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## One hundred children and adolescents consulting general practice with musculoskeletal pain

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**Conclusion** Patient satisfaction is not commonly reported in tendinopathy research, and in those studies where it is reported, satisfaction and GROC appear similar and are ranked moderately high demonstrating patients generally perceive exercise therapy for tendinopathy positively. Further research investigating satisfaction and GROC is required to identify moderating factors and improve patient-centred care.

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### 'IT'S SECOND BEST': MIXED-METHODS EVALUATION OF THE EXPERIENCES OF PEOPLE WITH MUSCULOSKELETAL PAIN TOWARDS PHYSIOTHERAPIST DELIVERED TELEHEALTH DURING COVID-19 PANDEMIC

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**Introduction** Telehealth was rapidly adopted in musculoskeletal physiotherapy practice during the COVID-19 pandemic, providing a unique opportunity to evaluate the experiences and attitudes of people would not usually engage with these services.

**Materials and Methods** A sequential mixed-methods study recruited people with musculoskeletal pain conditions accessing private practice physiotherapist services in Australia. Participants completed an online survey of telehealth services accessed, treatments, self-reported global change in condition, and attitudes toward telehealth. A subset of survey participants completed semi-structured interviews to explore experiences and attitudes towards telehealth. Data was summarized descriptively (quantitative), analyzed using inductive thematic analysis (qualitative), and integrated facilitating deeper understanding.

**Results** 172 participants responded to the survey and 19 were interviewed. 95% accessed video-based telehealth, typically via zoom; and 85% reported improvement in their condition. 84% agreed it was an efficient use of time, 75% agreed it was financially viable, and 73% agreed their condition was accurately diagnosed. 62% percent believed telehealth should be less expensive than face-to-face services. Qualitative analysis revealed four themes (17 subthemes), including (i) value of telehealth; (ii) challenges; (iii) advantages; and (iv) use of technology to support patient experience.

**Conclusion** Australians with musculoskeletal pain conditions accessing physiotherapy via telehealth during the COVID-19 pandemic felt this care was valuable, although less so than traditional face-to-face care. Key challenges included the perception that lack of physical contact prevented accurate assessment, diagnosis and 'hands on' treatment, and requirements for technology to facilitate a quality

service. Advantages included access to expert care and convenience.

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### MANAGING SERIOUS PATHOLOGY IN LOW BACK PAIN: DEVELOPMENT AND VALIDATION OF A BAYESIAN NETWORK DECISION SUPPORT TOOL

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**Introduction** A key decision for assessment of Low back pain (LBP) is identifying serious underlying conditions such as Cauda Equina Syndrome, infection, fracture or space-occupying lesions. Previous decision support tools for LBP deployed rule-based recommendations, yet Artificial Intelligence has enabled 'intelligent' decision support tools, with Bayesian Networks particularly suitable for complex conditions such as LBP. This study aimed to test whether clinical knowledge could be elicited to construct a Bayesian Network to support clinicians' detection of serious pathology masquerading as LBP.

**Methods** A modified-RAND appropriateness procedure elicited knowledge from 16 domain experts from General Practice, Rheumatology and Musculoskeletal specialties. This comprised a four-stage process using bespoke online tools interleaved with face-to-face meetings; 1) Variable elicitation, 2) Structure elicitation, 3) Probability elicitation 4) Validation. Independent experts in spinal pathology reviewed the initial tool and its outputs.

**Results** The tool includes background risk factors (e.g. trauma, age), signs and symptoms (e.g. bladder disturbance, inflammatory symptoms) and derived judgement factors (e.g. cord compression, fracture). The tool has an interactive online interface, requiring real-time patient inputs from the subjective assessment, then gives a judgement comparing baseline to the current patient. Content validation suggested no missing elements to the model, but may require more detail for clinical understanding of terms. Face validation exposed some inconsistency in clinical reasoning, particularly for spinal infections and fractures.

**Conclusion** The structured elicitation method yielded a reasoning model using expert clinician knowledge, establishing consensus amongst participants about its content. Further iterations to expand this to common LBP presentations should follow.

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### ONE HUNDRED CHILDREN AND ADOLESCENTS CONSULTING GENERAL PRACTICE WITH MUSCULOSKELETAL PAIN

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**Introduction** Each year, 8% of children and adolescents consult their general practitioner (GP) due to musculoskeletal conditions, with pain the most frequent symptom. There is

limited knowledge about this care-seeking population. The purpose of this study is to describe children and adolescents consulting their GP due to musculoskeletal pain.

**Materials and Methods** This is a cross-sectional study embedded in the child and adolescent musculoskeletal pain cohort study, carried out in 17 Danish general practice clinics. Patients aged 8–19 years with musculoskeletal pain when consulting general practice completed a questionnaire on demographics, physical activity, pain impact, psychosocial factors, and expectations of their general practitioner.

**Results** One hundred participants were included (54% female, median age 13 [IQR: 12–16] years). The most frequent region of activity-limiting pain was the knee (56%), followed by the back (20%), ankle (19%), and neck (13%). The primary reason for (63%) consulting their GP was inability to use their body as usual due to pain. Median pain duration on consultation was 5 months [IQR: 3 weeks–1 year]. Over a third were nervous (34%), worried/anxious (33%), and took pain medication (33%). Pain negatively impacted sport activities at school (79%) and leisure time activities (88%). Pain made concentration (58%) and falling asleep (38%) difficult. Only 38% expected a pain free long-term future.

**Conclusion** This study demonstrates the bio-psycho-social impact of musculoskeletal pain in care-seeking children and adolescents in general practice. Demographics, pain characteristics, psychosocial characteristics, and physical characteristics should be considered when consulting children and adolescents with musculoskeletal pain.

### 31 UNDERLOADING, NOT OVERLOADING, OF THE PATELLOFEMORAL JOINT INCREASES THE RISK OF EARLY OSTEOARTHRITIS AFTER ACL RECONSTRUCTION

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**Introduction** Patellofemoral joint osteoarthritis is common following anterior cruciate ligament reconstruction (ACLR) and may be linked with altered joint loading. We aimed to determine if altered patellofemoral joint loading is associated with prevalent and worsening early patellofemoral osteoarthritis following ACLR.

**Materials and Methods** Forty-six participants (mean age 27±5 years) one-year following primary ACLR (hamstring-tendon autograft) underwent magnetic resonance imaging (MRI) and biomechanical assessment of their reconstructed knee. Trunk and lower-limb kinematics plus ground reaction forces were recorded during the landing phase of a standardised forward hop task. These data were input into an established musculoskeletal model to calculate patellofemoral contact force. Follow-up MRI was acquired on 32 participants at five-years post-ACLR. Generalised linear models (Poisson) assessed the relationship between patellofemoral loading and prevalent early patellofemoral osteoarthritis (i.e., presence of a patellofemoral cartilage lesion one-year post-ACLR) and worsening patellofemoral osteoarthritis (i.e., incident/progressive patellofemoral cartilage lesion at 5-years post-ACLR).

**Results** Those with a lower peak patellofemoral contact force were more likely to have early patellofemoral osteoarthritis at 1-year post-ACLR (n=14 (30%); prevalence ratio 1.37; 95% CI 1.02 to 1.85). A lower peak patellofemoral contact force increased the risk of worsening patellofemoral osteoarthritis at 5-years post-ACLR (n=9 (28%); risk ratio 1.55, 95%CI 1.13 to 2.11).

**Conclusion** Young adults following ACLR who underload their patellofemoral joint during a hopping task are at high risk of early patellofemoral osteoarthritis onset and progression within the first 5-years after ACLR. These findings challenge traditional thinking that joint overloading drives post-traumatic osteoarthritis, and provides new targets for osteoarthritis prevention.

### 32 SPONTANEOUS HEALING OF THE RUPTURED ANTERIOR CRUCIATE LIGAMENT: OBSERVATIONS FROM THE KANON TRIAL

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**Introduction** It is often assumed that an acutely ruptured ACL cannot heal. We evaluated ACL healing using MRI within 5 years of ACL rupture; described 2- and 5-year outcomes stratified by healing status and treatment; and investigated the relationship between ACL healing, sport/recreational function and quality of life (QOL) at 2- and 5-years following ACL injury.

**Materials and Methods** Secondary analysis of KANON Trial data following randomisation to rehabilitation and optional delayed ACL reconstruction (ACLR), or early-ACLR. Outcomes included Knee Injury and Osteoarthritis Outcome Score (KOOS) subscales, activity level, mechanical stability, and osteoarthritis. Mixed linear regression estimated the relationship between healing status, KOOS-Sports/Rec and KOOS-QOL, adjusted for age, sex, smoking and unmeasured person-specific time-invariant confounding.

**Results** Following management with rehabilitation-alone at 5-years (n=26), 56% had a healed-ACL at 2-years and 58% at 5-years. One in twenty-three (4%) had a healed ACL before undergoing delayed-ACLR. People with a healed-ACL reported high KOOS scores at 2-years and 63–93% met the patient acceptable symptomatic state criteria, compared to 31–61% in the non-healed or reconstructed groups. Two-year KOOS Sport/Rec and QOL scores were worse in the non-healed (mean difference (95% CI) -21.9(-38.8, -5.0); -26.9(-41.7, -12.1)), delayed-ACLR (-25.0 (-39.8, -10.1); -19.4(-32.3, -6.4)) and early-ACLR (-18.0(-31.5, -4.5); -13.9(-25.6, -2.1)) groups compared to the healed-ACL group, or findings excluded the possibility of better findings in the reconstructed groups.

**Conclusion** There was a high rate of ACL healing in patients managed with rehabilitation alone and these individuals reported better patient-reported outcomes compared to the non-healed and reconstructed groups.