injury, these findings may indicate that the difference in LM CSA may be a precursor of injury. Future research is needed to investigate the potential of LM CSA asymmetry to be a predictor of injury in various populations.

Implications: Left/right difference in size of lumbar multifidi may be a precursor to low back injury even in the absence of previous low back injury.

Disclosure of Interest: None Declared

Keywords: Low back pain, Multifidus, rehabilitative ultrasound imaging

Advanced assessment/practice and managing complex patients
PO4-LB-037
TEST-RETEST RELIABILITY AND MINIMAL DETECTABLE CHANGE OF THREE-DIMENSIONAL GAIT ANALYSIS IN CHRONIC LOW BACK PAIN PATIENTS AND HEALTHY INDIVIDUALS

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Background: Three-dimensional gait analysis (3DGA) is a valuable assessment method used in clinical and in research settings to support clinical functional diagnoses and decision-making. Repeated gait measurements can also be useful to evaluate the outcome of therapeutic interventions, although the observed variability between pre and post intervention measurements may be due to treatment effects or measurement variation, or a combination of both (McGinley et al., 2009). Thus, knowledge about the error magnitude can minimise the risk of over-interpreting small differences as meaningful (Schwartz et al., 2004) and can contribute to the certainty that a measured intervention effect exceeds the measurement error. Data on reliability and measurement error of 3DGA in CLBP patients is lacking, although evidence that clinically acceptable errors are possible in 3DGA in patients with cerebral palsy or stroke (McGinley et al., 2009).

Purpose: The aim of this study is to investigate test-retest reliability and minimal detectable change of 3DGA in a sample of CLBP patients and healthy individuals.

Methods: A test-retest study was conducted with a sample of 14 CLBP patients and 14 healthy individuals that underwent two biomechanical gait assessments with an interval of 7.6 ± 1.8 days. Data collection was carried out using a 13-camera opto-electronic system (Oqus 300, Qualisys AB, Gothenburg, Sweden) at 200Hz. Participants were instructed to walk during a few minutes at their preferred velocity and 10 gait cycles were selected to be processed in Visual 3D software (v5.01.10, C-Motion, Inc). A GCVSPL filter was applied to kinematic data. The marker set selection was based on previous reports (Seay et al., 2008) and a 9 segments' model (feet, shanks, thighs, pelvis, lumbar and thoracic spine) was built and optimized through global optimization (Lu et al., 1999). Anthropometric and time-distance parameters, as well as peak values for lower limb and trunk joint angles and moments, were computed. Intraclass Correlation Coefficient ($ICC_{3,k}$) and their 95% confidence intervals were calculated. Standard error of measurement (SEM), minimal detectable change (MDC) and limits of agreement (LOA) were also estimated.

Results: The obtained ICC values demonstrate varied test-retest reliability indices for joint angles and a SEM $<2.5°$ for CLBP and $\leq4°$ for healthy individuals. Although joint moments showed lower reliability than joint angles, the majority of the ICCs were above 0.7 and the SEM and MDC values were low (≤0.06 Nm/kg and ≤0.18 Nm/kg for CLBP; ≤0.2 Nm/kg and ≤0.6 Nm/kg for healthy individuals). Bland-Altman plots with 95% LOA revealed a good agreement and time-distance parameters were all highly repeatable (ICCs > 0.86).

Conclusion: The results of this study show high test-retest reliability on 3DGA parameters in CLBP and an acceptable level in healthy individuals. For the majority of the parameters, ICCs were higher in the CLBP group, which may be related with higher movement variability in the healthy

group. The SEM and MDC values were generally higher in transverse plane parameters, which is of extremely importance since changes in pelvis and thorax rotations in CLBP patients are frequently reported both in clinical and research context.

Implications: The results of this study supports the reliability of 3DGA in the assessment of CLBP patients' gait patterns and emphasize its potential use for clinical reasoning and decision making when dealing with CLBP patients.

Disclosure of Interest: None Declared

Keywords: Gait Analysis, Measurement error, Reliability

Advanced assessment/practice and managing complex patients
PO4-LB-039
A PRAGMATIC STUDY ADDRESSING FASCIAL ACCESS POINTS IN THICKENED CONNECTIVE TISSUE ON THOSE WITH LOW BACK PAIN: PRELIMINARY DATA

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Background: Physiotherapists and orthopedic manual therapists (OMT) focus on local joints, discs, nerves, and muscles when treating patients with low back pain. Treatments are typically directed to the lumbar and thoracic spine, pelvis, and hips. Joint interventions include mobilizations, thrust manipulations, and pelvic traction. Muscle treatments include soft tissue mobilization (STM) and myofascial trigger points (MTrPs). Neurodynamic interventions address nerve dysfunctions. Prescribed exercises range from general fitness to core stabilization programs or motor control routines. The Fascial Manipulation® (FM) method addresses the fascial system through regional interdependence in a biomechanical, holistic, and systematic fashion. The addition of this unique perspective may expand OMT practitioners ability to address another system to effect outcomes in low back pain patients.

Purpose: To determine the benefit of adding FM to patient treatment for low back pain. Outcomes measured with the validated metrics of subjective pain, patient experience, and disability.

Methods: A pragmatic experimental time series between two outpatient convenience samples. Patients were referred to physical therapy by a medical physician and were randomized into standard physical therapy (SPT) without FM and SPT with FM. Diagnoses ranged from low back pain/ lumbago or post-surgical to failed back syndrome. Interventions for SPT without FM included thermal and/or electrical modality, general STM, and general therapeutic exercises in combination with mobilization, manipulation and/or traction. For the SPT with FM group, a certified instructor of the Fascial Manipulation Association, provided FM interventions in addition to thermal and/or electrical modality and general therapeutic exercise. Participants completed the Oswestry Disability Index (ODI), Numeric pain Rating Scale (NPRS) and Global Rating of Change (GROC) at initial evaluation and discharge.

Results: SPT group (n=28) had 9.2 ± 4.8 visits compared to 7.7 ± 3.5 visits for the FM group (n=43) (p=0.1). The ODI decreased by at least one category in 45% of SPT cases and had no change in 55%. This was similar to FM group with 62% decreased and 38% with no change (Pearson chi-square: p=0.1). Fifty percent of SPT group had GROC values of 5, 6, or 7 at discharge compared with 93% of FM group (Pearson chi-square: p=0.0001). Discharge FM group NPRS was double compared to SPT counterparts (-4.3$\pm$2.2 to -1.5$\pm$2.5, p=0.0001). Overall, 95% of subjects in FM group had at least a 2 point decrease in NPRS compared to 57% of SPT group (Pearson chi-square: p=0.0001). When data was analyzed with an NPRS change of at least 4 points, 61% of FM patients experienced the