Greetings from sunny Virginia. On this warm November day I am contemplating one more outing on my stand-up paddleboard, wishing I could use it year-round. It reminds me of how we can now do many athletic activities year-round. It is helpful to be active most days of the week, but can be harmful when we do the same athletic activity year-round without any break. This is even more evident in our young athletes who now play year-round sports. Addressing overuse and overtraining are issues that I am sure you deal with everyday in your practice, and continue to be a focus for COSMF educational activities. Hopefully we can continue to teach children and adolescents (and parents and coaches) how to find that healthy balance.

I am very excited to have started my new role as your chairman of COSMF and would like to start by thanking Dr Teri McCambridge for her dedication, service and leadership to COSMF as an executive committee member and then the chairperson. COSMF is better off today because of your tireless effort Teri! I appreciate the support and confidence the executive committee has shown in me and I am honored to have been chosen as the next COSMF chair. I look forward to working hard to meet your expectations by fostering the growth of COSMF. One of the great parts about my role is that I get to work with an amazing group of people on the executive committee, the council members at-large, other AAP members and the AAP staff (especially Anjie Emanuel, MPH - AAP Manager of COSMF).

COSMF has continued to be very prolific in writing quality policy statements. Two statements that were recently published include **Boxing Participation by Children and Adolescents** (lead author Dr Claire LeBlanc) and **Climatic Heat Stress and Exercising Children and Adolescents** (lead authors Drs Michael F. Bergeron, PhD and Stephen G. Rice, MD, PhD). Statements that will be published soon include Baseball and Softball (lead authors Drs Rice and Joseph Congeni), Cheerleading (lead authors Drs Cynthia LaBella and Jeffrey Mjaanes) and Trampoline Safety (lead authors Drs Susannah Briskin and Michele LaBotz). We have also reaffirmed the statements on In-line Skating and HIV in the Athletic Setting.

**Continued on page 2**
We continue to collaborate with other organizations including the National Athletic Trainers Association (NATA), Canadian Pediatric Society (CPS), National Federation of State High School Associations (NFHS), American Medical Society of Sports Medicine (AMSSM), National Operating Committee on Standards for Athletic Equipment (NOCSAE), and American College of Sports Medicine (ACSM). Dr Amy Valasek will be representing the AAP at the NATA Youth Sports Safety Alliance meeting December 6, 2011, and will be presenting on Asthma in the Athlete. Dr Mjaanes will represent the COSMF at NOCSAE meetings in January. We have also established a new relationship with the American College of Cardiology (ACC) and Dr Reginald Washington will be representing the AAP on their newly formed Sports and Exercise Cardiology Council.

COSMF continues to collaborate with other AAP sections including working with the Sections of Orthopedics and Rheumatology on a musculoskeletal course. We are also working with the Section on Young Physicians on developing a mentorship program.

I hope many of you were able to attend the NCE in Boston this past October. COSMF was again very busy educating the AAP on many important topics such as Pediatric Sports Concussions (Drs Mark Halstead and Kevin Walter), Bone Health (Dr Keith Loud), Back and Hip exams (Drs Rebecca Carl and Paul Stricker), Introducing Physical Activity and Sport to Obese Children (Drs LeBlanc and Blaise Nemeth), Boxing and Mixed Martial Arts: A Debate (Drs Carl and LeBlanc), Youth Sports Specialization (Dr Stricker), Performance Enhancing Drugs (Dr Gregory Landry).

Our COSMF Program at the NCE was co-sponsored by the Section on Infectious Diseases. This included a “Case Based Roundtable Discussion of the Most Up-To-Date Information Regarding Return to Play Issues and Infectious Disease in Sports”. The “Top 10 Articles of 2011” was presented by Drs LaBella and Lawrence Wells. Dr LeBlanc presented “Hot Topics for the Sports Medicine Provider”. The “Pros and Cons of Pre-participation Cardiovascular Screening Tools” was presented by Drs Gene Luckstead and David Bernhardt, MD. The session was closed with the Dr Vito Perriello Jr. Lecture Series given by Dr Pierre d'Hemecourt. During the meeting the 2011 Thomas E. Shaffer Award was presented to Dr Bernard Griesemer. Congratulations Bernie!

At our COSMF program many wonderful Clinical Case Studies and Research Abstracts were presented and the Oded Bar Or Award was presented. I hope you will consider submitting cases or research abstracts for next year’s NCE.

The executive committee had a very productive meeting at the NCE. Along with the activities already mentioned we learned about updates on our initiatives regarding ACL Injury Prevention (Dr Labela), Return to School after Concussions (Dr Halstead, MD) and PPE Implementation (Dr LaBotz).

Drs Chris Koutures, COSMF membership coordinator, and Charles Cappetta continue to lead the executive committee in finding ways to enhance your membership in COSMF. We hope you have found the cases posted on the website along with the fellowship information useful to your practice. We are continually updating the tools available to you so please visit the site often. We plan on sending an email reminder when a new case is posted. We are also in the process of starting a research database for COSMF to help coordinate research activities amongst our members. Dr Loud is taking the lead on this project. Lastly we are designing T-shirts for COSMF members to help spread the word amongst our peers.

Next summer we will be saying goodbye to 2 of our executive committee members (Drs Holly Benjamin and Cappetta) whose terms will end. If you would like to become more involved in COSMF please plan on submitting your name as the call for nominations has been released. One of the positions will be reserved for a general pediatrician with an interest in sports medicine and fitness.

Finally, I would like to extend an invitation for any COSMF member to email me (Joel.Brenner@chkd.org) or Anjie Emanuel, MPH (Aemanuel@aap.org) if you have any questions or ideas. We want you to help us make COSMF stronger by being involved. I hope everyone has a safe holiday season and a healthy new year. Remember to enjoy the sunshine every chance you get and stay active and healthy.

We want to hear from you!
Please send contributions and newsworthy items for the COSMF newsletter to Chris Koutures, MD, FAAP at brubad@pacbell.net, or Anjie Emanuel, MPH (Aemanuel@aap.org) if you have any questions or ideas. We want you to help us make COSMF stronger by being involved. I hope everyone has a safe holiday season and a healthy new year. Remember to enjoy the sunshine every chance you get and stay active and healthy.

**Purpose:** Review results of meniscal repair at time of ACL reconstruction in pediatric and adolescent patients (99 pts average age 16)

**Methods:** Retrospective review

**Results:** Overall 74% success; no repeat surgery

**Conclusion:**
- Simple tears did better than complex and bucket-handle tears (84% vs. 59 vs. 57%)
- Recommend repair for tears within 6 mm of meniscocapsular junction

**Why this study is important:**
- Gives patients and surgeons realistic expectations for successful repair
- Highlights the need for more prospective study


**Purpose:** Review the NFL experience over 5 year period

**Methods:** Survey of 32 teams and retrospective review

**Results:**
- 19 players
  - 6 non-displaced; healed 7.3 weeks
  - 13 displaced
  - 6 treated with surgery acutely healing at 8.8 weeks
  - 4 of 7 initially treated non-operatively healed at 13 weeks, but 3 re-fractured within 1 year.

**Conclusion:** Surgery for displaced clavicle fractures healed faster (8.8 weeks vs. 13) and without fracture recurrence.

**Why this study is important:**
- May give some expectation of successful outcome and timeframe for returning to play
- Should we extrapolate these findings to teenagers aspiring to play in college?


**Purpose:** To determine the treatment preference for adolescent midshaft clavicle fractures and if adult literature influenced decision making

**Methods:** Web based survey study of Pediatric Orthopedic Society of North America members (32% response rate)

**Results:** Physicians more likely to recommend surgery for older adolescents with isolated segmental compared with displaced fractures

**Conclusion:**
- Adult literature is currently a strong predictor of physician preference
- Older adolescents with segmental displaced fractures are more likely to have surgery recommended
- Physicians with less than 5 yrs experience are likely to recommend surgery

**Why this study is important:**
- We still need randomized controlled outcome studies to determine what is best

(Continued on page 4)

**Purpose:** Report outcomes of patella realignment procedures in children and adolescents.

**Methods:** 23 patients and 27 knees; mean age 14 yrs.

**Results:** 93% no repeat dislocations.

But: At 5 year follow up, 93% reported no recurrent dislocations (surgical success) but IKDC scores (65.5-patient self reported score) was less than expected

**Surgeon: Patient disconnect**

**Conclusion:** Results show a disconnect between surgeons/surgical success and patient self-reported scores.

**Why this study is important:** We still need to do a better job correlating “our” surgical outcomes with the perceptions of our patients.


**Purpose:** To determine the volume of injury to the physis during ACL reconstruction in pediatric patients.

**Methods:** MRI on 10 patients (age 7.5-9.25 yrs)-3D models of physis were created.

**Results:** 6-9 mm tunnel size resulted in <5% physeal volume removal for tibia and 5.4% for the femur.

**Conclusion:** With small tunnels, risk of growth disturbance is reduced.

**Why this study is important:** It documents the volumetric percentage of physeal injury with ACL reconstruction and warns us to be especially careful as the tunnels are created.


**Purpose:** Does the Rockwood Clavicle Pin (RCP) predispose patients to post-op complications?

- Infection
- Additional Surgery

**Methods:** 16 patients treated with RCP

**Results:** 14 complications in 10 patients

- 5 delayed healing, 3 non-unions
- 9 soft tissue problems

**Conclusion:** High rate of complications utilizing this method in midshaft clavicle fractures.

**Why this study is important:** It reminds us of the potential “iatrogenic” complications caused as we continue to try Minimally invasive techniques for fracture fixation.


**Background:** Ankle injuries are the most common injury in basketball players. However, no prospective studies have been performed to determine if wearing lace-up ankle braces will reduce the incidence of ankle injuries in high school athletes.

**Purpose:** This trial was undertaken to determine if lace-up ankle braces reduce the incidence and severity of acute first-time and recurrent ankle injuries sustained by high school basketball players.

**Design:** Randomized controlled trial; Level of evidence, 1.

**Methods:** A total of 1460 male and female basketball players from 46 high schools were randomly assigned to a braced or control group. The braced group players wore lace-up ankle braces during the 2009-2010 basketball season. Athletic trainers recorded brace compliance, athlete exposures, and injuries. Cox proportional hazards models (adjusted for demographic covariates), accounting for intracluster correlation, were utilized to compare time to first acute ankle injury between groups. Injury severity (days lost) was tested with the Wilcoxon rank-sum test.

**Results:** The rate of acute ankle injury (per 1000 exposures) was 0.47 in the braced group and 1.41 in the control group (Cox hazard ratio [HR] 0.32; 95% confidence interval [CI] 0.20, 0.52; P<.001). The median severity of acute ankle injuries was similar (P = .23) in the braced (6 days) and control group (7 days). For players with a previous ankle injury, the incidence of acute ankle injury was 0.83 in the braced group and 1.79 in the control group (Cox HR 0.39; 95% CI 0.17, 0.90; P = .028). For players who did not report a previous ankle injury, the incidence of acute ankle injury was 0.40 in the braced group and 1.35 in the control group (Cox HR 0.30; 95% CI 0.17, 0.52, P<.001).

(Continued on page 5)
Conclusion: Use of lace-up ankle braces reduced the incidence but not the severity of acute ankle injuries in male and female high school basketball athletes both with and without a previous history of an ankle injury.


Background: Safe return-to-play decisions after concussion can be challenging for sports medicine specialists. Neuropsychological testing is recommended to objectively measure concussion-related cognitive impairments.

Purpose: The objective of this study was to measure cognitive functioning among 3 specific athletic groups: (1) athletes with no injuries (n = 36), (2) athletes with musculoskeletal injuries (n = 18), and (3) athletes with concussion (n = 18).

Study Design: Case-control study; Level of evidence, 3.

Methods: Seventy-two intercollegiate athletes completed preseason baseline cognitive testing and follow-up assessment using the Automated Neuropsychological Assessment Metrics (ANAM) test battery. Injured athletes were tested within 72 hours of injury. A 1-way analysis of covariance adjusted for baseline scores was performed to determine if differences existed in cognitive test scores among the 3 groups.

Results: A group of athletes with concussion performed significantly worse than a group of athletes with no injuries on the following subtests of the ANAM at follow-up: Code Substitution Learning, Match to Sample, and Simple Reaction. Athletes with musculoskeletal injuries performed significantly worse than those with no injury on the Match to Sample subtest. No significant differences between athletes with concussion and athletes with musculoskeletal injuries were found on all ANAM subtests.

Conclusion: Concussion produces cognitive impairment in the acute recovery period. Interestingly, athletes with musculoskeletal injuries also display a degree of cognitive impairment as measured by computerized tests.

Clinical Relevance: Although these findings support previous research that neuropsychological tests can effectively measure concussion-related cognitive impairment, this study provides evidence that athletic injury, in general, also may produce a degree of cognitive disruption. Therefore, a narrow interpretation of scores of neuropsychological tests in a sports concussion context should be avoided.


Context: More than 1.6 million sport-related concussions occur every year in the United States, affecting greater than 5% of all high school athletes who participate in contact sports. As more females participate in sports, understanding possible difference in concussion symptoms between sexes becomes more important.

Objective: To compare symptoms, symptom resolution time, and time to return to sport between males and females with sport-related concussions.

Design: Descriptive epidemiology study.

Setting: Data were collected from 100 high schools via High School RIO (Reporting Information Online).

Patients or Other Participants: Athletes from participating schools who sustained concussions while involved in interscholastic sports practice or competition in 9 sports (boys’ football, soccer, basketball, wrestling, and baseball and girls’ soccer, volleyball, basketball, and softball) during the 2005–2006 and 2006–2007 school years. A total of 812 sport concussions were reported (610 males, 202 females).

Main Outcome Measure(s): Reported symptoms, symptom resolution time, and return-to-play time.

Results: No difference was found between the number of symptoms reported (P = .30). However, a difference was seen in the types of symptoms reported. In year 1, males reported amnesia (exact P = .03) and confusion/disorientation (exact P = .04) more frequently than did females. In year 2, males reported more amnesia (exact P = .002) and confusion/disorientation (exact P = .002) than did females, whereas females reported more drowsiness (exact P = .02) and sensitivity to noise (exact P = .002) than did males. No differences were observed for symptom resolution time (P = .40) or return-to-play time (P = .43) between sexes.

Conclusions: The types of symptoms reported differed between sexes after sport-related concussion, but symptom resolution time and return-to-play timelines were similar.

(Continued on page 6)

**Background:** The risk of elbow or shoulder injury for young baseball pitchers is unknown.

**Purpose/Hypothesis:** The purpose of this study was to quantify the cumulative incidence of throwing injuries in young baseball pitchers who were followed for 10 years. Three hypotheses were tested: Increased amount of pitching, throwing curveballs at a young age, and concomitantly playing catcher increase a young pitcher’s risk of injury.

**Study Design:** Cohort study; Level of evidence, 3.

**Methods:** In sum, 481 youth pitchers (aged 9 to 14 years) were enrolled in a 10-year follow-up study. Participants were interviewed annually. Injury was defined as elbow surgery, shoulder surgery, or retirement due to throwing injury. Fisher exact test compared the risk of injury between participants who pitched at least 4 years during the study and those who pitched less. Fisher exact tests were used to investigate risks of injury for pitching more than 100 innings in at least 1 calendar year, starting curveballs before age 13 years, and playing catcher for at least 3 years.

**Results:** The cumulative incidence of injury was 5.0%. Participants who pitched more than 100 innings in a year were 3.5 times more likely to be injured (95% confidence interval = 1.16 to 10.44). Pitchers who concomitantly played catcher seemed to be injured more frequently, but this trend was not significant with the study sample size.

**Conclusion:** Pitching more than 100 innings in a year significantly increases risk of injury. Playing catcher appears to increase a pitcher’s risk of injury, although this trend is not significant. The study was unable to demonstrate that curveballs before age 13 years increase risk of injury.

**Clinical Relevance:** The risk of a youth pitcher sustaining a serious throwing injury within 10 years is 5%. Limiting the number of innings pitched per year may reduce the risk of injury. Young baseball pitchers are encouraged to play other positions as well but might avoid playing catcher.


**Objective:** To examine the association between “overscheduling” and sports-related overuse and acute injuries in young athletes and to identify other potential contributing factors to create a working definition for “overscheduling injury.”

**Design:** Survey.

**Setting:** Six university-based sports medicine clinics in North America.

**Participants:** Athletes aged 6 to 18 years (13.8 ± 2.6) and their parents and pediatric sports medicine-trained physicians.

**Interventions:** Questionnaires developed from literature review and expert consensus to investigate overscheduling and sports-related injuries were completed over a 3-month period.

**Main Outcome Measures:** Physician’s clinical diagnosis and injury categorization: acute not fatigue related (AI), overuse not fatigue related (OI), acute fatigue related (AFI), or overuse fatigue related (OFI).

**Results:** Overall, 360 questionnaires were completed (84% response rate). Overuse not fatigue-related injuries were encountered most often (44.7%), compared with AI (41.9%) and OFI (9.7%). Number of practices within 48 hours before injury was higher (1.7 ± 1.5) for athletes with OI versus those with AI (1.3 ± 1.4; P = 0.025). Athlete or parent perception of excessive play/training without adequate rest in the days before the injury was related to overuse (P = 0.016) and fatigue-related injuries (P = 0.010). Fatigue-related injuries were related to sleeping <6 hours the night before the injury (P = 0.028).

**Conclusions:** When scheduling youth sporting events, potential activity volume and intensity over any 48-hour period, recovery time between all training and competition bouts, and potential between-day sleep time (>7 hours) should be considered to optimize safety. An overscheduling injury can be defined as an injury related to excessive planned physical activity without adequate time for rest and recovery, including between training sessions/competitions and consecutive days.
Editor’s Note: The Council on Sports Medicine and Fitness established the Thomas E. Shaffer, MD Award in 2000 and Dr. Shaffer was the first recipient. This award is sponsored by Nationwide Children’s Hospital and recognizes an individual who has made a lifelong contribution to the field of pediatric sports medicine by displaying leadership and vision, providing quality presentations and publishing documents relevant to this specialty.

The COSMF is proud to announce that Bernard Griesemer, MD, FAAP was selected as the 2011 recipient of the Thomas E. Shaffer, MD, FAAP Award.

Dr. Griesemer is a board-certified pediatrician with a certificate of added qualification in Sports Medicine. He grew up in Billings, MT and attended St. Louis University School of Medicine, and has served on the medical staff of four Olympic Games as a Doping Control Officer. He is the associate editor of the textbook *Pediatric Sports Medicine for Primary Care* and is a past member of the Executive Council of the COSMF. He currently practices pediatrics and sports medicine while also serving as the medical director for St. John’s Sports Medicine-HealthTracks in Springfield, MO. He is chairman of the board of the Greater Springfield Community Olympic Development Committee, a program of the United States Olympic Committee.

The COSMF presented the Shaffer Award to Dr. Griesemer on Monday, October 17 during the COSMF program at the 2011AAP NCE in Boston, MA.

Editor’s Note: Sincere thanks to Michele LaBotz, MD, FAAP for suggesting this great topic and also providing the initial submission of helpful websites. The Council on Sports Medicine pleased to include a variety of thought provoking article in each newsletter. The perspectives reflected within the articles reflect the opinion of the authors, and do not necessarily reflect the perspective of COSMF or the AAP.

These days information is not only cheap, but in most cases (on the web anyway), it’s free. More information is generally better, but that is true only as long as it is accurate and of high quality. Unfortunately, in the sports medicine realm, commercial interests and the constant quest for performance optimization has led to a lot of erroneous information on the internet that can mislead young athletes and their parents (and sometimes even their physicians!).

In an effort to point our patients and colleagues in the direction of “good stuff” that will be practical and helpful, this is the first of a series of articles where we can share high quality websites, mobile applications, and other technologic tips that may enhance our care of young athletes. Please feel free to share favorites by emailing Chris Koutures at brubad@pacbell.net.

- “When can I start pointe work?”
- “Why do I keep spraining my ankle?”
- “How can I keep my bones healthy and prevent another stress fracture?”

These are common questions that young dancers and their families often pose to their health care providers. I am finding the “resource papers” on the International Association for Dance Medicine and Science website (www.iadms.org, click on “resources” link) to be very helpful for these patients. Most papers on this site are in PDF format and written at a level that is both informative to health care professionals, yet still appropriate for parents and older adolescents. Topics include: nutrition, bone health, dance screening, fitness, biomechanics (including turnout), proprioception and others. The site also has some good links, including to the Nureyev Foundation (which has a number of interesting medical topics, but is a site that is really optimized for French speakers) as well as to the Harkness Center for Dance Injuries in New York (which is worth browsing through their “dance medicine resources” pages for information on common dance injuries and...
Abstracts and Case Reports Presented at the 2011 COSMF Program

Editor’s Note: Oded Bar-Or, MD served as a consultant to the Council on Sports Medicine and Fitness and was a world-renowned researcher in the field of pediatric exercise physiology. The Council on Sports Medicine created an award in his honor to acknowledge the contributions he has made to pediatric sports medicine research and his commitment to children and the Academy.

The Oded Bar-Or Award is a $500 honorarium presented annually at the conclusion of the Council on Sports Medicine and Fitness’ Program at the American Academy of Pediatrics National Conference and Exhibition. It is in recognition of the best pediatric sports medicine or healthy active living presentation given at the Council’s abstract session.

The recipient of the 2011 Oded Bar-Or Award is Benton Heyworth, MD for his research presentation on Treatment of Posterior Cruciate Ligament Injuries In Pediatric and Adolescent Patients. We congratulate Benton and thank all of our presenters for their submissions.

Treatment of Posterior Cruciate Ligament Injuries In Pediatric and Adolescent Patients
Benton Heyworth, MD, Brett Shore, MD, Adam Nasredine and Mininder Kocher, MD, MPH
Orthopaedic Surgery, Children's Hospital Boston, Boston, MA

Purpose: Posterior cruciate ligament (PCL) injuries in pediatric and adolescent patients are rare and are usually treated conservatively, with sparse literature regarding outcomes of operative treatment or established algorithms to guide management decisions. For a 17-year period at a single tertiary care children's hospital, we review the experience with pediatric and adolescent PCL injuries treated operatively and compare features of this cohort to an age-matched group with PCL injuries managed non-operatively.

Methods: Records of 23 patients ≤18 years-old who underwent non-operative or surgical treatment of 24 PCL injuries were reviewed. Demographic/clinical features between the two cohorts were compared. Functional outcome measures (IKDC, Lysholm and Tegner scores) were analyzed for operative patients at mean follow-up of 27.8 months.

Results: Of the 10 patients who sustained PCL injuries that were treated non-operatively (6 female, 4 male; mean age 15.1 yrs, range 9-17 yrs), 7 had partial PCL tears, 2 had minimally-displaced bony avulsion fractures at the tibial PCL footprint, and 1 had a complete, mid-substance tear. The involved knee was found to have concomitant ligament injuries in 3 patients, meniscus injuries in 2 patients, tibial plateau fractures in 2 patients, with 50% of patients having an isolated PCL injury. No patient who underwent non-operative treatment had symptomatic instability, with a 100% return-to-play (RTP) rate. In the 13 patients (5 female, 8 male; mean age 15.0 yrs, range 4-18 yrs) who underwent surgery, 8 patients were skeletally mature, while 5 patients were skeletally immature. Injury patterns included 9 avulsion-type injuries (7 femoral, 2 tibial) and 5 mid-substance tears. Four out of thirteen patients (31%) sustained non-contact hyperextension injuries on trampolines. Isolated PCL injuries were seen in 7 knees, while multi-ligamentous injuries were seen in 7 knees, including 5 knee dislocations. Primary PCL repair with suture fixation techniques were performed in 5 knees, screw fixation in 1 knee, and reconstruction with achilles tendon bone-block allograft in 8 knees. Post-operatively, all 13 patients achieved full or near-full ROM, and no patients showed significant arthritic changes, growth arrest, or angular deformity. The mean modified IKDC score was 78.2, the mean Tegner score was 7.2, and the mean Lysholm score was 76.5. Patients who had sustained knee dislocations had significantly lower functional outcome and activity scores than those who had not dislocated. Three patients developed arthrofibrosis requiring further procedures, and had undergone initial surgery at a significantly shorter time point following injury than those not developing arthrofibrosis, but did not have lower outcome scores that the rest of the operative cohort.

Conclusion: PCL repair or reconstruction is a safe and viable treatment option in young patients with multiligament injuries or those who have failed conservative treatment, with out-

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comes related to the severity of the initial injury.

**Dynamic Core Stability Differs by Gender**  
Mark Halstead, MD  
Department of Pediatrics and Orthopedics, Washington University School of Medicine, Chesterfield, MO

Healthy adolescent females have less core stability than their male counterparts, particularly in the coronal plane, which may contribute to gender based differences in non-contact ACL injury rates.

**Purpose:** Female athletes are at significantly higher risk of non-contact ACL injury than males, particularly in pivoting sports such as soccer and basketball. Underlying differences in neuromuscular proprioception and core stability are thought to be a major factor contributing to this elevated risk. The Proprio 5000 Dynamic Balance System is a novel means of assessing dynamic stability. The purpose of this study was to test the hypothesis that dynamic stability in a healthy adolescent population differs by gender.

**Methods:** 74 male and 40 female healthy adolescents ages 13-20 completed a dynamic stability test on the Proprio 5000. The standard Proprio Test lasts for up to 2 minutes during which the subject attempts to stabilize their torso and upper body in response to random movements of the platform. The time that the subject was able to last on the Proprio as well as the Dynamic Motion Analysis (DMA) score, which measures total motion during the test in 5 planes, was calculated for each subject. Each subject completed 3 trials on the Proprio and the top score for each individual was used for the present analysis.

**Results:** Overall, males lasted longer on the Proprio (106 ± 14 sec) than females (99 ± 15 sec) (p=0.03) and had a lower (better) score (443 ± 128 v. 498 ± 135, p=0.049). Significant gender differences were seen in coronal plane translational (272 ± 111 v. 339 ± 130, p=0.01) and rotational stability (354 ± 95 v. 444 ± 171, p=0.005). There were no significant gender differences in the other planes of motion.

**Conclusion:** Healthy adolescent females have less core stability than their male counterparts, particularly in the coronal plane. This may contribute to the gender based differences in non-contact ACL injury rates. Further research is warranted to investigate the factors which contribute to these differences and whether targeted interventions can modify this discrepancy and potentially mitigate injury risk.

**Diagnostic Gray Zone, Avulsion Fracture or Osteosarcoma**

Natalie C. Stork, MD, Pediatrics MCWAH, Milwaukee, WI and Kevin Walter, MD, Depts of Orthopaedics & Pediatrics, Medical College of Wisconsin, Milwaukee, WI

**Introduction:** Avulsion fractures and osteosarcoma commonly affect the adolescent population. Initial clinical and radiographic presentations can be similar, making differentiation difficult. A high index of suspicion, open differential, and good communication between multiple specialties play an important role in the correct diagnosis and management.

**Case Report:** A 15-year-old male with a history of Acute Lymphoblastic Leukemia status post bone marrow transplant presented to the oncology clinic for follow up with a two month history of right hip pain. Initial clinical and radiographic evaluation by an outside physician suggested an anterior superior iliac spine (ASIS) avulsion fracture. After referral and review of the history, physical exam and initial radiographs, an alternate diagnosis of osteosarcoma was suggested. A subsequent biopsy of the affected area confirmed the diagnosis of osteosarcoma.

**Discussion:** Avulsion fractures and osteosarcoma can have a similar presentation among the adolescent population. Specifically, during the healing phase, the clinical and radiographic presentation of an avulsion fracture can mimic a neoplastic process, subsequently creating a potential diagnostic gray zone. In such cases where a definitive diagnosis is not clear, careful review of the case and collaboration between physicians of various specialties—primary care, sports medicine/orthopedics, radiology, oncology, and pathology— aids in the appropriate diagnosis and management of osseous lesions.

**Chest Pain In A Diver**  
Jane Park Sando, MD, Pediatrics, Johns Hopkins Hospital, Baltimore, MD and Teri M. McCambridge, Assistant, Professor, of, Pediatrics, Pediatrics, Johns Hopkins School of Medicine, Baltimore, MD

**Case Report:** 19 yo female college diver presents with chest pain. She performed a reverse pike dive on the 3m board at practice in Nov 2009. She over-rotated and entered the water on her chest and abdomen. She had immediate shortness of breath and chest pain. The pain was located centrally and non-radiating. Pain was exacerbated by deep breathing, sitting up, reaching across her body, diving and performing abdome

(Continued on page 10)
trainer who felt her pain to be muscular. No radiographs or physician evaluation were recommended. She took high dose ibuprofen, wrapped her chest with an Ace bandage and rested for one week. The patient continued diving throughout the season despite persistent pain. At the end of the season (4 months after the initial injury), she presented to her team physician for evaluation. Pain occurred with pushups, sit-ups, deep inspirations, coughing, and direct pressure on her chest wall. Review of systems was otherwise negative.

Physical Examination revealed a well appearing female in no acute distress with normal vital signs. Cardiovascular, lung, and abdomen exams were normal. Significantly, the chest wall showed no asymmetry or deformity. No pecs excavaatum or carinatum. Tenderness to palpation over the mid sternum and significant pain with AP compression of the chest wall. Pain reproduced with cross-adduction of the arms above the horizontal plane and with wall push up. Non-tender to palpation over the ribs. MS: Full range of motion (ROM) of shoulders. Full ROM of her neck. 5/5 strength upper and lower extremities bilaterally.

Chest x-rays were done (AP/lateral) and showed a mid body sternal fracture. A chest CT showed a sternal fracture with pseudoarthrosis and callus.

Discussion: After 5 weeks of complete rest the patient was pain-free and thus resumed aerobic activity. After 10 weeks the patient was allowed to do foot first dives. A repeat CT showed incomplete healing of the fracture. Activity was increased to head first dives and a bone stimulator was prescribed. As workout intensity increased the patient’s pain recurred and intensified. She was referred to a cardiothoracic specialist for possible surgical treatment of a non-union. Despite rest and stimulator use, a follow up MRI demonstrated edema around the fracture edges. Surgical repair was recommended and the patient subsequently underwent debridement and open reduction and fixation with compression plates.

14 Year Old, Football Player with Neck Pain
Richard So, MD, Community Pediatrics, Cleveland Clinic, Independence, OH

History: Patient is a 14 year old, offensive tackle, who presented with neck pain. Two weeks prior, during a game, he sustained trauma to his left anterior neck by an opponents face mask. Since then he only complains of pain with neck extension. He says he feels friction on his neck from his chin strap. Additionally, he feels a lump in his throat during swallowing over the past 2 days. He denies difficulty breathing and swallowing. He denies decreased range of motion in his neck. Family history: + Hashimoto disease

Physical Examination: Normal Vital Signs General: Healthy, in no distress Head: normocephalic, atraumatic Ears: normal Eyes: Pupils equal, extraocular muscles intact Nose: midline septum Mouth: Moist mucous membranes, uvula midline Neck: + goiter, +6x3cm smooth, nontender, mass over left lobe of thyroid, full range of motion, no cervical spine tenderness, no lymphadenopathy Cardiovascular: regular rate and rhythm, no murmurs, no rubs, no gallops Respiratory: clear to auscultation Abdomen: soft, normal bowel sounds, nontender, no masses Extremities: normal

Differential Diagnosis: Traumatic hematoma Thyroid cancer Lymphoma Thyroid Colloid Cyst Pseudoaneursym


Final/Working Diagnosis: Traumatic Neck mass with tracheal deviation

Treatment: ENT consult: Fine needle aspiration: No malignant cells Operative report: Ruptured Thymic Cyst Patient underwent left thyroid lobectomy with substernal extension

Outcome: Ruptured Thymic Cyst

Return to Activity and Follow-Up: No strenuous activity for 3 weeks Cleared for all activities 3 weeks post operatively. Football season was over.

Discussion: Thymic cysts are rare. They represent remnants of persistent thyrmopharyngeal duct or cystic degeneration of Hassal Corpuscles. To the best of our knowledge, there have been no published cases or traumatic presentation of a thymic cyst. Thymic cysts are usually asymptomatic. The differential diagnosis includes: Traumatic hematoma, Thyroid cancer, Lymphoma, Thyroid Colloid Cyst, Pseudoaneursym. Neck and chest radiographs, ultrasound, CT neck/chest can be used to establish the diagnosis. Surgical excision is curative.

(Continued on page 11)
Management of the Concussed Child Athlete: Are We Teaching Competency In Residency?
Drew M. Thodeson and Noel S., Zuckerbraun, Pediatrics, Children's Hospital of Pittsburgh, Pittsburgh, PA

Purpose: Over the last ten years, sports related concussion has emerged as a significant public health issue and field of expanding research. Epidemiologic studies show that close to 9% of all athletic injuries are concussions. Recent media exposure regarding concussions has resulted in several state laws being passed requiring physician clearance prior to child athletes returning to play following a concussive injury. Given the recent heightened social awareness, residency curriculum must reflect changes in education regarding concussion management to adequately prepare the future generation of primary care physicians. This study aims to assess pediatric residents’ current comfort and knowledge base regarding concussion management.

Methods: This study aims to assess pediatric residents’ current comfort and knowledge base regarding concussion diagnosis and management by using survey data collected from first through third year pediatric residents at a tertiary care children’s hospital. Pre- and post-intervention survey evaluations were performed. The intervention involved an hour long lecture at a resident-wide conference and a disseminated e-mail providing links to pertinent and clinically useful information regarding concussion management from the CDC’s program “Heads Up: Brain Injury in your Practice.” Data was processed using chi-square statistical analysis.

Results: After attending a sports-related concussion injury lecture and reviewing online information, post-intervention survey data revealed a significantly increase in knowledge of available resources regarding concussion management. Specifically, knowledge of the Acute Concussion Evaluation Worksheet, which is provided free of charge by the CDC, increased after educational intervention (p=0.004). There was also a significant increase in resident comfort level in dealing with sports-related concussion in the office setting (p=0.006). There was a trend towards significance in regards to increased resident comfort with concussive injury management in the emergency department setting (p=0.058). Greater than 95% of residents surveyed believe that the primary care physician should be responsible for clearing athletes to return to school and sports following a concussive injury.

Conclusion: A simple educational intervention was able to improve resident knowledge and comfort level in managing concussion. As, sports-related concussion is an emerging public health issue, it is important that pediatric residents and future primary care providers be up-to-date on the recognition and management of this injury.

Education Coordinator Report
Rebecca Demorest, MD, FAAP

Thanks to everyone who made the 2011 AAP NCE COSMF program in Boston a success! It was great to see so many old and new faces! We look forward to New Orleans in 2012. Anyone having suggestions for general or COSMF program topics or speakers for the NCE should contact Becky Demorest (rebeccademorest@gmail.com) by January 5, 2012. We are always looking for interesting topics and recommended speakers.

COSMF is also compiling a detailed list of members regarding their speaking experience and expertise. In doing this, we hope to offer physicians more opportunities to present as well as to offer a wider selection of speakers for chapter, district and national-level meetings. If you are interested in being included in the database, please complete the survey found at https://www.surveymonkey.com/s/ZVFVXY2. If you have provided staff with your areas of expertise in the past, we are still asking you to fill out the database.
Editor’s Note: We will be providing periodic updates on the various AAP committees, councils and sections that compliment the work of COSMF. Below are updates from a few of the groups.

**Council on School Health**
The Council on School Health (COSH) is developing/revising policy statements on Crucial Role of Recess in School and Soft Drinks in School.

**Section on Cardiology and Cardiac Surgery**
The Section on Cardiology and Cardiac Surgery (SCCS) is developing a policy statement on Pediatric Sudden Cardiac Arrest.

**Section on Orthopaedics**
Membership in the Section on Orthopaedics (SOOr) is free for all COSMF members. For information on how to join, please visit [https://www.aap.org/sections/ortho/orthointro.htm](https://www.aap.org/sections/ortho/orthointro.htm)

The SOOr held their annual scientific program on October 16-17, 201, as part of the AAP National Conference & Exhibition (NCE). There were over 80 abstracts presented during the two-day program as well as a case-based session on childhood obesity and the always lively "Top 10" Papers debate which was jointly sponsored with the COSMF.

Highlights of the SOOr program included the Distinguished Service Award, which was given to Paul Griffin MD, FAAP for his years of service to the SOOr and also the presentation of the Resident Research Awards for the best papers presented by residents, fellows, or medical students during the program.

- First Place ($1,000 plus certificate): All-Epiphyseal ACL Reconstruction Improves Tibiofemoral Contact: An In Vitro Study, Matthew Stonestreet, MD, presenter

- Second Place ($500 plus certificate): Assessing the Intra and Inter-Rater Reliability of Forearm Length Measurements In a Pediatric Population, Jill Larson, BS, presenter

- Third Place ($250 plus certificate): Gene Expression In the Hypothyroid-Affected Growth Plate In Miniature Swine, Dylan Childs, MD, presenter.

Also a month before the NCE, members of the SOOr represented the AAP in China as part of a partnership with the Henan University of Science and Technology, Dongfang Hospital with the long-term goal of developing a program in which visiting pediatric orthopaedic surgeons train local Chinese orthopaedic surgeons.

**Provisional Section on Obesity (PSOOb)**
The Provisional Section on Obesity is in its first year of planning. For more information on PSOOb visit their web page at [http://www.aap.org/obesity/SOOb/index.html](http://www.aap.org/obesity/SOOb/index.html)
Council on Sports Medicine & Fitness Executive Committee
July 1, 2011-June 30, 2012

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CALL FOR NOMINATIONS

Nominations are being sought for an award to recognize an individual who has made a significant contribution to the field of pediatric sports medicine by:

- Displaying leadership and vision in the area of pediatric sports medicine;
- Providing quality presentations containing relevant information in the area of pediatric sports medicine;
- Publishing documents that provide practical pediatric sports medicine information for clinical use.

Award recipients will receive a plaque, honorarium, and reimbursement for expenses to attend the Council’s program at the AAP National Conference and Exhibition.

A nomination form is below and can be copied for additional use. Please submit nominations to the address below, or call if you have any questions:

Anjie Emanuel, MPH
American Academy of Pediatrics
141 Northwest Point Blvd
Elk Grove Village, IL 60007
800/433-9016 ext 4979
Fax: 847/434-8000
aemanuel@aap.org

Please declare your nomination below and provide an (up to one-page) explanation of your nomination, along with curriculum vitae or biographical data.

Nominee ________________________________________________________________

Address ________________________________________________________________

City/State/Zip ___________________________________________________________

Phone ___________________________ □ Office or □ Home (check one)__________

Nomination Submitted by ________________________________________________

Address ________________________________________________________________

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