



# **Appalachian Physical Therapy, Inc.**

***“Always Getting Better”***

## **IMAGING IN HEALTH CARE**

*At Appalachian Physical Therapy, we believe informing and educating our patients and clients is a crucial part of our role. Our never-ending emphasis on learning keeps us very well informed and current with the best interventions in health care. It also provides us with a wealth of information that we are passionate about sharing with others.*

*One topic we frequently encounter is the role of imaging in health care (X-ray, MRI, CT scan). We find that many people have serious misconceptions regarding imaging (including health care providers), which can lead to misguided choices with disappointing results. In an effort to promote understanding and healthy choices, we have compiled this information and hope you find it enlightening.*

***What does an X-ray, MRI, and CT scan show?*** X-ray images boney structures of the body, pneumonia, and tumors. It cannot display discs, ligaments, tendons, muscles, or cartilage as these tissues are not dense enough to deflect an X-ray beam, which passes through them. X-ray provides insight as to the status of cartilage and discs by displaying space (or lack of) between bones in a joint or vertebrae. MRI displays boney images, as well as further detail as to the condition of soft tissue structures including the brain. A CT scan provides similar information.

***When is imaging appropriate?*** There are multiple instances when imaging may be appropriate.

- ◆ In cases of trauma such as a motor vehicle accident or a fall
  - ◆ When pneumonia or life-threatening conditions are suspected or apparent
  - ◆ When a condition is not responding as is considered typical to appropriate intervention
- There are multiple guidelines in the literature for assisting health care providers in determining if and when imaging may be appropriate. However, not all practitioners utilize these guidelines.

***Are there instances where imaging is inappropriate or unnecessary?*** Absolutely.

- ◆ Pain as an isolated symptom does not warrant imaging, especially in the absence of trauma or other findings.
- ◆ Imaging is not justified if it is not going to influence the course of care for an individual. For instance, if someone has shoulder pain and they wish to avoid surgery or are not a candidate for it, then having an MRI to rule out a rotator cuff tear is not essential if they are not going to act on those results.
- ◆ Imaging is typically not necessary (except in the above mentioned instances) as the first course of action in care.

***How can a physical therapist or other health care provider treat until they know what the imaging shows?*** There are many tools besides (and perhaps better than) imaging to assist an effective health care provider in determining what intervention is best for a patient:

- ◆ History - An experienced and educated clinician knows what questions to ask to aid in diagnosis and determining appropriate care. In physical therapy, we delve further into the diagnosis of “shoulder pain,” for example, and determine if there are problems in other parts of the body or other tissues that may be influencing the shoulder.
- ◆ Physical - An experienced and educated clinician knows what tests and measures are necessary, how to administer them, and how to interpret them. PT for the shoulder should include assessing the quantity and quality of movement in relevant body segments. Palpation is also a very powerful and informative tool for identifying problem tissues. Special tests done in the clinic can also provide additional information as to the source of pain.

***But what about “Bone on Bone”? Don’t you need to know if it’s there before treating?*** No. Having an X-ray and then referring to physical therapy for treatment of “osteoarthritis” does not make any difference in how the therapist treats. Symptoms may be arising from other sources, and the imaging results, while telling a story of a joint or spine under stress, may be an incidental finding. Studies show that the majority of subjects without low back pain have positive MRI findings for disc involvement. The presence of a defect/loss of cartilage in the knee, cysts, meniscal tears, and edema were found on imaging in many subjects without knee pain. Studies repeatedly conclude that since imaging finds

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imperfections in subjects without pain, it should not be used as the primary factor in determining treatment for those with pain or other symptoms.

***But what's the harm in having it done, especially if insurance is paying?*** There are multiple potential harms:

- ♦ **Findings on imaging do not always correlate with symptoms.** People with relatively minor symptoms can present with significant findings on imaging, while someone with severe symptoms may demonstrate minimal or no findings. Sometimes imaging shows greater involvement on one side, but the symptoms are worse on the other. These situations demonstrate that what is seen on imaging does not tell the whole story.
- ♦ **Overemphasizing the role of imaging in determining patient management has been shown to lead to inappropriate/failed treatments including surgery, as well increased expense and poor outcomes.** Multiple studies conclude that due to the poor correlation between imaging and symptoms, findings must be interpreted in conjunction with the patient's full clinical presentation. This brings us back to getting a thorough history and physical, not counting on imaging to make decisions about care.
- ♦ **Imaging does not reveal WHY something is wearing out.** It only demonstrates that it is. It does nothing to clarify the SOURCE of the problem or what is driving it. A thorough history and physical accomplish this.
- ♦ **Exposure to radiation**, although small, is why the technicians leave the room or are shielded.
- ♦ **Expense.** Even if insurance pays, ultimately we all pay.

***If so much information is available without imaging then why is it used so much?*** In some instances imaging is used for liability. Providers may be justifiably concerned about getting sued, and use it largely to protect themselves. Sometimes patients are the driving factor—they expect and even demand imaging. Providers may find it easier to succumb to this mindset rather than fight it. Money can be a factor, as an expensive piece of equipment only generates revenue when it is used. Time and effort can play a part too: when a health care provider is pushed for time or does not want to exert the effort to perform a thorough history and physical, imaging can seem like a quick and easy substitute, although certainly a poor one.

***Is this why insurances sometime refuse to authorize payment for imaging even when a provider orders it?*** Absolutely. Insurance companies are loaded with actuaries who track statistics. When they see patterns of expensive tests being ordered that don't influence treatment decisions, they logically conclude that the treatment decisions can be made without the expensive test. This is why some insurance policies will not authorize payment for a shoulder MRI until physical therapy has been commenced. Many times patients begin PT regardless of the MRI results or even before they are known. So evidently the results are not essential to treatment decisions. Similar statistical tracking by insurers has influenced many emergency department protocols. Due to payment denials, often MRI is not ordered except in life-threatening situations.

***For further information or to address questions or comments please give us a call or see our website. Thank you!***

#### **References:**

1. Blankenbaker D, Ullrick S, Davis K. Correlation of MRI Findings with Clinical findings of trochanteric pain syndrome. *Skeletal Radiology*. 2008; 37: 903-909.
2. Bhattacharyya T, Gale D, Dewire P. The Clinical Importance of Meniscal Tears Demonstrated by Magnetic Resonance Imaging in Osteoarthritis of the Knee. *J Bone Joint Surg Am*. 2003; 85: 4-9.
3. Jensen M, Brant-Zawadzki M, Obuchowski N. Magnetic Resonance Imaging of the Lumbar Spine in People Without Back Pain. *New England J of Medicine*. 1994; 331: 69-73.
4. Kornaat P, Bloem J, Ceulemans R. Osteoarthritis of the Knee: Association between Clinical Features and MR Imaging Findings. *Radiology*. 2015; 239.
5. Miniaci A, Dowdy P, Willits K. Magnetic Resonance Imaging Evaluation of the Rotator Cuff Tendons in the Asymptomatic Shoulder. *American J of Sports Medicine*. 1995; 23: 142-145.
6. Modic M, Obuchowski N, Ross J. Acute Low Back Pain and Radiculopathy: MR Imaging Findings and Their Prognostic Role and Effect on Outcome. *Neuroradiology*. 2005; 237.
7. Roger C, Baisden J, Carragee E. Surgery for Low Back Pain: A Review of the Evidence for an American Pain Society Clinical Practice Guideline. *Spine*. 2009; 34: 1094-1109.

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