

clinical conduit

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Upcoming Courses in 2012

Advanced Manual Therapy Series
Clinical Orthopedic Rehab Education

2012 Dates

- Part 1: Principles of Manual Therapy - Feb 25-26
- Part 2: Cervicothoracic/TMD- Apr 14-15
- Part 3: The Upper Quarter -Jun 2-3
- Part 4: Lumbopelvic Spine-Jul 14-15
- Part 5: Hip/Knee-Aug 25-26
- Part 6: The Lower Quarter-Oct 13-14 (Leg, Ankle, and Foot)

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

Glenohumeral Osteoarthritis



With all the attention in the last few years regarding the proper post-operative management of total shoulder replacements, hemi-arthroplasties, and reverse total shoulder implants you would think there would have been more information published on how to prevent or prolong this necessity and/or make for a good “prehab” program. Even the American Academy of Orthopedic Surgeon’s clinical practice guideline could not find enough high-quality research to recommend “for” or “against” physical therapy in the manage-

ment of glenohumeral joint osteoarthritis.

Although primary osteoarthritis of the shoulder is relatively uncommon there is a wide spectrum of predisposing, secondary causes. Chondral damage may be present secondary to trauma, instability, post-surgical arthrosis, avascular necrosis, or inflammatory arthropathy. Symptoms tend to be non-specific and often mimic other shoulder conditions. Probably the most common complaints are nocturnal pain and loss of joint mobility. As this is usually a gradual and degenerative process, muscular atrophy may be visible along with tenderness to a palpation along the anterior and posterior joint lines. As opposed to other orthopedic shoulder conditions, mid range motions may have mechanical symptoms and /or symptom reproduction.

While there are no “special tests”

for shoulder osteoarthritis, a scouring type maneuver with concurrent compression along the long axis of the humerus with simultaneous rotation may be provocative.

Imaging studies confirm the diagnosis. True A/P, axillary, and scapular-Y lateral views will reveal the hallmark signs of joint space narrowing, osteophytes, subchondral sclerosis, and bony cysts that define this condition.

Non-surgical interventions should be the mainstay of treatment for early glenohumeral arthrosis with a focus on pain reduction and motion restoration. Education in occupational, avocational, and recreational activity modifications provide patients with important information and crystallize the low demand expectations they should have regarding their shoulder function.

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Trunk Core Endurance Tests



A number of isometric endurance tests evaluating muscles of the trunk have been proposed in the literature as a mechanism to assess fitness, predict injury risk, and/or restore normal function. These tests are conducted by assessing the amount of time a subject can hold an anti-gravity posture and can be an inexpensive alternate to expensive machine evaluation. A number of authors have investigated the clinical utility of these tests and provide normative data that clinicians can use to screen for potential injury risk. The most common tests are the supine chest raise, supine double leg lowering, prone chest raise, prone double leg raise, side plank, and Biering-Sorenson prone trunk lift.

An interesting study was published a few years ago in *Clinical Rehabilitation* that evaluated the sensitivity, specificity, and predictive value of these tests to identify subjects with low back pain (LBP). The study had 50 men and women with and without LBP for a total of 200 subjects. The average age was about 40 years old and those classified as having LBP had at least six weeks of LBP or at least three episodes lasting at least one week in the previous year. The authors wanted to evaluate the reliability of these tests and see which endurance test was most accurate at differentiating subjects with and without LPB. Results of the study can be found on page 3.

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Shoulder Osteoarthritis continued ...

REFERENCES

Boselli KJ, Ahmad CS, Levine WN. *Clinical Sports Medicine Update*. 2011; 38(12): 2558-2572.

Guideline on the Treatment of Glenohumeral Joint Osteoarthritis - <http://www.aaos.org/research/guidelines/gloguideline.asp>



There is a wide array of reaching aids with rotating claws and magnetic heads that allow a patient to reach high or low objects with less stress on the joint. Long handle devices for personal hygiene and dressing can allow patients more independence with decreased demand on the joint as well.

Medical management of the arthritic patient includes salicylates, acetaminophen, and non-steroidal anti-inflammatory agents such as Cox-2 inhibitors which need to be monitored closely for adverse side effects. Although there is limited, high-quality evidence to definitively recommend nutraceutical products such as glucosamine

chondroitin and omega fatty acids, they may have a chondroprotective and/or anti-inflammatory value. Additionally, intra-articular corticosteroid injections have pain alleviating qualities but cannot reverse or significantly influence the articular cartilage damage or progression. Another option, albeit only from anecdotal reports, is the use of viscosupplementation. Hyaluronic acid has the potential to impact the viscoelastic property of synovial fluid, lower the coefficient of friction in the joint, and reduce pain.

From a therapeutic standpoint the restoration of capsular mobility, which is typically asymmetric, is of paramount importance. Gentle joint mobilizations and light stretching can increase range of motion and improve the arthrokinematics of the joint. From a contractile perspective it is important to address axioscapular deficits and restore the scapular contributions to overhead elevation. Attention to the weakened serratus, rhomboids, and trapezii can be accomplished with shortened lever arms that reduce glenohumeral joint stress. Rotator cuff strengthening can be initiated once scapular stability and control have been established. One should not forget to address the cervicothoracic spine in patients with shoulder osteoarthritis. Enhanced spinal mobility can be accomplished with manual therapy allowing a more appropriate carriage and posture. While none of these interventions will reverse the degenerative process they can collectively improve a patient's functional status and alleviate disabling pain.



Question of the Month: Hip Outcome Measurement Tools

What outcome tools are available for the hip?

T.N., SPT



Here are 7 different outcome measurement tools that can be used for orthopedic hip pathologies. I use the LEFS because of its clinical utility. If you have a more homogenous group of patients you may prefer one the more disease or joint specific scales.

Name	Abbreviation	Type	Mode of Administration	Number of Scales/Items	Score Range	Ease of Use	Content	Clinical Metrics
Oxford Hip Score	OHS	Joint Specific (mostly for pre/post-op THR)	self-report	12 questions	12-60	simple	Pain Function ADLs	Minimal data on reliability, validity, and responsiveness
Harris Hip Score	HHS	Joint Specific (mostly for pre/post-op THR)	Physician input and self-report	8 subjective, 4 mobility, and ROM in 4 directions	0-100	Requires physician measurement	Pain Function ADLs Hip ROM	Minimal data on responsiveness; established reliability and criterion validity
Western Ontario and McMaster Universities Osteoarthritis	WOMAC	Disease Specific - Osteoarthritis (mostly for elderly with OA)	self-report	3 categories with 24 questions	0-100	simple	Pain Stiffness Function	Well established reliability and validity with minimal detectable changes with relative % changes of 30-50% on each subscale
Hip disability and Osteoarthritis Outcome Score	HOOS	Disease Specific (hip OA)	self-report	6 categories with 40 questions	0-100	lengthy	Pain Symptoms ADLs Quality of Life	High test-retest reproducibility; construct validity for quality of life; no data on minimal detectable change
Hip And Groin Outcome Score	HAGOS	Area Specific (for younger-active population)	self-report	6 dimensions with 37 questions	0-100	lengthy	Pain/Symptoms ADLs (sports) Physical Activity Quality of Life	High test-retest reproducibility; construct validity for quality of life; no data on minimal detectable change
Hip Outcome Score	HOS	Pathology Specific (intra-articular hip pathology)	self-report	2 sections with 19 questions	0-100	Also has optional sports subscale	Symptoms ADL Difficulty	Valid for patients that have undergone arthroscopic surgery
Lower Extremity Functional Scale	LEFS	Regional (entire lower extremity)	self-report	20 questions	0-80	simple	Function	Reliable and valid; MDC = ± 5; MDIC = 9

References

Arab AM, Salavati M, Ebrahimi I, Ebrahim Mousavi M. Sensitivity, specificity and predictive value of the clinical trunk muscle endurance tests in low back pain. *Clin Rehabil.* 2007 Jul;21(7):640-7.



“Featured Internet Link”

www.physio-pedia.com



Physiopedia is a Wikipedia for Physical Therapists. A wiki is a collection of web pages that can be collaboratively edited without specialist tools and minimal technical “know-how”. As such, Physiopedia offers a place for physical therapists and physiotherapists throughout the world to contribute, share, and gain knowledge.

The content of Physiopedia is driven by experts and represents an evidence-based approach to patient care therefore offering opportunities for all clinicians to develop as professionals. Through this professional development patient care could be improved and result in a positive impact on global health.

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Lumbar Endurance Tests
continued -

Brief Description of the Trunk Endurance Tests		
Biering-Sorenson	Most widely used test where upper trunk is held parallel to the floor with arms folded across the chest	
Prone Chest Raise	Prone lying with pad under abdomen. Lift upper trunk off surface about 30°	
Prone Double Leg Raise	From prone lying, raise both straight legs until knees clear the support surface	
Supine Chest Raise	With hands across chest the subject sits up and holds a position where the hips and knees are flexed 90°	
Supine Double Leg Lowering	Subject holds a 20° hip flexed position without tilting the pelvis	

Using 30 of the asymptomatic subjects (15 with and without LBP) the authors found good test-retest reliability for the various trunk endurance tests. The intertester intraclass correlation coefficients ranged from 0.79-0.90 for the five different tests. The average amount of time subjects were able to hold each position (in seconds) is detailed in Table 1.

TABLE 1

Test	Men		Women	
	No LBP	With LBP	No LBP	With LBP
Biering-Sorenson	35	27	36	25
Prone Chest Raise	40	33	52	30
Supine Chest Raise	43	33	32	28
Prone Double Leg Raise	38	26	35	26
Supine Double Leg Raise	28	24	28	23

hold time in seconds

Table 2 shows the sensitivity, specificity, likelihood ratios and area under the receiver operating curve for each of the test positions. Most of the tests (except the most utilized Biering-Sorenson test) have excellent sensitivity and the prone double leg raise showed excellent clinical accuracy in its ability to rule in those subjects with LBP. I recommend these simple tests to confirm a patient’s readiness to return to activity and/or predict an elevated risk of injury.

TABLE 2

Test		Cut-off Score	SN	SP	+LR	-LR	ROC AUC
Biering-Sorenson	♂	> 28	92	76	3.8	.11	.85
	♀	> 29	84	85	5.6	.19	.90
Prone Chest Raise	♂	> 31	81	80	4.1	.24	.79
	♀	> 33	98	85	6.5	.02	.93
Supine Chest Raise	♂	>34	96	72	3.4	.05	.88
	♀	> 24	99	33	1.5	.03	.63
Prone Double Leg Raise	♂	> 30	96	100	96	.04	.99
	♀	> 29	100	92	13	.01	.97
Supine Double Leg Raise	♂	> 25	92	80	4.6	.10	.83
	♀	> 25	98	85	6.5	.02	.95

Is Grip Strength Related to Depression?

Clinicians involved in the measurement of muscular strength are often concerned with the consistency of effort in their patients. One exam technique proposed to identify sincerity of effort is



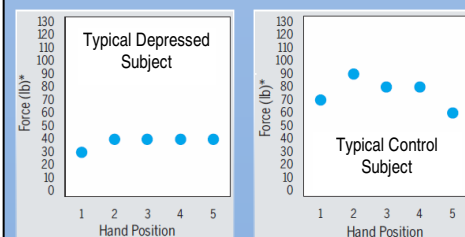
the 5-position grip strength assessment. Using a hand-held dynamometer the subject provides maximal grip contractions with the handle position at 5 different rungs. Grip strength is influenced by the length-tension relationship of the digital flexors with a smaller amount of pressure produced secondary to active insufficiency in the closed grip position and passive insufficiency minimizing grip output in the wider grip positions.

When the results of the force produced at each grip position are graphically plotted it should resemble a bell shaped curve with more force produced in the middle handle positions. The size of the subject's hand also influences the results.

One subset of patients known to have altered performance on motor skill tests are those diagnosed with clinical depression. A recent study evaluated patients confirmed to have depression with an age and gender matched control group to compare both the graphically plotted and standard deviation results.

Participants with depression had a standard deviation effort of less than 8.5 lbs in 67% of the hands tested while this was true in only 1% of participants without depression. Expert clinicians who analyzed the force plots considered participants with depression to have exerted “limited effort” in 70% of cases and those who were not depressed to have exerted limited effort in only 18% of cases.

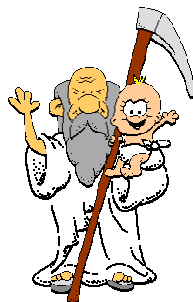
While there were some noted limitations to the study the authors concluded that patients with unrecognized clinical depression may be erroneously considered as providing less than optimal effort during 5 position hand grip testing.



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www.continuing-ed.cc/newsletter.htm



May all your troubles last
 as long as your New
 Year's resolutions



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

These courses are designed to provide a comprehensive overview of orthopedic physical therapy (from head to toe) based on the APTA's definition of advanced specialty practice. We've had a number of clinicians from the community take the series in the past two years and received excellent feedback on the content and format. In fact, we had 10 clinicians 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 would simply benefit from advanced coursework with expert colleagues, we hope you'll consider joining us this year. These courses are taught by the orthopedic faculty at UT Southwestern. Next year's series will begin again the last weekend in February. 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. The courses are designed as a series but attendance at singular courses is allowed on a space available basis.



Featured Home Study Program Proximal Humeral Fracture

Patients with proximal humeral fractures are common referrals in an outpatient therapy setting. While surgical interventions are periodically required (ORIF or arthroplasty) the vast majority can be managed non-operatively secondary to adequate blood supply and minimal fragment displacement. The typical patient is in the 50-80 year-old range as is more likely a female.



Those that have treated this injury know that pain-free motion reacquisition can be challenging. Unfortunately, there is not a significant amount of information in the literature to help guide treatment. A recent case study published by Withrow, et al, in *Physiotherapy Theory and Practice* provides a nice overview, complimented by the limited evidence available, to guide rehabilitative management. The authors address the issue of motion acquisition and highlight conflicting opinions on when and how to initiate treatment to maximize mobility. My anecdotal experience sides with early passive range of motion and careful joint mobilization (dependent upon fracture status and location). This should transition to active assistive range of motion within 3-4 weeks if the fracture is stable. A full description and subsequent discussion on the controversies in rehabilitation philosophy can be found at *Physiother Theory Pract*. 2010 Feb;26(2):120-33

If you'd like more information on how to manage both the non-operative and post-surgical patient with a humeral head fracture we have a TPTA approved home study that should shed light on the current concepts regarding the appropriate rehabilitative management of humeral head fractures. This inservice can be read and/or viewed free of charge. A post-test for CEU credit is available at <http://www.continuing-ed.cc/homestudy.htm> for a reasonable fee.

Home Studies Now Available Study and learn at your own pace at home!

Medical Screening for the PT	.3 CEUs
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Pharmacology for the PT	.2 CEUs
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