

Utilizing Mulligan Sustained Natural Apophyseal Glides Within a Clinical Prediction Rule for Treatment of Low Back Pain in a Secondary School Football Player

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Low back pain (LBP), a prevalent and disabling musculoskeletal condition, has been treated with a wide variety of interventions, including spinal thrust manipulation.¹ Despite

KEY POINTS

▶ The Mulligan sustained natural apophyseal glide (SNAG) is a pain-free, immediate mobilization technique, which is also an alternative to a high-velocity thrust manipulation technique.

▶ A spinal manipulation clinical decision rule is a structured approach to classify patients through examination, improving intervention outcomes.

▶ Utilizing a spinal manipulation clinical decision rule while applying the SNAG technique can improve patient-centered and clinician-centered outcomes.

controversy regarding the use of spinal thrust manipulation, the technique is widely used^{1,2} and has been demonstrated to improve disability scores in subjects that reported low back pain of two to four weeks in duration.³ Confusion exists in the literature and among health care providers regarding the definition of spinal manipulation techniques. The current literature defines two different spinal manipulation techniques: thrust

manipulation (TM) and nonthrust manipulation (NTM).²⁻⁶ A thrust manipulation is a high-velocity, low amplitude, end-range procedure,²⁻⁷ and a nonthrust manipulation is a

passive, low-velocity, oscillatory movement within the physiological range of the joint.^{6,7}

Mobilization, a term similar to nonthrust manipulation, is a low-velocity technique that can be performed through various parts of the available range based on the desired effect.^{4,6} Mobilization techniques have been indicated to produce concurrent effects on pain, sympathetic nervous system activity, and motor activity; unlike manipulations, mobilizations can be controlled by the patient and are generally considered safer than manipulations.^{4,6} One particular mobilization technique, created by Brian Mulligan, is the sustained natural apophyseal glide, or SNAG.⁸⁻¹¹ The SNAG is a pain-free sustained facet glide of the vertebrae with associated movement by the patient designed to mobilize the spine as the patient performs the motion (flexion, extension, etc.) that produces pain.⁸⁻¹¹ As there are no high-velocity motions and the technique involves a pain-free sustained hold of the affected joint, it can be assumed safer than manipulations.

Clinicians may apply SNAGs at all three spinal levels (cervical, thoracic, and lumbar) and the technique is considered easy to per-

form, even for novice clinicians.⁸⁻¹¹ In the lumbar spine, a SNAG can be performed at the affected complaint level of the spine, either centrally (directed through the spinous process) or unilaterally (directed through the facet joint).⁸⁻¹¹ The technique should be done with the patient standing, unless standing elicits pain, then the technique can be performed with the patient seated.⁸⁻¹¹ When applying this technique, the clinician should use an adjustable belt around the patient's waist to aid in keeping the patient stable throughout the technique.⁸⁻¹¹

As with any Mulligan technique, certain rules help indicate and guide the administration of the techniques. The guidelines are presented with two acronyms: PILL and CROCKS.^{8,10,12} The PILL acronym stands for **p**ain-free mobilizations that produce an **i**mmediate effect that leads to **l**ong-lasting results.^{8,10,12} If a PILL response does not occur, the technique is contraindicated.^{8,10,12} The CROCKS acronym presents certain guidelines the clinician should follow when performing the Mulligan technique (Table 1).^{8,10,12} After the application of a Mulligan technique, the patient should perform the same movement that was painful or restricted as a comparable sign to confirm if the technique was successful.⁸⁻¹² The lumbar SNAG technique should follow the Mulligan "rule of three," meaning the first treatment session should only incorporate one set of three repetitions until the patient returns for the next visit.⁸⁻¹²

The decision of which spinal manipulation technique to use should be based on assessment results and clinical reasoning.¹ Flynn et al.² used a prospective study to develop a spinal manipulation clinical prediction rule in an attempt to classify LBP patients into sub-

groups which would match the intervention to patient presentation and improve intervention outcomes. Utilizing a spinal thrust manipulation technique, clinical predictors were determined to elucidate when to use a spinal manipulation as treatment for LBP.² The purpose of this study was to explore the use of the Mulligan lumbar SNAG in the treatment of LBP. The study also incorporated the use of the clinical prediction rule created by Flynn et al.² to determine if similar results occurred across pain and disability scales.

Case Report

An 18-year-old male patient (75 in. [190.5 cm], 94 kg) reported to the athletic training clinic with a chief complaint of low back pain. The patient was involved in a motor vehicle accident (MVA) two days before reporting to the athletic trainer. He was released by an orthopedic physician to resume physical activity (except contact football drills) and be treated by the athletic trainer. The patient reported a pulsating sensation in his back, but was not experiencing any weakness or paresthesia into his legs, thighs, buttocks, or genital area. The patient did not report any family or personal previous medical history concerns. The patient had been prescribed a muscle relaxer and analgesic by the emergency department physician, but still reported a pain scale of 10/10 on the Numeric Rating Scale (NRS). He described his pain as a deep ache in the lumbar and thoracic area, as well as a stabbing pain in the buttocks and thoracolumbar region. Further complaints of symptoms included: bilateral, constant pain and

TABLE 1. THE CROCKS ACRONYM^{8,10,12}

C	Contraindications: If the patient has any traditional contraindications to manual therapy, or the technique does not produce a PILL (p ain-free mobilizations that produce an i mmediate effect that leads to l ong-lasting results) response.
R	Repetitions: There should typically be three treatments on day one followed by 10 on future visits when treating the lumbar spine. Commonly, three sets of 10 repetitions are acceptable for the extremities and trainers should err on the side of caution for irritable joints.
O	Overpressure: Passive overpressure applied by the patient or clinician at the end range of the motion should be done to provide long-lasting success.
C	Communication: Every concept, technique, and the expected results should be explained to the patient before treatment; the patient should immediately report any discomfort.
K	Knowledge: The clinician should have knowledge of treatment planes and pathologies.
S	Sustain, sense, skills, success: Sustain the mobilization from the initiation of movement through the return to the starting position, sense through your touch, use skills to perform the technique correctly, and apply common sense to guide the clinician to success.