

ORTHOPE



Muscular and joint pain is a widespread issue, not only in the United States but worldwide. Chances are the next person you see is going through their daily routine while suffering from discomfort, as supported by these surprising statistics.

According to the United States Bone and Joint Initiative, one out of every two people in the United States above the age of 18 suffers from musculoskeletal diseases caused by trauma, back pain and arthritis.

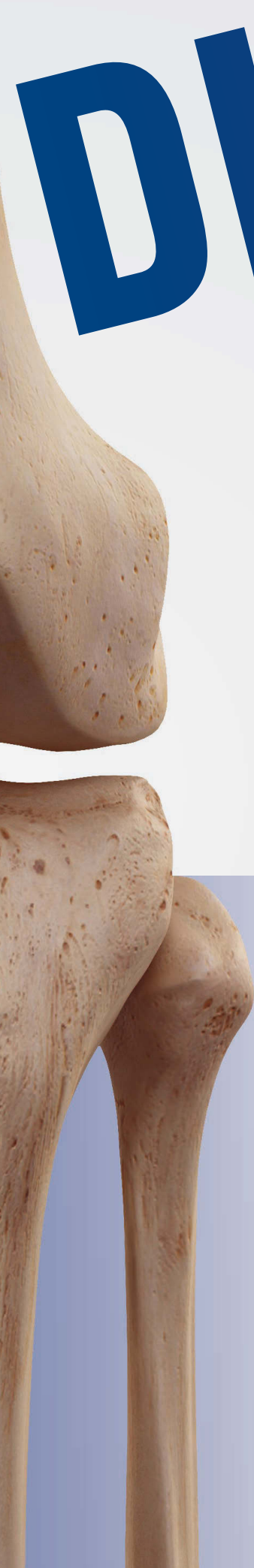
In addition, low back, knee and neck pain are the three most common orthopedic-related ailments that drive people to seek medical care. In many cases, surgery is warranted, but others may be referred to chiropractors, alternative medicine providers or physical therapists as a first line of defense.

According to the American Chiropractic Association, nearly 31 million Americans suffer from low back pain at any given time and it is the leading cause of disability worldwide.

Chiropractors treat an estimated 35 million Americans each year with a hands-on approach to healthcare that includes examination, diagnosis and treatment. In many cases chiropractic treatment can help the patient avoid taking medication, in turn reducing possible drug dependency.

Yes, these numbers reveal an alarming number of people who live their lives in daily pain but the good news is there are more cutting-edge treatments available than ever before to complement the tried-and-true pathways to pain relief.

DIC CARE



EVOLVING PHYSICAL THERAPY

Many musculoskeletal conditions can also be treated through physical therapy. Brett Fischer, owner of the Fischer Institute of Physical Therapy & Performance in Phoenix, says the face of physical therapy is changing. He wants to bust the perception that physical therapy is more than “bending your knee until you cry and then hoping you feel better.”

Fischer takes a holistic approach with his patients. “If you come in for a shoulder injury, I’ll look at your hip and foot. Why? Because everything works together in a functional manner,” he says. The treatment could include hands-on manual therapy, strength and flexibility exercises or a variety of other modalities.

As a licensed physical therapist, certified athletic trainer and strength and conditioning specialist, Fischer sees a wide array of patients in his state-of-the-art clinic. On any given day, he might treat a 67-year-old woman with a total knee replacement, an injured NFL running back or a world-class tennis player. He currently serves as the staff physical therapist of the Arizona Cardinals.

The Fischer Institute is equipped with a 3,000 square foot indoor turf field, 20,000 square foot strength and conditioning center and an outdoor pitching/batting cage where athletes can rehabilitate as well as train.

Patients at the Fischer Institute receive some of the newest treatments available to physical therapists, including personalized blood flow restriction therapy (PBFR). The procedure uses a specialized tourniquet system applied to an injured limb that temporarily reduces the amount of blood in the limb. With the tourniquet in place, the patient lifts light weights to increase muscle strength and stimulate bone growth. “It tricks the brain into thinking it’s lifting heavier weight, which would normally create hormones being released for strength,” Fischer says.

When administering PBFR, The Fischer Institute uses the Owens Recovery System, which is an FDA-approved device physical therapists are trained to use. “The machine monitors blood pressure and keeps it in a very safe zone,” Fischer says. The Fischer Institute is one of only two facilities in Arizona that have the Owens Recovery System.

Dry needling is another emerging procedure used by physical therapists. Using a thin, solid filament needle to penetrate the skin, the therapist stimulates underlying neural, muscular and connective tissues. The technique can be used to treat low back and neck pain, muscle strains, carpal tunnel syndrome, osteoarthritis and many other musculoskeletal conditions.

ALTERNATIVE THERAPIES

Physical therapists and other practitioners will sometimes use a method called cupping, an ancient Chinese therapy frequently used by athletes, according to the National Institutes of Health. The therapist applies suction cups to the skin, pulling it back to loosen muscle tissue and tendons, resulting in bright red circles. While the marks look uncomfortable, they are usually painless and disappear completely after about a week.

Proponents of cupping say it helps to increase blood flow and healing. A 2015 analysis in the journal PLoSOne revealed, “cupping could be effective in treating the pain and disability associated with chronic neck pain and chronic low-back pain in the short term.”

The ancient Chinese art of acupuncture can also help alleviate the pain associated with many musculoskeletal conditions, such as back, neck, hip and knee ailments. A certified acupuncturist inserts fine, sterile, stainless steel needles into specific points on the body to trigger physiological responses. Sometimes practitioners will also use electrical stimulation and heat application to combat pain.

INSIDE HIGH PERFORMANCE



From the competitive athlete to weekend warrior, SMIL offers all patients highly integrated care

A yoga mom and a football star may not have much in common, but when it comes to health care, they have the exact same needs; they need physicians who communicate and collaborate as a team to deliver the most accurate diagnosis and highly integrated care. As the medical system becomes more fragmented, outsourced and impersonal, that kind of care is increasingly rare.

"Something I feel separates our radiology group and our musculoskeletal section from others is the high value we place on collaboration," says Jeffrey Fitzgerald, MD, a radiologist at Scottsdale Medical Imaging (SMIL). "We do the imaging. We interact with the clinicians. We develop a real mutual respect which then translates into real consultation and optimal patient care. Regrettably there are too many imaging groups that don't have any relationship with referring doctors."

Those relationships are essential to achieving the most positive outcomes for patients. Here, we'll dive into two true stories – starring a college football player and a yoga mom – to explore the benefits of a fully collaborative practice.

PROFESSIONALS DEMAND PROFESSIONAL CARE

"Bobby Baller" is a defensive back for a major Division I football team. He's an indispensable team leader who seems destined for NFL stardom. But his "Achilles' heel" is a slightly odd-shaped foot that predisposes him to stress injuries due to repeated microtraumas.

Bobby suffered from unrelenting pain in the fifth metatarsal bone of his foot. He stoically endured practices and games, but his pain was becoming mentally and physically debilitating. Despite downplaying his symptoms to team doctors, Bobby and his coaches knew he wasn't performing up to his potential. His x-rays looked relatively normal; however, his physicians knew an x-ray can look clean only a day before a serious bone break. They also knew Bobby had a previous stress fracture at the same site of his recurring pain. If he suffered another one, it could stop him from playing – permanently.

In a situation like this, when a top athlete's career is at stake and his doctor is a nationally respected orthopedic surgeon, the radiologist's experience is crucial, says Ray Murphy, MD, PhD, a musculoskeletal radiologist at SMIL.

"You need to be extremely good. There's no tolerance for error. If you're a novice who doesn't know much about sports imaging and you're wrong, the consequences are huge. So you have to be right. You have to be very vigilant. You scan as often as possible. And the communication back and forth between me and the orthopedic surgeon has to be impeccable."

Before Bobby came to SMIL,



Dr. Murphy contacted the orthopedic surgeon to confer about Bobby's case – his past injury, his suspected developing injury, and what to look for. Then, SMIL radiologists put Bobby through highly specialized imaging techniques. They compared the scans to previous x-ray and MRI studies to determine the severity of Bobby's current injury and distinguish it from his previous fracture.

Dr. Murphy put together a report, annotated the images, sent them to the orthopedic surgeon and contacted him to discuss the diagnosis. The news wasn't good. Dr. Murphy saw worsening edema both inside and outside of the bone, plus what appeared to be a tiny fracture on the covering of the bone. The orthopedist asked several questions, and they came to an agreement.

"This back-and-forth discussion between radiologists and orthopedists is essential," Dr. Murphy says. "Through the years, you understand what he wants to hear and what he needs to know. That's why people who do sports imaging commonly are better than folks who do it occasionally, because you start thinking like an orthopedic surgeon would."

The orthopedist decided Bobby needed a supportive metal screw implanted across the weakened segment of his bone. He would be sidelined for the short term. However, Dr. Murphy says, "the expert radiological care and excellent clinical management of his team physicians will help Bobby achieve his full potential as an athlete and protect his future."



AMATEUR ATHLETE, PROFESSIONAL CARE

If the injured person isn't a competitive athlete, there may not be big-money contracts and team championships involved, but the stakes are still high for the individual's quality of life. Take the case of "Lulu Trainer," an active mother of teenagers who enjoys yoga, CrossFit and hiking. Lulu was experiencing intense pain in her ankle that prevented her from pursuing the activities she loves. Just like Bobby Baller's symptoms, Lulu's injury was physically and mentally debilitating.

Her doctor suspected it was a hamstring tear and referred her to SMIL to get an MRI. There, her physician was Dr. Fitzgerald, previously a consulting radiologist for the Cincinnati Reds. This is one of the advantages of going to SMIL, Dr. Fitzgerald says. "You get unique access to doctors who are well trained and deal with pro athletes and college athletes. When you come in with your problem, you get the benefit of that knowledge. I don't read the scan any differently with an average Joe who's 50 years old and plays soccer on weekends versus the 20-year-old starting running back for a football team."

Dr. Fitzgerald assessed Lulu's MRI and confirmed she had a partial hamstring tear. Typically, Lulu would have to go elsewhere for therapy. But in this case, her doctor knew SMIL offers "image-guided therapy" and had ordered that treatment. Dr. Fitzgerald talked with Lulu about her injury, the image-guided procedure, and what she could expect after treatment. Because SMIL doctors had conducted and read the MRI, they were confident about precisely where to target her therapy. Then, they used ultrasound to guide an injection of steroid and anesthetic to the precise location that would give her relief. After the procedure, Lulu was symptom-free and able to return to her active, fulfilling lifestyle.



BONE HEALTH

Healthy bones play an important role in a person's overall fitness by supporting the body, protecting organs, anchoring muscles and storing calcium. At Phoenix-based orthopedic practice, The CORE Institute, Kelly Krohn, MD, a fellowship-trained and board-certified rheumatologist, heads up the practice's recently established Bone Health Program.

If you want to keep your bones in tiptop shape, Krohn says a prescription for good bone health includes proper nutrition and weight-bearing exercise.

Good nutrition means getting 1,000-1,200 milligrams a day of calcium, preferably through diet, but can be augmented by a supplement. "Most times it's a mixture of both," he says. "Bone is dynamic tissue and it's constantly remodeling. You have to have calcium to build new bone."

Vitamin D is also crucial to building strong bones and Krohn suggests taking 1,000-2,000 international units of Vitamin D3 each day.

"Many people are Vitamin D deficient and it not only affects the absorption of calcium, but also has an effect on muscle strength and balance," he says.

In addition to diet, weight-bearing exercises such as walking, swimming, cycling and tai chi help build stronger bones. "We can have a huge impact on falls by keeping elderly people active," he says.

One of Krohn's areas of focus is evaluating older patients before they undergo orthopedic surgery. "If we identify people who have very poor bone structure and treat them effectively, we can reduce some of the horrible complications like fractures they sometimes have after back surgery or hip replacement."

Krohn is able to treat some of those patients with Teriparatide, an anabolic drug administered in the form of a daily injection that stimulates bone growth. But not everyone is a candidate and the drugs are expensive, especially without insurance, he says.

Anabolic drugs can also play a role in healing fractures, Krohn says. "They're almost

used routinely with professional athletes to hasten or improve the success of bone healing. In the athletic experience, it's a matter of a few weeks or a month faster and that's a pretty big deal."

Krohn sometimes uses the anabolic drugs for patients who haven't healed in the typical 8-12 week time frame and are at the four to five month mark in their recovery. "Sometimes we give them a systemic drug to encourage bone formation and fracture healing," he says. "That's really gratifying when it works."

DIAGNOSTIC TOOLS

Before treating injuries and diseases, orthopedic physicians use an array of diagnostic tools, including x-rays, discograms, CT scans, MRI (magnetic resonance imaging), ultrasounds and arthrography to examine bones, muscles, muscle tears, joint pain and to detect infection and tumors. DXA scans are used to measure bone density and diagnose osteoporosis.

Many advances are taking place in the medical imaging arena, such as accelerating the processing speed of diagnostic images; and the application of 3D and 4D imaging, which increases the contrast of soft tissue, giving the radiologist a better image. Orthopedic and sports medicine offices equipped with advance technology can now capture on-the-spot 3D weight-bearing images, according to Carestream Health, a supplier of medical and dental imaging products.

“ Bone is dynamic tissue and it’s constantly remodeling. You have to have calcium to build new bone. ”



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SURGICAL OPTIONS

If a diagnosis requires surgery, many who experience back problems look to minimally invasive spine surgery as a solution, because the surgery is performed without large incisions and has a reduced healing time.

Minimally invasive techniques are used for decompression, which relieves pressure on spinal nerves by removing a herniated disk or portions of bone; and for spinal fusion, a procedure that corrects problems with the small bones in the spine, fusing them together to enable them to heal as one solid bone, according to the American Academy of Orthopaedic Surgeons.

When minimally-invasive and non-invasive pain relief methods such as anti-inflammatory medications, cortisone injections, chiropractic care and physical therapy don't relieve pain or improve mobility, many times the next step is to see an orthopedic surgeon who can diagnose and treat disorders and diseases of the body's musculoskeletal system.

The CORE Institute, which has multiple locations Valleywide, orthopedic surgeons perform everything from hip and knee replacement surgeries to foot and ankle reconstruction.

If surgery is indicated, options include arthroscopy, where a surgeon uses a camera to find and remove trouble spots in knees, elbows and the shoulder's rotator cuff.

For those who need hip surgery, The CORE Institute performs hip arthroscopy, a relatively

new surgery in the field of orthopedics. The procedure can be used to diagnose and treat degenerative disease, labral tears, cartilage injuries, unresolved hip pain and a host of other problems.

The procedure has many advantages over open surgical techniques, including smaller incisions and shorter recovery time while requiring less pain medication. Many times patients are able to return home the day of surgery or the next day.

Knee pain can plague patients for a variety of reasons, including arthritis, playing sports and normal joint wear and tear.

According to the American Academy of Orthopaedic Surgeons, nearly half of American adults develop knee osteoarthritis in at least one knee.

Physicians at The CORE Institute perform a variety of knee surgeries from arthroscopic to total knee replacements. When conservative treatments, including non-steroidal anti-inflammatory medication, physical therapy or weight loss fails to alleviate pain, surgeons will often opt for knee surgery.

Arthroscopic surgery is the least invasive and is typically performed on meniscus tears or articular cartilage defects. The recovery time depends on the individual and typically patients can return to work within 3-6 weeks, depending on the nature of their work.

When conservative treatment and arthroscopic surgery hasn't provided relief, the physician might suggest a knee replacement.

During surgery, the diseased bone is cut away and replaced with a smooth metal covering and a plastic liner is placed in between the metal to function as a shock absorber, and the arthritis is removed, according to The CORE Institute's website.

Recovery from total knee replacement depends on the patient's adherence to doctor's orders regarding post-surgery wound care, diet and exercise. The physician will give the patient knee-strengthening exercises to help restore movement, instructions for a graduated walking program and more than likely, a prescription for physical therapy.

Following the prescribed regimen, patients should be able to resume the "light activity of daily living" 3-6 weeks after surgery.

"SMART" THERAPY

The physical therapy clinic isn't the only place where patients can rehab from surgery - virtual rehab is growing in popularity.

A study is currently being conducted by Duke University about the efficacy of using a virtual assistant called "VERA" in home rehabilitation of total knee replacement surgery. VERA guides patients through physical therapy exercises using 3D monitors to measure performance. The session is recorded and gives patients real-time feedback and then can later be reviewed by therapists and physicians.

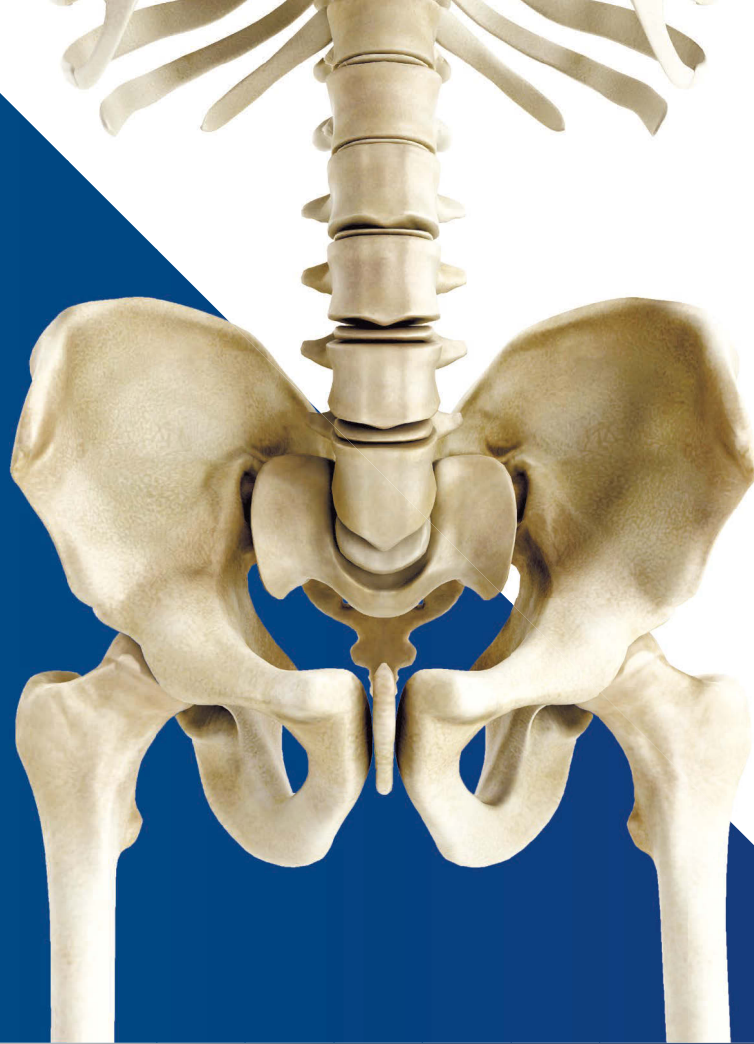
There are many physical therapy apps available for smartphone use that can help patients have a better understanding of their conditions, using interactive anatomical 3D models and videos featuring specific exercises germane to their injury and rehabilitation.

Other apps allow therapists to send exercise programs to their patients' phones, showing high-quality images and videos of the exercises for in-home use. Some apps track the patient's progress, which helps the therapist to facilitate care. Most apps are free and available for download on iPhone, iPad and Android devices.

With so many options available for treating musculoskeletal diseases and optimizing bone health, from physical therapy and acupuncture to arthroscopic surgery and total joint replacement, patients will be on the road to recovery and back on their feet sooner than ever before.



“
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to doctor's orders
regarding post-surgery
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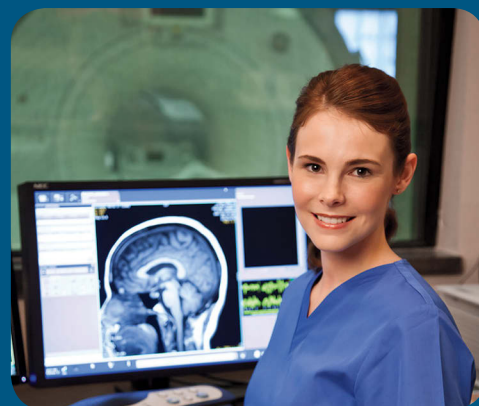
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