Patient Outcomes Utilizing the Selective Functional Movement Assessment and Mulligan Mobilizations With Movement on Recreational Dancers With Sacroiliac Joint Pain: A Case Series

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The sacroiliac joint (SIJ) has been identified as the origin of low back pain affecting 13–25% of patients. In the dance population, low back pain has been reported to account for 12–23% of all injuries. In the dance medicine setting, many patients report to the clinic complaining of low back and SIJ pain of unknown etiology. The SIJ plays a vital role in the functional movement and biomechanics of dance. Turnout, or extreme external rotation of the hip, combined with the extreme range of hip extension can place the pelvis and lumbar spine under tremendous amounts of stress. This combination can place a dancer at more risk of injury to the lumbar spine and SIJ. A dancer suffering from SIJ injury may present with a variety of symptoms that could include: pain with palpation to the SIJ, pain with pelvic loading movements (e.g., hip external rotation combined with jumping, leaping, or twisting), and extension of the lumbar spine. In addition to pain, SIJ injury could result in decreased mobility of the SIJ and dysfunctional movement of the SIJ.

One potential treatment option for SIJ pain is the utilization of Mulligan Concept Mobilizations with Movement (MWM). A MWM is a manual therapy intervention developed by Brian Mulligan and couples accessory mobilizations with physiological motion to treat positional faults of joints. Mulligan proposed that positional faults may result in subtle joint mal-alignment, which produces altered joint function, pain, or decreased

**Key Points**

- Mulligan mobilizations with movement (MWM) and selective functional movement assessment (SFMA) interventions can quickly decrease pain and improve function in patients suffering from sacroiliac joint pain.
- Mulligan MWM and SFMA interventions can produce clinically-significant changes across patient-oriented outcome instruments that can be maintained through a return to activity.
- Mulligan MWM and SFMA interventions can be incorporated into a traditional clinical examination to improve patient outcomes.
range of motion.\(^8\) To date, the physiological process by which positional faults may cause musculoskeletal pain or dysfunction has not been clearly identified.\(^9\) The MWMs used in this case series consisted of a posterior innominate, where the ilium is posteriorly rotated on the sacrum and an anterior innominate, where the ilium is anteriorly rotated on the sacrum.\(^8,9\) To date, no research has been published investigating the use of MWMs for treatment of SIJ dysfunction.

Another option for treating SIJ pain is to use the selective functional movement assessment (SFMA), an assessment instrument used to capture dysfunction from a regional interdependence model and identify appropriate intervention strategies based on those findings.\(^10\) The purpose of the SFMA is to provide a systematic approach to rank the quality of movement (e.g., full range of motion during movement) and the provocation of symptoms during a movement.\(^10\) Once a top-tier assessment is completed, patients proceed through any breakouts that may be needed.

A breakout is performed any time a movement is not classified as functional nonpainful and is completed by the clinician using a movement pattern isolation map to identify potential causes for the dysfunction or faulty movement patterns. Breakouts are used to help guide the clinician to the area of dysfunction. Clinicians should break down painful movements after dysfunctional movements to reduce unnecessary pain provocation.\(^10\) Each breakout ends with one, or a combination of three, patient classifications: (1) tissue extensibility dysfunction (TED), (2) joint mobility dysfunction (JMD), or (3) stability or motor control dysfunction (SMCD). A TED could produce a dysfunctional nonpainful pattern by having dysfunctional movement, usually of tissues that span more than one joint (e.g., shortened tendons or scar tissue).\(^10\) A JMD could produce a dysfunctional nonpainful pattern due to the articular surfaces and contractile and noncontractile tissues that connect them having reduced mobility (e.g., facet syndrome).\(^10\) A SMCD could result in a dysfunctional nonpainful pattern in two ways, either due to a stability dysfunction or due to a motor control dysfunction (e.g., neurological processing issue).\(^10\) Once a breakout has been classified, the clinician should perform treatment and corrective strategies based on the functional diagnosis.\(^10\)

Once a dysfunctional movement pattern is identified, the SFMA can also be used as an intervention using the paradigm of reset, reinforce, and reload.\(^10\) Resetting includes using manual therapy techniques, such as the Mulligan concept, to treat the dysfunction (e.g., JMD). Reinforce includes stretching exercises, soft tissue mobilization, and forms of biofeedback (e.g., kinesiology taping), and reload includes therapeutic exercises to improve dynamic loading.\(^10\) The 4 × 4 matrix is a functional exercise progression that begins in nonweight bearing and no resistance, and then progresses to standing and resistance (Table 1). The 4 × 4 matrix can be used as a progression model for increasing load and difficulty of exercises for the patient.

The purpose of this investigation was to use the SFMA and Mulligan mobilizations with movement (MWM) on recreational dance patients who complained of SIJ pain. Questions being investigated were: (a) Does SFMA intervention and Mulligan MWM decrease the level of impairment in patients suffering from SIJ pain as measured by the Disablement in the Physically Active (DPA) scale? (b) Does SFMA intervention and Mulligan MWM decrease patients’ reported pain on the Numeric Pain Rating Scale (NPRS)?\(^\text{11,12}\) (c) Do dancers with SIJ pain present with similar movement dysfunctions as determined by an SFMA exam? We documented the outcomes of three consecutive patients who were diagnosed with SIJ pain and treated with SFMA interventions and Mulligan MWM.

### Methods

An a priori case series analysis was used for the design for this study. Three consecutive recreational dance patients who presented to the Dance Medicine Clinic complaining of SIJ pain were included in the study. The patient population was a sample of convenience. All patients were evaluated by an athletic trainer currently