

Sports Medicine UPDATE

MAY/JUNE 2010

MASTER ATHLETE CONSENSUS STATEMENT

**STOP Sports Injuries
Campaign Launches**

**AOSSM Members
Help in Haiti**

**Preview of 2010 Annual
Meeting in Providence**



AOSSM

www.sportsmed.org



2 Consensus Statement

Selected Issues for the Master Athlete and the Team Physician

- 1 President's Message
- 14 STOP Sports Injuries Campaign Launches
- 15 Research News
- 16 Grant Winners
- 17 Society News
- 19 Member News

- 19 Fellowship Match
- 20 Doctors Bring Hope to Hundereds in Haiti
- 22 2010 Annual Meeting in Providence Preview
- 24 Upcoming Meetings and Courses

SPORTS MEDICINE UPDATE is a bimonthly publication of the American Orthopaedic Society for Sports Medicine (AOSSM). The American Orthopaedic Society for Sports Medicine—a world leader in sports medicine education, research, communication, and fellowship—is a national organization of orthopaedic sports medicine specialists, including national and international sports medicine leaders. AOSSM works closely with many other sports medicine specialists and clinicians, including family physicians, emergency physicians, pediatricians, athletic trainers, and physical therapists, to improve the identification, prevention, treatment, and rehabilitation of sports injuries.

This newsletter is also available on the Society's Web site at www.sportsmed.org.

TO CONTACT THE SOCIETY: American Orthopaedic Society for Sports Medicine, 6300 North River Road, Suite 500, Rosemont, IL 60018, Phone: 847/292-4900, Fax: 847/292-4905.

CO-EDITORS

EDITOR **Barry P. Boden MD**

EDITOR **Daniel J. Solomon MD**

MANAGING EDITOR **Lisa Weisenberger**

PUBLICATIONS COMMITTEE

Barry P. Boden MD, Chair

John D. Campbell MD

Kenneth Fine MD

Robert Gallo MD

Richard Hinton MD

David Monte Hunter MD

Grant L. Jones MD

John Kelly IV MD

William N. Levine MD

Brett Owens MD

Daniel J. Solomon MD

Brian R. Wolf MD, MS

BOARD OF DIRECTORS

PRESIDENT **James R. Andrews MD**

PRESIDENT-ELECT **Robert A. Stanton MD**

VICE PRESIDENT **Peter A. Indelicato MD**

SECRETARY **Jo A. Hannafin MD, PhD**

TREASURER **Robert A. Arciero MD**

MEMBER-AT-LARGE **Allen F. Anderson MD**

MEMBER-AT-LARGE **William N. Levine MD**

MEMBER-AT-LARGE **Mininder S. Kocher MD**

PAST PRESIDENT **Bernard R. Bach Jr. MD**

PAST PRESIDENT **Freddie H. Fu MD**

MEMBER EX OFFICIO COUNCIL OF DELEGATES

Patricia A. Kolowich MD

JOURNAL EDITOR, MEMBER EX OFFICIO **Bruce Reider MD**

MEMBER EX OFFICIO (COMMUNICATIONS) **Barry P. Boden MD**

MEMBER EX OFFICIO (RESEARCH) **Scott A. Rodeo MD**

MEMBER EX OFFICIO (EDUCATION) **Michael G. Ciccotti MD**

AOSSM STAFF

EXECUTIVE DIRECTOR **Irvin Bomberger**

MANAGING DIRECTOR **Camille Petrick**

DIRECTOR OF COMMUNICATIONS **Lisa Weisenberger**

DIRECTOR OF RESEARCH **Bart Mann**

DIRECTOR OF DIVISION OF EDUCATION **Robin Facer**

DIRECTOR OF DISTANCE LEARNING **Susan Zahn PhD**

DIRECTOR OF CORPORATE RELATIONS **Debbie Cohen**

DIRECTOR OF FINANCE **Ken Hoffman CPA**

ASSISTANT DIRECTOR FOR MEMBER SERVICES **Kara Vasilakos**

EDUCATION AND MEETINGS COORDINATOR **Patricia Kovach**

EXHIBITS AND ADMINISTRATIVE COORDINATOR

Michelle Schaffer

ADMINISTRATIVE AND PROGRAM COORDINATOR

Debbie Turkowski

EXECUTIVE ASSISTANT **Susan Serpico**

ADMINISTRATIVE ASSISTANT **Mary Mucciante**

AOSSM MEDICAL PUBLISHING GROUP

MPG EXECUTIVE EDITOR AND AJSM EDITOR **Bruce Reider MD**

AJSM EDITORIAL/PRODUCTION MANAGER **Donna Tilton**

SENIOR AJSM EDITORIAL/PRODUCTION MANAGER **Donna Tilton**

SPORTS HEALTH EDITORIAL/PRODUCTION MANAGER

Kristi Overgaard



THIS SPRING HAS BEEN EVENTFUL with the April launch of our Sports Trauma and Overuse Prevention (STOP) program, also referred to as the STOP Sports Injuries Campaign. The program has enjoyed significant national attention, and I want to update you on our progress and on the opportunities you have in your own community to get involved.

On April 1, I was joined by future MLB hall of fame pitcher, John Smoltz, and Sam Bradford, 2008 Heisman Trophy winner, in a satellite media tour to generate national attention about youth sports injuries and the STOP Sports Injuries program. In one day we conducted more than 32 radio and television interviews about the campaign. Within 24 hours, there were another 217 news stories drawing attention to our Facebook page, the free materials available on our Web site, and our Web site, www.STOPSportsInjuries.org. I was especially pleased to see a number of our members, such as Rob Burger, MD, Liz Matzkin, MD, and Mike Axe, MD, reach out to the press in their own local communities. The media is very interested in this issue—and in our campaign—so I strongly encourage you to reach out to the press in your community to be a campaign spokesperson for the STOP Sports Injuries campaign. AOSSM members have unique credibility with the media as youth sports safety advocates. Visit the Web site and Facebook page to see how you can get involved in the conversation locally.

In March, you received a complimentary copy of the materials that the Society has developed to support the campaign. I would encourage each of you to take advantage of these materials and to reach out to your local sports organizations and parent groups to help educate them on youth sports injuries and trauma. Your commitment to this program will help fill a genuine need for information and it will help build the support that is critical to our efforts.

Momentum for the campaign is continuing to build not just around individual support, but also through corporate support. DePuy Mitek stepped up as our first corporate donor with a multi-year commitment of \$300,000. This significant support has provided much-needed seed funding to help get the campaign off the ground, and has underscored DePuy Mitek's commitment to the specialty and to our Society. Adding momentum, Smith & Nephew is sponsoring a Star Field (see page 23 for more details) during the President's Party in Providence. Orthopaedic practices, state COD delegations, and individuals can purchase an illuminated star with a special STOP Sports Injuries message. Children attending the Annual Meeting will also be able to decorate their own personal luminary and place them under



the stars as part of the WaterFire display. Smith & Nephew has generously committed up to \$50,000 in matching funds as part of the event.

The STOP Sports Injuries program, like so many other AOSSM activities, is a part of our collaborative culture both within the orthopaedic community and beyond. Our Society has a rich tradition of excellence, and each one of us can be proud of AOSSM's leadership role in sports medicine education, research, and fellowship. I am profoundly honored to have served our membership over this past year, and will soon join the roster of our past leaders. In mid-April the AOSSM Board and the Medical Publishing Board met with nearly all of the former AOSSM presidents as part of our first ever Past Presidents Retreat. This gathering provided an unprecedented opportunity to reflect on our growth as a Society and on the attributes and values that we believe help our organization and profession flourish. I am humbled to recognize the vision, the tireless contributions, and the ongoing support these leaders have provided throughout the years in order that we may thrive individually and collectively. I am including a photo of them in this column because AOSSM is truly indebted to these individuals. We thank them each for their role in helping AOSSM earn the reputation we enjoy today.

JAMES R. ANDREWS, MD



SELECTED ISSUES FOR THE MASTER ATHLETE AND THE TEAM PHYSICIAN

EXPERT PANEL

Facilitator

Stanley A. Herring, MD, Chair, Seattle, WA

Primary Authors

W. Ben Kibler, MD, Lexington, KY

Margot Putukian, MD, Princeton, NJ

Delegates

Thomas W. Allen, DO, Tulsa, OK

John Bergfeld, MD, Cleveland, OH

Lori Boyajian-O'Neill, DO, Kansas City, KS

David Cosca, MD, Sacramento, CA

Rebecca Jaffe, MD, Wilmington, DE

Walter Lowe, MD, Houston, TX

David Thorson, MD, Mahtomedi, MN

Team physicians often treat injured active patients ages 50 and older. There are various definitions of master athletes. For the purpose of this document, master athletes will be defined as active individuals ages 50 years or older. They desire optimal levels of performance or wish to exercise for general health and have high expectations for sports medicine care, including return to sport or activity. In addition to the more common general illnesses and injuries seen in athletes, master athletes can experience specific illnesses and injuries owing to their physiology. This may require customized treatment to address the complexity of these conditions. This document will examine selected illnesses and injuries commonly seen in master athletes.

Goal

The goal of this document is to help the team physician improve the care of the master athlete by understanding medical and musculoskeletal factors common in this age group. To accomplish this goal, the team physician should have knowledge of and be involved with the following:

- physiological considerations, including cardiopulmonary function, muscle strength, and balance;
- medical considerations, including preparticipation evaluation and cardiovascular disease; and
- musculoskeletal considerations, including Achilles tendon rupture, lateral elbow and rotator cuff tendinopathy, lumbar spinal stenosis, and shoulder, hip, and knee arthritis.

Summary

This document provides an overview of selected medical issues that are important to team physicians who are responsible for the care and treatment of athletes. It is not intended as a standard of care and should not be interpreted as such. This document is only a guide and, as such, is of a general nature, consistent with the reasonable, objective practice of the health care profession. Adequate insurance should be in place to help protect the physician, the athlete, and the sponsoring organization.

This statement was developed by a collaboration of six major professional associations concerned about clinical sports medicine issues; they have committed to forming an ongoing project-based alliance to bring together sports medicine organizations to best serve active people and athletes. The organizations are the American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, and American Osteopathic Academy of Sports Medicine.

Medical Considerations for the Master Athlete

Physiology

General Considerations

- There are physiological changes that occur with aging, which include the following:
 - Cardiopulmonary (cardiac output, blood pressure, VO_2 max, vital capacity)
 - Musculoskeletal (reaction time, strength, muscle endurance, tendon structure, cartilage structure, bone mass, flexibility, fat-free body mass, balance)
 - Metabolic (glucose tolerance, lipids, insulin sensitivity, metabolic rate)
- Physiological changes may be associated with many chronic conditions, such as diabetes, coronary artery disease, hypertension, osteoarthritis, bone loss, and overweight/obesity.
- Exercise may modify age-related changes.
- Medications used by master athletes may have significant adverse effects.

Strength

General Considerations

- Independent of activity level, muscle mass declines with age; approximately 1.25 percent year after age 35.
- Muscle mass is directly related to peak strength but not necessarily to performance.
- There is an accelerated decline in peak strength after age 70.
- Muscle power is lost at a greater rate than endurance capacity.
- Rates of decline of strength and performance are similar between men and women.
- There are genetic, chronologic, hormonal, nutritional, and behavioral (exercise) components to muscle aging.
- Resistance training (RT) may modify age-related changes.

Physiology and Pathophysiology

- Decreases in strength are due to:
 - Decreased cross-sectional area (CSA) of type II (fast-twitch) muscle fibers (quality and quantity). With aging, the ratio of the CSA of type II to type I changes from 1:1 to 1:2.
 - Decrease in contractile rate of force development, the ability to rapidly reach a given magnitude of muscle force during the initial phase of rising muscle force.

- Sarcopenia, age-associated loss of muscle mass, is usually characterized by the replacement of muscle fibers with fat and fibrosis.
 - Contributing factors include disuse, metabolic, neuromusculoskeletal, and neurovascular conditions.
 - Associated with functional decline often manifest in decreased knee extensor strength, postural imbalance, and decreased ability to safely navigate stairs and chairs.
 - Increased fat infiltration is associated with glucose intolerance, diabetes mellitus, poor knee extensor strength, decreased muscle contractility, muscle fiber recruitment, and muscle metabolism.

Treatment

- Age-related declines in strength can be delayed or diminished by consistent RT that slows the decline of muscle mass and strength more effectively than aerobic training (AT).
- The effects of consistent RT include the following:
 - Delayed type II muscle fiber changes
 - Increases in muscle strength
 - Greater power per muscle volume
- Other effects of consistent RT:
 - Decline in fat-free mass, increase in total body mass, reduction in oxidative stress
 - Increased basal metabolic rate
 - Improved insulin sensitivity and glycemic control
 - Increase in bone mineral density

It is essential that the team physician understand:

- There is an age-related decline in muscle mass and strength.
- RT modifies these declines, and this should be recommended.
- RT also modifies effects of other age-related medical conditions.

It is desirable that the team physician:

- Understand and implement an RT program.

Cardiovascular Considerations

General Considerations

- Regular exercise (aerobic, strength) may lower risk of fatal and nonfatal myocardial infarction, hypertension, and atherosclerotic heart disease.

- However, vigorous physical exertion may trigger myocardial infarction or sudden cardiac death in individuals with underlying heart disease.
- The risk of sudden death associated with high-intensity exercise is imprecise, but it increases with age.
- The benefits of regular exercise outweigh the risks.
- Treatment should be individualized based on cardiac condition.
- Use of cardiac medications is common in this age group.
 - Medications can affect physical and cognitive performance; adverse effects should be considered.
 - Athletes on anticoagulant medication should be counseled about the risks of sports participation, particularly contact and/or collision sports.
- Consistent RT may have a beneficial effect on cardiovascular health.

Physiology

- Age-related changes include the following:
 - Increased peripheral vascular resistance; regular exercise decreases peripheral vascular resistance.
 - Decreased VO₂ max
 - VO₂ max declines at the rate of about 10 percent per decade beyond age 25; it declines steeply after age 60.
 - With regular exercise, the decline may be as much as half the rate in master athletes as compared with nonathletes.
 - Decreased cardiac output; exercise lessens this decrease.
 - Decreased ventilatory anaerobic threshold; exercise lessens ventilatory anaerobic threshold decrease.
- The effects of consistent RT on cardiovascular physiology include the following:
 - Decreased blood pressure
 - Decreased resting HR
 - Improved left ventricular function

Cardiovascular Conditions

Sudden Cardiac Death

- Most sudden cardiac death is caused by atherosclerotic CAD.
- Other less common conditions that predispose to sudden death include the following:
 - Hypertrophic cardiomyopathy (HCM)
 - Valvular heart disease
 - Dilated cardiomyopathies

- Myocarditis
- Dysrhythmias and conduction abnormalities
- Refer to “Mass participation event management for the team physician: a consensus statement” [*Med Sci Sports Exerc.* 2004;36(11):2004–8] for equipment and medical supplies related to arrhythmias and managing individuals presenting with sudden cardiac arrest.

Atherosclerotic CAD

- The most common cardiac disease in this age group and major risk factor for angina, myocardial infarction, and arrhythmia.
- Acute myocardial infarction occurs in individuals even with minimal coronary artery stenosis.

Treatment

- Individuals with documented CAD (>50 percent narrowing if angiography has been performed) should not participate in high-intensity sports/activities without further consultation because of increased risk of myocardial infarction and sudden cardiac death.

Hypertension

- Prehypertension (120–139/80–89 mm Hg)
 - Stage 1 hypertension (140–159/90–99 mm Hg)
 - Stage 2 hypertension (>160/>100 mm Hg)
 - Incidence increases with age
- Treatment
- Athletes with prehypertension and stage 1 hypertension in the absence of target organ damage should not be restricted from participation in master activities.
 - Athletes with stage 2 hypertension should be restricted from static high-resistance sports (e.g., weight training) and should likely be restricted from high-intensity sports until their blood pressure is normalized.

Congenital and Valvular Heart Disease Conditions

- HCM
 - See page 2062, “Selected issues in injury and illness prevention and the team physician: a consensus statement” [*Med Sci Sports Exerc.* 2007;39(11): 2058–68].
 - Heterogeneous disorder, in which there is an imprecise means of stratifying risk.
- Dilated cardiomyopathy or arrhythmogenic right ventricular dysplasia

- Mitral valve prolapse (MVP)

Treatment

- Athletes with definitive diagnosis of HCM should be advised to avoid participation in high-intensity sports.
- Individuals with dilated cardiomyopathy or arrhythmogenic right ventricular dysplasia should be restricted from high-intensity sports.
- Most athletes with MVP can participate on an unrestricted basis.
 - Individuals with the following criteria should be restricted to low-intensity sport
 - History of syncope likely secondary to arrhythmia related to MVP
 - Family history of sudden death due to MVP
 - Exercise-induced repetitive supraventricular or complex ventricular arrhythmias
 - Moderate to severe mitral regurgitation

Arrhythmias

- Supraventricular
 - Atrial fibrillation is the most common arrhythmia.
 - Vigorous exertion and endurance training have been reported to increase atrial fibrillation.
- Ventricular arrhythmia is the most common cause of death in those with HCM.

Treatment

- Individuals with controlled atrial fibrillation can participate in sport or activity.

Evaluation

- Refer to Table 1.
- Moderate- to high-risk profiles for CAD include men older than 40 and women older than 50 or postmenopausal with one or more independent coronary risk factors (hyperlipidemia or dyslipidemia, systemic hypertension, cigarette smoking, diabetes mellitus, family history of premature CAD). Both should have symptom limited EKG exercise testing.

It is essential that the team physician understand:

- The most common cause for sudden death in master athletes is atherosclerotic CAD.
- The indications for exercise EKG testing.
- The effects and adverse effects of cardiovascular medications on health and performance.

- When to restrict activity or participation among master athletes with cardiovascular issues.
- Automatic external defibrillators should be available at all sanctioned masters sporting events, along with personnel trained in cardiopulmonary resuscitation.

It is desirable that the team physician understand:

- How to manage medications in the master athlete with cardiovascular disease.
- Age-related cardiovascular determinants of exercise performance, such that guidelines may be given for exercise training.

Preparticipation Evaluation (PPE)

General Considerations

- A PPE should be performed periodically for the athlete who is participating in a vigorous exercise.
- The PPE should emphasize the cardiovascular, musculoskeletal, and neurologic systems and be specific to both the individual athlete and their sport or activities.
- The primary goal is to identify patients at risk for cardiovascular complications of exercise, especially with occult disease.
- Other goals include identifying athletes who have relative restriction and need further evaluation/rehabilitation or absolute contraindications.

- The team physician should provide counsel on selection of appropriate sports/activities.
- Cardiovascular evaluation includes exercise testing (see Cardiovascular Considerations).
- Contraindications to exercise testing and/or exercise are given in Table 2.

Components of the PPE

History

- Complete medical history and review of systems
- History of denial or restriction from sports or activity
- Medications (recent fluoroquinolone use: FDA Black Box Warning, supplements, allergies)
- Cardiovascular issues
- Musculoskeletal issues
 - Previous injury involving time loss, diagnostic studies, and treatment
 - Previous surgery
 - Regular use of brace or assistive device
- Neurologic conditions
 - Head injury or concussion
 - Confusion or memory problems
 - Seizures
 - Exertional headaches
 - Balance issues
 - Numbness, tingling, weakness in arms and/or legs
- General concerns (e.g., safety, depression, anxiety, tobacco, alcohol, and recreational drug use)

- Other exercise-related medical issues
 - Heat and cold illness/injuries
 - Vision issues
 - Nutrition issues
 - Female athlete issues; see “Female athlete issues for the team physician: a consensus statement” [*Med Sci Sports Exerc.* 2003;35(10):1785–93].

Physical Examination

- Complete physical examination with emphasis on cardiac, neurological, and musculoskeletal systems or as directed by history
- Cardiovascular (see previous section)
- Musculoskeletal
 - Spine and joint examination as directed by sport/activity
- Neurologic examination
 - Strength and sensation upper and lower extremity
 - Reflexes
 - Balance and proprioception
- Additional testing to consider dependent on history and physical examination

Clearance Issues

- Cleared without restrictions
- Cleared pending further testing or evaluation (additional testing, consultations, follow-up BP, etc.)
- Cleared with restrictions (e.g., collision/contact sports, load-bearing activities, vigorous activity)
- Not cleared for participation

Table 1. AHA 12 element recommendations for preparticipation cardiovascular screening of competitive athletes.

Personal History

Exertional Chest Pain/Discomfort

- Unexplained syncope/presyncope¹
- Excessive exertional and unexplained dyspnea/fatigue associated with exercise
- Previous recognition of a heart murmur
- Elevated systemic blood pressure
- Premature death (sudden and unexpected) before age 50 due to heart disease in one relative or more
- Disability from heart disease in a close relative age ≤ 50
- Specific knowledge of certain cardiac conditions in family members: hypertrophic or dilated cardiomyopathy, long QT syndrome or ion channelopathies, Marfan syndrome, or clinically important arrhythmias

Family History

Physical Examination

- Heart murmurs²
- Femoral pulses to exclude aortic coarctation
- Physical stigmata of Marfan syndrome
- Brachial artery blood pressure (sitting position)³

1 Judged not to be neurocardiogenic (vasovagal) or particular concern when related to exertion.

2 Auscultation should be performed in both supine and standing positions (or with Valsalva maneuver), specifically to identify murmurs of dynamic left ventricular outflow tract obstruction.

3 Preferably taken in both arms.

Table 2. Contraindications to exercise testing and/or exercise training for the master athlete.

- Unstable angina
- Uncompensated heart failure
- Critical aortic stenosis
- Active myocarditis or pericarditis
- Recent embolism
- Uncontrolled complex arrhythmia
- Significant ischemic changes on electrocardiogram
- Uncontrolled systemic hypertension
- Known cerebral or enlarging abdominal aortic aneurysms
- Uncontrolled diabetes mellitus
- Acute or unstable musculoskeletal injury
- Recent ophthalmologic injury
- Severe dementia
- Other significant illness

Return-to-Play Issues

- See “The team physician and return-to-play issues: a consensus statement” [*Med Sci Sports Exerc.* 2002; 34(7):1212–4].
- Is the athlete at increased risk for injury or illness?
- Can this risk be modified to make it acceptable (protective equipment, rehabilitation, medication)?
- Are other participants at risk for injury or illness because of the problem?

It is essential that the team physician understand:

- The primary purpose of the PPE is to identify patients at risk for cardiovascular complications of exercise, especially with occult cardiac disease.
- The PPE should emphasize the cardiovascular, musculoskeletal, and neurologic systems and be specific to both the individual athlete and their sport or activities.
- Perform a history and physical that clears the athlete for participation or identifies need for further evaluation or referral.

It is desirable that the team physician understand:

- Preventive screening for chronic disease in the older athlete.
- Coordinate a multidisciplinary team to care for the master athlete.
- Additional testing to evaluate fitness and exclude cardiovascular disease, major musculoskeletal deficiencies, and neurologic/balance issues.

Musculoskeletal Considerations for the Master Athlete

Achilles Tendon Ruptures

Etiologic Factors

- Age: There is a higher incidence older than 45.
- Fluoroquinolones: FDA Black Box Warning of increased risk
- Activity: Sudden changes in intensity of eccentric athletic activity, which result in tensile overload
- Tendon degenerative changes include the following:
 - Decreased tensile strength and increased stiffness
 - Decreased number of Golgi tendon receptors, which results in altered force regulation feedback to muscle

Clinical Presentation

- There are minimal prodromal symptoms. Painful Achilles tendons rarely rupture.
- Acute presentation
 - Pop/snap (sensation of being struck) on sudden eccentric loading, in acceleration, deceleration
 - Impaired ability to walk, to raise up on toes, or to run
 - Physical examination
 - Palpable defect in tendon in the mid substance or at the distal insertion. Must differentiate this from proximal muscle tendon junction injury.
 - Thompson test (lack of passive foot plantarflexion with gastrocnemius squeeze) is diagnostic.
- Delayed presentation
 - History of injury and subsequent impaired performance in running, jumping, and stair climbing
 - Physical examination
 - Findings include point tenderness with thickened tendon or palpable defect as well as calf atrophy and strength deficit.
 - Positive Thompson test

Imaging

- Plain X-rays: Evaluate for calcific enthesopathy
- Magnetic resonance imaging (MRI) or ultrasound: Rarely needed in acute cases, may be useful in chronic cases

Treatment

- Nonoperative
 - Casting is rarely indicated.
 - Functional bracing: Non-weight bearing for two to three weeks followed by gradual protected weight bearing.
 - Prohibit dorsiflexion
 - Progressive institution of rehabilitation
 - Casting or bracing are ineffective for chronic ruptures.
- Operative
 - Open repairs with/without augmentation
 - Early intervention (within two weeks) is optimal.
 - For chronic tears, open repair with allograft augmentation is preferred.
- Outcomes
 - Functional bracing versus operative both have similar high rates of initial tendon healing.

- Retear rate is higher in braced compared with operative.
- Beware of certain complications (wound healing, nerve injury) in operative cases.

Risk Reduction

- Cautious use of fluoroquinolones
- Maintain muscle strength, balance, and flexibility of the gastroc/soleus complex and the kinetic chain of the lower extremity.
- Functional conditioning and training
 - Balance training
 - Eccentric strength training
- Use caution when transitioning from nonballistic to ballistic activities.

It is essential that the team physician:

- Know that fluoroquinolones are associated with increased risk of tendon rupture.
- Recognize the clinical presentation of acute Achilles tendon ruptures.
- Know how to perform a Thompson test.

It is desirable that the team physician know:

- The pathophysiology of Achilles tendon rupture.
- The clinical presentation of chronic Achilles tendon rupture.
- The benefits and problems associated with operative and nonoperative treatments.
- The content and implementation of a conditioning program for reducing the risk factors of Achilles tendon rupture.

Osteoarthritis

General Considerations

- Degeneration of articular cartilage characterized by loss of cartilage thickness, attempted repair, remodeling, subchondral sclerosis, and osteophytes.
- The most common cause of musculoskeletal pain and disability.

Hip

Etiologic Factors

- Age
- Obesity
- History of previous trauma
- Developmental abnormalities: Developmental dysplasia of the hip, femoral anteversion
- Sporting activities
 - Increased risk with soccer, track and field, runners more than 60 miles per week, tennis, and ballet
 - Other sports unknown

Clinical Presentation

- Symptoms can be progressive.
- Pain
 - Radiating to groin
 - Increased with weight bearing, rotation
 - May be referred to knee region
- Mechanical symptoms: Locking, catching
- Physical examination
 - Pain to palpation over hip joint
 - Antalgic gait
 - Decreased range of motion (ROM)
 - Hip strength: Weak in flexion, abduction
- Differential diagnosis includes spine, intraabdominal/pelvic pathology, peripheral nerve entrapment, and trochanteric bursitis.

Imaging

- Imaging findings alone do not dictate treatment
- Plain X-rays: Anteroposterior (AP), true lateral
 - Joint space narrowing and osteophytes
- MRI and computed tomography (CT): Usually unnecessary unless associated intra-articular pathology is suspected

Treatment

- Nonoperative
 - Weight loss if indicated
 - Physical therapy
 - Flexibility to improve ROM
 - Strengthening for the gluteus, core
- Reduces pain, no change in disability
- Appears to have less benefit than that in knee arthritis
- Directed home exercise seems to be as effective as structured exercise.
 - Activity modification: Directed at symptom relief only
 - Decreased repetitive impact loading, rotation
 - Exercise as tolerated
 - Pharmacologic: Directed at symptom relief only
 - Acetaminophen is preferred. If ineffective, consider nonsteroidal anti-inflammatory drugs (NSAID) with caution.
 - Intra-articular corticosteroid injections: Used for short-term symptom relief; no scientific basis for long-term benefit.
 - Viscosupplementation is not FDA-approved: No evidence of efficacy.



- Glucosamine has not been shown to be effective.
- Operative
 - Arthroscopic
 - Unclear if changes natural history or decreases symptoms
 - Arthroplasty
 - Significant change in pain, ROM, strength
 - Increase in walking speed and stride length
 - Increase in exercise duration and maximum workload
 - Postoperative sports activity is dependent on preoperative activity. Patients who have high levels of performance preoperative have a better chance of resuming that activity, usually with some limitations (Table 3).

It is essential that the team physician:

- Know the clinical presentation of hip osteoarthritis.
- Understand medical management is directed toward symptom relief only.
- Understand treatment options.
- Conduct a comprehensive history and physical examination of the hip.

It is desirable that the team physician:

- Understand the pathophysiology of osteoarthritis.
- Implement a nonoperative program, including activity modification and weight control if needed.
- Conduct an in-depth history and physical examination to evaluate for other causes of hip region pain.

- Be able to counsel patients regarding risks and benefits of sports activity after operative treatment.
- Interpret imaging.

Knee

Etiologic Factors

- Age
- Gender (female > male)
- Obesity
- Joint malalignment
- Previous joint injury (e.g., meniscus, anterior cruciate ligament, articular cartilage) and osteochondritis dissecans
- Muscle weakness/imbalance

Clinical Presentation

- Progressive and episodic pain, stiffness, and swelling
- Joint malalignment: Varus/valgus
- Muscle weakness/imbalance
 - Quadriceps/hamstrings
 - Vastus medialis obliquus/vastus lateralis
- Mechanical symptoms may be present
 - Locking, catching, instability

Imaging

- Imaging findings alone do not dictate treatment.
- Plain radiographs
 - Bilateral AP standing, PA standing 45° flexion, lateral, tangential patellar.
- MRI: For suspected associated intra-articular pathology.

Treatment

- Nonoperative
 - Weight loss if indicated

Table 3. Activity after total hip arthroplasty—1999 Hip Society Survey.

Recommended/ Allowed	Allowed with Experience	Not Recommended	No Conclusion
Stationary bicycling	Low-impact aerobics	High-impact aerobics	Jazz dancing
Croquet	Road bicycling	Baseball/softball	Square dancing
Ballroom dancing	Bowling	Basketball	Fencing
Golf	Canoeing	Football	Ice skating
Horseshoes	Hiking	Gymnastics	Rollerblade/inline skating
Shooting	Horseback riding	Handball	Rowing
Shuffleboard	Cross-country skiing	Hockey	Speed walking
Swimming		Jogging	Downhill skiing
Doubles tennis		Lacrosse	Stationary skiing ¹
Walking		Racquetball	Weight lifting
		Squash	Weight machines
		Rock climbing	
		Soccer	
		Singles tennis	
		Volleyball	

¹ NordicTrack, Logan, UT.

Table 4. Activity after total knee arthroplasty.

Recommended/ Allowed	Allowed with Experience	Not Recommended	No Conclusion
Low-impact aerobics	Road bicycling	Racquetball	Fencing
Stationary bicycling	Canoeing	Squash	Rollerblade/inline skating
Bowling	Hiking	Rock climbing	Downhill skiing
Golf	Rowing	Soccer	Weight lifting
Dancing	Cross-country skiing	Singles tennis	
Horseback riding	Stationary skiing ¹	Volleyball	
Croquet	Speed walking	Football	
Walking	Tennis	Gymnastics	
Swimming	Weight machines	Lacrosse	
Shooting	Ice skating	Hockey	
Shuffleboard		Basketball	
Horseshoes		Jogging	
		Handball	

¹ NordicTrack, Logan, UT.

- Pharmacologic: Directed primarily at symptom relief
 - Acetaminophen is preferred. If ineffective, consider NSAID with caution.
 - Glucosamine remains controversial.
 - Steroid injections: Short-term relief of inflammatory symptoms and should be used infrequently.
 - Viscosupplementation
- Benefits may last six months or longer.
- Inflammatory reactions may occur.
 - Activity modification
 - Decrease repetitive impact loading, rotation.
 - Encourage low-impact forms of exercise to maintain function.
 - Physical therapy
 - Quadriceps strengthening, especially vastus medialis obliquus
 - Hamstring strengthening
 - Kinetic chain training
 - Flexibility (e.g., stretching to address knee contracture)
 - Directed home exercise seems to be as effective as structured exercise.
 - Consistent exercise program results in decreased pain, improvement in function.
 - Unloader braces may be effective in unicompartmental disease and correctable malalignment.
 - Operative
 - Arthroscopic
 - Ineffective for pain alone

- May be effective for patients with pain and mechanical symptoms
- Does not alter the natural history of osteoarthritis

- Cartilage repair
 - Microfracture, mosaicplasty, autologous cartilage implantation
 - There are specific indications for each use.
- Meniscal allograft replacement
 - Limited indications; optimal in early osteoarthritis
- Alignment
 - High tibial, femoral osteotomy for specific malalignment issues
- Arthroplasty
 - Unicompartmental
 - Total knee replacement
- Highly successful for pain relief, increased joint function
- Increases exercise duration and maximum workload
- Postoperative sports activity dependent on preoperative activity. Patients with high levels of preoperative performance have a better chance of resuming that activity, usually with some limitations (Table 4).

It is essential that the team physician:

- Know the clinical presentation of knee osteoarthritis.
- Know that muscle strengthening is a key point in treatment.
- Understand treatment options.
- Understand medical management is directed toward symptom relief.
- Conduct a comprehensive history and physical examination of the knee.

It is desirable that the team physician:

- Implement a nonoperative program, including activity modification and weight control if needed.
- Be able to counsel patients regarding risks and benefits of sports activity after operative treatment.
- Interpret imaging

Shoulder Osteoarthritis

Etiologic Factors

- Age
- Gender (male > female)
- Degeneration is most common causation; it is not necessarily associated with athletic activity.
- After injury
 - Fracture
 - Loss of joint congruity
 - Avascular necrosis

- Instability
 - Recurrent dislocations
 - Postsurgical: Overtightening, loss of rotation
- Rotator cuff disease
 - Decompensated massive rotator cuff tear (“cuff arthropathy”)

Clinical Presentation

- Gradual onset
- Pain: Worse with activity; frequently worsens at night
- Decreased ROM (rotation, flexion)
- Crepitus and symptoms of popping, catching
- Decreased ability to bear loads
- Strength may or may not be decreased

Imaging

- Imaging findings alone do not dictate treatment.
- Plain radiographs are routine in evaluation.
 - Multiplanar views: True AP (internal and external rotation), axillary, outlet
- MRI is rarely necessary for initial treatment; it is necessary for preoperative planning.

Treatment

- In general, shoulder arthritis is well tolerated.
 - There is commonly minimal significant load bearing through the joint.
 - Many activities of daily living can be achieved through small arcs of motion.
- Athletes with higher demands may not tolerate arthritis well and may require more customized treatment.
- Major signs and symptoms to be addressed in treatment:
 - Pain
 - Decreased ROM
 - Painful crepitus/mechanical symptoms
 - Decreased ability to bear loads, with/without strength loss
 - Decreased strength
 - Overhead activities
- Nonoperative treatment
 - Pharmacological
 - Acetaminophen is preferred. If ineffective, consider NSAID with caution.
 - Intra-articular corticosteroid injections: Used for short-term symptom relief; no scientific basis for long-term benefit
 - Viscosupplementation is not FDA-approved; no evidence of efficacy.

- Physical therapy
 - Capsular mobilization to increase motion
 - Stretching after capsular mobilization
 - Maximize rotator cuff strength
 - Maximize scapular position/motion as part of scapulohumeral rhythm
- Activity modification
 - Change workouts, lighter weights, different positions
- Operative treatment
 - Arthroscopic
 - Clinically significant intra-articular pathology (e.g., rotator cuff tear, labral pathology) in the arthritic shoulder
 - Arthroscopic capsular release good in demonstrated capsular contracture and for removal of bone spurs with minimal arthritis
 - No lasting benefit for pain alone
 - Arthroplasty
 - Pain relief, increases ROM, increases strength, especially below 90° of abduction
 - Most athletes are unable to return to activities with overhead motions without modification.
 - Modifications may be necessary in certain sports/activities that require motion above 90°.

It is essential that the team physician:

- Know clinical presentation of shoulder osteoarthritis.
- Understand not all shoulder joint pain is due to osteoarthritis.
- Understand treatment options.
- Conduct a comprehensive history and physical examination of the shoulder.

It is desirable that the team physician:

- Interpret imaging.
- Implement a treatment program.
- Understand the pathophysiology of shoulder osteoarthritis.
- Suggest and implement activity modifications to allow maximum athletic participation within the limits of the arthritis.

Lumbar Spinal Stenosis (LSS)

General Considerations

- Natural history in the absence of medical care has not been well studied.
- Stenosis (canal narrowing) can be central, lateral recess, neuroforaminal, or a combination.

- Cause of pain not completely understood. Direct compression of nerve root and disruption of vascular flow hypothesized.

Etiologic Factors

- Age
- Stenosis is usually caused by degenerative changes (disk bulging and facet and ligament hypertrophy).
 - Other etiologies include disk herniation, spondylolisthesis, synovial cyst, and epidural lipomatosis.

Clinical Presentation

- Symptoms
 - Neurogenic claudication
 - Classic presentation
 - Radiating pain from the back or buttocks into the lower extremities
 - Occurs with walking and is relieved by sitting or bending forward
 - Also occur with prolonged standing
 - Include numbness, tingling, fatigue, and weakness
 - Vary based on the severity, type, and location of the stenosis (e.g., bilateral versus unilateral lower extremity symptoms and different radicular distributions)
 - May wax and wane
 - Progression is typically insidious, although rapid progression may occur.
- Physical examination
 - Reproduction of lower extremity symptoms with lumbar extension
 - Neurological examination is often normal.
 - May have absent ankle reflexes, a common age-related finding
- Differential diagnosis includes vascular disease, peripheral neuropathy, hip pathology, myopathy, myelopathy, and rheumatologic disease (e.g., polymyalgia rheumatica).

Imaging/Diagnostic Studies

- This is a radiographic diagnosis that must correlate with signs and symptoms.
 - 21 percent of asymptomatic people age 60 or older have stenosis by MRI.
- X-ray: Weight bearing AP and weight bearing lateral flexion/extension views
- Advanced imaging: Usually MRI; occasionally myelogram/CT
- EMG, vascular studies, and laboratory tests may also be indicated.

Nonoperative Care

- Appropriate for patients with mild to moderate symptoms or patients who have medical contraindications to surgery
 - Does not alter the natural history
 - Helps manage symptoms and maintain function
- Pharmacologic
 - Acetaminophen is preferred. If ineffective, consider NSAID with caution.
 - Oral corticosteroids with caution
 - Opiates sparingly
 - Antidepressants and anticonvulsants for neuropathic pain
 - Fluoroscopically guided spinal injections used sparingly as an adjunct to treatment
- Physical therapy
 - Directional preference traditionally toward flexion
 - Aerobic conditioning, strength, and balance training
- Lumbar support for comfort only
- Activity modification usually emphasizing flexion-biased activities (e.g., bicycling versus running)

Operative Care

- Appropriate for patients with severe lower extremity symptoms and/or functional limitations without medical contraindications
- Decompression via laminectomy is the most frequently performed surgery.
 - Fusion has been reserved for cases of stenosis with instability or, in some cases, of scoliosis and stenosis.
 - Data on implantable spinous process spacers remains limited.

It is essential that the team physician:

- Understand the clinical presentation of LSS.
- Understand the course of LSS is usually insidious and not all cases require surgery.
- Conduct a history and physical examination of the spine.
- Understand treatment options.
- Understand indications and limitations of imaging methods.

It is desirable that the team physician:

- Interpret imaging.
- Understand the differential diagnosis of LSS.
- Understand the diagnostic assessment of LSS.
- Understand the indications for nonoperative and operative treatment.



Rotator Cuff Tendinopathy/Tear

Etiologic Factors

- Intrinsic
 - Decreased tensile strength of the tendons
 - Intrinsic tendon degeneration; secondary to apoptosis
 - Direct tendon overload mainly presents as articular-sided injuries.
- Extrinsic
 - Compression against adjacent structures: Subacromial space, coracoacromial arch, coracoid
 - In an animal model, extrinsic compression does not cause injury without intrinsic factors.
 - Fluoroquinolones: FDA Black Box Warning clinical presentation
 - This presents in a spectrum of tendinopathy, with the end point being tear.
 - Gradual onset of tendinopathy or tear
 - History of chronic tendonitis/bursitis
 - Weakness/fatigue, especially in overhead/forward flexed positions
 - Night pain is a dominant feature
 - Acute onset of tear
 - Posttraumatic: Most common is fall on outstretched arm
 - Marked weakness to attempted forward flexion/abduction
 - Night pain

- Physical examination
 - (+/-) Atrophy
 - (+) Impingement sign and test (subacromial local anesthetic injection)
 - Painful arc of motion
 - Muscle weakness or pain inhibition
 - Supraspinatus: Forward flexion, horizontal adduction
 - Infraspinatus: External rotation, especially at 90° of abduction
 - Subscapularis: Lift-off test (limited because of pain), belly press test, bear hug test
 - “Lag” signs: Inability to hold upper extremity in position specific for that muscle

Imaging

- Imaging findings alone do not dictate treatment.
- Plain radiographs are routine in evaluation.
 - Multiplanar views: True AP (internal and external rotation), axillary, outlet
- MRI
 - Noncontrast MRI: High accuracy in full-thickness tears, size of tear, amount of retraction, and/or atrophy
 - MRI arthrogram: Good accuracy in partial-thickness tears and is valuable if other pathology is suspected
 - Positive findings may be clinically insignificant.

- MRI may not be necessary for initial treatment; it is indicated in the presence of significant findings of tear or failure of initial treatment.
- Diagnostic ultrasound
 - May be helpful adjunct, although reliability is ultrasound technician-dependent
- CT/CT arthrogram
 - If MRI contraindicated
 - Good to estimate amount of muscle atrophy

Treatment

- Not all full-thickness tears need surgical treatment; some partial tears may need surgical treatment.
- Nonoperative
 - Pharmacologic
 - Acetaminophen is preferred. If ineffective, consider NSAID with caution.
 - Corticosteroid injections used for short-term symptom relief; no scientific basis for long-term benefit.
 - Physical therapy
 - ROM
 - Strengthening of rotator cuff muscle to maximize cocontraction force couples
 - Scapular stabilization
- Operative
 - Indications
 - Tendinopathy/partial-thickness tear not responsive to nonoperative treatment
 - Acute full-thickness tear
 - Chronic full-thickness tear not responsive to nonoperative treatment
 - Surgery may be open or arthroscopic
 - For acute full-thickness tears, best results if repaired within the first three weeks
 - Less successful results with large chronic tears
 - Must address associated intra-articular or extraarticular pathology

It is essential that the team physician:

- Understand the clinical presentation of rotator cuff tendinopathy and tear.
- Understand intrinsic and extrinsic pathophysiological factors.
- Recognize not all full-thickness tears need surgical treatment; some partial tears may need surgical treatment.
- Understand treatment options.

- Understand indications and limitations of imaging methods.
- Conduct a comprehensive history and physical examination of the shoulder.

It is desirable that the team physician:

- Interpret imaging.
- Implement a nonoperative treatment program, including kinetic chain activation, scapular control, and rotator cuff strengthening exercises.

Lateral Elbow Tendinopathy

Etiologic Factors

- Age
- Repetitive strain in the tendons—extensor carpi radialis brevis, extensor carpi radialis longus
- Tendon degenerative changes include the following:
 - Decreased tensile strength and increased stiffness
 - Cellular changes due to apoptosis
- Extrinsic overload owing to overuse, especially in pronation
- Posttraumatic direct blow
- Fluoroquinolones: FDA Black Box Warning of increased risk

Clinical Presentation

- Pain with wrist dorsiflexion, shaking hands
- Inability to do pronation activities
- Pain with tennis strokes, backhand
- Differential diagnosis include radial nerve entrapment
- Physical examination
 - Point tenderness anterior and distal to epicondyle
 - Decreased strength to wrist dorsiflexion
 - Pain and/or weakness with resisted supination from a position of pronation
 - Occasional radial nerve findings: Tinel sign, weakness
 - Weakness in shoulder external rotation

Imaging

- Imaging findings alone do not dictate treatment.
- Plain radiographs: AP and lateral
- MRI: Rarely necessary but can demonstrate tendon damage

Treatment

- Pharmacologic
 - Acetaminophen is preferred. If ineffective, consider NSAID with caution.
 - Corticosteroid injections: Used

for short-term symptom relief; no scientific basis for long-term benefit

- Multiple injections should be avoided; may cause tendon degeneration.

- Single injections may cause subcutaneous fat atrophy and depigmentation.

- Topical nitroglycerin treatment (adverse effects may limit use)

■ Nonoperative

- Flexibility, especially to improve pronation
- Local strengthening, especially cocontractions
- Kinetic chain strengthening, especially shoulder external rotation
- Modification or change in the mechanics of the sport/activity
- Limited literature support for efficacy
 - Modalities: Ultrasound, iontophoresis (some literature benefit)
 - Augmented soft tissue mobilization (some literature benefit)
 - Forearm splint: Decrease wrist pronation/palmar flexion
 - Counterforce brace
 - Autologous blood injections, extracorporeal shockwave, prolotherapy

■ Operative

- Indicated for failed nonoperative care
- Open, arthroscopic

■ Prevention

- Avoid training errors, sudden changes in volume and intensity of wrist/arm activity, especially excessive pronation.
- Optimize the mechanics of the sport/activity.
- Proper equipment and fit
- Upper extremity strengthening

It is essential that the team physician:

- Understand the etiologic factors in elbow tendinopathy.
- Understand treatment options.
- Conduct a comprehensive history and physical examination of the elbow.
- Understand the complications related to corticosteroid injection.

It is desirable that the team physician:

- Interpret imaging.
- Implement a nonoperative treatment program.
- Understand indications and goals of an operative treatment program.

Selected Readings

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Team physician consensus statement. *Med Sci Sports Exerc.* 2000; 32(4):877.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Sideline preparedness for the team physician: a consensus statement. *Med Sci Sports Exerc.* 2001;33(5):846–9.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. The team physician and conditioning of athletes for sports: a consensus statement. *Med Sci Sports Exerc.* 2001;33(10):1789–93.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. The team physician and return-to-play issues: a consensus statement. *Med Sci Sports Exerc.* 2002;34(7):1212–4.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Female athlete issues for the team physician: a consensus statement. *Med Sci Sports Exerc.* 2003;35(10):1785–93.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Mass participation event management for the team physician: a consensus statement. *Med Sci Sports Exerc.* 2004;36(11):2004–8.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Concussion (mild traumatic brain injury) and the team physician: a consensus statement. *Med Sci Sports Exerc.* 2006;38(2):395–9.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Psychological issues related to injury in athletes and the team physician: a consensus statement. *Med Sci Sports Exerc.* 2006;38(11): 2030–4.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Selected issues in injury and illness prevention and the team physician: a consensus statement. *Med Sci Sports Exerc.* 2007; 39(11):2058–68.

American College of Sports Medicine, American Academy of Family Physicians, American Academy of Orthopaedic Surgeons, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine. Selected issues for the adolescent athlete and the team physician: a consensus statement. *Med Sci Sports Exerc.* 2008; 40(11):1997–2012.

Cardiovascular Considerations:

Chobanian AV, Bakris GL, Black HR, et al. The Seventh Report of the Joint Commission on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension.* 2003;42:1206–52.

Heckman GA, McKelvie RS. Cardiovascular aging and exercise in healthy older adults. *Clin J Sport Med.* 2008;18(6):479–85.

Kaplan NM, Gidding SS, Pickering TG, Wright JT. 36th Bethesda Conference: recommendations for determining eligibility for competition in athletes with cardiovascular abnormalities: Task Force 5: systemic hypertension. *J Am Coll Cardiol.* 2005;45:1346–8.

Maron BJ, Araujo CJS, Thompson PD, et al. Recommendations for preparticipation screening and the assessment of cardiovascular disease in masters athletes: an advisory for healthcare professionals from the working groups of the World Heart Federation, the International Federation of Sports Medicine, and the American Heart Association Committee on Exercise, Cardiac Rehabilitation, and Prevention. *Circulation.* 2001;103:327–34.

Pigozzi F, Spataro A, Alabiso A, et al. Role of exercise stress test in master athletes. *Br J Sports Med.* 2005;39:527–31.

Tanaka H, Seals DR. Endurance exercise performance in master athletes: age-associated changes and underlying physiological mechanisms. *J Physiol.* 2008;586:55–63.

Thompson PD, Balady GJ, Chaitman BR, Clark LT, Levine BD, Myerburg RJ. 36th Bethesda Conference: recommendations for determining eligibility for competition in athletes with cardiovascular abnormalities: Task Force 6: coronary artery disease. *J Am Coll Cardiol.* 2005;45:1348–53.

Spine:

Amundsen T, Weber H, Nordal HJ, et al. Lumbar spinal stenosis: conservative or surgical management? A prospective 10 year study. *Spine.* 2000;25:1424–36.

Atlas SJ, Keller RB, Wu YA, et al. Long-term outcomes of surgical and nonsurgical management of lumbar spinal stenosis: 8 to 10 year results from the Maine Lumbar Spine Study. *Spine.* 2005;30: 936–43.

Boden SD, Davis DO, Dina TS, et al. Abnormal magnetic-resonance scans of the lumbar spine in asymptomatic subjects: a prospective investigation. *J Bone Joint Surg Am.* 1990;72:403–8.

Goh KJ, Khalifa W, Anslow P, et al. The clinical syndrome associated with lumbar spinal stenosis. *Eur Neurol.* 2004;52:242–9.

Standaert CJ, Herring SA. What's best for your patient with lumbar spinal stenosis? *Patient Care.* 2006;40(11):14–21.

Truumees E. Spinal stenosis: pathophysiology, clinical and radiologic classification. *Instr Course Lect.* 2005;54:287–302.

Shoulder:

Brislin KJ, Savoie FH, Field LD, Ramsey JR. Surgical treatment for glenohumeral arthritis in the young patient. *Tech Shoulder Elbow Surg.* 2004;5:165–9.

Clifford PE, Mallon WJ. Sports after total joint replacement. *Clin Sports Med.* 2005;24:175–86.

Reineck JR, Krishnan SG, Burkhead WZ. Early arthritis in the competing athlete. *Clin Sports Med.* 2008;27:803–20.

Sperling JW, Antuna SA, Sanchez-Sotelo J, Schleck C, Cofield RH. Shoulder arthroplasty for arthritis after instability surgery. *J Bone Joint Surg.* 2002;84:1775–81.

Weinstein DM, Bucchieri JS, Pollock RG, Flatow EL, Bigliani LU. Arthroscopic debridement of the shoulder for arthritis. *Arthroscopy.* 2000;16:471–6.

Strength:

Faulkner JA, Davis CS, Mendias CL, Brooks SV. The aging of elite male athletes: age-related changes in performance and skeletal muscle structure and function. *Clin J Sport Med.* 2008;18(6): 501–7.

Hawkins SA, Wiswell RA, Marcell TJ. Exercise and the master athlete—a model of successful aging? *J Gerontol A Biol Sci Med Sci.* 2003;58(11):1009–11.

Nelson ME, Rejeski WJ, Blair SN, et al. Physical activity and public health in older adults: recommendation from the American College of Sports Medicine and the American Heart Association. *Med Sci Sports Exerc.* 2007;39(8):1435–45.

Atrophy, Physiology:

Best TM, Hart L. A growing concern: the older athlete. *Clin J Sport Med.* 2008;18(6):477–8.

Haaland DA, Sabljic TE, Baribeau DA, Mukovozov IM, Hart LE. Is regular exercise a friend or foe of the aging immune system? A systematic review. *Clin J Sport Med.* 2008;18(6):539–48.

Kettunen JA, Kujala UM, Kaprio J, Sarna S. Health of master track and field athletes: a 16-year follow-up study. *Clin J Sport Med.* 2008;18(6):142–8.

McKean KA, Manson NA, Stanish WD. Musculoskeletal injury in the masters runners. *Clin J Sport Med.* 2008;18(6):149–54.

Powell AP. Issues unique to the master athlete. *Curr Sports Med Rep.* 2005;4(6):335–40.

Petrella RJ, Chudyk A. Exercise prescription in the older athlete as it applies to muscle, tendon, and arthroplasty. *Clin J Sport Med.* 2008;18(6):522–30.

Roubenoff R. Sarcopenia: effects on body composition and function. *J Gerontol A Biol Sci Med Sci.* 2003;58:M1012–7.

Singh MAF. Exercise comes of age: rationale and recommendations for a geriatric exercise prescription. *J Gerontol A Biol Sci Med Sci.* 2002;57:M262–82.

Tanaka H, Seals DR. Endurance exercise performance in masters athletes: age-associated changes and underlying physiological mechanisms. *J Physiol.* 2008;586(1):55–63.

Tarnopolsky MA. Nutritional consideration in the aging athlete. *Clin J Sport Med.* 2008;18(6):531–8.

van Uffelen JG, Marijke JM, Chin A Paw, Hopman-Rock M, van Mechelen W. The effects of exercise on cognition in older adults with and without cognitive decline: a systematic review. *Clin J Sport Med.* 2008;18(6):486–500.

Rotator Cuff:

Bokor DJ, Hawkins RJ, Huckell GH, Angelo RL, Schickendantz MS. Results of nonoperative management of full thickness rotator cuff tears. *Clin Orthop Relat Res.* 1994;294:103–10.

Burkhart SS. Reconciling the paradox of rotator cuff repair versus debridement. *Arthroscopy.* 1994;10:4–19.

Carpenter JE, Flanagan CL, Thomopoulos S, Yian EH, Soslowsky LJ. The effects of overuse combined with intrinsic or extrinsic alterations in an animal model. *Am J Sports Med.* 1998;26:801–7.

McFarland E. *Examination of the shoulder: the complete guide.* New York (NY): Thieme; 2006.

Mehta S, Gimbel JA, Soslowsky LJ. Etiologic and pathogenetic factors for rotator cuff tendinopathy. *Clin Sports Med.* 2003;22:79–812.

Valadie AL 3rd, Jobe CM, Pink MM, Ekman EF, Jobe FW. Anatomy of provocative tests for impingement syndrome. *J Shoulder Elb Surg.* 2000;9:36–46.

Knee:

American Academy of Orthopaedic Surgeons [Internet]. Treatment of osteoarthritis of the knee (nonarthroplasty). 2008 [cited 2009 Feb 24]. Available from: <http://www.aaos.org/Research/guidelines/GuidelineOAKnee.asp>.

PPE:

American Academy of Family Physicians, American Academy of Pediatrics, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, and American Osteopathic Academy of Sports Medicine. *Preparticipation Physical Evaluation.* 3rd ed. Minneapolis (MN): Physician and Sportsmedicine; 2005.

Garrick JG. Preparticipation orthopedic screening evaluation [review]. *Clin J Sport Med.* 2004;14(3):123–6.

Maron BJ, Zipes DP, Mitten MJ. 36th Bethesda Conference: eligibility recommendations for competitive athletes with cardiovascular abnormalities. *J Am Coll Cardiol.* 2005;45(8):1314–75.

Maron BJ, Thompson PD, Ackerman MJ, et al; American Heart Association Council on Nutrition, Physical Activity, and Metabolism. Recommendations and considerations related to preparticipation screening for cardiovascular abnormalities in competitive athletes: 2007 update: a scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism: endorsed by the American College of Cardiology Foundation. *Circulation.* 2007;115(12):1643–55.

Maron BJ, Douglas PS, Graham TP, Nishimura RA, Thompson PD. Task Force 1: preparticipation screening and diagnosis of cardiovascular disease in athletes [review]. *J Am Coll Cardiol.* 2005;45(8):1322–6.

Rumball JS, Lebrun CM. Preparticipation physical examination: selected issues for the female athlete [review]. *Clin J Sport Med.* 2004;14(3):153–60.

STOP Sports Injuries Campaign Hits Grand Slam Around the Country

The STOP Sports Injury campaign officially launched on April 1, 2010, with a nationwide satellite media tour and hundreds of print and online articles, including a feature in the *Wall Street Journal*, CNN online, *U.S. News & World Report*, and MSN.com. Several of the articles are included in the STOP Sports Injuries Facebook page and will be available online. A highlight reel and podcast of some of the interviews are also available.

AOSSM President, James Andrews, MD, former MLB pitcher John Smolz, and 2008 Heisman Trophy winner, Sam Bradford took part in the satellite media tour in New York. The tour included 32 radio and television interviews with media from across the country. Some of the outlets involved included ESPN and the NFL Network along with local affiliates.

“My recent shoulder injury highlighted the importance of injury prevention, recovery, and communicating with my coaches, trainers, and health care providers,” said Bradford. “I joined the STOP Sports Injuries campaign to share my experiences and encourage young athletes to join this important cause. It is important for kids to know that it is fun to play organized or recreational sports, but it’s even more important for them to stay healthy while they play.”

Members also got involved by working with their local media outlets and public relations team members in their institutions

or organizations. For example, Dr. Rob Burger worked with his Kaiser Permanente media relations team to book two interviews, one for radio and also the local morning show in Sacramento. “All it took was a call to my PR department at Kaiser and they were willing to help me get everything pulled together,” said Burger.

AOSSM member Liz Matzkin worked with her public relations department at Tufts University to set up an interview with a local Boston paper and then that article got pushed to multiple other outlets in the area. “I wanted to become involved in the campaign so I talked with my media group at Tufts and they helped set up an interview that then was distributed to other papers around the area. We got some great publicity out of a really simple activity that didn’t take much time. We also added some messages to our Facebook page and Twitter feed which enhanced the outreach,” said Matzkin.

Dr. Michael Yergler, a Council of Delegates member, sent a personalized e-mail to AOSSM members in Indiana asking



John Smolz and Sam Bradford helped spread the word about STOP Sports Injuries.

them to get involved and donate to the campaign. “The e-mail took me no time to write and hopefully will encourage others to get involved,” said Yergler.

Public service announcements will be sent out in early May increasing visibility and outreach of the campaign, with more resources being added regularly to the Web site, www.STOPSportsInjuries.org.

We will be promoting sports organizations and governing bodies involvement in the months ahead. If you are a leader in one of these organizations, be sure to forward the STOP Sports

Injuries information and ask for their involvement and support. Guidelines for participation will be available in early May.

Get involved and help us spread the word about keeping kids on the playing field and out of the operating room! Send your stories or outreach efforts to Lisa Weisenberger at lisa@aossm.org.





AOSSM Members Needed for Young Pitchers Studies

AOSSM is launching two research projects this year that focus on elbow and shoulder problems in young pitchers (9–18 years old).

The first is a survey-based study that assesses the extent to which young pitchers engage in types and levels of throwing that may put them at risk for overuse injuries. The second project will target pitchers who seek treatment from an orthopaedic surgeon and explore the relationships among pitching variables, elbow and shoulder overuse injuries, and adaptive changes to the elbow and shoulder.

AOSSM members who have ties with youth leagues or teams in their communities and those who treat 20 or more young pitchers each year are needed to help conduct these studies. If you are interested in participating or would like additional information, please e-mail AOSSM Director of Research, Bart Mann at bart@aossm.org. It's not too late to get involved!



Osteoarthritis Grants Available



AOSSM in partnership with Genzyme Biosurgery is pleased to announce a new research grant program to fund investigations related to early osteoarthritis (OA) and/or prevention of OA progression. Two separate grants will be offered. One will provide a \$50,000 per year renewable grant, subject to an annual progress review, for three years (\$150,000 total) to support a clinical research study. The second will be a one-time award of \$50,000 to support a lab/basic science project to separate investigators over successive three years. **The submission deadline for both the clinical and basic science grants is August 1, 2010.** The Principal Investigator must be an AOSSM member who has completed his or her training. For more information contact Director of Research, Bart Mann at bart@aossm.org. Additional information and application materials can also be found under the "Research" tab at www.sportsmed.org.

Young Investigators Urged to Apply for USBJD Grant Mentoring Program



The United States Bone and Joint Decade (USBJD) and Bone and Joint Decade Canada are dedicated to increasing research of musculoskeletal diseases. The USBJD has developed a grant mentoring program to provide early-career clinical investigators an opportunity to work with experienced researchers and to assist them in securing funding and other survival skills required for pursuing an academic career.

This program is open to promising junior faculty, senior fellows or post-doctoral researchers nominated by their department or division chairs. It is also open to senior fellows or residents who are doing research and have a faculty appointment in place or confirmed. Basic and clinical investigators, without or with training awards (including K Awards) are invited to apply. Investigators selected to take part in the program attend two workshops, 12–18 months apart, and work with faculty between workshops to develop their grant applications. The next workshop is scheduled to take place in October 2010 in Toronto, Ontario, Canada. The unique aspect of this program is the opportunity for attendees to maintain a relationship with a mentor until their application is funded.

Deadline to apply is July 15, 2010. To apply, please visit www.usbjd.org/rd/?yii.

2010 AOSSM Grant Winners Selected

AOSSM is proud to announce the 2010 grant award winners. They will be officially recognized at the Annual Meeting in Providence, Rhode Island.

2010 Kirkley Grant Winner

The Kirkley Grant provides start-up supplemental funding for an outcome research project or pilot study.



Daniel B. Whelan, MD, MSc, FRCSC
Staff, Division of Orthopedics, St. Michael's Hospital, Assistant Professor, University of Toronto

Dr. Whelan's study External Elbow Rotations After Acute Dislocation (EERAADS) is actually the second of a two-stage investigation to evaluate the effectiveness of external rotation (ER) immobilization following first time shoulder dislocations. In the first stage (the ERAADS trial), the ER brace was not found to provide a significant improvement on recurrence rates over a traditional sling when applied in an orthopaedic outpatient setting. It has been previously suggested that the organization of a joint hematoma in the days following injury might prevent reduction of the bankart lesion thereby reducing the effectiveness of the ER immobilization device. The EERAADS trial will attempt to answer the question of whether urgent application (i.e. within hours of dislocation) of an ER brace might be more beneficial. The study will be conducted at a number of Canadian centers.

Dr. Whelan has had subspecialty training in orthopaedic sport medicine and arthroscopy through the Fowle Kennedy Clinic at the University of

Western Ontario. While at the University of Western Ontario, he also went on to complete a Masters degree in clinical epidemiology. He was also a clinical fellow and graduate student under the supervision of Dr. Sandy Kirkley. He returned to Toronto for two further fellowships—one of which was in shoulder and upper extremity surgery, the other in orthopaedic trauma at St. Michael's Hospital. He joined the staff of St. Michael's Hospital, Toronto in July 2006.

Dr. Whelan's clinical interests are primarily in arthroscopic surgery and sports medicine. Within that field, he has a special interest in the assessment and management of primary shoulder dislocations, hip arthroscopy, as well as multiligament knee injuries and reconstruction thereof.

As an orthopaedic epidemiologist, his research focus is in multi-centered clinical trials. He is an active member of the joint orthopedic initiative for national trials on the shoulder (the JOINTS group) as well as an international task force on the assessment and management of knee dislocations.

2010 Young Investigator Grant

The Young Investigator Grant (YIG) is specifically designed to support young researchers who have not received previous funding.



Demetrios Delos, MD

Dr. Delos' study will evaluate the effects of a novel, locally applied agent, platelet rich plasma (PRP), on skeletal muscle healing in the rat, utilizing a validated muscle contusion model.

The aims of the study are three-fold (1) evaluate the contractile and histologic effects of locally administered PRP versus saline versus no injection on skeletal muscle contusion healing; (2) evaluate the effect of delayed treatment in this model; and (3) explore the effect of PRP on the post-injury inflammatory response. Dr. Delos' hypotheses include: (1) local injection of PRP will accelerate healing of skeletal muscle contusions in rats after impaction injury; (2) delayed administration of local PRP will lead to significantly reduced benefit compared to injections provided immediately; and (3) PRP will temper the inflammatory response, as evidenced by decreased numbers of inflammatory cells. Part of the study will include utilizing skeletally mature Lewis rats which will undergo load impaction of the gastrocnemius through a validated drop-mass technique followed by immediate local injection of PRP or saline (or no injection) at the site of injury. In a separate arm of the study, initial PRP treatment will take place post-injury day 1, 3, or 5 respectively. Tensile testing and histologic analysis will be performed at the conclusion of the study.

Immunohistochemistry will be used to evaluate the effect of PRP on the post-injury inflammatory environment.

Dr. Delos was born and raised in New York City. He completed his medical studies at Weill Medical College of Cornell University. He is currently an orthopaedic resident at Hospital for Special Surgery in Manhattan, New York. In the future, he aspires to continue his research endeavors while practicing in the field of sports medicine.



Got Enough CME Credit?



Maintenance of Certification (MOC) is the process through which Diplomates of the American Board of Orthopaedic Surgery (ABOS) can maintain their primary certificate in orthopaedic surgery. The MOC process requires documentation of a minimum of 20 credits of Category 1 CME credits obtained for completion and scoring of self-assessment

examinations (SAE) during a three-year cycle.

AOSSM has developed the print version of the *Self-Assessment and Board Review Version 5* to help you fulfill this MOC requirement. The print version of the AOSSM Self-Assessment and Board Review contains 125 questions on eleven areas of orthopaedic sports medicine topics. Complete the answer sheet and submit your answers. Once the answer sheet is submitted it is scored and recorded. In addition, you will obtain the Preferred Response and References booklet and a CME certificate for up to 12 AMA PRA Category I CME™ credits.

To order the print version of the *Self-Assessment and Board Review Version 5*, visit www.sportsmed.org and click on the “Education and Meetings” tab.

Got News We Could Use? *Sports Medicine Update* Wants to Hear from You!

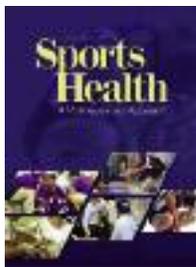
Have you received a prestigious award recently? A new academic appointment? Been named a team physician? AOSSM wants to hear from you! *Sports Medicine Update* welcomes all members' news items. Send information to Lisa Weisenberger, AOSSM Director of Communications, at lisa@aossm.org, fax to 847-292-4905, or contact the Society office at 847/292-4900. High resolution (300 dpi) photos are always welcomed.

Specialty Day 2010 Abstract Deadline Approaching

Be sure to submit your abstract for Specialty Day 2010 in San Diego. The deadline for submissions is May 17. Visit www.sportsmed.org and click on abstracts for details and requirements.



Sports Health Selected as Finalist for New Journal Award



AOSSM's newest collaborative journal, *Sports Health: A Multidisciplinary Approach*, was selected as a finalist in the 2010 Maggie Awards for Best New Publication in the Trade and Consumer Category by the Western Publishing Association, a non-profit association representing print and electronic publishing media in the Western United States.

The Maggies, whose name is derived from shortening the word "magazines," honor excellence based on a variety of editorial and design criteria, including the general editorial package, readability, research, design format, cover, typography, and layout. Publishing experts from the Western United States judge the entries, and winners are selected in more than 100 editorial, design, promotional, and event categories.

"To be named as a finalist represents a substantial achievement for *Sports Health's* editorial team, staff, contributors, reviewers, and your publisher, validating the hard work and dedication that go into successfully developing and publishing a new peer-reviewed, scientific journal," said Editor-in-Chief, Ed Wojtyts, MD.

The winners will be announced at the 59th annual Maggie Awards Banquet on May 7, 2010, in Los Angeles, California.

AOSSM and AJSM Collaborate with International Societies

In an effort to expand the international readership of the *American Journal of Sports Medicine (AJSM)*, AOSSM and its publisher SAGE have worked together to develop special distribution agreements for orthopaedic sports medicine societies around the world. Members of the Asociación Argentina de Artroscopía (AAA), Asociación Argentina de Ortopedia y Traumatología (AAOT), Japanese Orthopaedic Society of Sports Medicine (JOSSM), Brazilian Sports Medicine Society (BSMS), and Sociedad Latinoamericana de Artroscopia Rodilla y Deportiva (SLARD) can now subscribe to *AJSM* through their societies. Partnerships such as these increase the journal's global circulation and the number of submissions it receives from authors outside the United States.



Personalize *In Motion*

Have you personalized *In Motion* for your practice yet? It's a quick, easy way to get important health information into your patients' hands. For just \$300 for all four issues, you can include your practice's name and logo on each issue and have the ability to print the newsletter yourself, e-mail to patients or post on your Web site. Personalizing *In Motion* gives your patients the educational resources they need at a low price. Get this exciting product into your patients' hands today by e-mailing Lisa Weisenberger at lisa@aossm.org for more information.

Clancy Receives Prestigious NATA Award



Former AOSSM President, William G. Clancy, MD, has been selected to receive the 2010 National Athletic Trainers' Association's (NATA) President's Challenge Award.

This award recognizes a lifetime of outstanding contributions that directly impact athletics and athletic training, have a national impact, and are of major and lasting importance. President's Challenge recipients have dedicated a significant portion of their careers to advancing promoting and championing the efforts of NATA and its members.

"Dedication, innovation, loyalty, and leadership are common traits among MDAT recipients," said National Athletic Trainers' Association (NATA) Executive Director Eve Becker-Doyle, CAE. "Dr. Clancy was selected for this honor because he has made significant contributions to the field of athletic training and the progress of the athletic trainer."

The President's Challenge award will be presented on June 24, 2010, at NATA's 61st Annual Meeting and Clinical Symposia in Philadelphia.

Members Receive AAOS Scientific Award

The scientific exhibit project of AOSSM members Matthew T. Provencher, MD, CDR, MC, USN; Neil Ghodadra, MD; Robert Grumet, MD; Sanjeev Bhatia; Bernard R. Bach, Jr., MD; and Anthony A. Romeo, MD, was chosen as one of three winners of "Best Scientific Exhibit" at the AAOS Annual Meeting in New Orleans in March. More than 90 total scientific exhibits were presented during the meeting. The project was entitled, "Recurrent Shoulder Instability: Current Concepts for Evaluation and Management of Glenoid Bone Loss." Congratulations!

AOSSM Members Nominated to AAOS Board of Directors

AOSSM members, Dan White, MD, Colorado Springs, Colorado, and Kevin P. Black, MD, Hershey, Pennsylvania, were elected to the AAOS Board of Directors at the organization's 2010 Annual Meeting in New Orleans. "It's an enormous honor to be elected to the AAOS Board of Directors," said Dr. Black. "I'm looking forward to working with and learning from the other members of the board and having the opportunity to contribute to our profession and ultimately the patients for whom we care."

Fellowship Match Successful in Year Two

AOSSM is pleased to announce that the second year of the AOSSM/AANA sports medicine match was a success. AOSSM's analysis of the aggregate data as well as the examination of the individual rankings of each program and each applicant suggests that the match was again conducted with a high level of integrity, consistent with the rules of the match. Below is a preliminary analysis of the results:

Program Participation

- 100% of the 93 programs participating in the match were accounted for in the 2010 Match.
 - 91 submitted rank order lists.
 - 2 did not submit lists because they had no interviews. Those two programs are participating in the "scramble."
- 226 positions were in the match.
 - 213 were accredited positions.
 - 13 were non-accredited positions.
- 83% of all positions (187) matched (compared to 82% or 184 positions last year).
- 80% of all programs (74) fully matched (compared to 71% or 67 programs last year).
- 20% of all programs (19) got their #1 ranked applicant (compared to 23% or 22 programs last year).
- 28% of all programs (26) got their #2 ranked applicant.

Applicant Participation

- 250 applicants registered for the match (compared to 241 last year).
 - 45 withdrew or did not submit a rank order list (compared to 43 last year).
 - 205 residents submitted rank order lists (compared to 198 last year).
 - 92% applicants (187) matched (compared to 93% or 184 applicants last year).
 - 8% applicants (15) did not match (compared to 7% or 14 applicants last year).
 - 54% of applicants (101) got their #1 ranked program.
 - 20% of applicants (37) got their #2 ranked programs.
- A survey of all match applicants and participating programs will be distributed this fall and will be further analyzed and discussed during the 2010 Annual Meeting in Providence.



AOSSM Members Provide Hope *for* Hundreds in Haiti

Several AOSSM members from all parts of the country have volunteered to help the victims of the earthquake in Haiti. Conditions were unlike anything most of them had ever seen but the endearing spirit and love of the Haitian people shone brightly through all accounts. Below are members Dr. Michael Yergler and Dr. Herbert Haupt's stories of what they saw and how it changed their lives.

By Michael Yergler, MD

We first became aware of the earthquake in Haiti by the initial news reports on television. We soon came to find out the magnitude of the devastation in that country. During the weeks that followed, we were able to contact several organizations that had the ability to transport a few of us down to Haiti in a relief effort. Logistically this was quite a challenge due to the chaos in Haiti and the difficulty in transportation of both people and supplies to that region. There were also many safety concerns and a lot of unknowns.

We came in contact with Sacred Heart Hospital which has had a mission in Milot, Haiti for 24 years. Milot is 70 miles north of Port-au-Prince and is not on the fault line, therefore, it was not affected by the earthquake. We learned that this was the highest functioning hospital in Haiti at the time, and they were receiving a great deal of transported patients from the Port-au-Prince region and from the USS Comfort Ship. We were able to arrange numerous supplies, including an autoclave machine as well as numerous trays of instruments and disposable supplies and ship these supplies to the hospital. Our team consisted of four orthopaedic surgeons, AOSSM members, Dr. Fred Ferlic and Dr. Mike Yergler, as well as Dr. Henry DeLeeuw (spine specialist), and Dr. Randy Ferlic (hand specialist). We also brought a general surgeon, two anesthesiologists, multiple nurses, two emergency room physicians, a primary care physician, and an infectious disease specialist.

It was a little overwhelming when we first arrived at the Sacred Heart Hospital, normally a 70-bed hospital. Five large tents had been set up with army cots that were housing 400 additional patients. Most of the patients there had orthopaedic injuries, including amputations, crush injuries, open lacerations, fractures, and numerous quadriplegics and paraplegics. The hospital usually would perform two to six

cases each day and we were able to perform 28 to 33 cases. The conditions in the operating room were far from what we have come to expect in the United States. There were obvious issues with sterility, both of the environment and the instruments. There was also difficulty with communication as the language they speak is Creole, a form of French. The medical records were also in French, and very disorganized due to the chaos and it was very difficult to obtain any history on the patients.

We were able to get a few basic labs, but we were unable to get any cultures the entire time we were there, which was a problem, because most of the patients we were dealing with had infections. For the most part, we were basing our antibiotic choices on the odor from the wounds.

Over the course of the week, we were able to treat several hundred patients surgically as well as around 400 patients daily. It was an unbelievable experience in that there were no selfish people from our team or any other team. Everybody was a volunteer and there were no egos. In that situation, we would treat everything from decubitus ulcers to open skull fractures based out of necessity. It was remarkable how upbeat the people in Haiti were. Even with this horrible tragedy they would smile and say thank you in French every day. We were able to meet other health care professionals from all over the country that were there for the same reason. We were also able to help get eight children to the Shriners Hospital in Boston, who left the day we left.

Overall this was an unbelievable experience for all of us and we would all do it again at a moments notice. Personally in my sports medicine practice, it is not often I perform life-saving surgery. In this setting, if we were unable to close wounds, perform skin grafts, or roll patients several times a day to avoid decubital ulcers, their injuries would have been fatal.



By Herbert Haupt, MD

Dr. Haupt was in Haiti less than a week after Dr. Yergler and went to St. Nicholas Hospital in St. Marc. This major hospital is about 50 miles northwest of Port-au-Prince to which patients were being evacuated. The group that Dr. Haupt went with saw about 200 patients and admitted about 50 patients to the hospital.

Our group flew into Santo Domingo, Dominican Republic, and drove to St. Marc because the airport in Port-au-Prince was closed. It took nine hours to travel about 250 miles because of the poor roads. The countryside looked devastated, but that was not attributable to the earthquake.

At St. Nicholas Hospital we did everything possible. We were the only doctors who saw earthquake victims, and we were constantly dealing with trauma injuries. For the surgeries we didn't have much equipment, but we made do with the resources we had on hand. We did leg amputations under spinal anesthesia; we didn't have any screws or plates so we couldn't do many fixations, but we tried to do what we could to help alleviate pain. Under regional anesthesia, we did a lot of skin grafts of injuries sustained from the earthquake. We tried to keep wounds clean with whatever materials we had available.

Haitians are such beautiful people. It broke your heart to see how much trauma (both physical and psychological) they were dealing with everyday. Everywhere you looked they were constantly caring for each other. Their demonstration of affection for their family members was simply astounding, especially in the hospital—if the family didn't do

what was needed, it didn't get done. One of the things I will remember most is a woman with a leg injury who had lost her family (including her young son) in the earthquake who started to sing a hymn. Soon the patient next to her had opened her Bible and started singing as well. This was heart-wrenching to witness and highlighted the enormity of the scope of issues that were taking place, but at the same time, it underscored the resiliency of the people in the face of this calamity.

We were able to coordinate our trip through Service International and our church. They arranged for the medical team to be housed with a missionary family in St. Marc. I think that made a difference with us having a place to rest at the end of the long days. I was also amazed and uplifted that my partners and other colleagues had volunteered and closed their practices so they could go down and help in Haiti.

When I left, I felt empty. There was still so much to be done. I just hoped that we had touched even one person and made a difference down the road in their lives. I know we made a (small) dent, but wish we could have done more. This was an eye-opening experience and something I will never forget.

In memoriam, Dr. Herbert Haupt passed away suddenly on April 7, 2010. His colleagues, friends, patients, and family will miss him dearly.

2010 Annual Meeting

An Experience for All Your Senses

In the third of a series of articles on this year's Annual Meeting, we provide a focused look at the social activities available during the Annual Meeting.



Providence, Rhode Island, has long been known for its history and beauty and that is just a piece of what awaits members during the 2010 Annual Meeting, July 15–18. Here are some of the various activities that will be taking place.

7.15 Thursday, July 15

Historic and Scenic Newport, Rhode Island

12:00–5:00 p.m., Cost: \$115

An overview of Newport, Rhode Island, which is rich in history and has spectacular summer cottages, is provided through a 45-minute driving tour. The tour takes you through beautiful coastal scenery and unique architecture. You'll see the most famous of Newport's mansions, including The Breakers—an Italian Renaissance Style 70-room estate. After the mansion tour there will be free time for shopping at scenic Brick Marketplace and Bowen's Wharf in Newport's thriving downtown waterfront. A box lunch will be provided. Suggested age for participants is 12 and up.

Welcome Reception

Supported by BREG, Inc.

6:30–8:00 p.m., Cost: No Fee

Join us for an informal outdoor gathering at the Rhode Island Convention Center. This reception is an AOSSM tradition that offers a highly enjoyable evening for renewing acquaintances and socializing. A full complement of beverages and appetizers is provided in addition to child friendly activities. Everyone and their families are welcome to attend.

7.16 Friday, July 16

Roger Williams Park Zoo Tour and Animal Encounter

12:00–4:30 p.m., Cost: Adults \$115, Children (3 years and over) \$110, 2 years and under free

Visit one of the oldest zoos in the country, Roger Williams Park Zoo, which has numerous activities to please adults and

children, including a penguin exhibit, a sea lion pool, a North American bison exhibit, and a Children's Nature Center. The group will be greeted by trained educators and will provide an overview of the zoo highlighting areas of interest. There will be a private area of the actors group "Wild Bunch" performing puppet shows, storytelling, and Animal Encounters that provide an upclose and personal experience with each animal. The bus ride is 10 minutes from the Rhode Island Convention Center. A box lunch will be provided for you to eat on the bus ride or take into the zoo.

Golf Tournament

Supported by DJO Inc.

1:30 p.m., Cost: \$110

The Montaup Country Club will be the site for the 21st Annual Golf Tournament with a shotgun start at 1:30 p.m. The course is approximately 40 minutes from

the Rhode Island Convention Center and transportation will be provided. The tournament is open to men and women, members and nonmembers. Pre-registration is required. The registration fee is \$110 (box lunch included), which is donated to AOSSM for sports medicine education and research. Last year the tournament sponsored by DJO, Inc., raised more than \$10,000. Please indicate your participation, handicap, transportation, club rental needs, and any pairing requirements on the meeting registration form.

7.17 Saturday, July 17

Federal Hill Culinary Tour

9:00 a.m.–12:00 p.m., Cost: \$105

Federal Hill has been the center of business and culture for Providence's Italian community since the turn of the century. The Hill features numerous restaurants and shops, recognized as among the finest in Rhode Island. On your private guided tour you'll visit traditional and modern Italian bakeries. You'll also go to butchers, poultry markets, and specialty markets, and have numerous, delicious samplings along the way. You'll learn tips and advice

on Italian cooking and how to use the wonderful ingredients found in the Federal Hill Shops. This tour is very limited and is one of the most popular in Providence so you book early. Tour is recommended for ages 10 and up.

A Night with WaterFire

6:30–10:30 p.m., No Fee

WaterFire Providence is a multi-sensory experience that will engage and intrigue every member of the family. This series of bonfires installed on the three rivers of downtown Providence encourages visitors to stroll the city and take in the aromatic wood smoke, flickering firelight, and enchanting music. Various events and performances can be found along the water. Lighting is just after sunset. Prior to that attendees will enjoy a buffet dinner, entertainment, and children's activities. This event is unique to Providence and a must-see for all attendees.

The visitor's bureau has created a Web site just for AOSSM Annual Meeting attendees highlighting local attractions, dining, and transportation and a link to other Providence Web sites. Check it out at <http://www.goprovidence.com/subSites/AOSSM/>.

Sponsor a Star for the STOP Sports Injuries Campaign!

This year's Annual Meeting promises to be the best yet! Everyone is invited to the President's Party on Saturday, July 17 to watch the special WaterFire event. The show will feature more than 100 bonfires that blaze just above the surface of the three rivers that pass through the middle of downtown Providence. Celebrate in our private viewing area or walk around to experience it all!

A very special feature of the night will be the Star Field, aglow with lights in support of the STOP Sports Injuries Campaign. Orthopaedic practices, state COD delegations, and individuals can sponsor an illuminated star with a personal dedication or message for \$500. Children attending the Annual Meeting are invited to decorate their own personal luminaria that will then be placed at the WaterFire event and in the special Star Field. Smith & Nephew has generously committed up to \$50,000 in matching funds as part of the event, all of which will be contributed to the STOP Sports Injuries campaign.

The Star Field is limited to 125 individual stars and each is sold on a first come first served basis, so be sure to reserve yours early! For more information visit www.sportsmed.org.

Pre-Conference Program

Join us before the Annual Meeting on July 14 for the AOSSM/ISAKOS pre-conference program. This interactive educational experience will capitalize on the expertise of both societies through live surgical demonstrations and hands-on (specimen) workshops to immerse you in a variety of knee and shoulder surgical procedures.

The hands-on workshops begin with an online didactic component to be completed prior to the conference. Workshop participants will be working in pairs, sharing one specimen. Workshop options include:

Knee

- ACL Grafts
- Meniscal Repair
- Cartilage Restoration
- Posterolateral Instability/Anatomic Dissection

Shoulder

- Arthroscopic Bankart Repair
- Arthroscopic Rotator Cuff Repair (Double Row or Single Row)
- Arthroscopic SLAP Repair
- Anatomic Dissection after Repair or Open Latarjet

Lower Extremity Live Surgical Demonstrations

- PCL Reconstruction
- Medial Patellofemoral Ligament Reconstruction
- Meniscal Root Tears
- Articular Resurfacing

Live Lunchtime Surgical Demonstrations

- Arthroscopic Hip: Treatment of Labral Lesions and Impingement
- ACL Reconstruction: Single Versus Double Bundle

Upper Extremity Live Surgical Demonstrations

- Latarjet Reconstruction
- Subscapularis Repair, Coracoplasty, and Biceps Tenodesis
- Arthroscopic AC Joint Reconstruction
- Suprascapular Nerve Release

Register now for your Providence housing at www.sportsmed.org.

Deadline for securing rooms and for advanced registration pricing is June 14, 2010, but subject to availability.

The following hotels will be part of the AOSSM room block: Hilton Providence, Westin Providence, Courtyard by Marriott, and Providence Biltmore.



Register now to attend this exceptional and intense surgical skills course with world-renowned faculty!

Upcoming Meetings and Courses



For more information and to register visit www.sportsmed.org and click on the “Education and Meetings” tab.

AOSSM 2010 Annual Meeting

Providence, Rhode Island

July 15–18, 2010

Advance registration closes June 14, 2010.

AOSSM/AAOS Board Review Course

Chicago, Illinois

August 6–8, 2010

Advance registration closes July 19, 2010.

Advanced Team Physician Course

Washington, D.C.

December 9–12, 2010

Battling Decreasing Reimbursement & Increasing Costs?

Take control with **BREG's OrthoSelect®** program

Our **OrthoSelect** solution will equip your practice with the tools and expertise you need to set up and maintain a successful in-office orthopedic bracing and supplies program.

- The best products for your patients
- Cost-effective care that you control
- 100% of revenue stays with your practice
- Convenience and continuity of care

OrthoSelect Quick Calculator

State of Practice Location:

Orthopedic Specialty:

Orthopedic Specialty	Number of Physicians	Calculation Parameters
General Orthopedics	1	Revenue
Sports Medicine (Knee, Shoulder)	0	No Bracing
Lower Extremities (Hip, Ankle)	0	No Bracing
Spine	0	No Bracing
Foot and Ankle	0	No Bracing
Upper Extremities (Hand, Wrist, Elbow)	0	No Bracing
Primary Care Sports Medicine	0	No Bracing
Total Number of Physicians	1	

Estimated Practice Revenue: \$786,000
 Total Annual Practice Income: \$283,400
 Annual Income per Physician: \$447,833

*Required Cost

How much additional revenue could your practice generate?

Find out in seconds at www.breg.com/orthoselect with our **OrthoSelect Quick Calculator**.

For more information call 760-305-5549 or visit www.breg.com/orthoselect

Sports Medicine Update

AOSSM
6300 North River Road
Suite 500
Rosemont, IL 60018



PRESORT STANDARD
U.S. POSTAGE
PAID
GURNEE, IL
PERMIT NO. 152



AOSSM thanks BREG for their generous support of *Sports Medicine Update*.



www.breg.com

