

Orthopaedic Connections

Beth Israel Lahey Health
Beth Israel Deaconess
Medical Center

The newsletter of the Carl J. Shapiro Department
SUMMER 2024 of Orthopaedics at Beth Israel Deaconess Medical Center

Men and osteoporosis: study delves into knowledge gap

Mention osteoporosis and most people will tell you it's a problem faced by older women. While more women than men do have osteoporosis, it is estimated that 1 to 2 million men in the United States have the disease and the number of fractures caused by fragile bones experienced by men has increased.

It's a standard practice for Beth Israel Deaconess Medical Center (BIDMC) hand and upper extremity surgeons to recommend all their patients over the age of 50 get a bone density test—usually known as a DEXA scan—following a wrist fracture to assess them for osteoporosis and potentially head off more serious injury down the road. But based on a BIDMC retrospective analysis, the rate of bone fragility assessments after a fracture was poor—only about 30%—and that percentage was significantly lower in men.

Hand and upper extremity surgeons at BIDMC treating wrist fractures

decided to look at the challenge of encouraging men to be screened for osteoporosis post-surgery to prevent more serious injuries from frail bones in the future.



Tamara Rozental, MD, examines a patient after a wrist fracture—a possible early sign of osteoporosis.

“Past studies have shown there is a higher incidence of osteoporosis in men who sustain distal radius fractures,” said hand surgeon Carl Harper, MD. “If they aren't screened at the time of the injury, it's a missed opportunity because these fractures tend to happen about 20 years before a more serious injury occurs.”

Tamara Rozental, MD, chief of the BIDMC hand and upper extremity division, Harper, and colleagues delved into why there was resistance to osteoporosis screening by going straight to the source: male patients.

“The concept behind the study was to talk to some of the patients and figure out what on their end prevented them from getting a DEXA scan—why is it something that is falling by the

wayside?” said Rozental, who has been conducting research on screening and managing osteoporosis in patients after wrist fractures for close to 20 years.

Qualitative survey shows patients are receptive

The study, published in the [Journal of Hand Surgery](#), involved interviews with 20 men over the age of 50 who had experienced a distal radius fracture and repair. The goal was to learn how much the men knew about osteoporosis and its management.

Some of the study findings included:

- Study participants underestimated their own risk of fracture due to osteoporosis (25% in their age group); they felt their bones were strong.
- Only 8 of the 20 men had undergone a DEXA scan even though its recommendation is standard procedure following a wrist fracture at BIDMC.
- Some of those 8 discussed the results with their surgeon, but none reported talking about it with their primary care physician (PCP).
- The subjects' understanding of osteoporosis and the benefits of calcium and weight-bearing exercise on bone health was limited—even if they had had a DEXA scan.

Credit: James Derek Dwyer

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Orthopaedic Connections

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In addition to phone and online requests, referring physicians can send an email including the patient's name, birth date or BIDMC medical record number, phone number and presenting problem, and we will contact the patient within one business day to schedule an appointment.

Letter from the Chair

Dear Friends and Colleagues,

While we enjoy the transition from spring to summer in New England, we are pleased to share our continual evolution in advancing clinical care and the efficiency of treatments for our orthopedic patients and patients everywhere.

As an orthopedic fracture specialist, I can attest to the importance of managing bone fragility at a population level. DEXA scans are the current standard for measuring bone density and loss and are predictors for osteoporosis. The utilization rates of this screening tool are mediocre among older women, and are poor in the older male population. Surgeons in our hand and upper extremities division decided to dig deep to find out why men—specifically men they had seen for wrist fractures—didn't receive recommended follow-up scans. In this issue, we recap their findings, which point to a need for better communications with PCPs, and touch on the potential for more patient-friendly assessment tools for the future.

Since I started my tenure as department chair, my vision has been for our team to excel in lab-to-bedside innovation for musculoskeletal diagnosis, care and therapeutics. Two features in this issue illustrate the strides we are making. One feature describes an ongoing collaboration between Director of the Musculoskeletal Translational Innovation Initiative Ara Nazarian, PhD, and Chair of Neurology Steward Rutkove, MD. They have progressed to a new level of testing a device that can alert patients with fractured tibia and their physicians when pressure within the leg compartment is rising and needs surgical treatment to avoid serious damage to the leg.

Another innovation you can read about was developed by trauma surgeon John Wixted, MD, to keep fractured bones stable while knee or ankle swelling is preventing their repair surgically. His disposable "fixator" will replace standard, more expensive ones, providing an option that is more accessible for low-resource settings of care and more efficient for BIDMC and other hospitals that choose to use it.

We are also pleased to welcome two recent additions to our esteemed roster of orthopedic specialists. Monica Shoji, MD, is a new clinician on the hand and upper extremity team and leads its research activities. She provides procedures and consultation at BIDMC and in Cambridge. Catherine Mills, MD, is a Physical Medicine & Rehabilitation specialist with additional training in Sports Medicine, and practices at BIDMC and BIDMC-Needham. You will learn about the conditions they treat, clinical practice philosophies and more in their profiles.

Hope you enjoy this issue and have a wonderful summer!

Edward K. Rodriguez, MD, PhD

Chair, Department of Orthopaedic Surgery
Beth Israel Deaconess Medical Center



Introducing sports medicine specialist Catherine Mills, MD

Catherine Mills, MD, recently joined the Sports Medicine team at Beth Israel Deaconess Medical Center (BIDMC). She is board certified in both Physical Medicine & Rehabilitation and Sports Medicine. She also serves as a Medical Advisor to USA Fencing.

Why did you decide to focus on sports medicine?

I have been an athlete my entire life—I swam, played soccer, ran cross-country, and rowed crew. I still run, swim, and cycle frequently. Having dealt with chronic exertional compartment syndrome in high school and a back injury while rowing in college, I ended up spending a lot of time with sports medicine physicians and athletic trainers. They had a big impact on me and ultimately, I decided I wanted to be able to play that role in other people's lives.

In physical medicine and rehabilitation, we place a significant emphasis on function and quality of life, which is what drew me to this field. As a resident, I found that through sports medicine as a subspecialty, I could serve patients of all abilities and help them to return to activities that bring them joy.

What do you consider to be your strength as a sports medicine specialist?

My strength is being able to connect with my patients, identify their goals, and then work with them to develop a plan that will help them achieve those goals. For example, one person with knee pain—perhaps due to arthritis—wants to be able to walk through the grocery store without pain while another person with the same knee pain wants to run a half marathon. It may be the same diagnosis, but likely requires a different strategy to achieve each of their goals.

What type of injuries or conditions do you treat?

I treat a wide array of injuries and conditions. I treat peripheral joint pain such as hip, knee, ankle, shoulder,



Education and Training

Fellowship: *Sports Medicine and Interventional Spine*

Icahn School of Medicine at Mount Sinai, New York City

Residency: *Physical Medicine & Rehabilitation*

Spaulding Rehabilitation Hospital/Harvard Medical School, Boston

Medical School

Icahn School of Medicine at Mount Sinai, New York City

elbow, wrist pain due to osteoarthritis, acute sprains, chronic instability as well as muscle and tendon injuries. I also treat low back pain—from acute injuries through more chronic pathology—and sacroiliac joint pain.

What kind of modalities do you use to treat people?

A mainstay of my treatment plan for the vast majority of my patients is a referral to physical therapy. In my practice, exercise and strengthening is medicine. I do a variety of interventional procedures guided by ultrasound and fluoroscopy. Using ultrasound, I perform joint injections with corticosteroid or hyaluronic acid, tendon sheath injections, percutaneous needle tenotomies, peripheral nerve hydro-dissections, and platelet-rich plasma injections. With fluoroscopy, I perform lumbar spine procedures, mostly using corticosteroids, including interlaminar epidural injections, transforaminal epidural injections, facet joint injections, and sacroiliac injections as well as medial branch radiofrequency ablation. I also do trigger point injections for myofascial pain.

What areas are you drawn to?

I'm currently submitting a paper on adaptive sports medicine to a journal and I co-wrote a book chapter on the care of youth athletes with physical disabilities. I hope to do more research in adaptive sports to show how important it is for helping people with disabilities improve their health and psychological outcomes.

Another passion of mine is women's sports medicine. There are a few interdisciplinary programs in the U.S. that focus on women's sports medicine. These typically are comprised of a sports medicine physician, an endocrinologist, a gynecologist, and a nutritionist who collaborate to help with the specific challenges that female athletes face. I would love to be a part of something like this at BIDMC.

What advances in the sports medicine field excite you most?

I'm excited to see where some of the newer technologies in musculoskeletal medicine go, including the orthobiologics—platelet-rich plasma, bone marrow aspirate, and adipose tissue—and shockwave therapy. The research on these technologies is becoming more robust, but at this time they are still considered experimental and so not covered by insurance. I'm hopeful we can get to a point where they are more accessible to a broader population.

I'm also eager to see where the research on biomechanics goes. In my fellowship, we did a lot of running gait analysis and focused on how biomechanics play into the development of injuries. I would like to see that knowledge be implemented more regularly in practice.

Dr. Mills sees patients at BIDMC and BID-Needham. For an appointment, call 617-667-3940 or email orthoappointments@bidmc.harvard.edu.

Osteoporosis in men

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One factor that may contribute to participants' limited knowledge of osteoporosis is the commonly held notion it is a woman's disease, making men reluctant to consider it an issue for themselves. Another might be the lack of easy-to-understand patient education. Although Massachusetts has one of the highest health literacy levels in the country, interviewees found patient education on fracture and its relationship to osteoporosis confusing.

Meeting patients where they're at

Harper suggests the low rate of bone scans following the fracture was because patients found it difficult to process information about osteoporosis during a surgeon visit amid the trauma of a fracture.

"What was fascinating is that we had the same conversation about getting a bone density scan with them later during a follow-up visit and they didn't remember any of the previous information," Harper said. "It may be because when undergoing a stressful situation like a fracture, your mind is focused on that and anything else tangentially related doesn't resonate."

For that reason, Harper said reiterating the conversation during a follow-up visit as the fracture is healing and "meeting patients where they're at" would help yield more positive results.

Another path for improving osteoporosis screening with this group would be to learn what would encourage PCPs to follow up with their patients after the injury. The researchers in the patient study are now conducting a parallel study with the patients' PCPs.

So far, the PCPs interviewed seem receptive to the idea of prompts in the electronic medical record (EMR), according to Harper. For example, when a patient has a low-intensity fracture, the EMR system would prompt their PCP to order a bone mineral density study.



"Past studies have shown there is a higher incidence of osteoporosis in men who sustain distal radius fractures. If they aren't screened at the time of the injury, it's a missed opportunity because these fractures tend to happen about 20 years before a more serious injury occurs."

Carl Harper, MD

Lessons for the general population

Although the study of BIMDC patients was small, several takeaways also apply to the general male population.

"The results are relevant to all men," said Rozental. "The same barriers that exist for the patients who have fractures exist for those who don't. And the obstacles for men who haven't had a fracture are greater because a fracture is an event that may lead to a conversation about their bone health and their bone fragility with a healthcare provider. For that reason, assessment rates for people who don't have fractures are probably lower."

As mentioned, the lack of awareness that osteoporosis can affect men hinders the rate of assessment and management of the disease. "It's been labeled as a women's disease for a long time, so it's on women's radar more than it is for men," explained Rozental. The use of the term "fragility fractures" for low-intensity fractures poses an additional

stigma. "No 60-year-old man wants to be diagnosed with a fragility injury. Most women don't either, but men might have a harder time coming to terms with it," said Rozental. "It would be helpful if we changed the terminology."

Another challenge is getting osteoporosis on the radar of PCPs, who must cover many health topics within a typical 20-minute visit. "PCPs have lots of things to address in a short period. They are requested by insurance to meet targets on certain conditions, like hypertension, to make sure they are managing them. Osteoporosis hasn't risen to that level," said Rozental.

Changing workflow logistics for PCPs could help change that. A prompt built into the PCP's medical record system would ensure osteoporosis is addressed the same way, for example, as a colonoscopy when a patient reaches a certain age.

Exciting new screening approach

The DEXA scan has been the osteoporosis screening tool for decades, but the multi-step process for referral and the patient having to come back at a later time makes it complicated and time consuming. But an alternative approach could be adopted soon.

"Using artificial intelligence tools, you can get pretty good information based on a simple X-ray of the hand, a virtual colonoscopy screening, or on an X-ray that was done for something else," explained Rozental. "That's because the thickness of the bone cortex, which is the outside layer of the bone, correlates well with bone density. So, you can use opportunistic screening to assess someone's risk of fracture."

It may not be long before a patient can walk into an orthopedic clinic for a fracture, get a regular X-ray, and have a bone density assessment the same day. "This technology has been in use in Europe for a long time," said Rozental. "It just hasn't been widely adopted in the U.S. yet."

BIDMC welcomes hand surgeon Monica Shoji, MD

Monica Shoji, MD, recently joined the hand and upper extremity team at Beth Israel Deaconess Medical Center (BIDMC) orthopaedics division. In addition to clinical practice, she acts as the team's research director.

What was your path to orthopedics and hand surgery?

Growing up I played a variety of sports, but it was during my time as a gymnast on the USA National Team competing internationally that I sustained orthopedic injuries, some of which required surgery. My interactions with orthopedic surgeons, who would teach me about my injuries and the relevant musculoskeletal anatomy, inspired me to pursue a career in orthopedics.

I've always been interested in helping people and improving their quality of life, therefore orthopedic surgery seemed like the perfect fit. During residency, I was fortunate to learn from incredibly talented mentors and loved hand surgery because of the intricate anatomy, variety of procedures, biomechanics, and the surgical finesse and precision it requires.

What conditions do you treat?

I specialize in treating all injuries and conditions of the hand and upper extremity, including fractures and arthritis of the hand, wrist, and elbow. My clinical interests include nerve injuries, compression neuropathies such as carpal and cubital tunnel syndrome—including minimally invasive carpal tunnel surgery, upper extremity trauma, fragility fractures, tendon injuries, and complex reconstruction.

What is your clinical practice approach or philosophy?

I endeavor to provide compassionate, evidence-based patient care, and individualize care for each patient. I try to treat each patient as if they are a family member, listening to what is important to them so we can work together to achieve their goals.



Education and Training

Fellowship: *Hand and Upper Extremity Surgery*

Curtis National Hand Center, Baltimore, Maryland

Residency: *Orthopaedic Surgery*

Harvard Combined Orthopaedic Residency Program, Boston, Mass.

Medical School

University of Connecticut School of Medicine, Farmington, Conn.

Undergraduate: Yale University, New Haven, Conn.

What is the most rewarding or interesting part of your role?

The most rewarding part of my job is helping patients improve their function through surgery or other modalities. Also, I enjoy teaching and mentoring fellows, residents, and medical students.

What advances in your field are you excited about currently?

One of the more recent developments in hand surgery is the role of vascularized osteochondral autografts, which involves harvesting bone and cartilage with its blood supply from the knee and using it to restore patients' native upper extremity anatomy.

We use this approach with patients who have fractures of the scaphoid—a carpal bone on the radial side of the wrist—that did not heal despite multiple prior surgeries, or in Kienböck's disease, a condition that interrupts the blood supply to the lunate, a carpal bone in the middle of the wrist. The goals of this procedure are to improve pain, restore native biomechanics and help prevent younger patients from needing salvage procedures or developing wrist arthritis.

Another area of advancement in the field is peripheral nerve surgery, which aims to improve function after traumatic injury, chronic compression, or nerve tumors.

How do you collaborate with PCPs?

We can optimize patient care by collaborating with PCPs so that we can maximize outcomes for patients and improve patient care. For example, distal radius fractures from a low-energy mechanism are considered fragility fractures and frequently involve underlying abnormalities in bone mass and microarchitecture. When upper extremity surgeons work with PCPs to help diagnose and treat osteoporosis we can optimize patients' bone health and decrease the risk of future fragility fractures.

What enticed you to join BIDMC?

During my residency, I was fortunate to spend time training at BIDMC with extremely talented orthopedic surgeons. The BIDMC physicians and community provide an environment of collaborative, compassionate, and exceptional care for patients.

Dr. Shoji provides hand surgery consultations and procedures at BIDMC; 725 Concord Ave in Cambridge; and Mt. Auburn Hospital. For an appointment, call 617-667-3940 or email orthoappointments@bidmc.harvard.edu.

FDA approves lower-cost disposable device for temporary fracture stabilization

The FDA recently approved a device developed by Beth Israel Deaconess Medical Center (BIDMC) trauma surgeon Jack Wixted, MD, to provide temporary stabilization of open or unstable fractures where tissue injury precludes other treatments like casting. The approval opened the door for production at about one-third the price of ones made by larger manufacturers, reducing costs for trauma care.

The development of the clamp is part of a department-wide effort to make orthopedic devices less costly and more accessible. “The creation of low-cost devices for the U.S., developing countries, and other potentially low-resource setting use is one of the primary interests of our Translational Innovation Initiative and of our Global Health Program and an important part of our research mission,” said Edward K. Rodriguez, MD, PhD, BIDMC chair of Orthopaedic Surgery.

Lower cost, disposable

An external fixator is a metal frame commonly used when an injury can't be treated surgically immediately.

“When a person falls off a ladder or is in an auto accident and breaks bones, they sometimes have swelling around the joint, typically a knee or ankle,” explained Wixted. “Surgeons place a temporary device to hold the bones in place while the swelling goes down.” That device is known as an external fixator.

An external fixator has pins that go through the skin into the bone and a clamp system on the outside that holds the pin still. These devices are made out of metal or metal and carbon fiber. They are “external” in contrast to internal fixators, such as plates and screws, or metal rods placed inside the patient.

“In two or three weeks when the swelling improves, we can safely do surgery,” explained Wixted. “We take

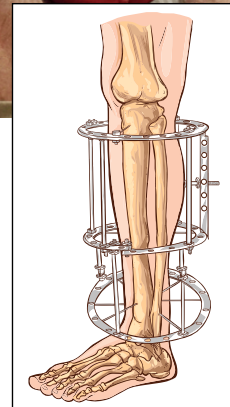
the fixation system off and typically discard it.”

Traditional external fixators tend to be expensive—approximately \$3000-\$4000—and, in practice, only used one time due to a complex refurbishing process. Several years ago, Wixted, who holds a degree in medical engineering and has worked in collaboration with BIDMC's Technology Ventures Office on several low-cost devices in the past, hatched the idea of making external fixators less costly.



Credit: Cappi Thompson

Examples of external fixators, which temporarily stabilize fractures.



Credit: rbac40

“Originally, I intended to make this frame out of plastic. After working on the project for a year and a half, I realized plastic pieces are never going to be strong enough to withstand the force across them,” said Wixted.

That's when he moved on to metal injection molding, a technique similar to plastic molding but one that would provide the strength needed. Injection molding enables the production of small, detailed parts from a mold at high volume as there is no need for a machinist, which keeps the cost down.

From prototype to FDA approval

Wixted described the development process as an exercise in answering

the question “How do we turn an idea into a reality?”

“The process starts with getting an idea and drawing some sketches and then building some prototypes and reiterating your design over and over again until you get a design that works,” said Wixted. “I have boxes of spare parts from designs we made that didn't work. Eventually, we settled on a design that did work.”

Next, he compared it against other external fixators on the market. As a last step in preparing the prototype for submission to the FDA, Wixted made sure it could be sterilized and manufactured safely.

Once the external fixator was submitted to the FDA, the review process took about two years. The FDA approved it as a class II medical device in mid-2023, conveying that the device is safe and effective and gives the applicant the choice to sell it.

Now, the BIDMC external fixator is being produced by several manufacturers. Its low per-unit cost saves a significant amount for the department and provides that option for other hospitals as well.

“Any hospital that signed up for this could save hundreds of thousands of dollars,” said Wixted. “And it would allow physicians in countries where resources are limited to be able to use the same technology.”

Wixted believes similar opportunities to make good quality medical device products at a lower price abound. “Everybody would prefer to sell Cadillacs, but there's always room for a Ford in the marketplace.”

Novel compartment syndrome monitor with potential to save limbs advances to next-level research

Clinical and research collaborators at Beth Israel Deaconess Medical Center (BIDMC) recently embarked on a new phase in developing a device to detect a potentially serious post-surgical complication known as acute compartment syndrome (ACS) in patients with limb fractures. If successful, the wireless, wearable device could provide a way to get patients timely treatment to prevent serious damage and possible amputation.

ACS is due to increased pressure within a closed fascial space, or compartment, which causes compression of the nerves, muscles, and vessels. It can occur in many of the body's compartments but is most commonly seen in the tibia (shin) as a result of direct trauma or bone fracture. Treatment for ACS is a fasciotomy, which entails cutting the fascia (layers of connective tissue) to relieve the pressure.

Collaborative approach

Several years ago, BIDMC colleagues Ara Nazarian, PhD, vice chair of Research Affairs and the director of the Musculoskeletal Translational Innovation Initiative at the Carl J. Shapiro Department of Orthopaedic Surgery, and Seward Rutkove, MD, chair of the Department of Neurology, had a vision to create a device that accurately senses compartment abnormalities during and after a patient's hospital stay to help diagnose the problem early when it's still possible to prevent severe injury.

Currently, physicians diagnose ACS while a patient is hospitalized by their level of pain, physical assessment, and compartment pressure measurement using an invasive, needle-based device. However, these measures are not precise or reliable, and detecting ACS once the patient is at home is even harder.

"The challenge for orthopedic surgeons is when a patient fractures

their leg, they get a cast put on and are sent home usually with opioids to control pain," said Rutkove. "When the pain persists for several days, they assume it's just their fracture, so the diagnosis of compartment syndrome can be missed until it becomes an emergency."

Small, noninvasive, wearable device

Since those early conversations, Rutkove and Nazarian have designed and produced a prototype, called mAlert™. The small, noninvasive monitor is based on technology developed by MyoLex®, a company co-founded by Rutkove. MyoLex applies its patented "electrical impedance myography" technology to assess muscle health in diseases like ALS and muscular dystrophy, and more recently to muscle wasting that occurs in older adults and during the late stage of conditions like cancer and kidney disease.

"I realized our technology could also potentially be useful in assessing compartment syndrome because it's primarily a muscle disorder," said Rutkove.

mAlert is a battery-operated, Bluetooth-enabled device connected to an adhesive pad that contains six electrodes (similar to those used for EKG studies). The electrode pad is

placed on the skin over the injured area before a cast is applied. A connecting cable links the electrode pad, which remains outside the cast. The device sends a tiny, imperceptible electrical current through the electrodes into the tissue and provides impedance measurements of the tissue that enable physicians to detect possible compartment syndrome.

The continuous data output of mAlert will be available via a smartphone application so patients, caregivers, physicians, and medical systems can monitor it. If values indicate ACS syndrome may be developing, the device signals an alarm to indicate the need for an emergency evaluation. If after several days the data are stable and the patient is improving overall, the adhesive pad and device can be removed without needing to remove the cast.

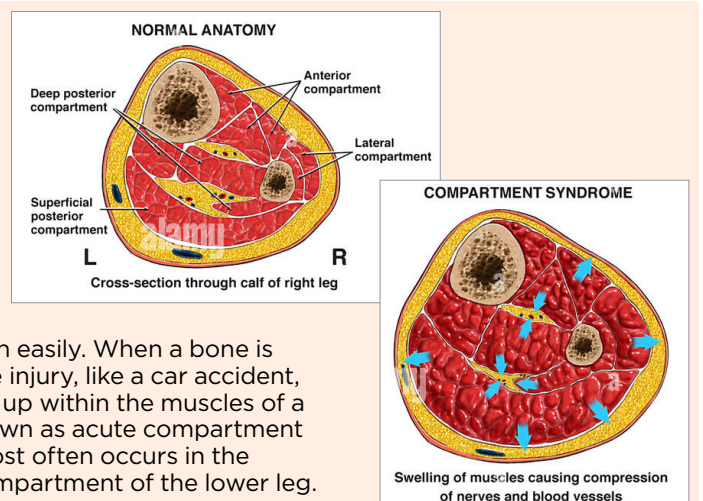
Phase II funding awarded

In 2022, the BIDMC collaborators received phase I funding from the U.S. Small Business Innovation Research (SBIR) program to study mAlert in Nazarian's laboratory. The SBIR program is a highly competitive funding mechanism that encourages domestic small businesses to engage in research and development with the potential for commercialization.

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Acute compartment syndrome

A compartment is a group of muscles, nerves and blood vessels encased in fascia, a tough membrane that doesn't stretch easily. When a bone is broken by a severe injury, like a car accident, pressure can build up within the muscles of a compartment, known as acute compartment syndrome. This most often occurs in the anterior (front) compartment of the lower leg.



Study finds US research funding lags for growing burden of musculoskeletal disease

Investigators led by Ara Nazarian, PhD, at the Musculoskeletal Translational Innovation Initiative in the Carl J. Shapiro Department of Orthopaedics at Beth Israel Deaconess Medical Center (BIDMC) evaluated the relationship between the disease burden for 60 conditions and the federal funding assigned to research dedicated to them. The team's results, recently published in [The Lancet Regional Health—Americas](#), revealed that federal funding for musculoskeletal diseases, which affect more than one in three people in the U.S., is disproportionately low despite their significant and growing impact.

"There's a huge mismatch; if you stand up in front of any audience and ask how many people have or know someone who suffers from arthritis or back pain, every hand is going to go in the air, yet musculoskeletal diseases garner

less than two percent of federal research dollars," said Nazarian. "To bring funding into alignment with the level of disease burden would require an approximately ten-fold increase to start with."

"Robust basic and translational research work lays important groundwork for breakthroughs in the field, which industry can then take the next steps to translate into therapeutic solutions," Nazarian said. "However, without proper public investment in the early stages of research, many good ideas and solutions that can fundamentally change people's lives will never see the light of the day."

Among the other co-authors of the study were Andrew T. Nguyen, Brian D. Snyder, MD, PhD, and Edward K. Rodriguez, MD, PhD, of BIDMC, and Izzuddin M. Aris, PhD, of Harvard Medical School.

Compartment syndrome

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With promising results from the phase I study, published in late 2023, the team applied for and was granted a phase II award to continue its research. The second-phase investigation is underway, and Nazarian expects it to be completed by early 2025. With positive results, the next steps will include further advancing the device, performing in-human studies, and ultimately seeking FDA approval.

"Compartment syndrome is a terrible problem when it happens, and we have a nifty solution to it that is not invasive," Nazarian said. "The device outputs could easily be monitored by orthopedic surgeons and enable them to save limbs. If approved, it could make a huge difference in people's lives."

The ASC device project is part of the Musculoskeletal Translational Innovation Initiative headed by Nazarian, which promotes such cross-specialty collaborations.

NEWS AND NOTES

NEW SERVICES

BIDMC's Spine Center launched one of the first endoscopic spine surgery programs in New England. Led by orthopedic surgeon **Jason Pittman, MD, PhD**, the program uses the most current endoscopic visualization technology to offer minimally invasive surgery to treat conditions such as spinal stenosis and herniated discs. Among the many benefits are reduced post-operative pain, faster healing and reduced complications.

AWARDS AND HONORS

Tamara Rozental, MD, hand surgeon, received the Andrew J. Weiland Medal for Outstanding Research in Hand Surgery from the American Society for Surgery of the Hand. The medal is given annually to a mid-career researcher who has contributed a body of research that advances the field and is dedicated to advancing patient care in the field of hand surgery.

Edward K. Rodriguez, MD, PhD, chair of the Department of Orthopaedics, received the Founder's Award from the American Academy of Latino Orthopedic Surgeons in recognition of his mentorship and leadership in promoting the care of Latino patients by orthopedic surgeons and promoting greater diversity of professionals in orthopedics.

HARVARD MEDICAL SCHOOL APPOINTMENTS

Robert Glen Davis, MD, sports and arthroplasty surgeon, was promoted to assistant professor.

Dennis E. Anderson, PhD, spine biomechanics scientist, was promoted to associate professor.

Benjamin Freedman, PhD, biomaterials scientist, was promoted to assistant professor.

PUBLICATION HIGHLIGHTS

Biomaterials scientist **Benjamin Freedman, PhD**, was first author of "Instant tough adhesion of polymer networks" in the February 2024

Proceedings of the National Academy of Sciences.

Director of the Center for Advanced Orthopedic Studies **Mary Bouxsein, PhD**, and research scientist **Fjóla Jóhannesdóttir, PhD**, were contributing authors of "Use of noninvasive imaging to identify causes of skeletal fragility in adults with diabetes: a review" in the *JBMR Plus* February 2024 edition.

Bouxsein also contributed to "Adaptation to full weight-bearing following disuse in rats: the impact of biological sex on musculoskeletal recovery," which appeared in the February 2024 edition of *Physiological Reports*.

Among the authors of "Successive tendon injury in an *in vivo* rat overload model induces early damage and acute healing responses," were sports medicine surgeons **JP DeAngelis, MD**, as well as **Ara Nazarian, PhD**, a Center for Advanced Orthopaedic Studies research group lead and director of the Musculoskeletal Translational Innovation Initiative. The article was published in the March 2024 *Frontiers in Bioengineering and Biotechnology*.