

clinical conduit

by Ed Mulligan, PT, DPT, OCS, SCS, ATC

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Upcoming Courses

Advanced Manual Therapy Series
Clinical Orthopedic Rehab Education



2011 Dates

Part 5 Hip/Knee - Aug 27-28
Part 6: The Lower Quarter - Oct 15-16
(Leg, Ankle, and Foot)

2012 Dates to be announced this Fall

A detailed description of the course content and learning objectives is available at our web site — www.continuing-ed.cc

Single course attendance is allowed on a space-available basis

Shoulder Radiology



Physical therapists should be familiar with the indications, limitations, risk, and benefits of musculoskeletal imaging practice so as to allow professional interaction and communication with both patients and physicians (or other health care providers). The indication for any imaging study is that their outcomes will impact a clinical diagnostic, prognostic, or intervention decision. That said it is important to remember to "treat the patient, and not treat the x-ray". While imaging may reveal the pathology it is the musculoskeletal exam and

patient history that provides its relevance.

A variety of imaging modalities are available to assist in the diagnosis of shoulder pathologies. Plain film radiographs are most appropriate for bony fractures and joint dislocations. Computed tomography (CT) is used for a more refined evaluation of subtle, complex, or osteochondral fractures. Magnetic resonance imaging (MRI) and ultrasound are most helpful with common soft tissue injuries of the shoulder.

Plain film radiography should always be the initial means of imaging investigation as it can detect most fractures, dislocations, calcific deposits and other causes of pain such as osteolysis, arthritis, or tumors. Your clinical examination will help determine the specific views that would be most helpful. The three cardinal plane views that provide an orthogonol, 3-dimensional perspective are de-

scribed on the next page.

For instance, Rockwood apical A/P or scapular outlet views may reveal subacromial spurs if the clinical exam suggests an impingement syndrome or rotator cuff tear. More advancing imaging modalities are used if further clinical insight is needed for management decision-making. CT is superior to plain radiographs in the evaluation of complex fractures and fracture-dislocations involving the head of the humerus. The use of MRI is reserved for the advanced evaluation of rotator cuff pathology. The advantage of an MRI is that it can provide a detailed and multi-dimensional (planar) display of soft tissue anatomy by a non-invasive and non-ionizing form of radiation. MR arthrography (MRA) is an MRI following the intra-articular injection of a dilute contrast agent (gadolinium) and is reserved for the evaluation of capsulolabral abnormalities.

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Randomized Controlled Trials: The Basics

A randomized controlled study (RCT) is one in which subjects are assigned by chance to one of two groups. One is the treatment group and the other is a control group. The treatment group receives the treatment under investigation, and the control group receives either no treatment, a placebo treatment, or some standard treatment that is considered a usual, traditional, or standard form of care.

Studies that are designed as randomized controlled trials are considered powerful experiments and occupy a lofty position on the evidence hierarchy for three basic reasons - 1) they include the use of a control group which minimizes the impact of maturation bias (subjects naturally improving over time) when the groups are compared; 2) subjects are randomly allocated to each group to equalize potential confounding variables; and 3) subjects, investigators, and the means of outcome assessment are blinded to limit the potential for placebo or measurement bias. Given these circumstances, post-intervention differences between groups may then be attributable to the independent variable (treatment technique) that was studied. The difference between groups can usually be measured

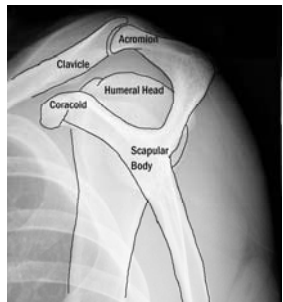
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Shoulder X-rays: 3 Common Views continued

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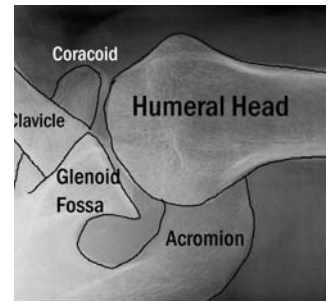


Transscapular Lateral "Y" view. This view provides a true lateral perspective of the shoulder girdle allowing for assessment of fractures or dislocations. In this orientation the scapula forms a "Y" with the vertical portion of the letter representing the body of the scapula and the acromion and coracoid process forming the upper forks. The humeral head is superimposed. The humeral head should be centered at the junction of the stem and forks of the "Y". The humeral head will move forward under the coracoid process if dislocated anteriorly or move back under the acromion if subluxed posteriorly. This view may also reveal proximal humeral, acromial, coracoid, or scapular body fractures.



A/P View. In the anatomical position (humeral ER) the anterior aspect of the humeral head is visible with the greater tuberosity now evident on the lateral portion of the humeral head while the lesser tuberosity is superimposed on the humeral head medial to the greater tuberosity.

AP views (ER, IR, or true A/P) provide an overall impression of the glenohumeral joint, AC joint, and distal clavicle. This view also allows visualization of the apex of the lung to screen for a Pancoast's tumor. You may be able to see a Hill Sach's (hatchet) lesion on the IR view.



Axillary View. This inferior to superior view shows the relation of the humeral head to the glenoid fossa. The AC joint is superimposed on the humerus and will reveal the presence of an os acromiale.

This transverse plane view identifies glenohumeral joint narrowing, glenoid version or erosion, humeral head subluxation, and the presence of osseous Bankart lesions.

What is A.R.T? Do you have any experience with this type of therapy or has there been any research on its effectiveness?

S.R., PT



Personal Red Flag Count - 3

- proprietary
- treats "everything"
- unproven



Question of the Month: Active Release Technique

ART is an acronym that stands for Active Release Technique and is referred to as the "Gold Standard of Soft Tissue Treatment" on its web site. I have no direct experience or specific education regarding this intervention method as it is a proprietary term and intervention that can only be used or provided by practitioners that have completed approved coursework and achieved and maintained their certification.

The technique evidently targets soft tissue disorders as it appears to be a movement based massage technique aimed at muscles, tendons, ligaments, fascia and nerves. Evidently, the technique manually shortens the tissue, applies a contract tension, and then lengthens the tissue or makes it slide relative to the adjacent tissue. The web site claims that headaches, back pain, carpal tunnel syndrome, shin splints, shoulder pain, sciatica, plantar fasciitis, knee problems, and tennis

elbow are just a few of the many conditions that can be resolved quickly and permanently with ART.

ART therapy is reported to be superior to traditional techniques such as massage, trigger point therapy, e. stim, and ultrasound. Unfortunately, there is absolutely no scientific evidence to support this claim. A PubMed article search identified 3 low quality case reports and one pilot study from the chiropractic literature that have critically reviewed this intervention. All the case reports additionally used traditional interventions (in addition to ART) that could explain any positive outcomes and the pilot study was a very small sample (without a control group) that evaluated a single dependent variable (pre-post-treatment tenderness) that may or may not be related to improvements in other impairments or functional outcomes.

There is nothing wrong with these low-level evidence studies in the

preliminary investigation of a new treatment approach but until they lead to higher-level scrutiny the clinician should not confidently integrate their suggestions as proven theories of care.

My concern is that when a treatment is patented and referred to as the "Gold Standard" or "state-of-the-art" it should have evidence beyond low quality case reports to support this contention. I have no doubt that soft tissue mobilization or massage techniques have their place I'm just unconvinced (at this time) that this particular form of soft tissue treatment is any more likely to help my patients. I'll wait for well-designed RCT to prove that my traditional effleurage and petrissage techniques are not just as valuable (when specifically indicated).

Questions you would like addressed in a future issue can be sent to mulliganpt@tx.rr.com



Patellar Tendon References

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"Featured Internet Link"

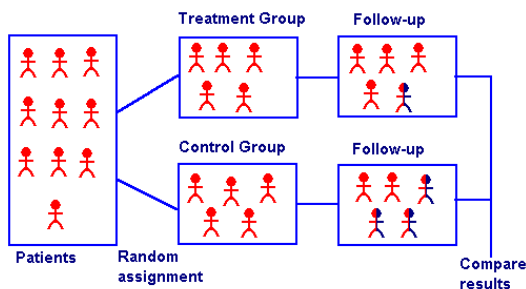


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Randomized Controlled Trials continued -



by a probability value (usually a p -value < 0.05). This means that there is less than a 5% chance that the difference between group's measured dependent variable is insignificant. In other words, the p value tells us whether or not there is a significant difference between groups and if a number of studies have found a significant difference we can look at the statistical effect size to reveal how large a difference is present.

Despite the power and popularity of randomized controlled trials it still has limitations. For instance, with certain research questions, randomized controlled studies cannot be conducted for ethical reasons. A silly, but obvious, example would be a RCT in which we wanted to evaluate the how utilizing a parachute when jumping from an airplane impacts the death rate. It would be impossible for an internal review board to allow us to randomize subjects to the "no parachute" group to test our hypothesis.

Another unavoidable limitation of the RCT is the internal vs. external validity paradox. RCT's are most powerful when a number of controls are in place to ensure the internal validity of the research design. For instance, if we were to evaluate the benefit of a specific manual therapy technique we'd either have to be very specific in how it was applied to each subject or allow the investigators to modify the manual treatment in accordance with the subject's individual needs and response to the treatment. We also have to make a decision on how similar or different the two groups are in regards to their age, gender, pathology, and injury acuity. If we preserve the specificity of the intervention we'd protect the notion of internal validity but limit our generalization of the findings to a specific technique in a homogenous subject group. The other option allows for the true clinical reasoning and individualized application of treatment but compromises the scientific rigor and control of the study.

RCTs are also notorious for coming to conflicting conclusions on similar questions. This is where the internal validity of the study should be more closely analyzed. Here is where an appreciation for the methods of sampling, allocation, blinding, and data analysis as evaluated by a PedRO score can help you decide on the quality of the research. While RCTs have a well-deserved reputation for their high level of evidence it is important to be an educated consumer of the literature to recognize both the strength and limitations of the research design.



Palpation Tenderness in Patellar Tendinopathy

Patellar tendinopathy is a common overuse condition in active adults. Palpation tenderness at the inferior pole of the patella and proximal third of the patella tendon is considered the hallmark sign of the condition. However this finding must be evaluated in the context of the patient's age and activity level. Cook JL, et al, in the *Br J Sports Med*, showed that while patellar tendon palpation pain is very reliable and sensitive (to rule out the condition) it is not very specific in a young and athletically active population. These findings were replicated in a 2009 study by Ramos LA, et al, showing that the prevalence of palpatory pain at the inferior pole of the patella lacked specificity to differentiate the condition in a group of subjects with demanding functional activity levels.

So, is there an assessment technique that might help us differentiate this condition and rule on its presence in subjects with high activity levels? A recent study lends credence to a palpation method I was taught years ago that should be used on athletic patients. This palpation method simply assesses level of pain and reproduction of the athlete's asterisk sign when palpating the upper portion of the patellar tendon in both a fully extended and 90° flexed position. A positive response is reproduction of pain with palpation in flexion that is greatly minimized when the knee is extended. The same phenomenon is present when palpating the infrapatellar tendon in unilateral stance and the knee flexed to 30°. Pain is much worse in this flexed position than in bilateral stance with the knees fully extended. The study, by Rath E, et al and published last year in the *Indian Journal of Orthopedics* showed that palpatory pain on a visual analog scale was reduced by 3 points in the different test conditions (from 5/10 to 2/10). The study used ultrasonography and/or MRI findings to ensure each subject did in fact have a patellar tendinopathic condition. The suggested pathogenesis of this diagnostic phenomenon is the heightened impingement of the deep fibers of the proximal patellar tendon when the knee is flexed.



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Education is a lifelong experience. Experience is a lifelong education. Education plus experience equals expertise.



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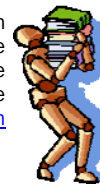
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1901 Pintail Parkway
 Euless, TX 76039

Phone: 817-488-2061
 Fax: 817-684-7201
 Email: mulliganpt@tx.rr.com
www.continuing-ed.cc



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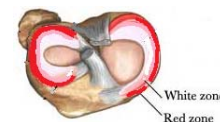


Clinical Orthopedic Residency Education Series: An Advanced Manual Therapy Education Track

We are about to complete our second year of the C.O.R.E. series. These courses were designed to provide a comprehensive overview of orthopedic physical therapy (from head to toe) based on the APTA's definition of orthopedic specialty practice. We've had a number of clinicians from the community take the series and had and had 10 from our first class pass the orthopedic specialty (OCS) exam this past spring. We anticipate another 5-10 from this year's class will be sitting for the exam in 2012. If you'd like a mechanism by which to prepare for the exam or simply would benefit from advanced coursework with expert colleagues, we hope you'll consider joining us next year. These courses are taught by the orthopedic faculty at UT Southwestern. Next year's series will begin again in March. The course content includes examination and intervention strategies for the cervicothoracic spine, upper quadrant (shoulder, elbow, hand), lumbopelvic spine, and lower quarter (hip, knee, ankle/foot). All of the material is based on current evidence with over 50% of the on-site course work devoted to lab demonstration and practice. For more information on the 2012 advanced clinical orthopedic education series please visit our web site at www.continuing-ed.cc/residencycourse.htm

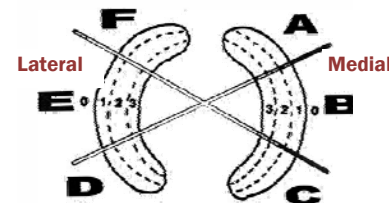


Featured Home Study Program Meniscal Injuries of the Knee



When reading surgical reports it is common for the orthopedic surgeon to reference where meniscal tears, excisions, or repairs were performed using a zone classification system. This can be important information in designing your post-operative rehab programs. The zone system uses letters to indicate the region and numbers to classify vascularity. For instance D, E, and F region indicate injuries on the lateral side of the

joint that would require protection from valgus compression stress whereas A and F zone lesions need flexion range restrictions so as to not overload the posterior of the medial and lateral meniscus. The menisci are sub-divided into circumferential "vascularity" thirds, represented by numbers 1, 2, and 3. Zone 0 represents the meniscosynovial junction.



Geographical zones are classified as A through F. The medial meniscus includes zones A to C with zone A located posteriorly. The same rationale is used on the lateral side with the anterior third of the meniscus called D, middle 1/3 is E, and posterolateral 1/3 called F.

Vascularity zones are named red/red, red-white, and white-white as you move from lateral (peripheral) to medial (central). The "red" zone descriptor indicates that adequate blood supply is available in the area

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If you'd like more information on the management of knee meniscal injuries we have a TPTA approved written home study that should help. This self-study reviews examination and intervention strategies. This inservice can be read free of charge. A post-test for CEU credit is available at <http://www.continuing-ed.cc/homestudyv.htm> for a reasonable fee.

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