

analysis. Key stakeholder engagement at each stage and video tagging by researchers and clinicians were undertaken. To identify suspected injury and concussion, operationally defined criteria were used. These criteria were face and content validated. Four suspected injury and 15 suspected concussion criteria were used. Each coder was required to complete inter-rater reliability, using the group consensus as the gold standard response for comparison.

**Results** 225 suspected injuries and 59 suspected concussions were identified. The median number of injury criteria met was 3/4, with medical attention being required in 81% of cases, yet only 29% required removal from the field. Median number of concussion criteria was 2/15. Medical attention was the injury criteria with the highest level of agreement between unique coders (78–100% agreement).

**Conclusion** Video-analysis is an underused tool for capturing suspected injury/concussion events. When undertaken using clearly operationalised definitions and in consultation with medical experts, vital information can be acquired to inform prevention strategies. The implications of this are wide-ranging and offer new opportunities for surveillance and prevention in under-reported and/or under-resourced sporting environments, particularly youth and female sport.

#### 99 LONG-TERM PROGNOSIS OF INDIVIDUALS WITH PLANTAR HEEL PAIN

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**Introduction** Plantar heel pain (PHP) used to be considered a self-limiting condition, where pain was thought to resolve within a year after onset. A number of studies with varying quality of outcomes and small sample-sizes have questioned the benign nature of PHP. The aim of this study was to explore the long-term prognosis of individuals treated for PHP.

**Materials and Methods** Patients treated for PHP at Aalborg University Hospital between 2011–2018 were in 2020 asked to complete online questionnaires. Questionnaires included demographic and patient characteristics, heel pain during the past 4 weeks, mean pain intensity during the past week (0–10 numerical rating scale), work situation, comorbidities, and the EQ5D.

**Results** So far, 254 individuals completed the questionnaires (38% response rate). Mean age was 54 years ( $\pm 12$ ) and median period of heel pain was 20.5 months (IQR 9–60). At follow-up, 55% (95%CI 49–61%) still reported heel pain during the past 4 weeks with a median pain intensity of 5 (IQR 3–7). 76–86% of these reported concomitant musculoskeletal pain. During follow-up, 18% changed their work assignments due to heel pain, 25% reported sick leave due to heel pain (median days off work 21 (IQR 7–90)) and 27% reported depressive symptoms on the EQ5D.

**Conclusion** Despite specialized care, more than half still reported PHP up to 10 years after treatment. The condition

was associated with sick leave and changed work assignments among several patients. These results emphasise the large impact PHP may have on individuals and highlights the need for more effective treatments.

#### 100 LOCAL NEUROMUSCULAR CHARACTERISTICS ASSOCIATED WITH PATELLOFEMORAL PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Introduction** Local neuromuscular deficits have been reported in people with patellofemoral pain. To help identify interventional targets, we synthesized the neuromuscular characteristics associated with patellofemoral pain persistence.

**Materials and Methods** Five databases were searched for case-control studies. Muscle electromyography, flexibility, performance and cross-sectional area data were extracted from reports of functional or isolated tasks and synthesised. An evidence gap map was constructed.

**Results** Sixty-seven studies were retained. In functional tasks, electromyographic investigations showed moderate evidence of small effect for vastus medialis onset-delays relative to vastus lateralis (0.44 [0.03, 0.85]) during stepping/stair negotiation tasks, and higher biceps femoris mean excitation amplitudes (0.55 [0.06, 1.04]) in single-leg triple-hop test. In isolated tasks, we found moderate evidence of medium effect for lower Hoffman-reflex amplitude of vastus medialis (-1.12 [-1.56, -0.67]). Muscle performance investigations showed: strong evidence with medium and small effects for lower extensors concentric (-0.61 [-0.81, -0.40]) and eccentric (-0.56 [-0.79, -0.33]) strength; and moderate evidence of medium effect of lower isometric (-0.64 [-0.87, -0.41]) strength; moderate evidence with small effect for rate of force development to 30% (-0.55[-0.89, -0.21]), 60% (-0.57[-0.90, -0.25]) and medium effect to 90% (-0.76[-1.43, -0.10]) of maximum voluntary contraction; and small effect for lower flexors concentric strength (-0.46 [-0.74, -0.19]) and extensors total work (-0.48 [-0.90, -0.07]). Flexibility investigations showed tighter hamstrings (-0.57 [-0.99, -0.14]).

**Conclusion** Quadriceps and hamstring motor-control, flexibility and weakness are robustly associated with patellofemoral pain, so these parameters should be used to guide investigations of treatment effect mechanisms.

#### 106 USABILITY OF PAPER AND ELECTRONIC PAIN DRAWINGS IN ASSESSING MUSCULOSKELETAL PAIN: A SCOPING REVIEW

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**Background** COVID-19 has accelerated the implementation of online consultations thus creating the need to assess usability of electronic-pain-annotation tools. We aimed to learn from