fluid leaking into the white matter, and enlarged fluid spaces around deep brain vessels.

Among 442 participants with longitudinal data, intensive treatment was associated with significantly less SVD progression than with standard treatment, corresponding to a mean of 17% less progression. Greater SBP reductions showed a dose-response relationship with 21.2%, 26.3%, and 39.4% less progression of SVD for reductions of zero to 10 mmHg, 10 to 20 mmHg, and 20 mmHg or greater, respectively ($p < 0.001$).

Conclusion: Intensive systolic blood pressure control to less than 120 mmHg was associated with less progression of overall, cerebral, small vessel disease burden, with greater reductions conferring incrementally greater benefit.

Charisis, S., et al. Intensive versus Standard Blood Pressure Control and Overall, Brain Small Vessel Disease Burden: A Post-Hoc Analysis of the SPRINT Randomized, Clinical Trial. **EClinicalMedicine**. 2026, Aug 11; 99: 104143.

CONTINUOUS GLUCOSE MONITORING IN NON-INSULIN-TREATED TYPE 2 DIABETES

Continuous glucose monitoring has been shown to be beneficial in type 1 diabetes, yet its role in monitoring those with type 2 diabetes not yet prescribed insulin has been uncertain. This study evaluated the efficacy and safety of continuous glucose monitoring among adults with non-insulin-treated type 2 diabetes managed in primary care.

This 26-week, multicenter, randomized, controlled trial was conducted at 22 U.S. primary care practices. The subjects were adults with type 2 diabetes for at least six months, a glycated hemoglobin level of at least 7.5%, and no insulin use in the prior year. The subjects were randomized 1:1 to real-time Dexcom G7 continuous glucose monitoring or routine care with blood-glucose-meter monitoring.

Randomization was stratified by site and glucagon-like peptide-1 receptor agonist use. Both groups continued preexisting medications, received lifestyle education, and followed identical telehealth and clinic visit schedules. The routine-care group wore blinded sensors at selected time points for outcome assessment. The primary outcome variable was the glycated hemoglobin level at 26 weeks.

A total of 283 participants (145 assigned to continuous glucose monitoring and 138 to routine care) were enrolled. The mean glycated hemoglobin decreased from 8.8% to 7.2% with continuous glucose monitoring and from 8.7% to 8.0% with routine care ($p<0.001$). No severe hypoglycemia events occurred.

Conclusion: This study of patients with type 2 diabetes found that continuous glucose monitoring produced a significantly greater reduction in glycated hemoglobin and hyperglycemia than routine care, without increasing hypoglycemic events.

Oser, T., et al. Continuous Glucose Monitoring in Non-Insulin-Treated Type 2 Diabetes. **N Engl J Med**. 2026 Oct 14. doi: 10.1056/NEJMoa2608571. Epub ahead of print

LIFELONG ANEURYSM RISK AFTER ANEURYSMAL SUBARACHNOID HEMORRHAGE IN YOUNG SURVIVORS

Young survivors of aneurysmal subarachnoid hemorrhage (SAH) remain at risk for *de novo* (new) intracranial aneurysm formation. However, population-based lifetime estimates and long-term data have been limited by short follow-up and selection bias. This study was designed to determine the lifetime cumulative incidence, independent risk factors, and rupture rate of *de novo* aneurysms in young survivors of aneurysmal SAH.

This population-based cohort study included residents of the Stockholm region younger than 40 years with an index saccular aneurysmal SAH between 1967 and 2014. Eligibility required concurrent four-vessel angiography and retention of original imaging. Survivors were followed until *de novo* detection, death, emigration, or December 31, 2025. The cumulative incidence was determined, with risk factors assessed by multivariable Cox regression.

Among 544 survivors (median age 33 years, 57.5% female) followed for 13,738 person-years, the cumulative incidence reached 30.2% at 40 years without plateau. Independent risk factors were female gender (hazard ratio (HR), 1.76; p=0.008), smoking (HR, 1.75; p=0 .01), and family history (HR, 2.17; p=0 .008).

Conclusion: This study of young survivors of aneurysmal subarachnoid hemorrhage found a cumulative incidence of *de novo* aneurysms at 40-year follow-up of 30.2%. Female gender, smoking, and family history were independent risk factors for recurrent aneurysm.

Alpkvist, P., et al. Lifelong *de Novo* Aneurysm Risk after Aneurysmal Subarachnoid Hemorrhage in Young Survivors. **JAMA Neurol**. 2026; 83(10): 973-980

MUSCLE STRENGTH CHANGES AND CLINICAL OUTCOMES IN PATELLOFEMORAL PAIN

Patellofemoral pain is a common condition linked to reduced lower limb muscle strength compared with asymptomatic controls. This study investigated the effect of muscle strength changes in people with patellofemoral pain and concurrent changes in pain and physical function.

The authors of this systematic review searched databases (CINAHL, Cochrane Library, Embase, Medline, and SPORTDiscus) from inception to April of 2026 for randomized, controlled trials including patients with PFP (non-traumatic retropatellar or peripatellar pain exacerbated by activities that load the patellofemoral joint). Studies were considered which reported both muscle strength and pain or function outcomes. Seventy-one trials contributed to the meta-analyses.

Among 4,023 participants, strength gains were significantly associated with pain reductions for knee extensors ($r=-0.75$, $\beta=-0.21$), knee flexors ($r=-0.46$, $\beta=-0.14$), hip abductors ($r=-0.91$, $\beta=-0.31$), hip adductors ($r=-0.26$, $\beta=-0.19$), hip external rotators ($r=-0.24$, $\beta=-0.06$), hip internal rotators ($r=-0.79$, $\beta=-0.31$) and hip extensors ($r=-0.58$, $\beta=-0.26$). For function, significant associations were found for knee extensors ($r=0.70$, $\beta=0.15$), knee flexors ($r=0.46$, $\beta=0.07$), hip abductors ($r=0.94$, $\beta=0.15$), hip adductors ($r=0.55$, $\beta=0.11$) and hip internal rotators ($r=0.98$, $\beta=0.06$).

Conclusion: This meta-analysis of studies comparing lower extremity strength and patellofemoral pain

found that improvements in lower limb muscle strength, particularly of the knee extensors and hip abductors, are associated with reductions in pain and improvements in physical function.

Nunes, G., et al. A Systematic Review with Meta-Analysis of the Association between Changes in Muscle Strength and Clinical Outcome Changes in Patellofemoral Pain. **Sports Med.** 2026, June; 56: 2717-2731.

NEEDLE ARTHROSCOPY FOR MEDIAL MENISCUS REPAIR

Needle arthroscopy (NA) has recently emerged as a minimally invasive platform for both diagnostic and therapeutic procedures. This study assessed pain, functional outcomes, and return to work after a repair of selected short medial meniscus tears using needle arthroscopy.

This prospective, comparative, cohort study included 108 patients aged 18–65 years with MRI-confirmed isolated short (approximately ≤10 mm) horizontal or flap medial meniscus tears. Treatment followed patient preference (needle arthroscopy under local anesthesia, n=55; conventional arthroscopy under spinal anesthesia, n=53). One hundred patients (50 per group) completed 12-month follow-up. All repairs used a single all-inside FiberStitch implant by one surgeon with standardized rehabilitation. Outcome measures included the visual analog scale for pain, Knee injury and Osteoarthritis Outcome Score (KOOS) subscales, and return to work.

Both groups improved significantly in pain and function ($p < 0.001$). The VAS pain scores were more improved after needle arthroscopy than after conventional arthroscopy at two, six and twelve weeks (all $p < 0.001$) and at six months ($p < 0.01$), with no difference at 12 months. Early KOOS pain, symptoms and activities of daily living favored needle arthroscopy, though the difference was below the minimal clinically important differences. Outcomes converged by 12 months. The mean return to work was five weeks in the needle arthroscopy and seven weeks in the conventional group ($p < 0.001$). No reoperations or clinical failures occurred.

Conclusion: This study of patients with medial meniscus tears found that needle arthroscopy may provide slightly better early outcomes and faster return to work than conventional arthroscopy.

Lesman, J., et al. Needle Arthroscopy Versus Conventional Arthroscopy for Medial Meniscus Repair: Faster Early Recovery Without Compromising Clinical Outcomes in A Prospective Comparative Study. **Orthop J Sports Med.** 2026;14(10):23259671261486561.

GRAFT TYPE AND REVISION ACL RECONSTRUCTION RISK IN FOOTBALL PLAYERS

Anterior cruciate ligament (ACL) injury is common in football, and subsequent graft or contralateral injuries remain frequent after reconstruction, particularly among players who return to competition. This study was designed to determine whether autograft type (hamstring, patellar, or quadriceps tendon) is associated with risk of revision or contralateral ACL reconstruction in football players.

This nationwide cohort study linked the Swedish Knee Ligament Registry with the Swedish Football Association database to identify all primary ACL reconstructions in registered football players between 2014 and 2023 (n=10,693; mean age 22 ± 7 years). Of these, 6,238 (58%) returned to competition. Sex-stratified Cox models adjusted for age and pre-injury level of play evaluated time to revision and contralateral reconstruction, with hamstring tendon as the reference graft.

Among players who returned to competition, graft type was not associated with revision reconstruction in women (232 events, 10.8%) or men (349 events, 9.2%). Quadriceps tendon autograft was associated with higher risk of contralateral reconstruction in women who returned to competition (HR 1.98, $p=0.011$), but not in men. Younger age was consistently associated with higher risk of subsequent reconstruction in both sexes ($p<0.001$), and higher pre-injury level of play increased revision risk.

Conclusion: Graft type was not independently associated with revision anterior cruciate ligament reconstruction among football players who returned to competition, whereas younger age and higher pre-injury levels of play were the strongest correlates of subsequent reconstruction risk.

Sandon, A. et al. Graft Type Is Not Associated with Revision ACL Reconstruction in Football Players: A Nationwide Cohort Analysis of Subsequent ACL Reconstructions. **Br J Sports Med**. 2026, Oct 12; 60(20): 1561-1569.

CLICKY HIP AS A SCREENING TOOL FOR DEVELOPMENTAL DYSPLASIA OF THE HIP

Early diagnosis of developmental dysplasia of the hip is important, as treatment in early infancy is usually nonoperative. The predictive value of a documented clicky hip remains uncertain. This study evaluated the association between a clicky hip at the newborn or six- to eight-week examination and pathological developmental dysplasia of the hip requiring treatment.

This retrospective analysis of prospectively collected registry data included all live births in the catchment area of a single tertiary center between January 2016, and December 2023. Infants underwent examination at birth and at six to eight weeks, with ultrasound screening offered for primary risk factors or abnormal findings including a clicky hip. Multivariable logistic regression estimated adjusted odds ratios for pathological developmental dysplasia of the hip, with clicky hip as a variable.

Of 42,338 infants analyzed, a clicky hip was recorded in 1,125. Of these, 40 (3.56%) had developmental dysplasia of the hip requiring treatment. The finding of a clicky hip on physical examination was independently associated with this diagnosis [adjusted odds ratio (OR) 4.68; $p<0.001$].

Conclusion: This study found that a documented clicky hip during early infancy was independently associated with pathological developmental dysplasia of the hip.

Poacher, A., et al. Evaluation of the Clicky Hip as a Screening Tool in the Diagnosis of Developmental Dysplasia of the Hip. **Bone Joint J**. 2026. Oct 1; 108-B(10): 1273-1277.

CERVICAL ATROPHY AFTER COMPLETE THORACIC SPINAL CORD INJURY

Spinal cord injury (SCI) produces neurodegeneration both at and above the lesion site, yet remote cervical cord changes after pure thoracic injury remain incompletely characterized. This study was designed to clarify

cervical spinal cord morphology at C2–C3 in individuals with complete thoracic spinal cord injury and to compare these metrics with those of matched controls.

Whole-brain T1-weighted MRI scans from 52 adults with complete (AIS A) thoracic SCI and 55 age- and sex-matched neurologically healthy controls were studied. The ENIGMA-Cervical Spinal Cord Protocol was used to process the cervical spinal cord section from whole-brain T1-weighted scans. From these were obtained the mean cross-sectional area (CSA), antero-posterior and right–left diameters, eccentricity, solidity, orientation, and cord lengths at C2 and C3.

In the final sample of 107 participants, the thoracic injury group showed significantly smaller CSA at the cervical level than did the controls (C2, $p<0.001$; C3, $p<0.001$). In addition, this group showed reduced antero-posterior and right-left diameters (all $p<0.001$), and greater eccentricity ($p=0.011$) relative to controls.

Conclusion: This study of patients with complete thoracic spinal cord injury found cervical cross-sectional reductions consistent with remote atrophy.

Quidé, Y., et al. Cervical Atrophy following Complete Thoracic Spinal Cord Injury: Insights from a Multinational Cohort. **Eur J Neurol**. 2026; 33: e70750.

PRP VERSUS CORTICOSTEROID INJECTIONS FOR ROTATOR CUFF TENDINOPATHY

Platelet-rich plasma (PRP) and corticosteroid injections are commonly used treatments for chronic rotator cuff tendinopathies. This study compared the efficacy of corticosteroid and PRP injections on pain and function in patients with chronic, non-ruptured rotator cuff tendinopathies.

This nine-month, prospective, randomized trial was conducted at Charles Nicolle Hospital in Tunis, Tunisia. Fifty-two patients (mean age 62.3 ± 8.3 years, 84.6% female) with chronic, non-ruptured rotator cuff tendinopathy were randomly assigned to receive an ultrasound-guided, subacromial injection of either 40 mg methylprednisolone acetate (n=26) or leucocyte-poor non-activated PRP (two to four mL prepared from 10 mL venous blood; n=26). Pain was assessed with a visual analogue scale (VAS), and function was evaluated with the QuickDASH and SPADI questionnaires at baseline, one week, and three months. All participants completed the protocol.

Among the 52 patients, pain reduction was comparable between groups at one week ($p=0.49$). At three months, the corticosteroid group achieved significantly greater pain relief (ΔVAS 3.35 versus 1.75; $p=0.02$), which remained significant after multivariate adjustments ($p=0.04$). Functional improvement was similar between groups on both the QuickDASH and SPADI, with a non-significant trend favoring corticosteroids on the QuickDASH (Δ 18.3 versus 11.3 points at three months; $p=0.18$) that was not confirmed in multivariate analysis. Both treatments were well tolerated, with only mild, transient, adverse events.

Conclusion: Corticosteroid injections provided superior pain reduction at three months as compared with PRP, while both treatments produced equivalent functional improvement in patients with chronic, non-ruptured rotator cuff tendinopathies.

Bouden, S., et al. Shoulder Injection of Platelet-Rich Plasma versus Corticosteroids in Rotator Cuff Tendinopathies. **Scand J Rheumatol**. 2026;1–8. https://doi.org/10.1080/03009742.2026.2620888

LONG-TERM HEALTH RISKS OF E-CIGARETTES AFTER SMOKING CESSATION

Tobacco smoking remains responsible for 60–70% of lung cancer cases worldwide. Smoking cessation reduces lung cancer risk, yet the long-term effects of electronic cigarette use among former smokers remain uncertain. This study examined whether post-cessation e-cigarette use attenuates the benefits of quitting on lung cancer incidence and mortality.

This study used a nationwide, population-based cohort derived from the South Korean National Health Insurance Service (NHIS) database to examine the association between e-cigarette use after smoking cessation and the subsequent risk of lung cancer and related mortality. Data were obtained from the records of adults 40 years of age or older, who underwent health screenings in 2012 to 2014 and 2018. The participants were classified as current smokers, quitters who used e-cigarettes daily, or quitters who did not use e-cigarettes, and were followed for five years.

Among former smokers, e-cigarette users had a 56% higher risk of lung cancer incidence and a 22% higher risk of all-cause mortality than non-users. Compared with current smokers, quitters without e-cigarettes showed 44% and 37% lower risks of lung cancer and all-cause mortality, respectively.

Conclusion: This study provides real-world evidence suggesting that e-cigarette use after smoking cessation may partially offset the lung-cancer and mortality benefits of quitting.

Sheikh, M., et al. Electronic Cigarette Use After Smoking Cessation and Lung Cancer Risk. **Nat Med.** 2026, July; 2410–2419.

HOME-BASED REHABILITATION AND OUTCOMES IN CHILDREN WITH SPASTIC CEREBRAL PALSY

Children with spastic cerebral palsy (CP) experience motor impairments that require ongoing rehabilitation, which can impose substantial economic and psychological burdens on families. This study evaluated the effects of home-based, parent-delivered rehabilitation on motor function and family burden among children with spastic CP.

This randomized, controlled trial enrolled 40 children, five to ten years of age, with spastic CP, all from low- to middle-income Chinese families. The participants were randomly assigned to conventional hospital-based rehabilitation (n=20) or home-based parent-delivered rehabilitation (n=20) for six months. Those in the conventional rehabilitation group received two rehabilitation sessions per week in hospitals or certified rehabilitation institutions. Therapy focused on task-oriented gross motor and balance activities, including standing, walking, transfers, and balance control during functional tasks. In the home-based rehabilitation group, gross motor and balance training were primarily implemented in the home environment by parents under professional supervision, with the focus the same as the conventional rehabilitation group. Outcomes including the Gross Motor Function Measure-88, dimensions D and E, Berg Balance Scale, Family Burden Scale, Hamilton Depression Rating Scale, and Hamilton Anxiety Rating Scale, assessed at baseline, three months, and six months.

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Home-based rehabilitation resulted in improvements in gross motor function and balance similar to those of conventional therapy, with no significant difference between the groups. The family burden scores were superior in the home-based group at six months ($p<0.001$).

Conclusion: This Chinese study of children with spastic cerebral palsy found that home-based, parent-delivered rehabilitation achieved motor and balance improvements comparable to conventional hospital-based rehabilitation, while significantly reducing family burden and caregiver depression and anxiety.

Huo, K., et al. Home-Based Rehabilitation for Children with Spastic Cerebral Palsy: Implications for Motor Function and Family Burden. **Acta Psychol**. 2026, Sep 18. 107531.

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