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## Exploring Approaches to Treatment of Musculoskeletal Injuries

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**Article – Feature**

## Exploring Approaches to Treatment of Musculoskeletal Injuries

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Faculty Advisors: Rachel Shakked, MD and Sarah Weinstein, DO

When approaching musculoskeletal injuries, there are many components of the patient assessment that contribute to different treatment options. Interviews with both an orthopedic surgeon and a sports medicine physician revealed similar yet different ways of diagnosing and treating orthopedic conditions.

Each patient presentation is like a mystery and the physician must put the clues together to uncover the final diagnosis. In an orthopedic practice, x-ray imaging provides one of these critical clues and is ordered for most patients. The imaging allows visualization of structural alignment and can aid in revealing deformities, as well as predispositions to diseases and injuries.<sup>1</sup> Through x-ray imaging, the severity of a condition can be precisely determined by measuring angles of structures and better directing treatment. Advanced imaging, such as magnetic resonance imaging (MRI) and computed tomography (CT), is ordered to confirm diagnoses and further determine severity before surgical interventions.<sup>2</sup> MRI allows better visualization of soft tissues while a CT scan is a higher resolution x-ray image that shows bony structures.<sup>2</sup> While establishing a diagnosis is perhaps the most important part of the treatment, there is new technology constantly introduced into orthopedics, and into medicine in general, to assist with diagnosis. Orthopedic surgeon and sports medicine physician, Dr. Shakked and Dr. Weinstein, emphasized the importance of listening to the patient's story. Sometimes injuries will show on an MRI that are not related to the patient's discomfort and physicians will be tempted to fix what the imaging shows. It is important to order imaging in a thoughtful manner and not only read a report but look at the entire clinical picture. The components of the patient exam help guide treatment options, ranging from nonoperative to operative, depending on the injury.

### Nonoperative Treatment

A conservative approach to musculoskeletal injuries includes a variety of nonoperative treatments, such as modification of activities, home exercises, a structured course of physical therapy, as well as anti-

inflammatory medications.<sup>3</sup> In the context of foot and ankle conditions, Dr. Shakked, a foot and ankle orthopedic surgeon with the Rothman Orthopedic Institute, considers factors specific to weight bearing, such as low-impact activity modification, using a brace, and changes in shoe wear in her assessments.

For the administration of anti-inflammatory medications, musculoskeletal ultrasound is a technique used to guide procedures and serves as a useful tool in the treatment of orthopedic conditions. In its use to deliver injections, it provides direct feedback for the physician and the patient to ensure the needle is exactly where it needs to be to provide relief.<sup>4</sup> Injections most often include cortisone, platelet-rich plasma (PRP), and hyaluronic acid. Cortisone injections are versatile in the injuries they can treat and may be administered longitudinally; however, the therapeutic effects may diminish over time.<sup>5</sup> PRP injections are most appropriate for patients with chronic tendon issues, partial muscle tears, and osteoarthritis.<sup>6</sup> Sports Medicine and Family Medicine physician Dr. Weinstein offers PRP injections to her patients but does not recommend them for acute injuries as they may upregulate the inflammatory response. Though they have shown great potential in certain conditions, Dr. Weinstein cautions PRP injections are not yet covered by insurance, which is an important consideration for patients seeking treatment. Hyaluronic acid injections are another option specifically in the treatment of specific knee conditions such as osteoarthritis and certain types of meniscal tears. Unfortunately, hyaluronic acid injections in other regions such as the shoulder and hip are not yet covered by insurance.<sup>7</sup> When conservative treatment options are ineffective, surgical management is pursued.

### Operative Treatment

When developing a surgical plan, the orthopedic surgeon considers the goals of the patient and discusses the pros and cons of undergoing a procedure. Surgery can alleviate painful symptoms, such as a joint replacement or a fusion, and provides improvements in motion, as well.<sup>8</sup> The surgical procedure is created on the foundation gathered from the history, physical exam, and patient's goals. Dr. Shakked believes surgical intervention provides the opportunity for restoration of function, for patients to have a fulfilling life, and to allow patients to do the things they enjoy. She notes goal planning is an important part of the surgical process; however, most orthopedic surgery candidates are very self-motivated. However, this is not always the case for trauma patients in which the injury occurs suddenly and unexpectedly. Thus, the psychological mechanisms of readiness to return to the sport or

activity that caused the injury must be accounted for.<sup>9</sup> These situations require more external motivation because of the long recovery process. In the context of optimizing return to sport rates, psychological readiness is a significant factor to consider in the treatment plan of patients.<sup>9</sup>

### Integrative Care

In the treatment of musculoskeletal injuries, strong interdisciplinary relationships are crucial to providing the best care possible. Physical therapy is often incorporated into orthopedic and sports medicine practices as a method to maximize healing, improve function, and provide pain relief.<sup>10</sup> In the case of trauma patients, physical therapy helps set short-term and long-term goals to help patients meet benchmarks. Most orthopedic patients undergo a physical therapy program and there is abundant communication with physical therapists about surgical procedures, patient limitations, and recovery plans.<sup>10</sup> Additionally, in foot and ankle treatments, orthotics assist in ensuring correct positioning when fitting casts and orthotic devices. In the operating room, orthopedic surgeons rely on the x-ray department and nurses to ensure surgeries go smoothly. Interprofessional relationships benefit the patient as they expand the patient's team, providing a holistic approach that addresses the whole patient. In this manner, different thoughts and perspectives may be shared to optimize outcomes for the patient.

Along with interdisciplinary relationships, physicians may wear many different "hats" within medicine, such as that of an educator and a researcher. The role of teaching in patient care may include counseling patients on the importance of physical activity, nutrition, smoking cessation, and sleep. Dr. Weinstein, also trained in Lifestyle Medicine, has found that oftentimes patients understand that they should exercise and eat healthy, but they do not know where to start. This provides Dr. Weinstein the opportunity to sit down with her patients and build specific, small, measurable, timely, and attainable goals. Additionally, when working with patients on their treatment plans, it is necessary to help the patient understand what exactly is causing them pain or discomfort and why certain treatment plans are recommended. Dr. Shakked believes that patients are more likely to adhere to the treatment plan if they understand the reasoning behind it. Alongside her practice as a foot and ankle surgeon, Dr. Shakked enjoys researching to better understand patterns she is seeing in patient presentations and even study questions posed to her by patients. Medical research is significant to patient care through the discovery of new therapies, risk factors for diseases, and enhancement of patient outcomes.<sup>11</sup> Engagement in

research can help better inform patient care and keep medicine moving forward.

### Conclusion

As medicine constantly develops and new technology in patient care is introduced, we see the framework remains consistent: gather a detailed history, perform a physical exam relevant to the history, obtain imaging if necessary, and discuss different treatment options with the patient to best meet their personal goals. Dr. Shakked and Dr. Weinstein emphasize patient-centered care in their practices to build treatment plans that best fit the individual needs of each patient, whether that be through non-operative or operative care. The treatment of musculoskeletal injuries requires an all-encompassing approach and benefits from integrative care. While there are different methods of diagnosing and treating musculoskeletal injuries, talking to and examining the patient is the most important component of the assessment.

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