

clinical conduit

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The Geographic Influence of Elbow Health



UT Southwestern is sponsoring an Emergency Medical Responder (EMR) course on March 11-13th at its PT school in Dallas. This course is a pre-requisite for all physical therapists who wish to apply (or re-accredit) for the sports clinical specialist credential (SCS) exam. Cogent Steps, LLC, who is the official provider of emergency medical training by the Sports Physical Therapy Section, will teach the course. You can register for the course by going directly to their web site (www.cogentsteps.net) or call me at 214-648-1553 if you have questions about the course.



We've talked a lot in previous issues about the importance of rest. In particular, we've suggested that the dramatic rise in overuse injuries in adolescent athletes may be directly attributable to "early specialization" and year round training and competition. A recent article in the *Orthopedic Journal of Sports Medicine* may provide further evidence to

support the danger of year round training for baseball pitchers. Because of the geographical differences in weather, young baseball players have the opportunity to play year round in the southern portion of the United States whereas the cold weather during the winter in the northern part of the U.S. forces the young athlete inside with a focus on non-throwing related activities.

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Upcoming Courses for 2016

Advanced Manual Therapy Series
Clinical Orthopedic Rehab Education

- Part 1: Cervicothoracic - Apr 9-10
- Part 2: Upper Extremity - Jun 4-5
- Part 3: Lumbopelvic Spine - Jul 9-10
- Part 4: Hip/Knee - Aug 20-21
- Part 5: The Lower Quarter - Oct 8-9 (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

This is the final year that I will be offering this series. Please consider joining us for my final year of teaching this content.

Limited Enrollment



Tony Romo's Broken Clavicle

As a Dallas Cowboy fan, I had my season ruined by a broken collarbone. The minute I saw him get "crunched" in that sidelying position with his arm pinned to his body I knew the clavicle had been broken again. I was a little surprised that surgery was not performed after the first injury as I thought the pendulum had swung to a more "surgical" perspective over the past few years. Of course I was not privy to the exact nature of the injury and would defer to the expertise of the team physicians but it did cause me to review the literature on this topic. Here were some of the main points I discovered.



1) healing rate is determined by blood supply from the muscles that attach to the collarbone so you'd only want to "plate" the fracture if there was significant displacement (or shortening). 2) systematic reviews on operative vs. non-operative treatment are split on which intervention allows a quicker return to play. Surgical fixation may have a better short term outcome but no significant difference in the long run. 3) Complications can occur with both methods of treatment. Non-union, pain, and decreased function are a little higher in the non-op group but the surgical group risks infection, wound dehiscence, nerve injury, and potential need for hardware removal. Regardless of treatment both treatment methods carry a risk of re-fracture - Cowboy fans learned that all too well this season.

Elbow Geography continued ...

Reference:

Zaremski JL, Horodyski MB, Donla RM, Brisbane ST, Farmer KW. Does geographic location matter on the prevalence of UCL reconstruction in collegiate baseball players? *Ortho J Sports Med.* 2015, 3(11), 2325967115616582.



This study was designed as a retrospective review of male collegiate baseball pitchers in the Big 10 and SEC conferences. Two points of data were gathered for all pitchers at these schools - whether or not they'd undergone UCL surgery and which state they played their high school baseball (making the presumption that this was where they had "grown-up" playing baseball). Their high school location was dichotomized into a "north" or "south" category based on the mean temperature of their home state during the year. The map provided gives a visual representation of the north and south category.



North vs. South Pitcher Classifications

A simple chi-square test was used to determine whether a difference existed between the proportion of pitchers from warm weather climates that underwent UCL reconstruction and the proportion of pitchers from cold weather states required the same surgery. The results are quite interesting. 87% of the pitchers in the Big 10 were from "warm" states and 87% of the pitchers in the SEC were from the "cold" states. 40 pitchers from the SEC underwent elbow surgery while 18 pitchers from the Big 10 had the same procedure. The injury risk by conference (which accounts for total pitcher years) was 13.3/1000 in the SEC and 7.8 in the Big 10. This calculates to a 1.7 risk ratio for SEC pitchers. Overall, there was an elbow surgery for every 100 years of collegiate pitching experience. The most interesting statistic though was the related to where the player "grew-up". Southern warm state pitchers had a 6% higher risk and were 1.3 times more likely to need elbow surgery than pitchers from northern colder states.

These findings have obvious implications - those pitchers who grew up playing more baseball (can play year round in the warm states) are at higher risk for elbow breakdown secondary to overuse. This is why many baseball sports medicine experts are now recommending at least a 4-month break from throwing related activities every year. Obviously there are a number of potential compounding variables that were not controlled in this study (actual pitch count, work:rest ratios, musculoskeletal factors, pitching velocity, etc) but I think it may give a reason for parents and coaches to let their children take time off and enjoy other sports during the year.



Question of the Month Specialty Exam Preparation

There is no one way to prepare for any of the specialty credential examinations. My first recommendation is to familiarize yourself with the description of specialty practice for your area of specialization. I authored the most recent sports clinical specialist practice description and it is available through the ATPA. I also wrote an article that was published in the November 2013 issue of the *Int J Sports Phys Ther.* that summarized the survey methodology that helped shape the description of specialty practice. Similar documents are available for the orthopedic exam. The description of content for the orthopedic practice specialization should be published anytime now and the summary of the newly developed practice guideline has been e-published ahead of print in the *JOSPT.* I've read this article and there are generally two new content areas - cervicogenic dizziness and pain science that have been added

while knowledge on therapeutic modalities has been eliminated. There is also a new breakdown of test content by body regions as outlined in the chart below. Here are the links to a number of resources that should be helpful in your preparation

- <http://www.abpts.org/Certification/Sports/>
- <http://www.ncbi.nlm.nih.gov/pubmed/25540711>
- <http://www.jospt.org/doi/abs/10.2519/jospt.2016.6211>

Diagnostic Categories for Orthopaedic Residency Programs

DIAGNOSTIC GROUP OR CATEGORY	NUMBER OF PATIENTS TREATED BY PARTICIPANT AS PART OF THE PROGRAM	% OF TOTAL PATIENTS TREATED BY PARTICIPANT	2015 DSP GUIDELINES
Head/Maxillofacial/Craniomandibular			3%
Cervical Spine			13%
Thoracic Spine/Ribs			6%
Lumbar Spine			20%
Pelvis/Sacroiliac/Coccyx/Abdomen			7%
Shoulder/Shoulder Girdle			15%
Arm/Elbow			4%
Wrist/Hand			4%
Hip			7%
Thigh/Knee			12%
Leg/Ankle/Foot			9%

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



How would you prepare for the OCS or SCS exam?

Determining readiness to return to sport?

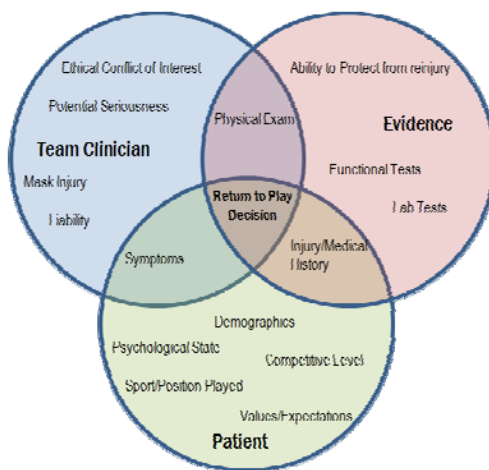


Almost immediately following an injury it is typical for an athlete to ask, "When will I be back"? While this is a simple question, it is a complex answer. Let's look at the issues we must consider.

First, we must define the criteria for return to sport. This begins with a resolution of all impairments. Specifically, no (or controllable) pain and swelling with full range of motion and strength. However, a conundrum may exist if these criteria are accomplished prior to biological healing of the injured tissue. Typically we resolve this dilemma with "functional testing" - an attempt to ascertain if the athlete can protect their injured tissue and display athletic abilities consistent with their sport. Unfortunately, these types of assessment still offer minimal empirical evidence and are often interpreted based on dogma or gestalt.

Recovery of physical capabilities is a necessary step in return to sport but it doesn't account for the psychological readiness. Many athletes (whether they say so or not) have a fear of re-injury and this may hinder their performance. Even in those without kinesiphobic tendencies we know that it often takes time to regain the pre-injury performance levels. This consideration reminds us that returning a player quickly from injury may be a detriment for both the individual and the team. It's one thing to be back playing - it's another to be performing at the pre-injury level.

Traditionally, team physicians make the ultimate decision on readiness to return in consultation with the ATs and PTs involved in the rehabilitation. It is important all these individuals be immune from outside influences (coaches, parents, fans, etc) and make judgments based purely on a risk-reward continuum. This could potentially even include the recommendation that a player never return to the sport because of a high risk of serious injury and/or the threat of life-long impairment and disability. This kind of responsibility is challenging but is an assumed duty of those who take care of athletes. Finally, it is important that those involved in return-to-play decisions are cognizant of all modifiers (desire to compete, seasonality of the injury, financial or litigation conflicts, etc.)



Journal Club



Each month, the orthopedic surgery department at UT Southwestern sponsors a city wide sports medicine journal club. We choose 3 recent articles and discuss the implications. Here is a partial listing of the content that was reviewed this past year.

- effectiveness of kinesio taping in reducing swelling in acute, lateral ankle sprains
- therapeutic response in specific subgroups (based on age, sex, and BMI) of patients with plantar heel pain
- important aspects and limitations of the pre-participation physical evaluations
- effect of surgery and cortisone injection on rotator cuff tendon healing
- current best evidence on diagnostic tests for ACL tears and femoroacetabular impingement
- functional movement screen's ability to predict athletic injury
- pre-season checklists that evaluate risk of injury in adolescent throwing elbows
- impact of lumbar spine disorders on the ability of athletes to play NFL football
- Saffron's ability to limit delayed onset muscle soreness
- effect of thrust manipulation of the neck compared to peripheral manipulation and exercise on shoulder pain
- benefit of core stabilization in the treatment of chronic mechanical low back pain
- differences in outcomes of patients with ACL injury treated with early vs. delay surgery vs non-op treatment
- effect of blood flow restriction on exercise response (ischemic training)
- benefits and risks of whole body cryotherapy
- reliability of neuropsych testing in HS athletes.
- prognosis for three common injuries experienced by the Dallas Cowboys - how long it takes to return to play for a Jones Fracture, syndesmotic ankle sprain, and a midshaft clavicle fracture
- value of vision-based rapid reading tests to identify concussions.
- PCL pathoanatomy and treatment methods
- role of genetic DNA tests in identifying athletic talent

Each month three articles are selected and a volunteer facilitates discussion regarding the content and clinical practice implications. This is one of my favorite ways to learn for two reasons. It makes me read these articles with a very critical eye and then I get to hear my colleagues offer their insights and perspectives on the content. There is no charge to attend and free pizza is provided. To get on the mailing list to receive the articles and invitation each month please email alexis.coffman@utsouthwestern.edu and let her know you'd like to be on the distribution list for the sports medicine journal club.



"Featured Internet Link"



www.GetPT1st.com



GetPT1st is a website built for the healthcare consumer. It brings important (albeit biased) information to anyone dealing with a musculoskeletal injury. It is written in lay language that anyone should be able to interpret and understand. Without apology it is a site that promotes physical therapy across the lifespan.

The information provided underscores the idea that Physical Therapists are movement experts who should be a first choice of the healthcare consumer whenever the feel their physical function has been compromised.

Previous issues are archived at
www.continuing-ed.cc/newsletter.htm



Why hasn't someone
 invented an alarm clock that
 just hands you a cup of
 coffee?



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Next year will be our company's last year to provide the CORE education series. We've had a blast over the years learning with our colleagues but it has come time to turn our weekend attention to other priorities. Our granddaughter (and her future siblings and cousins) will all be back in the Dallas area in 2017 and we don't want to miss a minute of their childhood. It has been said to not retire until you have something to retire to ... and we do. I will still be available to teach occasional private courses but will leave the bulk of post-professional education duties to many of my competent colleagues. I will continue with my academic appointment at the University (for as long as they'll have me) - I just want to free up most of my weekends to devote to other interests. So, I hope you'll consider joining us in 2016 for the final CORE (clinical orthopedic residency education) series. If you'd like a comprehensive overview of orthopedic physical therapy (literally from head to toe) based on the APTA's definition of advanced specialty practice - this is the course for you. We've had over 50 individuals use this series as the backbone of their preparation for the orthopedic specialist exam. The exact weekend dates for next year are now available on our web site. I'll still be around - just spending more time on the job that I enjoy the most - being a grandpa. More information about the CORE education series is available at <http://continuing-ed.cc/residency-course>

The "Clinical Conduit" newsletter is an every other month publication available to any allied health care provider free of charge upon request. Individuals who would like to be included on the email distribution list should contact the editor at mulliganpt@tx.rr.com



CORE Education Series for 2016



Type I and Type II Errors in Research



Whenever you read a research article it is important to beware type I or II errors. We all learned this in school but it is easy to forget the implications without some type of analogy. First, let's start with what these errors represent. A type I error is the incorrect rejection of a true null hypothesis (a "false positive") while a type II error is the failure to reject a false null hypothesis (a "false negative"). More simply stated, a type I error is detecting an effect that is not present. Conversely, a type II error is failing to detect an effect that is present.

While these definitions seem pretty straightforward let me tell you how I remember the difference. My favorite analogy is from the children's story about the village boy who cried wolf. You remember the story - the shepherd tricks the villagers into thinking a wolf was attacking his flock. Unfortunately, when a wolf actually does appear, the boy's cry for help falls on deaf ears as the villagers believed this was just another false alarm. So how is this similar to type I and II errors in research? The first error the villagers had (when they believed him) was a type I error while the second error (when the villagers did not believe him) was a type II error. The null hypothesis of "no wolf" was a false positive. The boy reported a wolf that wasn't actually there. The "no wolf" hypothesis suffered from a type II error the second time. This time there was a wolf present but the villagers rejected the hypothesis.

Here are some other analogies or mnemonics that may help you distinguish error types.

One of my favorite musical performers in high school was Ian Hunter - you may remember his song "Once Bitten, Twice Shy" (if not download on iTunes as a rock classic). Anyway, "this song title represents accepting a premise that doesn't exist and then rejecting a premise that does. Some may like the "judicial" analogy - A judge commits a type I error when he sends an innocent man to jail or a type II error if he lets a guilty man go free. One last example is an alarm that rings without a fire (Type I) and a fire is present without an alarm going off (Type II).

If you'd like more information on our home studies they can be found at <http://continuing-ed.cc/home-study-order>. These are all TPTA approved and can be accessed free of charge. A post-test for CEU credit for a reasonable fee is also available.

		Truth	
		Null Hypothesis	Alternative
Our Decision	Null Hypothesis	Correct	Type II Error (β)
	Alternative	Type I Error (α)	Correct

Home Studies Now Available

Study and learn at your own pace at home!

Medical Screening for the PT	.3 CEUs
Foot-Ankle Anatomy	.3 CEUs
Knee Osteoarthritis	.2 CEUs
Achilles Tendinopathy	.2 CEUs
Lateral Ankle Instability	.2 CEUs
Plantar Fasciitis (undergoing updates)	.2 CEUs
Knee Meniscal Injuries	.2 CEUs
Femoroacetabular Impingement Syndrome	.3 CEUs
Principles of Joint Mobilization	.2 CEUs
Functional Anatomy of the Shoulder	.3 CEUs
Subacromial Impingement Syndrome (undergoing updates)	.2 CEUs
Examination-Treatment of Hand/Wrist	.3 CEUs
Understanding Research Design	.5 CEUs
Ethics and Professional Responsibility	.2 CEUs

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