SOUTH CAROLINA

ORTHOPAEDIC PERSPECTIVES

SUMMER 2009

A publication from Midlands Orthopaedics, P.A.

Osteoporosis and Bone Health

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Changes and Innovations

Since our last issue one year ago, much change has occurred at both a national and practice level. The next year promises more dramatic change in the delivery of health care as Congress strives to accomplish health care reform. While no one knows exactly what impact that reform will have, we are committed to helping our patients navigate the complex system of insurance requirements while continuing to provide excellent orthopaedic care.

At the practice level, Midlands Orthopaedics renovated half of our downtown office and installed electronic medical records. We look forward to completing the renovation before the year's end and continually enhancing our workflow to improve the patient experience. In the very near future, we hope to completely eliminate the paper forms patients manually complete by replacing them with an electronic clipboard to capture that information. Recognizing that the current registration process significantly contributes to the wait time in our offices, we are hopeful that this enhancement will streamline the process. Our long-range goal is to provide secure patient registration via a Web portal that can be completed before a patient even arrives for his or her appointment.

Also by the end of the year, patients will be able to purchase the drugs prescribed by their MOPA physician in the office. We will be able to accept the majority of drug plans and offer most drugs for the same out-of-pocket expense a pharmacy purchase would require.

Procedural changes have also occurred due to additional federal regulation. The Federal Trade Commission will require health care facilities to comply with its Red Flags Rule later this year. The rule is designed to protect individuals from identity theft by requiring employees to receive training on the "red flags" that may indicate identity theft has occurred. Employees are also trained how to respond if they identify a "red flag" in relation to a patient's record or account. Patients are now required to present a photo ID upon registration as one measure to prevent identity theft.

As the cost of health care has increased, and many Americans have lost employer-sponsored health insurance, occurrences of medical identity theft have increased. Be sure to safeguard your insurance card and any EOBs you receive in the mail that reflect your insurance ID number. One of the reasons we insist on seeing a copy of your insurance card is to verify that no one else is attempting to use your insurance ID. Many patients offer only the insurance ID number without producing the card itself. In those cases, we cannot determine if that patient owns the coverage or if he/she may have obtained the number inappropriately from someone else. Imagine your frustration if someone copied your insurance ID number and filed claims for medical services you never received. You would likely be billed co-insurance and co-pay amounts for services someone else received using your insurance information. Our diligence in verifying your insurance coverage and identity is one part of a larger effort to protect your health record and account information.

Finally, we are thrilled to welcome two new physicians to Midlands Orthopaedics this fall. Dr. Ivan LaMotta, specializing in surgery of the spine, will join us on August 3, 2009. Dr. Bernie Kirol, specializing in treatment of the shoulder and knee, will join us no later than November 2009. Both of these highly trained surgeons are available to treat general orthopaedic issues as well as their specific sub-specialties.

As always, thanks for entrusting us with your family's orthopaedic care.

Ann Margaret McCraw, COO

As the cost of health care has increased, and many Americans have lost employer-sponsored health insurance, occurrences of medical identity theft have increased. Be sure to safeguard your insurance card and any EOBs you receive in the mail that reflect your insurance ID number.

Each day big things happen here.

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The information contained in this publication is not intended to replace a physician's professional consultation and assessment. Please consult your physician on matters related to your personal health.

South Carolina Orthopaedic Perspectives communicates educational news and trends involving orthopaedic-related injuries and treatments as well as other articles of interest to physicians, employer groups and key members of our community. *South Carolina Orthopaedic Perspectives* is available in waiting areas throughout our three locations, providing additional exposure about Midlands Orthopaedics to our patients, families and guests.

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The Diabetes Orthopaedic

Dr. William C. James, MD and Jason Nussbaum, ATC

Dr. Robert Santrock, MD and Medical Assistant Shellie Beasley

Throughout the history of medicine, the needs of patients have directed the development and sub-specialization of patient care. Today, here at Midlands Orthopaedics, we are pioneering a new subspecialty — the Diabetes Orthopaedic Care Specialty.

Robert Santrock, MD

Diabetic patients often require additional assistance with their orthopaedic needs. Not only does diabetes increase the frequency and acuity of orthopaedic disease, but the unique conditions associated with it also make most orthopaedic surgeries more difficult. The diabetic foot ulcer and subsequent infection represent the primary reason for hospital admission of diabetic patients. Between 40,000 and 70,000 amputations are performed every year due to diabetes. Most of these amputations occur because an uncontrollable infection leaves the patient with no alternative.

The foot and ankle specialty team at Midlands Orthopaedics strives to accomplish one goal — to save the limb, thereby maintaining independence in mobility.

The new subspecialty of diabetes-orthopaedic care is being developed based on four major concepts:

1. Minimally invasive surgical technique
2. Infection control
3. Advanced wound care
4. Comprehensive diabetes assessment

A diabetic patient with a surgical wound requires special care of the soft tissues. Even with careful handling of the tissues, a 30 percent chance of damage to the skin remains. Therefore, developing techniques to prevent potential complication is critical. Here at Midlands Orthopaedics, the foot and ankle team has specialized in minimal-

Care Specialist

ly invasive surgery, which simply means performing surgery with a small incision. Using this methodology, we have incorporated techniques to stabilize the bones with advanced external fixatures while also utilizing newer implants that require less surgical time and smaller incisions. These techniques allow the patient to heal faster with less risk of wound complication and perhaps even bear weight more quickly.

Most patients entering the hospital today are worried about the risk of infection. The emergence of antibiotic-resistant infection is a major concern for the physician as well as the patient. Infection control and eradication are essential components of diabetic care, as these patients are more prone to infection. A comprehensive understanding of intravenous and oral antibiotic treatment as well as surgical techniques to remove infection complement the armamentarium of the diabetic-orthopaedic care specialists. Today, our resources include stronger antibiotics that can be delivered both by mouth and intravenously. Additionally, proper surgical debridement allows us to save the limb and maintain the patient's independence.

Advances in wound care are perhaps the most comprehensive aspect of this new subspecialty. Most surgeons have some experience in the management of difficult human wounds. At Midlands Orthopaedics, we have an entire department dedicated to this problem — the Advanced Wound Care Center. At the Advanced Wound Care Center, we complete a systemic analysis of the patient to determine the major factors contributing to a patient's slow wound healing. This analysis may include an assessment of the patient's nutrition, tobacco use and mechanical factors, such as deformities of the foot.

Stephanie Blackwell, Medical Assistant

Terri Hale, Medical Assistant

The Advanced Wound Care Center at Midlands Orthopaedics offers advanced technologies to heal wounds, including total contact casting, skin grafting and specialized dressings to fight infection and promote healing.

Perhaps the most valuable aspect of the Advanced Wound Care Center is its team approach. Our specialized staff of medical assistants, nurses and physicians is dedicated to patients with these complicated medical conditions. Our team accommodates broad access, allowing patients' appointment times at hours not typically available in other settings. Surgeons are available every day, should hospitalization be required to eradicate infection. Our staff provides comprehensive care with smiling faces to all of our patients, who often feel shunned or embarrassed when seeking help.

The staff of our diabetes orthopaedic specialty clinic is also committed to understanding diabetes as a whole. We frequently participate in continuing education to stay abreast of the latest advancements in controlling diabetes. The complications of diabetes are often already present at the time of diagnosis. Therefore, understanding the disease process and how the complications have occurred is extremely important. The foot and ankle team, working alongside the wound care team at Midlands Orthopaedics, provides nutritional optimization and metabolic stabilization, as well as systemic analysis for all these conditions.

Our goal is to provide diabetic patients the most medically advanced treatment in a caring environment. Our newly established subspecialty is dedicated to this special group of patients, and our genuine hope is to facilitate healing for each individual patient.

Jessamyn Deemer, PA-C

ELECTRONIC MEDICAL RECORDS

Bringing Medical Informatics into the 21st Century

by Michael Adkins

They are found in every medical practice, clinic, pharmacy and hospital. They are an integral part of medical care, containing vital details about patients' specific medical histories, allergies, past procedures and current medications. And they are making their way into the future of information storage and searches.

Medical records have been a staple of physicians' practices for centuries, but only recently have the modern marvels of information technology been applied to these vital records in order to make them more easily accessible, transferable and searchable — both for everyday convenience and in emergency situations where every second counts. As we move further into the 21st century, keeping medical records up to date with today's latest technology will undoubtedly be more important than ever before.

Electronic medical records are secured electronic files of patients' medical histories, medical transcription notes, billing information and other information that is normally part of a patient's file. Electronic medical records are beneficial for many reasons, including the possible prevention of harmful drug interactions in patients.

According to the American Medical Association, adverse drug effects — including patient allergies and interactions between medications patients are taking — account for 2.1 million injuries and 100,000 deaths every year. Electronic medical records are designed to help prevent these incidents from occurring, including alerts when there is the potential for an allergic reaction based on the patient's history or a potentially harmful interaction between medications.

In a study published by *The New England Journal of Medicine*, 80 percent of private-practice physicians who use comprehensive electronic medical records systems reported that those systems helped them avoid giving drugs to patients with known allergies. In addition, more than 65 percent of those physicians credit their electronic medical records systems with alerting them to order critical lab tests and recommend preventive care measures.

Electronic medical records also provide an added layer of safety for patients who may forget to tell their physicians everything they need to know prior to treatment. Most physicians' offices have a form for new patients to fill out about their medical histories, past surgeries or medical procedures, family histories of illnesses and other crucial information. If a patient does not remember to note a particular surgery or forgets that her grandmother had osteoporosis, the physician may

never know without going through the patient's entire paper file — an inefficient and time-consuming process. With electronic medical records, however, the physician can pull up that patient's entire history with just a few pieces of identifying information, bringing up a file that is often more complete than the few lines allotted to medical history on a questionnaire.

Electronic medical records systems are also beneficial to physicians and their practices because of the volume of data that can be stored. Traditional, hard-copy versions of medical records are often stored in bulging manila file folders, filed away in cabinets or shelves until someone goes looking for them. Practices that use electronic medical records, however, have the potential to call up a patient's entire file — past examinations, X-ray images, CT or MRI scan results, blood tests — simply by pulling up the appropriate file on a computer screen or PDA.

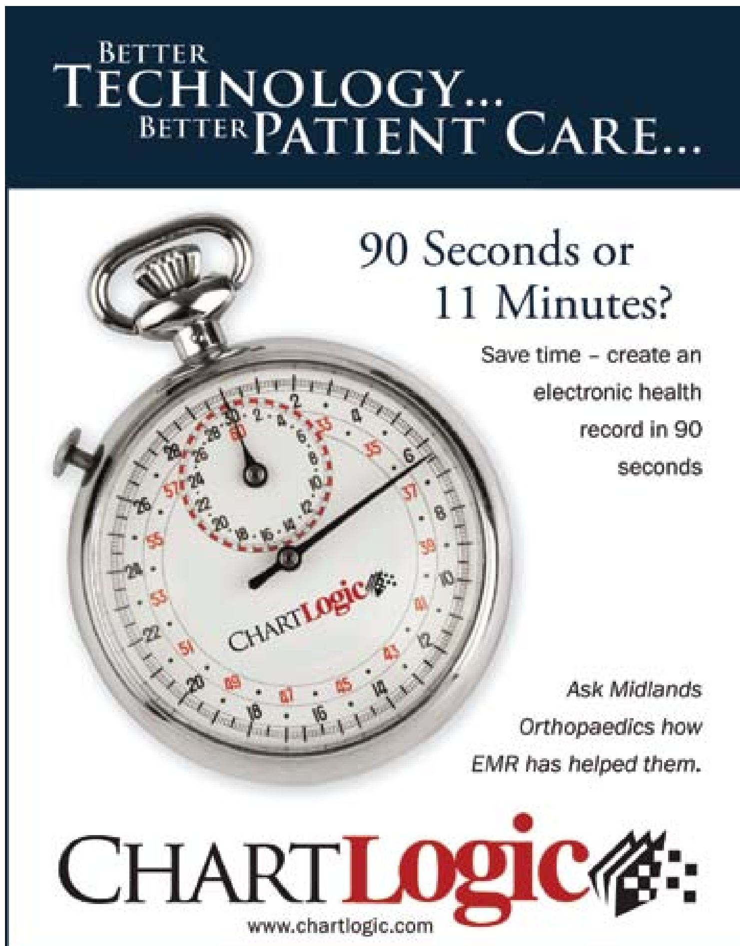
This can also be beneficial when a physician is out of the office and needs to have access to a patient's file. Many electronic medical records systems feature accessibility from any computer with Internet access — making a quick consultation as easy as finding a coffee shop with Wi-Fi or firing up a laptop at home. And these systems also feature encrypted systems and other high-tech security features to prevent any unauthorized people from gaining access to the files.

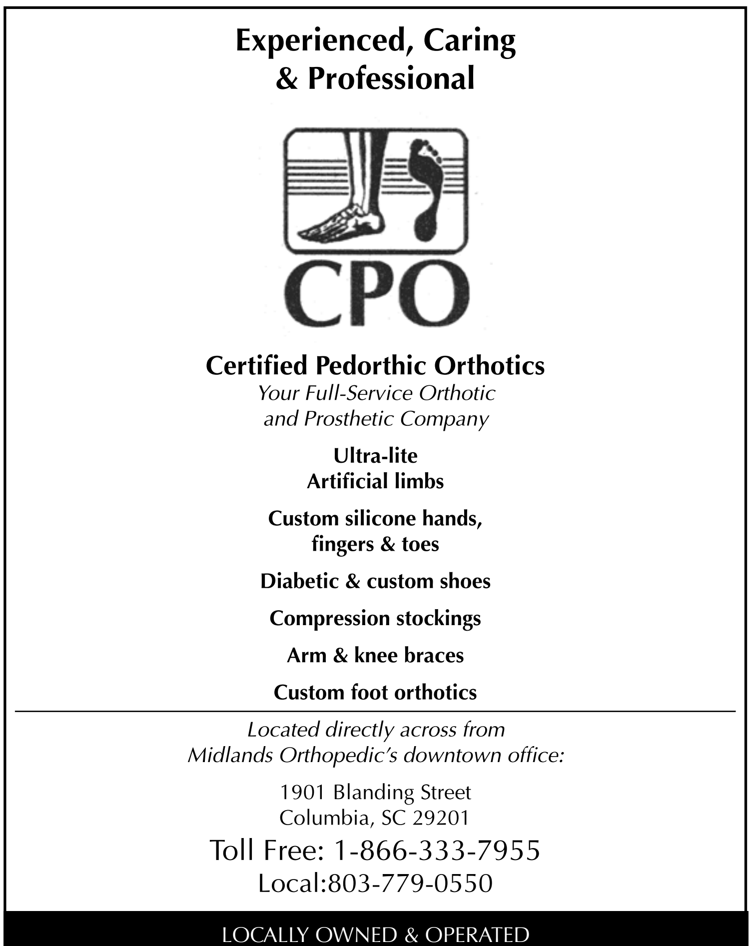
In the Information Age, making sure physicians have ready access to all of their patients' medical information can be crucial to the success of their care. Electronic medical records help these physicians and their practices keep track of every test, every drug, every symptom and every treatment and access that information instantly. Whether it's an emergency situation, and a life may hang in the balance, or it's just keeping track of when a patient's last checkup was, electronic medical records are one way physicians' offices can ensure they're providing their patients with the best of care.

More Information on **Electronic Medical Records**

There are many resources available to people who are looking for further information on electronic medical records. Some of these include:

- The Centers for Disease Control and Prevention (www.cdc.gov) – type "electronic medical records" in the search bar on the Web site's front page
- Article Archives (www.articlearchives.com) – full-text articles on electronic medical records; browse articles by subject, or find them with the search bar
- *The New England Journal of Medicine* (content.nejm.org) – type "electronic medical records" in the search bar on the site's front page





Nonoperative Treatment of Arthritis

Arthritis simply means an inflammation of joints. Almost everyone has suffered from this at one point in his or her life. There are many types of arthritis. Sometimes, it only involves a single joint; other times, it can affect many at the same time. The most common type of arthritis is osteoarthritis. This involves a gradual deterioration of the cartilage surface of a joint.

In all joints in the body, a thin layer of cartilage covers the bone surface. Cartilage is a live tissue, but it contains no nerves. When a healthy cartilage layer is present on both bones that come together to make a joint, the joint moves smoothly without pain. One cartilage surface glides smoothly against the other, lubricated by joint fluid. When these cartilage layers start deteriorating, there is usually some pain and inflammation. When the cartilage surface is completely gone, a joint is said to be "bone on bone." At this point, the nerve fibers contained in bone are stimulated, and this sends powerful pain signals to your brain. When this occurs in the weight-bearing joints of the lower extremity, the pain becomes very limiting, and medicines no longer give adequate relief. Only surgery that provides a new artificial joint surface can solve this problem. Joint replacement or resurfacing procedures apply a new artificial layer to the end of each bone. As long as these implants don't wear out, and as long as they remain well fixed to the bone, there is good pain relief. The implants glide against each other, lubricated by natural joint fluid, once again protecting the ends of the bone from being stimulated.

There are also other problems in and around joints that can cause pain. These may all require different specific treatments — for example, meniscus tears, labral tears, tendon inflammation and tears and bursitis. Therefore, you should see an orthopedic surgeon to diagnose your problem before you assume you have osteoarthritis and begin treatment. Orthopedic surgeons are the specialists most knowledgeable and able to treat these types of mechanical problems of individual joints.

Some people have more generalized immune-system-related arthritis conditions, such as lupus or rheumatoid arthritis, which are best managed by medical arthritis specialists called rheumatologists.

If a proper diagnosis has been made, and you have osteoarthritis that is not yet severe enough to consider joint replacement, the following nonoperative measures may help. If you take any of these medications long-term, including the over-the-counter ones, you should inform your regular medical physician and have routine checkups at least once a year to monitor for side effects.

I am a surgical specialist in hip and knee reconstructive surgery. I do not offer long-term medical management for chronic arthritis pain. Because many people have arthritic problems that may not yet require surgery, I offer the following educational information. If you have any questions that apply to your specific case, please do not hesitate to ask me. However, prescriptions and monitoring for these treatments is most appropriately handled by your medical physician.

If you choose a trial of conservative treatment, I would recommend you consider the following:

I. Activity modification; avoidance of activities that aggravate the problem. Typically, swimming, water exercises and exercise bicycling are less painful activities for people with arthritis of the weight-bearing joints.

II. Medication: Usually, a combination of antiinflammatory medication, Tylenol and glucosamine is helpful. Muscle relaxants and narcotics can be used for a short term, if symptoms are severe. Of course, medications that you are allergic to or cannot tolerate for other reasons should be avoided.

A. Anti-inflammatory medications: There are many choices, both prescription and over-the-counter. Only one from this category should be selected and taken on any one day. If any of these are taken long-term, you should advise your medical doctor and have routine blood tests done periodically.

1. Over-the-Counter:
- Ibuprofen 200 mg (Advil, Nuprin, etc.). Maximum prescription strength would be 800 mg three times daily. This is best taken with food.
- Naproxen sodium 220 mg (Aleve). Maximum prescription strength is 500 mg two times daily. This is best taken with food.

2. Prescription:
- Celebrex 200 mg, one to two times daily
- Meloxicam 7.5 mg two times daily
- Many others are available

Stomach problems occur in up to 5 percent of people taking these medications long-term. You should inform your medical doctor and have routine monitoring of blood tests if you take any of these medications long-term.

Stomach problems are less common with Meloxicam and Celebrex. Prilosec 10 mg can be obtained over the counter and can protect somewhat against these stomach problems caused by these medications.

B. Tylenol: Most adults can take up to six tablets (650 mg each) daily. Those people with underlying liver problems or who consume more than two alcoholic beverages per day should take less and have their liver function monitored by their regular physician.

C. Glucosamine: 1,500 mg daily. There are many brands and formulations. Some do not contain the advertised amount of Glucosamine. Whether to add Chondroitin or not is controversial. There is good scientific evidence that Glucosamine (not Chondroitin) relieves the symptoms of mild or moderate arthritis. There is no evidence that it rebuilds cartilage or prevents further cartilage deterioration. (Beware of false advertised claims: The FDA does not regulate supplements.)

   You need to take this supplement for at least two months to truly test its effect. If it does not relieve your symptoms after that time, there is no reason to take it any longer.

D. Muscle Relaxants: Medications such as Flexeril or Valium may be helpful to relieve muscle spasms. They often make people "groggy." I would only occasionally advise these for short periods of time.

E. Tramadol (Ultram): A semi-narcotic drug with some addictive potential. This can be used short-term for treatment of pain if other measures are not adequate.

F. Narcotics: Many different types are available. They all work in a similar fashion and they all have significant addiction potential, if taken long-term. They should only be used if the other methods fail. I do not prescribe long-term narcotics. Common side effects include: mental changes, constipation, itching and nausea.

III. Heat. Apply to the affected area; may help relieve symptoms.

IV. Aerobic Exercise: A good aerobic exercise program three times a week for at least 30 minutes is an important part of the program. Options include such activities such as brisk walking, exercise bicycle, elliptical or swimming. The key is to get your heart rate elevated through exercise without irritating the affected joint too much.

V. Weight Loss:

   BMI = (Your weight in pounds) x 705 / (height in inches) x (height in inches)

   BMI > 40 = morbidly obese
   BMI > 35 = severely obese
   BMI > 30 = obese
   BMI > 25 = overweight

   If you get down to a normal weight, your back and other lower extremity joints will feel better.

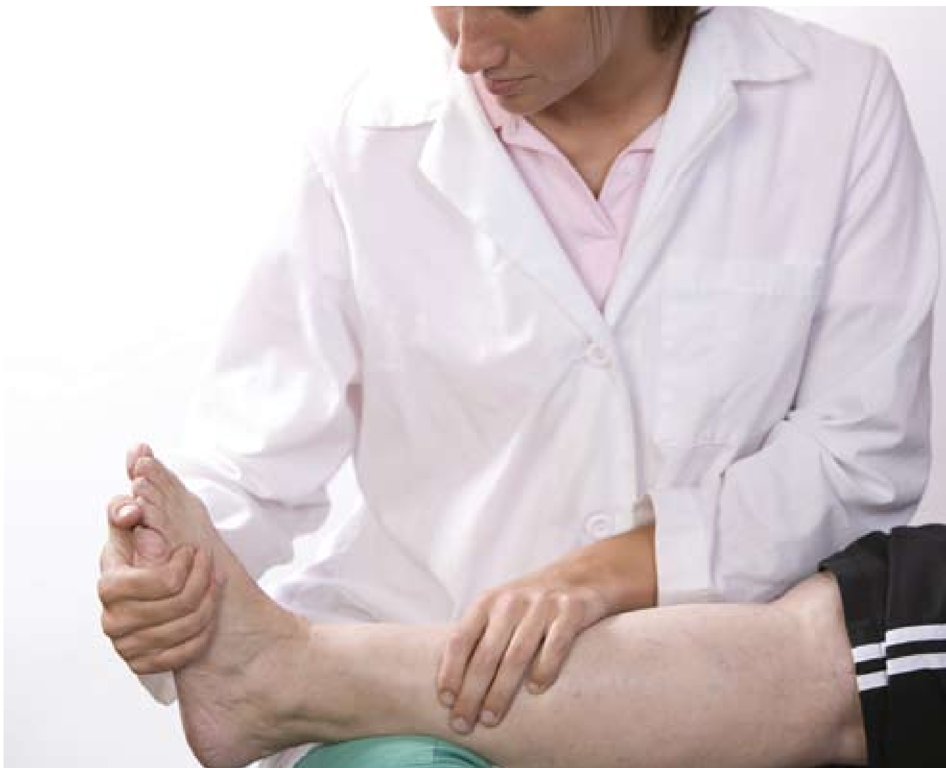
VI. Diet: There are many fads out there. They mostly are quite expensive. People are easily fooled into believing they can "buy weight loss" through some fancy gimmick that promises weight loss without much effort. They try to avoid the difficult discipline of adhering to a healthy diet and a program of moderate exercise. The formula is very simple: Calories eaten minus calories used = fat stored.

   Calories consumed:
   - Basic metabolic rate (BMR): Some people are fortunate to have a high BMR. There is no evidence that this can be changed by some type of gimmick or pill.
   - Growth (this only applies to children)
   - Exercise

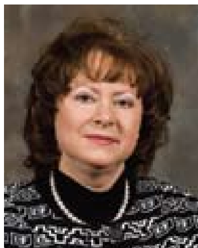
   Generally healthy diets involve:
   - Limitations of calories.
   - Avoidance of sugars and starches
   - Preference for complex unprocessed carbohydrates containing as much fiber as possible
   - Moderate balance of healthy fat (olive oil, canola oil, poly-unsaturated oils)
   - Protein
   - I recommend Weight Watchers or South Beach Diet as a starting point.
   - High-fat diets such as the Atkins diet have been shown to be very effective in quickly allowing you to lose weight, but they are probably very unhealthy over the long term. They should only be used for quick weight loss, and then you should change to one of the healthier diets listed above. It is best to just start with a healthy diet from the beginning and take a slower approach.

VII. Chiropractic Treatment: There is some scientific evidence to suggest that repeated spine manipulations for back pain are equally effective as a back exercise program that is taught by a physical therapist. Most other claims made by chiropractors are not based on physiologic and scientific principles. Over time, this treatment is likely to be much more expensive than an exercise program. There is no scientific evidence for the use of chiropractic treatment in osteoarthritis of other joints.

VIII. Physical Therapy: There is occasionally a role for physical therapy in the treatment of osteoarthritis, especially for spine problems. Many non-arthritic joint problems such as tendonitis and bursitis can be treated with therapy.



Thomas P. Gross, MD



Lee Webb, MSN, APRN, ANP, ANP-BC

Osteoporosis and Bone Health

Bones support and shape our bodies by anchoring muscles and protecting our vital organs, and they are very much alive. Bones constantly revitalize themselves through a process called bone remodeling. During this process, cells called osteoclasts break down the old bone so the body can reabsorb it in order for other cells (osteoblasts) to form new bone. These cells are regulated by hormones that include calcitonin, parathyroid hormone, estrogen (in women) and testosterone (in men). As we age, production of hormones slow and more bone is deconstructed than constructed, our bones become more porous, which is known as osteoporosis. This process makes individuals at risk for fractures (NOF, 2006).

Osteoporosis is a chronic, progressive disease characterized by low bone mass, bone deterioration and decreased bone strength, leading to increased bone fragility, morbidity and mortality. Osteoporosis is the most common bone disease in humans, and it affects women as well as men. It often occurs during the seventh decade of life. Osteoporosis is a major public health threat for approximately 44 million Americans, or 55 percent of those 50 years and older. A total of 10 million Americans are estimated to have osteoporosis; 8 million are female, and 2 million are male. However, osteoporosis can strike at any age (NOF, 2006).

In the first two decades of life, our bodies build bone much quicker than the remodeling process takes back bone in reabsorption. By age 20, bones are as dense as they will ever be; then the process begins to decline. As estrogen and testosterone levels decrease with age, the rate of bone loss increases significantly. In the first five to seven years of menopause, a woman can lose up to 20 percent of her entire bone mass. As estrogen levels decrease, osteoclasts become more active, and bone demolition increases.

Bone diseases have a major impact on the population (Healthy People, 2008). Osteoporosis is a particular threat because of its silent nature, which surfaces after a fracture has occurred. Osteoporotic fractures occur at the rate of 1.5 million per year in the United States, leading to hospitalization, emergency room visits, 2.6 million physician office visits and the placement of 180,000 individuals in extended care facilities (NIHORBD, 2008). Caring for these fractures results in annual direct care expenditures of $12 billion to $18 billion in the year 2002; indirect costs, such as lost productivity, add billions to these figures (NOF, 2008).

Risk factors include:

- Advanced age
- Genetics
- Lifestyle factors such as smoking, low calcium and vitamin D intake
- Being thin
- Low BMD
- Previous fracture

Secondary causes of bone loss include:

Medications:

- Oral glucocorticoid
- Gonadotropin-releasing hormone
- Intramuscular medroxyprogesterone acetate
- Immunosuppressives
- Heparin
- Long-term use of anticonvulsants
- Excessive thyroxine doses
- Cytotoxic agents

Genetic disorders:

- Osteogenesis imperfecta
- Thalassemia
- Hypophosphatasia
- Hemochromatosis

Disorders of calcium balance:

- Hypercalciuria
- Vitamin D deficiency

Endocrinopathies:

- Cortisol excess
- Cushing's syndrome
- Gonadal insufficiency
- Hyperthyroidism
- Type 1 diabetes mellitus
- Primary hyperparathyroidism

Gastrointestinal disorders:

- Chronic liver diseases
- Malabsorption syndromes
- Total gastrectomy
- Billroth I gastroenterostomy

Other disorders:

- Chronic renal disease
- Rheumatoid arthritis
- Multiple myeloma
- Nutritional disorders
- Lymphoma and leukemia
- Systemic mastocytosis (CDC, 2008)

Dexascan

Osteoporosis is not detectable on routine X-rays until 30 to 40 percent of bone mass is lost. The National Osteoporosis Foundation recommends a bone Dexascan for all women age 65 or older regardless of risk factors.

A Dexascan is a noninvasive painless procedure that takes less than 15 minutes to perform. Bone strength is measured by bone quality and bone mineral density (BMD). Bone mineral density is expressed as grams of minerals per area of volume; at any age, this is correlated with bone mass. Standardized values are reported as a Z-score and a T-score; both are expressed as standard deviation (SD) units.

T-score is calculated by comparing the patient's current BMD to the mean peak of a normal young adult of the same gender. Z-score is based on a comparison of the patient's BMD and the mean BMD of a reference population of the same gender, age and ethnicity. The World Health Organization (WHO) defines osteoporosis in a postmenopausal woman as a T-score of less than or equal to -2.5 at the hip, femoral neck or lumbar spine. Osteopenia is defined as a T-score between -1.0 and -2.5, and normal bone mass are defined as a T-score above–1.0.

Diet

A balanced diet has an important role in bone development and maintenance of bone health throughout the life span. Calcium and vitamin D are key factors in bone metabolism; adequate intake is required throughout life in order for a woman to achieve her genetically determined peak bone mass. Adequate intake is 1,500 mg of calcium per day in divided doses and 1,000 IU of Vitamin D daily. Foods high in calcium include low-fat milk, yogurt and cheese, or juices such as orange or cranberry, which are fortified with 300 mg or more of calcium. One serving of milk, yogurt or cheese provides 300 mg of calcium. Vitamin D is critical in the absorption of calcium; 1,000 IU is required daily. Food sources include fatty fish, such as salmon, and fortified milk, cereal and juices. Vitamin K makes a protein called *osteocalcin function*, which binds to calcium and creates strong bone. As women reach menopause, estrogen declines, and vitamin K function is impaired. Food sources include green vegetables such as kale; a half-cup provides more than 500 micrograms of vitamin K, and our bodies need 90 micrograms for women and 120 micrograms for men daily (NOF, 2008).

Who Needs a Dexascan?

- Women and men age 65 and older
- Women and men younger than age 65 with risk factors
- Women and men with radiographic findings suggestive of osteoporosis
- Women and men receiving prolonged drugs that can cause bone loss
- Men and women with one or more low-impact fractures
- Men and women with a disease known to contribute to low bone mass or bone loss
- Men and women who have lost more than 1.5 inches or 4 cm of their peak height (*American Nurse Today*, 2008).

Exercise

Weight-bearing exercises such as walking, running, step aerobics and gymnastics provide the greatest osteogenic stimulus. The effects of exercise on bone mass is caused by osteoblast activity. Regular exercise is associated with reduced fracture risk by means

of associated increase in muscle mass, strength and balance. Weight-bearing exercises cause muscles to work against gravity; this triggers the body to lay down minerals in bone.

The National Osteoporosis Foundation in 2006 listed five important steps to bone health and osteoporosis prevention: get the daily recommended amounts of calcium and vitamin D, engage in regular weight-bearing exercise, avoid smoking and excessive alcohol consumption, talk to your health care provider about bone health, and have a bone density test and take medication when appropriate.

Pharmacologic Intervention

Bone mineral density tests are the only way to diagnose and determine fracture risk. Pharmalogic intervention should be initiated to reduce fracture risk in women with BMD T-scores below -2.0 by hip dual energy X-ray absorptiometry with no risk factors and -1.5 with one or more risk factors. Although there is no cure for osteoporosis, treatment includes bisphosphonates (Fosamax, Actonel and Boniva), calcitonin (Miacalcin), estrogen hormone replacement (Evista) and parathyroid hormone (Forteo) supplements (NOF, 2008).

References and Web Sites for More Information:

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Making the Most of the GREAT OUTDOORS

Improving Outdoor Workouts

by Freddy Roney

Escaping the enclosures we have become accustomed to is a necessity for both physical and mental fitness. Many outdoor activities help boost your metabolism, which is necessary for effective weight-management.

Often, they work out the lower body, creating a lean and muscular figure. Exercisers won't bulk up by exclusively partaking in such workouts, but they will certainly slim down. Outdoor training can also improve cardiovascular fitness, providing for long-term health benefits.

Exercising outdoors is not feasible year-round in all regions of the country — though, with some creative thinking and appropriate preparations, you can enjoy an outside workout more often than you might think.

Cold-Weather Climates

In cold-weather climates, bundling up in layers allows you to continue many routines that you might otherwise only pursue when it's warm. Include an empty backpack as part of your workout gear — you can fill it with excess clothes as you warm up. Be certain the bag you use fits you appropriately to avoid any weight-related injuries. With a well-fitting accessory, your workouts will actually improve in cold weather because you'll be carrying more as you go!

Wet-Weather Gear

Rainy parts of the country need not be hindrances to great outdoor workouts. Numerous sportswear companies produce lightweight and breathable wet-weather gear that helps your perspiration escape even as it keeps you dry from outside influences. If your community provides safe exercise pathways, dry gear is all you need to enjoy bicycling, in-line skating, jogging, or walking in a new and refreshing element.

For those interested in either initiating some outdoor pursuits into daily life, incorporating outdoor activities into existing exercise routines, or improving the fitness benefits gained from working out outdoors, here are a few ideas:

Bicycling

A nonimpact exercise (meaning it will not adversely affect your joints), bicycling is enjoyable as a casual, purposeful, and athletic pursuit.

As a physical-fitness device, bicycling is most effective when specific techniques are utilized. The first is to vary the gears used and speed traveled.

This interval training fluidly utilizes the large and small leg and glute muscles, making one ride a total lower-body workout.

To ensure interval training on a ride, try to ride in hilly areas that necessitate switching gears and speeds. This will naturally involve much more

than repetitious pedaling, thereby bringing a better overall workout.

Swimming

Excellent exercise in lappools, swimming is a non-impact sport. Though a tendency is to find a comfortable stroke and stick with it, the most effective way to work out in the pool is to mix up the methods.

Complete a number of laps with the crawl followed by a number with the backstroke; move on to the breaststroke and complete the cycle with the butterfly. Making certain to utilize all possible strokes gives a more complete workout to your muscle groups.

If you find you are getting more pull than push out of your pool exercise, some of your laps can be made while holding a kickboard.

Most pools will have some on hand. Because a complete cardiovascular and major-muscle workout is available in the water, take advantage of the possibilities!

Walking

The potential long-term detrimental effects of high-impact jogging make walking the preferred recommendation. If you are seeking an equivalent workout to that gained by running, however, look no further than powerwalking.

Burning off as many calories as fast running, power-walking may look a little funny, but it is a low-impact, highly effective technique. Swing the hips through each step, taking long strides matched by a long arm swing. You will find yourself moving very fast — the goal is to reach a speed that would make breaking into a jog easier. When you get there, keep walking! That level of intense movement is where the workout waits!

Common walking can also be a solid workout if you choose the right places to go. By climbing hills at your normal walking pace, you will increase your calorie-burn up to 30 percent.

Facts on Walking

- It's one of the simplest and safest aerobic exercises you can do.
- On average, every minute of walking can extend your life by 1.5 to two minutes.
- Walking an extra 20 minutes each day will burn off seven pounds of fat per year.

Tips

- Work out early in the morning or late in the evening to avoid too much sun exposure.
- Warm up by walking or running in place or on a treadmill for a few minutes before heading outside.
- Stretch to increase range of motion and help prevent injury.
- Strengthen your ankles to prepare them for different terrain.
- Measure your path using a map or car odometer.
- Dress appropriately for the weather.

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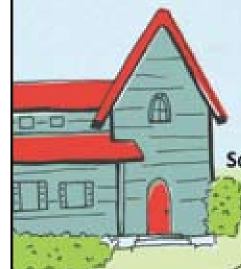

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