Keeping You Safe During Total Joint Replacement

“Real-Time” Imaging with MSK Ultrasound

Rubbing on Relief for the Pain of Arthritis of the Hand

Introducing The Spine Institute at CMH

What you Need to Know about Your Rotator Cuff
On the move

From the Orthopaedic perspective, the past few months have been very exciting. Our post-operative patients began utilizing the renovated sixth floor at Columbia Memorial Hospital—following a complete tear-down and reconstruction—and we are pleased to report extremely high satisfaction levels among patients, nurses, and physicians alike. The private rooms have been constructed using top quality, modern materials and layout of the floor has maximized patient maneuverability and safety while maintaining library-like quiet. The views of the Catskills and the Hudson River are nothing short of breathtaking. We could not ask for a more ideal post-operative environment for the first few days of recovery after surgery.

The Spine Institute of Columbia Memorial Hospital, located at the Medical Office Building, officially opened this past spring. Drs. Eromo and Kafiluddi work together closely, providing comprehensive spine care. They discuss their approach in this issue.

Construction is currently underway for our new Orthopaedic office in Greene County. Located on the ground floor of the Greene Medical Arts building, this facility will expand our ability to provide orthopaedic care west of the Hudson River. We will be able to accommodate 2 providers daily and we will have fluoroscopic and ultrasound equipment just as we have in our Hudson office.

Dr. Pregont continues to utilize ultrasound for diagnosis and treatment and introduces this technology in this issue. Dr. Shin discusses topical medications and their application for orthopaedic conditions.

Dr. DiGiovanni and I present a few of the most important steps we take to medically optimize patients planning on undergoing joint replacement surgery. We then discuss the importance of rehabilitation to maximize outcomes after surgery. Dr. DiGiovanni follows up by presenting the ways we can maximize non-operative treatment for osteoarthritis.

The rotator cuff is often discussed, but poorly understood by most laypeople. I will begin to diminish some of the mystery surrounding this muscle group in our overview of the subject: Rotator Cuff 101.

We hope you enjoy this issue of In Motion.

Christopher Gorczynski, MD
Chief, Department of Surgery
Columbia Memorial Hospital
Musculoskeletal ultrasound
A unique imaging technology provides “real-time” views.

When we think of 21st century medical imaging, MRI or CAT scans—which became widely used in the 1980s—are probably the first methods that come to mind. For orthopaedists, however, the slightly older technique of musculoskeletal ultrasound (MSK ultrasound) is really coming into its own in the new century, due to advances in the technology and to the unique properties of the imaging system.

MSK ultrasound employs high-frequency sound waves to generate real-time images of muscles, tendons, ligaments, joints and soft tissue. Because it doesn’t use radiation it is safe for pregnant women and nursing mothers. It can also be used on people with metal in their bodies, such as pacemakers or orthopaedic implants, who are not good candidates for MRI imaging.

MSK ultrasound is a valuable tool in my practice, both for diagnostic and interventional purposes, and definitely merits the hundreds of hours of additional training that went into mastering the technology, developing interpretive skills and becoming a certified musculoskeletal sonographer. I use it regularly to diagnose tendinitis, tendinosis, ligament and muscle tears and other soft tissue structures like cysts or masses.

The dynamic difference
One of the most useful aspects of the technology is that it provides dynamic imaging. For example, I can ask a patient to move her arm into a painful arc and examine the image of the tendon area to diagnosis precisely where and what the problem is. Or I might apply pressure to identify a painful area and then examine the localized point in great detail, detail as clear as that yielded by an MRI.

Another diagnostic feature of MSK ultrasound is the ability to visualize blood flow, not only in arteries and veins, but also in areas of the tendon where increased blood flow would be indicative of inflammation.

There are many interventional uses for MSK ultrasound as well. In the case of injections it enables me to visualize where the needle is going and therefore pinpoint an injection precisely where it is needed. If I were to inject a numbing agent, such as lidocaine, and the pain was instantly relieved, that would serve as a diagnosis of the source of the pain.

Using MSK ultrasound, I can also identify, for example, the portion of a tendon that has been made abnormal from a problem like tendinosis. Then, I can precisely guide a needle and percutaneously, that is, without cutting the skin, break up the abnormal site with multiple needle passes and cause a degree of bleeding that will actually promote tissue healing. Similarly, the needle can be guided to deliver regenerative treatments such as platelet-rich plasma (PRP) or Prolotherapy.

MSK ultrasound has been demonstrated to be comparable to, and sometimes better than MRI for most, but not all, musculoskeletal imaging needs. Colleagues often send me patients to ultrasound for diagnostic purposes. And, because the technology has a high success rate in avoiding sensitive structures, I’m sometimes brought on board for interventional purposes as well. For situations in which a nerve or artery may be near the affected area, the enhanced needle visualization really helps, not only in localizing the area of injury, but in avoiding the arteries or nerves you don’t want to pierce in the process. I can visualize the needle path to be sure we don’t hit any of those structures.
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Topical relief for hand pain
Absorbed through the skin, these analgesics are an alternative to pills.

Catherine Shin, MD

Topical rubs can provide effective relief for pain, with fewer side effects than pills.

Topical reliefs for hand pain

I make a point of telling my patients with arthritis of the hand about topical analgesics. Arthritis is a chronic condition, not something that’s going to go away. We can’t really fix the problem so we try to reat the symptoms until the pain is tolerable or gets bad enough to warrant having surgery in which the joint is either fused, removed or replaced.

For occasional flare-ups, topical rubs can supplement or replace pain medication, providing effective relief for many.

Topical pain medications—in the form of creams, gels, and lotions—are applied to painful areas and are absorbed through the skin. Because the joints of the hand are close to the skin’s surface, topical analgesics are especially effective for hand pain. Also, many patients don’t want to take a pill that goes through their whole body, and may have side effects, for a pain that is localized to one small area or joint.

Over-the-counter topicals

At the pharmacy you’ll find shelves full of topical rubs for arthritis or sports-related pain. Though there are dozens of brands to choose from, there are three main mechanisms of pain relief at work in over-the-counter topical medications:

- **Counterirritants** produce a “cold” or “hot” feeling on the skin, stimulating nerve endings and thereby distracting the brain’s pain sensors from the deeper pain around the joints. Falling into this group are ingredients such as menthol, eucalyptus and camphor. These tend to have a very characteristic smell or scent. Popular ones include Icy Hot, Tiger Balm and BioFreeze.

- **Salicylates**—the same ingredient found in aspirin—inhibit prostaglandins that contribute to pain and inflammation. Popular topical analgesics like Aspercreme, BenGay and SalonPas contain salicylates. Though only a small amount of salicylate enters the system with these rubs, people allergic to aspirin or taking blood thinners should check with their doctor before using them.

- **Capsaicin** is derived from capsicum, the heat source in chili peppers. The tingling warmth or burn that occurs when topicals with capsaicin are first used can ease pain through the counterirritant mechanism. However, after several days to weeks of regular use, pain-related neurotransmitters in the area of application are depleted, leading to extended periods of pain relief.

People experience pain and pain relief in an individual fashion so, though each type of these topical analgesics can be useful, not all of them will work for everyone. I advise my patients to go to their local pharmacy and check out the shelf of topical medicines. Find something that doesn’t offend your pocket book or your sense of smell and try it. If it doesn’t seem to be helping, they should check the active ingredients and try another topical rub that uses a different active ingredient. If neither helps, an over-the-counter topical medication may not be sufficient and we can try a prescription topical.

Prescription topical medications

Since there are different types of pain that can be experienced at the same time — inflammatory pain, neuropathic pain or pain resulting from muscle spasm, for example—it’s sometimes necessary to use a combination of medications to provide optimal relief. Compounded topical pain creams and lotions are able to accomplish this; they can incorporate anesthetics, muscle relaxants, anti-inflammatory drugs and a local anesthetic in a single dose.

Some of the active ingredients we use in prescription topicals include lidocaine or tetracaine (a local anesthetic), diclofenac (an anti-inflammatory) cyclobenzaprine or Flexeril (a muscle relaxant), baclofin (a muscle relaxant), and gabapentin or Neurontin (for nerve pain). These can be used for conditions other than arthritis, such as tendinitis, neuropathy, sprains and muscle aches. Prescription topicals include Lidoderm patches, Voltaren® Gel, Flector Patches, Neuroflex Cream and Flex Ultraceam.

Topical medications not only can contain some strong pain relieving ingredients but may also help through their application by massage, which can stimulate blood flow and desensitize painful areas.
The official ribbon cutting ceremony was held on April 11, 2013, but the Spine Institute of Columbia Memorial Hospital has really been years in the making. Years of training and clinical practice have informed the patient-based philosophies of Institute Director Ersno Eromo, MD and Spinal Diagnostics Specialist Ronny Kafiluddi, MD, PhD, FIPP and led them to develop their unique team approach to the diagnosis, treatment and rehabilitation of spine conditions.

The physicians of the Spine Institute follow a conservative treatment path. That means they pursue the full range of non- and minimally-invasive therapies to return their patients to an active and pain-free life before considering a surgical solution. To that end, the Institute embraces and provides multidisciplinary modalities—including acupuncture, chiropractic, physical therapy and massage—as well as multiple specialties.

"Initially, we ask our patients to be patient with the process as we take them through a series of tests and treatments tailored to their unique situations," says Dr. Eromo. "Our streamlined protocols are based on evidence and on diagnostic findings, while the goal is to help our patients avoid unnecessary procedures and settle on the best ones. By the point we advise a definitive treatment and tell the patient the degree of relief they can expect, we've developed a trusting relationship."

Though the diagnostic process is thorough, it is not slow. There is close interaction between the on-site providers, so treatment options can be discussed immediately and diagnostic procedures scheduled without need for outside referral. This not only cuts waiting time significantly, it improves communication between physicians.

All the state-of-the-art imaging technologies are available onsite—including MRI, CAT scan and X-ray equipment—which provides patients with convenience and time savings. "On numerous occasions, when we've seen
patients who are in severe pain, we’ve be able to schedule them for an MRI and get them on the table for an injection within an hour and a half,” says Eromo.

Spinal diagnostics
It is common for a patient to have multiple coexisting conditions, each with the potential to be the cause of their back pain. “Based on the patient’s history, what we find through the physical exam, imaging, nerve conduction studies, and lab studies, our differential diagnosis will eliminate some causes, but multiple potential causes can still remain,” explains Dr. Kaffludi. “Targeted injections can then be utilized to isolate the source of pain, eliminating or confirming our remaining diagnostic possibilities.”

Diagnostic injections, performed with x-ray guidance, deliver an anesthetic to the cervical spine, spinal joints, or nerves. Significant reduction of pain by an injection is considered evidence of the particular structure or nerve being a source of the condition and suggests a course of treatment.

Minimally invasive spinal surgery
Dr. Eromo and Dr. Kaffludi are both trained in the latest minimally invasive techniques. These have been especially successful for intradiscal procedures and spinal fractures.

“In the case of disc herniation,” Kaffludi says, “we can access the disc, remove material to decompress it and relieve pressure on the nerve through an incision less than half-an-inch long. With this technique, we don’t have to disturb any of the musculature.”

A minimally invasive procedure called kyphoplasty is used to treat spinal fracture, be it from osteoporosis or trauma. Accessing the vertebrae through a small tube, the surgeons apply a cement that stabilizes the vertebrae and reduces pain. “With this procedure, a patient can be better within about four hours,” says Kaffludi, “a vast improvement over the enforced bed rest and pain medication that once constituted treatment for this condition.”

A number of ambitious projects are slated for the near future. “One goal is starting ‘The Spine Series,’” says Eromo, “bringing prominent people from the international spine community to speak at the Institute, educating local physicians and patients.” A research department is under development, with the intention of running clinical trials as well as conducting basic science research, activities that will enable the Institute to make the latest approaches in spine care available to its patients.
“Going home?”

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Kaaterskill Care provides post-Orthopaedic surgery rehabilitation services that include physical therapy, occupational therapy, pain management, and massage therapy. Our rehabilitation center is a separate wing within Kaaterskill Care and contains a newly remodeled gym to help each individual reach their highest functioning ability. You will have continuity of care beginning at the Bone & Joint Center, at the Hospital, and throughout your stay at Kaaterskill Care. Dr. Scott Pregont of Columbia Memorial Bone & Joint provides on-site follow-up care to ensure your personal goals are met.
Bringing relief from pain and a return to mobility, total joint replacement (TJR) provides a dramatic improvement in quality of life for people with end-stage osteoarthritis of the knee, hip or shoulder. Like all surgeries, however, it does come with some risk of complications. In a TJR, we are removing a structural portion of the body and replacing it with synthetic materials—usually metals and plastic—materials that are very unforgiving when it comes to infection. The prime focus of our efforts to keep you safe is minimizing the risk of infection.
To accomplish this, we strive to control and optimize all the known risk factors that we can. These can be broadly categorized as surgery-related risks and patient-related risks. Reducing surgery-related risk factors for infection starts with our protocols for maintaining a sterile operating room. To keep the patient from being contaminated, we wear triple surgical gloves and “space suits”; we follow special procedures for draping the surgical site so the patient’s skin is not touched until the wound is complete; operating rooms are pressurized using highly filtered air; and the number of personnel in the operating room is limited. Since studies show that longer surgery times increase the risk of infection, our consistent orthopaedic surgical teams work methodically and swiftly to reduce exposure time during surgery.

These and similar measures go a long way towards keeping patients safe. However, because TJR is usually an elective surgery, we’re actually able to begin the process of preventing infection long before a patient comes into the OR.

A strong body of medical evidence has identified a number of patient-centered factors that greatly increase the risk of infection in TJR and other surgeries. These factors include uncontrolled diabetes, obesity, smoking, unresolved dental problems and colonization with methicillin-resistant Staphylococcus aureus (MRSA).

Before TJR, we do an in-depth assessment of our patients’ general health to uncover any chronic illnesses, comorbidities and life-style behaviors that are likely to impact the outcome of their surgery. When appropriate, we ask patients to consult their cardiologists, pulmonologists and other specialists that will help them to optimize their health before scheduled surgery. Our aim is to collaborate with our patients and their physicians to control as many of the variables that could lead to complications as possible.

There is no aspect of orthopaedic surgery that is not improved by smoking cessation, blood sugar control and, in obese patients, weight loss. The impact of these preventable risks on infection...
rate is cumulative. For example, with uncontrolled diabetes a patient’s risk may double; in the obese, having a Body Mass Index (BMI) of 40 or above may raise the infection rate by a factor of seven. For a patient with uncontrolled diabetes and obesity, the risk of infection may be ten times higher. Clearly, for the surgeon and the patient, it is unwise to proceed to surgery without attempting to limit these risks.

**Diabetes Control**

There is strong evidence that having diabetes increases a patient’s risk for complications after total joint replacement, predominantly as a result of infection and impaired healing. The evidence also shows that maintaining tight glycemic control before and after surgery dramatically reduces the incidence of such complications.

As part of the preoperative workup, we measure hemoglobin A1C, the relatively long-term marker of glucose control. Optimally, we’d like to see that number as close to “normal” as possible, or at least below 7, which is considered to be well-controlled diabetes. If a patient’s A1C is too high, we cannot proceed to the joint replacement without interventions to bring the diabetic index within an acceptable range. We work with the patient’s primary care physician and endocrinologist to develop a treatment regimen that will keep the surgery safe.

Not only does good glycemic control reduce surgical complications, it can dramatically improve a person’s long-term health profile. We have patients that tell us they’re thankful that we’ve helped them understand the tangible benefit of tight diabetic management and they often maintain improved glycemic control even after their operation is complete. This has health benefits far beyond minimizing surgical risks.

**Smoking Cessation**

Among the many good reasons to give up smoking is the fact that it triples the risk of infection in TJR. We consider smoking cessation to be an extremely important part of getting ready for surgery and provide our patients with resources that can help them accomplish this. The goal is to cease smoking at least 30 days before the surgery—which gives various body functions a chance to return to normal—and to continue not smoking during the post-surgical healing period and beyond.

When we create a surgical wound in the course of TJR, we count on neovascularization, the growth of new blood vessels, to contribute to healing. In general, that function is not performed very well in the smoking population. Nicotine constricts blood vessels, reducing blood flow to the wound by as much as 25 percent, limiting the delivery of healing nutrients and infection fighting white blood cells. Along with the poorer outcomes of smokers, some studies report that they experience more post-surgical pain.

**Obesity Reduction**

Obesity is increasingly discussed in the orthopaedic literature as an independent risk factor for complications in total joint replacement, especially in the area of infection. It is not difficult to understand why that’s the case.

The relative poor blood supply of adipose tissue retards healing. The increased depth to which we need to make our incisions means there is more space for blood and fluids to accumulate after surgery, space where infections can develop. And, generally, operations on obese individuals are more difficult, they take longer and require extra firm retraction to expose the joint. The accumulation of these factors is related to increased risk of infection. If a patient is both diabetic and morbidly obese, the risks multiply.

What we do is try to bring people’s weight down. If they were long-term patients, we would have worked at this in the course of their treatment for arthritis: losing weight makes the knee and the hip much less painful. One pound of weight loss takes 3-5 pounds off the joint reaction force in the knee and the hips, so that can make them less symptomatic. If the time comes that we need to have a joint replacement done, bringing the weight down makes the surgery less dangerous. And longer term, the prosthesis, which is just a metal and plastic device, a bearing like any other bearing, is subjected to the load applied. Any bearing has a given life span, based on the load.
and the number of cycles. The number of cycles is related to how active the person is, but the load is due to body weight. So bringing the load down by decreasing the weight pays dividends, in terms of decreasing surgical risks, and by decreasing the rate of loosening and bearing wear.

We’ve found that when a patient’s weight gets up above a BMI of 40, many ultimately need help for weight reduction. We work in conjunction with a local bariatric program. This multi-disciplinary program involves dieticians, counseling, support groups, and sometimes surgical procedures. We’ve had many success stories in which people have dramatically dropped their weight. Sometimes, weight loss alone can make them feel so much better that we can delay or even prevent surgery. But if a total joint replacement is eventually needed, the loss of weight allows us to do it much more safely and with a better chance of long-term success.

Dental Health Evaluation
Pre-operative screening and treatment for dental problems plays an important role in the reduction of post-operative infections. A growing body of data shows that the systemic spread of periodontal bacteria through the blood stream is a significant cause of infection in joint replacement.

People with periodontal disease—a group that includes approximately 75 percent of adults in the U.S.—often experience no symptoms until the condition is advanced. The bacterial infection can lurk invisibly on the inside surface of the gums, close to the root of the tooth. Yet, visible or not, these bacteria can spread to every tissue in the body, including that surrounding the prosthetic joint. Periodontal bacteria have also been associated with heart attack, high blood pressure, and other conditions that make it a risk for those undergoing surgery.

This is why we send our patients to the dentist for pre-surgical evaluation. If there is an immediate need for dental work in order to clear up periodontal infection, we feel it’s wise to delay surgery until after that has been completed.

Patients who have had TJR should take extra effort to maintain good dental health and we recommend prophylactic antibiotics before any subsequent dental work.

Keeping bacteria out of the OR
The majority of infections affecting total joint replacement are caused by methicillin-resistant Staphylococcus aureus (MRSA), a notorious infection in all hospitals throughout the nation. In our community, about 20 percent of the population is colonized by MRSA. So we use a simple nasal swab test to identify those patients who have the bacteria. These patients are given specific antibiotics effective against MRSA before and during surgery.

The reason we screen patients and don’t just use the MRSA-effective antibiotics for everyone is that we worry about creating resistance to that crucial drug in the community as a whole, wasting its power in cases where it isn’t actually necessary.

Keeping MRSA out of the operating room and the hospital, along with all our other preventive measures and health interventions, gives us the ability to provide our patients with the best of outcomes in the safest of settings.
The role of rehab

Taking responsibility for their rehabilitation, being attentive, doing a good job, that’s how a patient becomes a team member.

"Part of our task in total joint replacement is to keep people safe, before and during surgery. Then we put the prosthesis in as best as we possibly can. Once the wound is closed, the surgeon becomes almost a cheerleader for the patient to rehabilitate.

It’s an uncomfortable time for people; it’s not pleasant to get up and move on this joint immediately after surgery, yet it’s important to do that. There is some hard work on the patient’s part and the harder they work the better the outcome is in regard to range of motion, balance, function and endurance.

When it comes to something like rotator cuff repair, rehab is equally important, because there are things the patient should do and things they should not do. Being too vigorous with rehabilitation after some shoulder surgery can actually be detrimental and lead to a decreased rate of success.

Patients need to be carefully monitored and helped to understand the purpose of their rehab. They shouldn’t use pain as a guide for what is right and what is wrong. They need to find the right balance between doing too much and too little.

It’s hard to quantify, but if we consider that a good outcome is rated by the patient—whether they feel they trust their joint and that they’re more functional—it tends to be the patient who has worked harder, who has taken ownership of the rehabilitation process, who experiences the best results. They know they’re doing it for themselves and for their long-term success.

That attitude of taking responsibility for their rehabilitation, being attentive, doing a good job but not overdoing things, that’s how the patient becomes a team member and not a subject. The patient has to pick up the ball and run with it."

—Dr. Gorczynski

"The chief reason to perform a knee replacement is to relieve pain, but we also hope to regain as much motion as possible with the procedure. Years ago, one of the surgical treatments for isolated knee arthritis was a knee fusion. It took away all the pain and would never wear out, but your knee didn’t bend. That’s not really acceptable to patients anymore, and we’ve perfected knee replacement to the point that we can mimic the effect of the normal knee in many cases. However, range of motion is not a guarantee.

A great predictor of post-operative range of motion is pre-operative range of motion. So if a patient comes to me with a very limited range of motion before surgery, I will often send them to physical therapy. I know it will be painful for them, but if they can regain as much range of motion as possible before surgery we can hopefully retain some of that after the surgery.

The amount and type of physical therapy required is individualized and customized to the individual patient. Older patients may have excellent range of motion but have no muscle mass and be weak, so they need strengthening. A younger patient may have tons of muscle, but develop significant scar tissue and need a lot of attention to maximize their motion. There is a spectrum of treatment that we provide to patients, sometimes before, and always after a knee replacement to maximize their return to function."

—Dr. DiGiovanni

"I’m a big believer in physical therapy (PT), not only to treat injuries, but also to help prevent them. Some of the physical therapists in the area are great. They’re good at evaluating and treating injuries and good at looking at somebody’s mechanics and correcting them to prevent further injuries.

My view is that the goal of PT is to teach the patient what exercises they need to do on their own to get better. Some patients find seeing a physical therapist difficult, for economic or time reasons. But even a short period of going to PT is beneficial.

If a patient is motivated and diligent and wants to get better and exercises every day, he or she will get better. Physical therapy is not a place to go to do exercise, it’s a place to learn the exercises that need to be done every day."

—Dr. Pregont
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Management of Knee OA

Osteoarthritis is a progressive disease with a treatment for each stage.

In general, the people who come to see me for a knee replacement all end up telling a version of the same story…. You know, a couple of years back, I started getting some pain in my knee. I didn’t think much of it, took some OTC Tylenol, and the pain came and went. After awhile, it started to become more frequent and eventually bothered me enough that I went to see my family doctor. She gave me a prescription that worked pretty good for awhile, but when that stopped working she gave me a cortisone shot that worked for a little while. But now, that’s not working. The stronger medications I’ve been given aren’t effective and my pain is becoming progressively more severe, it wakes me up at night. I’m becoming more housebound, more sedentary, the quality of my life is becoming unacceptable. Doctor, take the pain away.

As you can see, arthritis starts out slowly and accelerates over time. Likewise, there is a treatment progression that modulates and adds techniques until a point is reached when all the conservative measures no longer relieve the symptoms of the condition and the patient is willing to proceed with an operation to end his or her pain and gain mobility.

The progression of the disease and the treatment of knee osteoarthritis is typically as follows:

**Symptoms intensity**… People with arthritis complain of pain, swelling, stiffness, start-up pain after awakening in the morning, and rest pain after long periods of inactivity. As the symptoms increase in intensity, people with OA find themselves becoming more homebound, more sedentary, and avoiding activities of daily living they would have otherwise enjoyed.

At some point, they’re ready to see a doctor.

**Diagnosis: Arthritis**… I take a history and inquire as to the symptoms and what the patient has done about them, if anything. The knee is examined—for tenderness, swelling, range of motion and stability—and the patient’s gait assessed (are they walking with a limp, for example).

X-rays are taken, with attention to a weight-bearing view, to evaluate for deformity or loss of joint space. Blood tests, CAT scans or MRIs may be done for some patients.

**Conservative, non-invasive, non-surgical treatments** constitute the initial approach. These can result in a significant reduction of pain and stiffness and facilitate, at least for a period of time, a return to excellent function.

**Lifestyle modifications** are among the first treatments considered. If a patient is obese, for example, we need to help them lose weight. Perhaps a change in the type of sport the person engages in would be beneficial: If they’re doing cross country running on hard terrain, a high-impact sport, they may need to switch to a low-impact sport, such as bicycling or swimming.

**Exercise**—strengthening, range of motion, and low-impact aerobic exercises—as well as physical therapy can provide clinically significant improvement.

**Supportive devices**, such as braces, can often be effective. However, even when they provide relief, I find that patients often abandon them because they’re cumbersome and uncomfortable.

**Medication.** OTC medications have often been tried by patients before they come to us. We can supplement these with prescription strength NSAIDs, such as Celebrex, as well as with opiate-based painkillers.

**Topical treatments**, such as Voltaren gel—an anti-inflammatory similar to ibuprofen—are useful for pain control in patients at risk of GI upset or drug-on-drug interactions. I’ve seen OTC supplements, such as glucosamine and chondroitin sulfate, provide effective relief in some patients in the earlier stages of arthritis. Likewise, omega-3 supplements, such as fish oil and flax-seed oil, which tend to have a natural anti-inflammatory property, may ease arthritic pain and stiffness.

Depending on the stage at which patients present themselves to us—early in the disease progression or when they can’t take another step—these treatments are effective for a period ranging from months to years.

**Slighty invasive treatment: Injectables.**

**Corticosteroids** are the most common type of knee injection, oftentimes very helpful in reducing pain and swelling, even in severe cases of arthritis. We try to restrict their use to no more than 4 injections in a year. There is wide variability in patient response: some patients get years of relief out of a single injection.

**Viscosupplementation** is a less common treatment in which hyaluronic acid, a thick lubricating fluid, is injected into the knee joint. The onset of relief is not as quick as with a corticosteroid, though in patients for whom it is effective, prolonged relief may occur.

**Platelet-rich plasma therapy** (PRP) involves drawing blood from the patient and concentrating the natural healing elements in platelets in a centrifuge. The platelet-rich plasma is then injected into the knee joint. PRP doesn’t grow new cartilage, but studies show that it may slow the progression of knee OA as well as relieve pain.

When the range of conservative treatments and injections no longer provide the patient with adequate pain relief and functionality, the next step on the continuum of care is total joint replacement.
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Cross section of a Vented BioComposite SwivelLock eight weeks after implantation in a canine model showing bony ingrowth in the vents and center cannulation. Data on file.

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Innovating for life.
The rotator cuff is a series of 4 muscles surrounding the ball and socket joint of the shoulder and plays a crucial role in optimizing shoulder function. The shoulder joint is inherently unstable, as the major muscles that move the shoulder around—the deltoid, the pectoralis, the back muscles—have a tendency to move the ball out of the center of the socket. The rotator cuff, almost as a counterforce against the major muscles, helps to provide a stable fulcrum and to optimize shoulder mechanics.

As you might imagine, the muscles of the rotator cuff are subjected to quite a bit of stress. Friction and heavy usage (through sports or other repetitive activity) can cause the tendons of the rotator cuff to thicken or become inflamed and get “pinched” by the shoulder bones. This impingement, a result of extrinsic pressure, friction, or irritation was long thought to be the main cause of rotator cuff tears. We’ve come to realize there are also some intrinsic problems with the rotator cuff tendon itself. It is an area that commonly degenerates—as a result of genetic variables and a less than optimal blood supply—and can become painful in and of itself, even without a tear. It can gradually atrophy almost completely off the insertion point, creating a chronic degenerative tear. With trauma, the rotator cuff can be pulled directly off the bone.

It’s important to recognize that most people who have shoulder pain don’t have a rotator cuff tear; there are many other causes. Pain from a rotator cuff tear is usually experienced on the lateral aspect of the arm, almost midway between the shoulder and the elbow. It’s usually worse with overhead activity and worse at night. If this sort of pain is accompanied by weakness, it probably should be checked right away.

If there’s no weakness involved, just aches and pain, then ice, anti-inflammatory medication and a couple of weeks of lighter activity could be all one needs. However, if the pain continues for more than a couple of weeks, it deserves to be evaluated. Because the rotator cuff is under tension, tears generally get bigger over time and partial tears can become full-thickness tears. It’s possible for the rotator cuff to eventually become irreversibly torn.

There are a variety of things that can be done non-operatively to get people feeling better. Oftentimes, physical therapy is all that’s necessary. Sometimes an injection is useful to break the cycle of pain and irritation that leads to rotator cuff dysfunction. Cortisone can relieve the pain and allow the normal shoulder mechanics to return. In a future issue, we’ll discuss surgical repair for rotator cuff disease.

Rotator cuff conditioning

It’s one thing to be an 18- or 20-year-old, working out in the weight room or on the ball field: you can get away with almost anything. But those of us who are 30, 40 or above, need to be diligent about preventive conditioning. Keeping your rotator cuffs healthy and strong will avoid future problems.

Maintaining good posture—a military-style bearing, shoulders up and back with no slouching—is helpful. There are rotational exercises that strengthen the muscles of the rotator cuff. Many people who work out have a tendency to concentrate on the muscles you can see—the chest, pecs and triceps—but they neglect exercises for the back or rotator cuff. It’s best to avoid isolating the shoulder with heavy bench-pressing unless you are balancing the effort with rotator cuff and back exercises, a necessity for achieving long-term shoulder health.
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Every athlete, from joggers and weekend warriors to pros, knows that sweating is part of the game. As much as 90 percent of the energy we put into exercise and sport is released by heat, and sweating is the way our bodies dissipate that heat. Under some conditions, however, sweating can be impeded or just not enough to lessen the environmental impact. This can result in heat illnesses ranging from rash and cramp all the way to life-threatening heatstroke.

The elderly, infants and children (especially under age 4), as well as people with chronic medical conditions, are at increased risk of heat illness. People with a high level of body fat (not just the obese) are at increased risk because fat insulates the body and interferes with heat dissipation.

Being exposed to high temperature, high humidity (over 60 percent), and direct sunlight are among the key factors of heat illness. In such conditions, staying well hydrated by drinking two to four glasses of non-alcoholic and low-sugar liquids is vital for everyone. There are additional factors that athletes need to take into account...

• Uniforms — Dark clothes absorb heat, while protective pads and helmets cut back on the body’s cooling mechanism. Hydration, replenishment of electrolytes and cooling down periods are important for athletes garbed in this fashion.

• Acclimatization — The American Council on Exercise estimates that it takes a healthy individual 10 to 14 days to fully acclimate to exercising in the heat. Don’t expect to go all out during your first hot days on the field. If you start off slowly and get acclimated, you will sweat more easily and effectively, with less risk for dehydration and reduced heat gain from exercise.

• Pre-game hydration — Athletes who are already dehydrated when they start their workouts are at greater risk for heat injury. If you haven’t fully rehydrated after an earlier exercise session, have consumed alcohol, or been on a fast weight-loss diet, you’ll need to take extra care. Also, illnesses that include fever, vomiting, or diarrhea lead to dehydration.

• Game time hydration — Even mild levels of dehydration (3-5 percent of body weight) will diminish your athletic performance and increase your risk of fatigue and muscle cramps. It’s wise to drink fluids on a predetermined schedule rather than waiting to get thirsty: a federal study found that athletes don’t get thirsty until they’ve already lost two percent of body weight through sweating. If you’re going to be continuously in action for 45-minutes or more, it’s recommended that you replace body salts with a sports drink containing 6 to 8 percent carbohydrates.

• Medications — Diuretics and stimulants (taken for ADHD, for example) may interfere with your natural cooling system or produce dehydration. If you take such drugs, stay aware of your increased risk for heat illness.

Heat Stroke

Heat stroke is considered a medical emergency for which quick action is required. The key medical symptom of heat stroke is a core body temperature above 105 degrees Fahrenheit. It’s unlikely that you’ll have a thermometer handy when you encounter a person suffering from heat stroke, so it’s important to be able to recognize the visible symptoms:

- Red, hot, and dry skin and an absence of sweating
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Fainting and/or unconsciousness

What to Do

If you see any of these signs, you need to act fast: Heat stroke can cause death or permanent disability if emergency treatment is not provided.

- Have someone call 911 for immediate medical assistance.
- Start cooling the heatstroke victim by getting him out of the sun and into a shady location.
- Cool the victim as rapidly as you can, using whatever methods are available. One of the fastest ways to cool someone down is by placing ice packs in their armpits and in the groin area. You can also immerse the person in a tub of cool water or a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Continue cooling efforts until you estimate the victim’s body temperature to have dropped to 101-102°F.
- Do not give the victim fluids to drink.
- If the victim’s muscles begin to twitch uncontrollably, as sometimes happens in heat stroke, keep the person from injuring himself, but do not place any object in the mouth and do not give fluids. If there is vomiting, turn the victim on his or her side to keep their airway open.
I was a physical therapist for ten years before returning to school, at Albany Medical College, to become a physician assistant. I think my experience as a physical therapist has given me a unique perspective in daily interactions with orthopaedic patients.

In our office we have defined Surgeon/Physician Assistant teams and this allows us to approach patient’s problems with consistency. We emphasize education and shared decision making with patients. It is very rewarding to have this interaction with patients pre-operatively, then participate in their surgery and then guide them through their rehabilitation period.

Anina Visagie, RPA-C
Physician Assistant

Anina with one of the thoroughbreds cared for at Rockridge Stud, operated by her husband, Lere Visagie.