

A CLINICIAN'S PERSPECTIVE

The Key is in the Classification: A Clinician's Perspective of the Largest MDT Case Series Studying Directional Preference of the Wrist

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Among the MDT community, it is commonly known that mechanical joint Derangements, either in the spine or extremities, can mimic common pathoanatomical diagnoses, such as sciatica, de Quervain's, lateral epicondylagia, osteoarthritis, meniscus tear or shoulder tendonitis.¹⁻⁷ The key to establishing the most effective and efficient care for a patient will most often come by proper classification. It has been well supported in the literature that when Directional Preference and classification of mechanical joint Derangement is established in an extremity joint, rapid resolution of symptoms and restoration of function is typically expected.³⁻¹³ This most recent MDT case series¹² analyzed predictive variables for establishing Directional Preference at the wrist. Facilitating a clinician's ability to identify Directional Preference and classify mechanical joint pain may ultimately have the power to improve care and lead to better clinical outcomes, while also eliminating the need for diagnostic imaging and unnecessary treatments or procedures.

Nineteen patients with the primary complaint of wrist pain were evaluated by physical therapists and physical therapy students with various levels of MDT training over a two-month period. All assessments and treatments were overseen by the principle investigator (JRM), who holds a doctorate in physical therapy and is a Diplomate of MDT. Patient history and MDT repeated movement testing was utilized to rule out any influence of cervical spine pathology, allowing mechanical assessment to progress to repeated movements of the wrist. Directional Preference was established if pain decreased two or more points on Numeric Pain Rating Scale (NPRS), range of motion improved 50% or more, and/or ability to perform a functional task improved 50% or more or pain on NPRS with a functional activity decreased two or more points.

Seventy-nine percent of evaluated patients were classified as wrist Derangement Syndrome, significantly higher than previously reported in the literature. Repeated movement testing first began in the sagittal plane with varying forces. If a favorable response was not found, as described above, then repeated movement testing in the frontal or transverse planes was explored under varying forces; as one would navigate through the MDT system to treat mechanical Derangements of the spine.¹ Eight different loading strategies were utilized in this study¹², where previously there were only two loading strategies published^{3,14} concerning the treatment of mechanical wrist joint Derangements. The variables analyzed for association with Directional Preference were: mechanical stress, obstructed movement, directional vulnerability and painful movement. Identifying these variables during clinical assessment will aid the clinician in determining Directional Preference at the wrist, which may lead to faster resolution of symptoms and functional deficits.

The highest association for prediction of Directional Preference at the wrist was mechanical stress, which was inversely related to Directional Preference by 73.3%. In nearly three-quarters of evaluated patients, their Directional Preference could be identified from their history alone. Developing a well-understood patient and mechanical history will allow the clinician to navigate through the examination and treatment in a more directed way. After the patient history, the clinician should be able to determine if the patient can be classified as a wrist derangement in 73.3% of patients and should also have a general idea of which loading strategy to employ for treatment. This pattern recognition will allow the clinician to establish more effective treatment plans which should resolve quicker than when traditional methods are used.

Obstructed movement was the second most useful determinate for Directional Preference, with 46.6% of patients' Directional Preference matching their obstructed movement. This finding has incredible clinical relevance as traditional physical therapy often works to restore obstructed movement by mobilizing and moving into that direction; however, by doing so in this study, it would have resulted in more than half of the participants developing a worsened presentation of their symptoms and function. Finding an obstruction to movement during the assessment will help to indicate to the clinician that the presence of a joint Derangement is likely, and the direction that the patient will need to move to experience rapid improvement in the condition is not expected to be in this direction.

The direction of movement which provoked the patients' symptoms, or directional vulnerability, was found to be opposite of their Directional Preference in 66% of wrist Derangements in this study. This is key, again, as the clinician might be able to determine directional vulnerability through patient and mechanical history. If not through the history, then upon mechanical movement assessment the clinician may find a directional vulnerability. Once identified, this will allow the clinician to confidently make the provisional classification of Derangement and begin to establish Directional Preference, which was opposite of the directional vulnerability in two-thirds of the wrist Derangements studied.

The final variable of interest, the patients' most painful movement, was found to match their Directional Preference in 53.3% of wrist Derangements. Again, this finding is clinically applicable as traditional physical therapy and orthopedic treatments often work to prevent or limit patients' ability to move toward painful movements via bracing, immobilization or behavior and activity modification. This finding is of interest as it challenges the current belief that rest and disuse helps return function. If these painful movements were avoided in this study, less than half of the participants would not have improved their pain and function.

The clinical application resulting from this study is immense, for both the MDT-minded clinician as well as clinicians using more traditional treatment methods. This study had the highest reported prevalence of Derangement to date (79%), which may be explained by the higher number of loading strategies employed for treatment (eight versus the previously published two). This study¹² also found that patients with central symmetrical symptoms only required sagittal plane loading strategies while patients with lateral symptoms responded to loading strategies in both the sagittal and frontal or transverse planes. Nevertheless, this study presents an even greater societal impact as using MDT assessment and treatment methods may dramatically reduce medical consumption (i.e., diagnostic imaging, invasive procedures, pharmacological agents, etc.) and the resulting dependence on narcotics and unnecessary medical interventions.¹² Further research is needed to establish more concrete cost-saving analysis and data, as well as predictive variable data at other extremity joints. Conversely, mechanical joint Derangements tend to behave in a predictable manner, despite the joint being assessed,¹ therefore it is hypothesized, based on this study,¹² that these findings will generalize well to other extremity joints.

Supplemental Video: <https://www.youtube.com/watch?v=PfoPGUrnISY>

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