

ORTHOPAEDIC
EXCELLENCE

2011 EDITION



Inside

ONE MAN'S JOURNEY TO THE MOUNTAINTOP

OSTEOPOROSIS PREVENTION

LIMB LENGTHENING
... AND MORE

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ORTHOPAEDICS

A PUBLICATION FROM ST. CROIX ORTHOPAEDICS
www.stcroixortho.com

The world of healthcare has changed and will continue to change through health insurance reform, privacy requirements, disclosure modifications, Medicare changes and reimbursement issues. The national focus on health care has altered the landscape of the entire industry.

In the midst of all this change, what will remain unchanged is St. Croix Orthopaedics' commitment to our customers and patients in a tradition that has spanned more than 30 years. Every single person at our organization is proud to be able to provide exceptional patient care and continues to strive toward successful outcomes. At St. Croix Orthopaedics, we focus on the foundation of health care—the interaction between the physician and the patient. So while change may be inherent in this industry, you can count on St. Croix Orthopaedics to continue to be patient focused, quality driven and innovative.

We hope you enjoy this edition of Orthopaedic Excellence filled with information about osteoporosis, hand therapy, hip resurfacing, limb lengthening, and medical mission outreach.



Thank you for choosing St. Croix Orthopaedics for your care!

With kind regards,
Melanie (Mel) Sullivan,
Chief Operating Officer

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2011 Edition



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ORTHOPAEDIC EXCELLENCE

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Orthopaedic Excellence is an educational and informative resource for physicians, health care professionals, employer groups, and the general public. This magazine provides a forum for communicating news and trends involving orthopaedic-related diseases, injuries, and treatments, as well as other health-related topics of interest.

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.

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LIMB Lengthening

Advances improve treatments, outcomes

Differences between the lengths of the arms and/or legs are called limb-length discrepancies. Except in extreme cases, arm length differences cause little or no problem in how the arm functions; therefore, this article focuses on length differences in the legs, specifically those severe enough to require surgical lengthening.

Mild limb-length differences are common, usually just a mild variation between the two sides of the body. It is estimated that up to one-third of “normal” individuals may have a .2-inch to .6-inch difference between the lengths of their legs. Greater differences may need treatment because a significant difference can affect a patient’s well-being and quality of life by virtue of placing extra pressure on joints of the lower back, hips, knees, and feet.

The many causes of limb-length discrepancy include previous fracture, bone infection (especially in infants), and bone diseases (dysplasias). Hemi-hypertrophy (one side too big) and hemiatrophy (one side too small) are limb-length discrepancy conditions in which the arm and leg on one side of the body are either longer or shorter than the arm and leg on the other side of the body.

Symptoms and diagnosis

The effects of limb-length discrepancy vary, depending on the cause and size of the difference. Differences of about 4 centimeters (~1.67 inches) in an average adult may cause a noticeable limp. Gillette Children’s Gait Motion Laboratory studies have shown that energy expenditure is

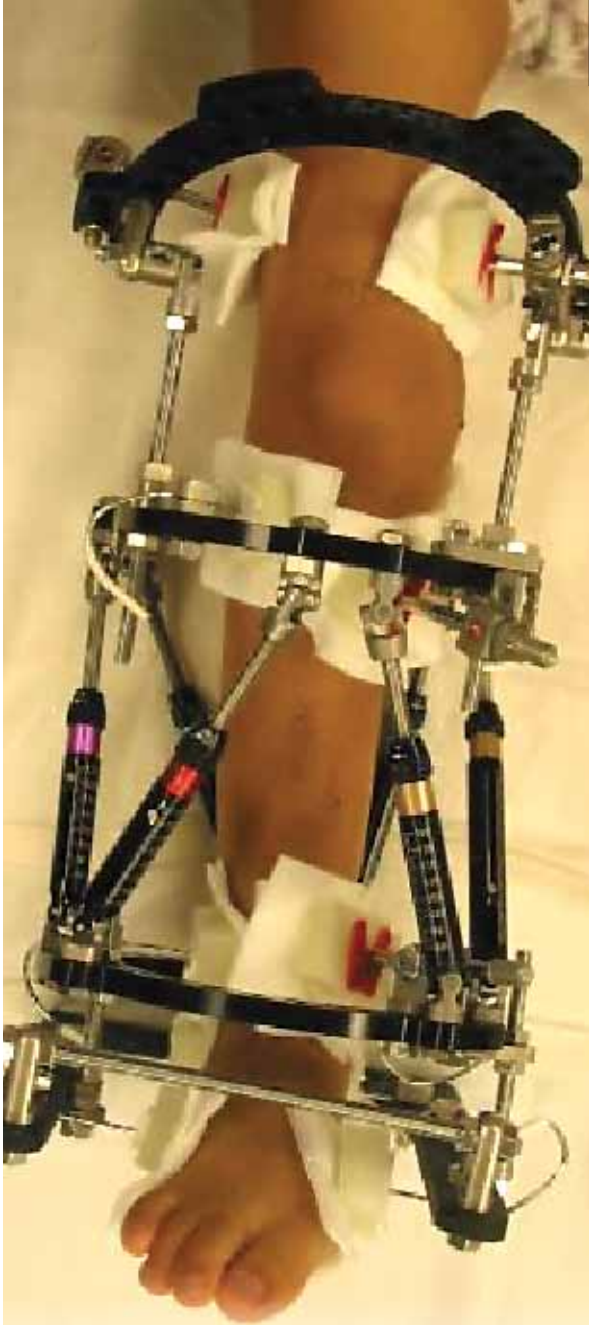
increased proportional to the amount of limb-length discrepancy when the discrepancy exceeds 4–5 centimeters.

The long-term effects of limb-length discrepancy on back pain are difficult to determine. Some studies show that people with a limb-length discrepancy have a greater incidence of low back pain and an increased susceptibility to degenerative arthritis of the spine and degenerative disc disease. Premature degenerative arthritis of the hip or knee is commonly observed in adults who have had longstanding discrepancies.

Limb-length discrepancy can be measured by a physician during a physical examination and with X-rays. The physician measures the level of the hips when the patient is standing barefoot. A series of measured blocks are placed under the short leg until the hips are level. If a more precise measurement is needed, x-rays may be used. In growing children, the physician repeats the physical examination and x-rays every six to 12 months to see if the limb-length discrepancy has increased, decreased, or remains unchanged.

Nonsurgical treatment

For minor limb-length discrepancy in patients with no deformity, treatment is unnecessary. Because the risks may outweigh the benefits, surgical treatment to equalize leg lengths is usually not recommended if the difference is less than 1 inch. For small differences, a lift inserted in or fitted to the shoe can often improve walking and running, and can relieve back pain that may be caused by the discrepancy.



Surgical treatment

Epiphyseodesis. In growing children, legs can be made equal or nearly equal in length with a simple surgical procedure that slows down the growth of the longer leg at one or two growth sites. The procedure (epiphyseodesis, or growth plate arrest) is performed under X-ray control through very small incisions near the knee. The limb-length discrepancy will gradually decrease as the opposite extremity continues to grow and “catches up” in length. Because the procedure is useful only in growing children with differences between 1 inch and 2 inches, timing is critical.

Limb-shortening. In adults, the longer leg can be shortened, but a major shortening may weaken the muscles of the leg. In the femur, a maximum of 3 inches can be shortened.

Limb lengthening using distraction osteogenesis. Surgical lengthening of the shorter leg is another choice. Modern surgical techniques for limb lengthening are largely based on the work of Russian surgeon Gavril Ilizarov, who invented many limb-lengthening methods and techniques for repairing significant defects in bone. The Ilizarov method of limb lengthening, brought to the West in 1983, encompasses many methods and techniques.

Based on the principle of distraction osteogenesis (see sidebar), Ilizarov’s limb correction process is actually a reshaping of injured or deformed limbs. Distraction osteogenesis relies on the body’s ability to spontaneously regenerate tissue, eliminating the need to add bone graft (see Fig. 1).

The bone is lengthened by surgically applying an external fixation device to the leg (see Fig. 2). The external fixator, a scaffold-like frame, is connected to the bone with wires, pins or both. A small crack is made in the bone and the frame creates tension when the patient or family member turns its dial. (The adjustments can also be accomplished automatically by a programmable computer mounted to the external fixator.) This is done several times each day. The lengthening process begins three to five days after surgery.

As the bone segments separate, new bone tissue forms in the gap, ultimately assuming the strength of the original bone. The bone may lengthen 1 millimeter per day, or approximately 1 inch per month. Lengthening may be slower in a bone that was previously injured. Bones in adult patients may need to be lengthened more slowly, at perhaps half the rate.

The external fixator is worn until the bone is strong enough to support the patient safely. This usually takes about three months for each inch. Factors such as age, health, smoking, and participation in rehabilitation can affect the amount of time needed.

As versatile as the fixators are, they must be worn for many months, prolonging pain, discomfort, and difficulties with daily living. To alleviate these problems for patients, recent innovations have combined the use of external fixators with rods or plates (see Fig. 3). These newer techniques permit the surgeon to remove the fixator much earlier than before (as few as 30 days), allowing the patient to return to normal more quickly.

Other surgical options

External fixation alone. When an external fixator is used alone, it must remain in place for both the distraction and

Figure 1. Ilizarov’s bone transport technique is used to fill bone defects.

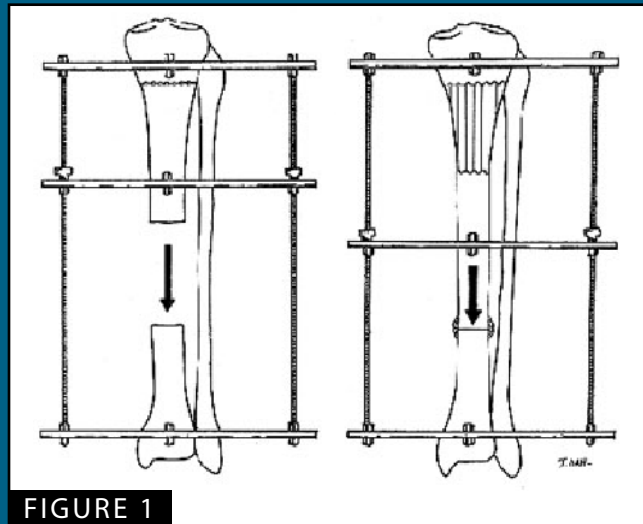


FIGURE 1

Figure 2. An external fixator was used to lengthening the tibia.

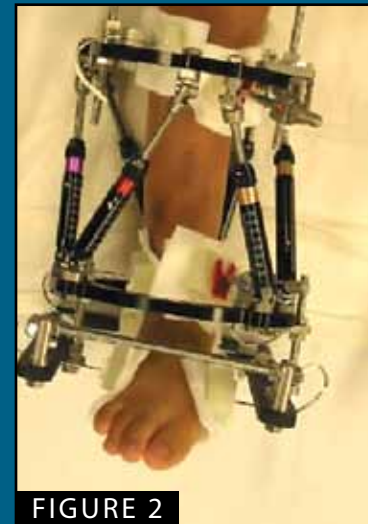


FIGURE 2

Figure 3. The X-ray demonstrates recent innovations to combine the external fixator with rods or plates.



FIGURE 3

consolidation phases, until the bone is solidly healed and nearly fully remodeled. Time in the external fixator is usually approximately one month per centimeter lengthened in children and two months or longer per centimeter in adults.

Lengthening with rod and fixator. To decrease external fixator time and reduce the risk of the new bone bending or breaking, a titanium rod is inserted into the bone and the external fixator is applied around the rod, using the latter only to distract the bone osteotomy. The bone is lengthened through the corticotomy site. As soon as the length is achieved, the patient returns to the outpatient operating room where screws that lock the rod to the bone are inserted and the fixator is removed. The intramedullary rod then supports the bone during the consolidation phase. This reduces external fixator time by more than half.

Fully implantable lengthening rods. A recent development is an implantable rod that can lengthen the limb from within without the need for an external fixator. This method has several advantages: it reduces the risk of pin infection; muscle is not damaged by the pins; and the patient experiences less pain. It is limited to use in adults and nearly mature children, as implanting rods in children would injure growth plates.

Deformity correction. The spatial frame allows for correction of the most complex of deformities by constantly changing parameters and adjusting rate of correction to

accommodate nerves, tendons, muscles, and joints. Severe deformities previously could not be treated or were treated with amputation and prosthetics.

Risks and complications

Risks of limb-lengthening procedures include infection at the site of wires and pins, stiffness of the adjacent joints, and slight over- or undercorrection of the bone's length.

Specifically, complications of bone lengthening and deformity correction include delay in bone healing, premature bone healing (preventing further bone separation), axial deviation during lengthening, muscle contractures (when the soft tissues cannot adjust to changes in bone length), muscle weakness, and nerve damage.

Though such complications often can be corrected, it is essential that patients be medically stable, healthy, and compliant.

Future developments

Soft-tissue adaptations, damaged cartilage due to excess lengthening pressure, and slow bone formation are receiving research attention. Synthetic grafting material (bone morphogenic proteins) for severe traumatic defects, stem cells stimulating bone and cartilage formation in congenital limb deficiencies, and fully implantable limb lengtheners will soon be realities in this exciting field.

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How Limb Lengthening Works

Ilizarov's modern technique of limb lengthening using an external frame is based on principles of distraction osteogenesis. Two phases of lengthening occur before the bone is fully healed: distraction and consolidation. During the distraction phase, many changes to the patient's limb occur, including stretching of nerves, muscle, tendon, and skin. Weekly follow-up visits are necessary to monitor progress. After the desired length is obtained, the newly formed bone is weak because of lack of calcium within it. The hardening of this new bone is called the consolidation phase.

Recent innovations present a variety of orthopedic device choices to distract the bone and soft tissues. Device selection is individualized for each patient so that the best method to achieve the desired correction can be chosen.

There are two general types of devices: external fixators and internal fixators. The external devices attach to the bone from outside the body by means of wires and threaded pins. The internal devices are

inserted inside the body and lie on the bone (plates) or inside the bone marrow cavity (intramedullary rods). To shorten the time in the external fixator, we often combine the external fixator method with an intramedullary rod in adults. Alternatively, we may use a fully implantable, self-lengthening rod that has internal roller bearings, eliminating the need for an external fixator. This method is available for certain adult cases. Surgeons may combine a plate with an external fixator in children to shorten the fixator time.

Limb lengthening requires:

- Regular follow-up visits to the physician's office
- Meticulous cleaning of the area around the pins and wires
- Diligent adjustment of the frame several times daily
- Rehabilitation as prescribed by the physician

OSTEOPOROSIS —

PREVENTING THE “SILENT DISEASE”

BY SHANNON M. VASKE, RN, MSN, CNP

Osteoporosis, or porous bone, is a disease in which bone density deteriorates, causing bone fragility and an increased risk of fractures in the hip, spine and wrist. Osteoporosis is known as the “silent disease” because it progresses slowly over time, without symptoms, until a fracture occurs.

Both men and women are affected by osteoporosis. In fact, according to the National Institute of Health (NIH) Osteoporosis and Related Bone Diseases National Resource Center, osteoporosis is a major public health threat for 44 million Americans, 68 percent of whom are women. One out of every two women and one in four men age 50 and older will have an osteoporosis-related fracture in their lifetime. Osteoporosis and related fractures have an estimated national direct expenditure of \$14 billion each year. By the year 2025, experts predict that osteoporosis-related fracture costs will rise to \$25.3 billion. Fortunately, for the most part, osteoporosis is preventable.

WHAT IS BONE?

Our bones are living, growing tissues made mostly of collagen, a protein that provides a soft framework, and calcium phosphate, a mineral that adds strength and hardens the framework. This combination makes bones both flexible and strong, allowing them to withstand stress.

As we age, our skeletons continually lose old bone and form new bone. Children and teenagers form new bone faster than they lose the old bone. In fact, even after they stop growing taller, young people continue to make more bone than they lose. This means their bones get denser and denser until they reach what experts call “peak bone mass.” Peak bone mass is when a person will have the greatest amount of bone density and strength he/she will ever have. This usually happens around age 20.

After a person reaches peak bone mass, the balance between bone loss and bone formation might start to change. In other words, a person may slowly start to lose more bone than she/he forms. Osteoporosis happens when one loses too much bone, makes too little bone, or both.

In midlife, bone loss usually speeds up in both men and women. For most women, bone loss increases after menopause, when estrogen levels drop sharply. In fact, in the five to seven years after menopause, women can lose up to 20 percent or more of their bone density. Osteoporosis is also more likely to develop if a person didn't reach optimal peak bone mass during her/his bone building years.

Any bone can be affected by osteoporosis, but fractures of the hip and spine are of special concern. A hip fracture almost always requires hospitalization and major surgery. It can impair a person's ability to walk unassisted and may cause prolonged or permanent disability or even death. Spinal or vertebral fractures also have serious consequences, including loss of height, severe back pain, and deformity.

Prevention is the key and should begin early in childhood and continue to evolve as one ages.



OPTIMIZE BONE HEALTH

The key to prevention is to get an adequate supply of calcium and vitamin D and participate in weight bearing exercise. These key practices should continue throughout each of life's stages.

- Get daily recommended amounts of calcium and vitamin D
–1200-1500 mg of calcium/400-800 IU of vitamin D
- Engage in regular weight-bearing exercises
–Walking, weight-training, yoga
- Avoid smoking and excessive alcohol consumption
- Talk to your healthcare provider about your bone health and any medications you might be on that could cause bone loss
- Have a bone density test

ASSESS YOUR HOME FOR FALL RISKS

FLOORS. Remove all loose wires, cords and throw rugs. Minimize clutter. Make sure rugs are anchored and smooth. Keep furniture in its accustomed place. Clean spills immediately.

BATHROOMS. Install grab bars and non-skid tape in the tub or shower.

LIGHTING. Make sure halls, stairways and entrances are well lit. Install a night light in your bathroom. Turn lights on if you get up in the middle of the night or keep a flashlight by your bed.

STAIRS. Make sure treads, rails, and rugs are secure.

OTHER PRECAUTIONS. Wear sturdy, low-heeled, rubber-soled shoes. Keep your intake of alcoholic beverages to a minimum. Ask your doctor whether any of your medications might cause you to fall.

To better understand your risk for developing osteoporosis, preventing its development, and treatment options, speak with your healthcare professional. The best way to treat a fracture is to prevent one.

No You Can't Change:

- **Advanced Age**—The older you get, the weaker your bones become.
- **Gender**—Women have a higher chance of developing osteoporosis because of menopausal changes.
- **Family History**—People whose parents have a history of fractures may be at greater risk for fractures.
- **Ethnicity**—Caucasian and Asian women are at highest risk.
- **Body Size**— Small-boned and thin people are at greater risk.

Yes! You Can Change:

- **Sex Hormones**—Low estrogen and testosterone levels can lead to osteoporosis.
- **Calcium and Vitamin D Intake**—People with diets low in calcium and vitamin D are prone to bone loss.
- **Diet**—Eating a well-balanced diet is crucial for bone health and general well being.
- **Medication Use**—Talk to your doctor about the effects of long-term medications on bone density.
- **Lifestyle**—Inactivity and extended bed rest puts your bones at risk for weakening.
- **Smoking and Alcohol Intake**— Excessive alcohol consumption and smoking put your bones at risk for bone loss and fracture.



One Man's

Journey

to the Mountaintop

By Darcy LaDue-Vargas



As William (Bill) Franke and his daughter approached the summit of Quandary Peak (elevation 14,265 feet) near Breckenridge, Colorado, they knew this Labor Day hike was one they would remember forever. They had been hiking a 14'er in Colorado every Labor Day for years, but this hike had special significance. Bill had a Birmingham hip resurfacing procedure only 13 weeks prior to their hike on June 3, 2009. This time they savored the views from the summit just a little longer as they reflected on the long journey to this mountaintop.





Bill had endured hip pain for years, but the avid outdoorsman was progressively more limited in his activity level. By December 2008, Bill was no longer able to run or get a good night's sleep because of the intense pain in his hip. On a skiing trip, Bill took a tumble and as he struggled to get up, he knew his time had come to seek medical help. His first visit to Dr. Palmer at St. Croix Orthopaedics confirmed there was osteoarthritis in his hip. Bill attempted to salvage his ski season with a cortisone injection, but after a few months he called to schedule surgery.

Dr. Palmer and Bill had discussed his options—a total hip replacement or a Birmingham Hip Resurfacing (BHR). Because of Bill's age and his desire to continue his active lifestyle, they agreed that BHR was the right procedure for him. Two months prior to Bill's surgery, he attended an orientation program at Lakeview Hospital designed to answer questions and set expectations. "I did all of the exercise regimen that they recommended prior to surgery,"

"The intense pain in my hip was immediately gone after surgery. I still had pain for a few days but it wasn't the same pain I had endured for years."

explained Bill. "I wanted to do everything in my power to be ready for surgery so I would be able to return to my life as quickly as possible."

Bill's surgery was performed on a Wednesday and he was able to walk with a cane by Thursday. One surprise after the surgery was how much "good" pain he felt. "The intense pain in my hip was immediately gone after surgery," noted Bill. "I still had pain for a few days but it wasn't the same pain I had endured for years." By Monday, Bill was driving and back to work. He was even able to go to his cabin the following weekend and enjoy some light walking. Bill admits that his recovery was slow and gradual, but he remembers distinctly at three weeks gently swinging his golf club, chipping and putting. He was walking and golfing 9 holes by seven weeks and 18 holes by nine weeks. Bill did many of the same exercises that he had done prior to surgery and physical therapy aided in his recovery process.

As Labor Day 2009 approached, Bill prepared for his first post-surgery hike by walking on ATV and snowmobile trails. He knew his biggest challenge in climbing would be range of motion in his hip and being mentally prepared. On September 5, 2009, Bill, his daughter, and a friend climbed Quandary Peak on a beautiful clear day. The hike up that mountain is difficult because of the vast amount of boulder fields one must traverse. "Actually, coming down the mountain was the hardest part of the climb," recalled Bill. "I think I was mentally fatigued and trying to protect my hip. All my muscles were reacting to my body being just a little out of sync."

Bill is very pleased with the outcome of his surgery. "I would choose to have the surgery again in a second," he explained. "I am sleeping good again, my hip is pain free, and I am able to do all the things I love – golfing, hunting, hiking, surfing, and skiing." Bill was a collegiate long jumper and triple jumper at Drake University, but he is no longer able to run. "Sometimes in life you have to make choices. I don't run anymore, but I walk four miles per day at a good pace. I'm happy with all that I am able to do." And that includes standing on a mountaintop!

HIP RESURFACING:

Hip resurfacing arthroplasty is a type of hip replacement that replaces the arthritic surface of the joint but removes far less bone than the traditional total hip replacement. For more information on hip resurfacing, visit www.stcroixortho.com and click on the Education tab.





HELPING HANDS

BY DARCY LADUE-VARGAS

SCO EXPANDS HAND AND UPPER EXTREMITY THERAPY SERVICES

Offering more responsive, flexible and integrated care, the Hand Center at St. Croix Orthopaedics (SCO) recently expanded its hand and upper extremity therapy services at the High Pointe Health Campus in Lake Elmo, MN. This service expansion was part of an extensive 8,000 square foot remodel of SCO's clinical facility that was completed in 2010.

"We added hand therapy services in our Stillwater clinic in 2009," said Melanie Sullivan, SCO Chief Operating Officer. "We immediately saw value to having surgeons and therapists within walking distance of each other. With on-site therapy, surgeons can stop in to check on a patient's progress, and therapists can check with surgeons on splinting, bracing and rehabilitation orders—which is extremely comforting and beneficial in achieving high-quality outcomes for our patients. Because of its success at our Stillwater clinic, adding therapy services into High Pointe's remodel plan was a given."

EXPERIENCED STAFF

With more than 30 years combined hand and upper extremity therapy experience, the therapists at SCO are passionate about their field. All are specially trained in orthopaedic care and have experience in outpatient orthopaedics. Lead therapist Maureen Scanlan, OTR/L, CHT, has more than 18 years of hand therapy experience. “Although I am new to SCO, I have worked with this group of patients for many years and have a deep connection to this community,” noted Scanlan.

A leader in her chosen field, Scanlan was the first hand therapist in the state of Minnesota to use the ASTYM (A-stim) System. “I see great value in this system for our patients. Instead of ignoring degenerative soft tissue, the ASTYM system aids in directly addressing dysfunctional soft tissue. For patients, this means getting them back to work, sports or their favorite activities quicker,” explained Scanlan.

Of the four hand therapists, both Scanlan and Sara Jorud are certified hand therapists. The certification process is rigorous and requires a minimum of five years of hand therapy experience, four thousand patient hours, and one year of independent study. SCO hand therapists Shannon Rechiene and Tanya Reckinger have completed those requirements and will be sitting for the certification test soon.



BROAD SPECTRUM OF SERVICES

Our team of hand therapists provides comprehensive rehabilitation services for injuries and maladies of the hand and upper extremities – from the shoulder to the elbow, wrist, hand, fingers and thumb, including:

- External fixation of both common and complex wrist, finger, forearm, and elbow injuries and conditions
- Rehabilitation of soft tissue injuries of the hand, wrist, forearm, elbow, and shoulder
- Tool assisted soft tissue mobility techniques (ASTYM)
- Ergonomic education that includes adaptation or workspace modification assessments
- Educating patients on home exercise programs and self-management techniques to facilitate rapid and safe return to work, sports and daily activities
- Same day custom splints to help athletes return to their sport
- Relieve CMC Arthritis and promote healing for thumb sprains
- Increase joint mobility by correcting boutonniere deformities and other UE joint contractures

“The broad spectrum of services offered at the Hand Center give my patients all the help they need to get back to their normal life,” said upper extremity subspecialist, Dr. Steven Meletiou. This sentiment is echoed by two other hand fellowship trained SCO doctors, Drs. Nick Meyer and Ryan Karlstad. Says Dr. Karlstad, “I am pleased that my patients are able to receive all their care right here at SCO.”

SCO patients benefit from excellent communication and personalized care enhanced by the close proximity of our surgeons and therapists. This seamless care puts our patients at ease and helps in the healing process. “I have found the coordination between the therapists and myself to be very beneficial to my patients,” commented Dr. Meyer.


The Hand Center is open Monday through Friday with same day walk-in appointments available.

WHAT IS HAND THERAPY?

According to the American Society for Surgery of the Hand (ASSH):


Hand therapy helps a patient regain maximum use of his or her hand after injury, surgery or the onset of disease. Treatment is provided by a hand therapist. To become a hand therapist, a health care professional must first train as an occupational or physical therapist and then receive additional training in hand therapy. Hand therapists teach exercises, apply modalities and create custom splints to help the hand heal and to protect it from additional injury.

Call 651-439-8807 to schedule an appointment.




PURSUING GLOBAL HEALTH IN ECUADOR

BY THOMAS K. COMFORT, MD



Dr. Eckehart Wolf, a German surgeon and Christian missionary, has spent more than 25 years serving the people of Ecuador through HCJB Global. Eckehart and his wife, Claudia, are based in Shell, Ecuador, at the Hospital Vozandes del Oriente (HVO) where Eckehart serves as the medical director and head of surgical services.



In 2009, Dr. Wolf invited Thomas Comfort, M.D., and Abby Jeffrey, PA-C, both of St. Croix Orthopaedics, to HVO to help develop a joint replacement program. The following is a recap of their time in Shell, as told by Dr. Comfort.

For several years, the desire to pursue medical mission service had grown in me. Then, six years ago, encouraged by my St. Croix Orthopaedics partner's mission efforts and by members of my church, an opportunity arose for me to work as an orthopaedic surgeon in Hospital Vozandes-Quito, Ecuador. At that time, I joined a team of Gillette Children's Hospital surgeons, led by Dr. James Gage, who were traveling to Ecuador to help care for children with cerebral palsy and hip deformities. It was on this first trip that I met Dr. Eckehart Wolf, the Hospital's medical director and head of surgical services.

After having worked with Dr. Wolf, during several additional mission trips to Quito, he asked me if I would consider performing joint replacement surgeries at the hospital in Shell. Over the years, Dr. Wolf had noticed an increasing number of working-age patients with severe hip arthritis suitable for hip replacement, but he was unable to offer any surgical help. These



surgeries were routinely being performed at the HCJB hospital in Quito but the private practice surgeons were charging \$6000.00 per case. In a country where health insurance is virtually nonexistent and monthly wages range from \$400.00 to \$600.00, most patients were unable to afford the procedure. Even with HCJB's offer to underwrite most of the cost, the procedures were too expensive for most to afford.

Mission 2009...

In 2009, after many months of planning and arranging for medical equipment and supplies to be sent to Shell, Abby Jeffrey PA-C (and interpreter) and I arrived on a Saturday evening in Quito, a city of two million inhabitants nestled on a plateau at 9,000 feet between the east and west cordillera of the Andes mountain range. The following day, we made the five-hour drive down to Shell, traveling the Pan American Highway or "Avenue of the Volcanoes" to the edge of the Amazon Jungle.

On our first day in Shell, we held an all-day clinic, examining many patients with severe hip arthritis. Although there were many candidates who would have benefited from surgery, only some were able to pursue treatment.

On Tuesday and Thursday, Abby, Dr. Wolf, a representative from the equipment company and I scrubbed for the surgical cases. Although some improvisation was required— such as constructing a hip holder from a Balfour retractor— the procedures went well with no major complications and all patients were doing well at last follow-up.

We returned to Quito Friday afternoon to take a tram to the 13,500 foot peak of the recently active Pichincha Volcano to enjoy the spectacular view of the Quito valley. On Saturday, March 14th, we returned home exhausted but exhilarated; already looking forward to returning for more service to this high need area.

Mission 2010...

I returned to Ecuador in 2010 to perform additional hip replacement procedures as well as the first arthroscopy in the Pastaza region. It has been a tremendous pleasure to work with such dedicated individuals and to see their efforts rewarded through appreciation from their patients. I hope to be able to continue to serve in this way for years to come.



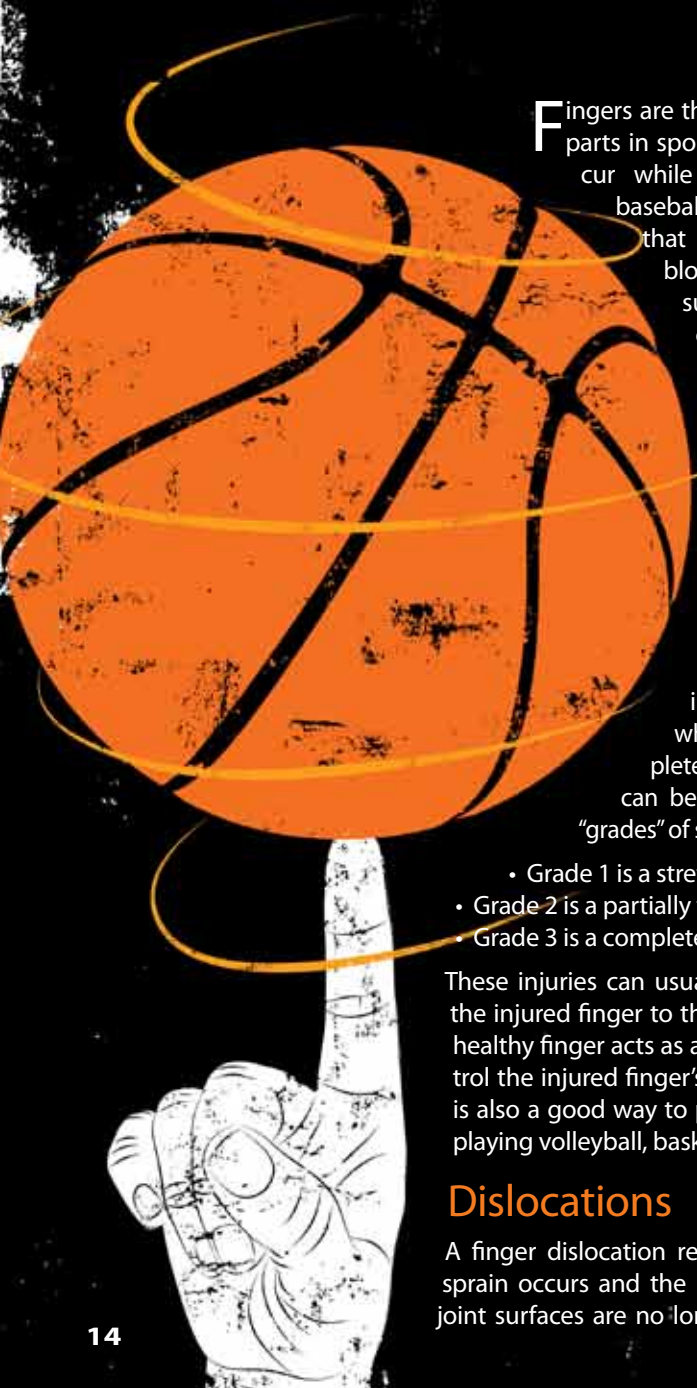
HCJB Global Hands-Healthcare

is a global medical mission organization that runs three medical facilities in Ecuador, South America:

- Vozandes Clinics' mission is to bring affordable, Christian-centered healthcare, primarily to poor people in Quito and other cities of Ecuador. Medical staff saw 51,620 patients in 2008. Vozandes Clinics are managed by graduates of the family practice residency program at Hospital Vozandes-Quito. Specialists, such as Thomas Comfort, M.D., St. Croix Orthopaedics orthopaedic surgeon, also see patients in the clinics.
- Hospital Vozandes-Quito in Quito, Ecuador, is the largest and considered to be one of the best hospitals in Ecuador. It has 76 beds and, according to its website, it served nearly 197,000 patients in 2008.
- Hospital Vozandes del Oriente (HVO) in Shell, Ecuador, is a 30 bed hospital specifically built to serve the indigenous peoples living within the 6,000 square miles of roadless jungle to the east. In 2008, it served more than 23,000 patients.

Keeping Your Fingers in the Game

By Nicholas J. Meyer, MD



Fingers are the most commonly injured body parts in sports. Finger injuries frequently occur while playing basketball, volleyball, baseball, and football. Playing any sport that involves catching, deflecting or blocking a fast-moving ball can result in finger injuries. The most common finger injuries are sprains, dislocations, tendon ruptures, and fractures.

Sprains

Collateral ligaments are the band-like structures on either side of the finger joint that stabilize and prevent the joint from bending side-to-side.

A finger sprain, which usually involves the middle joint, occurs when a collateral ligament is completely or partially torn. The sprain can be categorized into three different "grades" of severity.

- Grade 1 is a stretched ligament.
- Grade 2 is a partially torn ligament.
- Grade 3 is a completely torn ligament.

These injuries can usually be treated by buddy taping the injured finger to the adjacent uninjured finger. The healthy finger acts as a protective splint and helps control the injured finger's range of motion. Buddy taping is also a good way to prevent injuries, especially when playing volleyball, basketball and football.

Dislocations

A finger dislocation results when a Grade 3 ligament sprain occurs and the bones are displaced so that the joint surfaces are no longer in contact with each other.

This usually requires a manipulative procedure to bring the joint back into alignment, although it will sometimes realign itself spontaneously. X-rays are taken to assure that there are no additional injuries such as a fracture. Once realigned, these injuries are often fairly stable and can be treated similar to sprains.

Tendon Ruptures

A tendon rupture most commonly results when the finger is forcefully straightened while the person is attempting to flex the finger or grab something. This is often referred to as a "Jersey Finger" as it commonly occurs in football when a defender is attempting to tackle an opponent. Player 1's fingers are grasping the jersey, but Player 2 forcefully pulls away. This results in an inability to actively flex the last joint (the "DIP joint") of the finger and should be treated promptly (surgically) for optimal results. If it is not repaired, this can result in a chronic inability to flex the last joint of the finger.

Fractures

Finger bone fractures can often mimic dislocations and sprains. Fractures, dislocations and sprains usually occur the same way and all result in significant swelling and pain. The only way to conclusively determine if a fracture has occurred is to seek medical attention and obtain an X-ray. Once diagnosed, finger fractures may be treated with simple buddy taping, splinting, casting, or surgery depending on the fracture pattern.

How do you avoid finger injuries?

You can minimize the risk of injuries to your digits by minimizing their "exposure." Here are a few techniques to consider:

1. Buddy tape digits at risk. Most commonly, the ring and small fingers are taped together while the index and middle fingers are taped together.
2. Avoid blocking balls (such as a volleyball) with an open hand. Instead, use a fist.
3. As a reminder to keep your hand closed, hold something in your hand. Ever wonder why you see baseball players holding their batting gloves while running the bases? This is often to prevent injury to the fingers when sliding into the base or opponent. While many of these injuries go on to uneventful healing, they can result in significant time away from sports and other activities because of pain, swelling and stiffness. With some appropriate knowledge of the fingers and how to best protect or treat them, we can hopefully guide you through another season while avoiding injury to your valuable digits.

Meet this Edition's Physician Authors



NICHOLAS J. MEYER, MD

"Listen to your body. If you develop pain, don't wait until it's out of control. If you just put up with it, you can end up with permanent damage," says Dr. Nicholas Meyer of St. Croix Orthopaedics, P.A. in Stillwater, MN.

Dr. Meyer (White Bear Lake, MN born, bred and high school graduated; U.S. Military Academy and University of Minnesota medically educated and degreed) is subspecialty certified in hand and upper extremity conditions/injuries, but works with a variety of patient cases, from injuries due to repetitive activities or trauma to degenerative diseases, such as arthritis. Dr. Meyer empathizes with patients who get hurt going after their sport with too great of zeal. He's played hockey his whole life and can relate personally to injuries caused by crashing too hard into the boards. He also competes in triathlons.

His wife and young family enjoy time together exploring sites across the U.S. He also volunteers with and has a passion for an organization called the Military Family Support League, which helps military families with a loved one deployed overseas manage day-to-day activities.



THOMAS K. COMFORT, MD

"It has been a tremendous pleasure to work with such dedicated individuals [physician mission workers in Ecuador] and to see their efforts rewarded through appreciation from their patients. I hope to be able to continue to serve in this way for years to come," says Dr. Thomas Comfort of St. Croix Orthopaedics, P.A., Stillwater, MN about the personal rewards of his medical mission work in Ecuador.

Though not a Minnesotan by birth, Dr. Comfort's pursuit of a career in medicine led him to the University of Minnesota where he acquired his medical degree and did his residency in orthopaedic surgery. He currently sees patients with a wide range of orthopaedic injuries/conditions including sports medicine injuries. His involvement in the local medical community opened the door to his experiences in medical mission work. He gains great personal and professional fulfillment from sharing his skills and talents with HCJB and the people of Ecuador.

Aside from his passion for medical mission work, Dr. Comfort is active in his church community and particularly enjoys time spent with his wife and children at home and traveling.



MARK T. DAHL, MD

"Art helps me transform surgery from something frightening to something remarkable. It's crucial that people trust you and understand the procedure that's going to help them. Art helps me do that," says Dr. Mark Dahl of St. Croix Orthopaedics, P.A.

Dr. Dahl (board certified orthopaedic surgeon; medical graduate of the Mayo Medical School, Rochester, MN; skilled in the Ilizarov limb-lengthening procedure) uses art as one way to communicate with patients. His practice, which includes most orthopaedic conditions/surgeries, is his first passion. But Dr. Dahl's talent for his second passion, bronze sculpting, began when his wife suggested he take a sculpting class to develop his artistic abilities. He began crafting both commission work and personal projects at home. Most recently, Dr. Dahl's bronze sculpture was awarded "Best in Show" at the American Academy of Orthopaedic Surgeons (AAOS) Wounded in Action art exhibit.

Aside from sculpting and spending time with his family, Dr. Dahl also travels to third world countries, performing deformity correction surgery on children and adults, and sharing his knowledge with surgeons in these areas.

For complete biographies of St. Croix Orthopaedics, P.A. physicians, logon to stcroixortho.com

Supporting Our Patients. Supporting Our Partners. Supporting You.

In 2008, Tanzanian missionaries brought little Zawadi Rajabu to the U.S. to seek treatment for her two severely clubbed feet. A physician referred Zawadi to Dr. Mark T. Dahl of St. Croix Orthopaedics. Using the Ilizarov Method, Dr. Dahl surgically changed the course of Zawadi's feet and her life.

Dr. David Palmer and Russ McGill, OPA-C, recently traveled to Tanzania on another of their frequent medical missionary trips. They dedicated an entire day to checking in on their partner's patient. To their delight, they were greeted by

6-year-old Zawadi her face aglow, her healed feet dancing toward them.



*David Palmer, M.D.
& Zawadi's brother*



*Russ McGill, OPA-C
& Zawadi*

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