HENRY FORD HEALTH
Orthopaedics

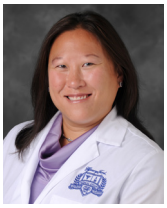
Ortho in Motion

Fall 2022

Innovations through peer reviewed publications in orthopaedics (2021)

Eric C. Makhni, M.D., M.B.A

16



Stephanie Muh, M.D.

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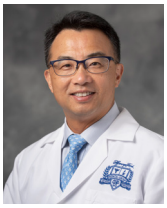

Charles S. Day, M.D., M.B.A

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Vasilios Moutzouros, M.D.

4

1st/Senior Author Publications

Orthopaedic research news

With more than 40 published articles in 2021 featuring Henry Ford Orthopaedics providers as lead/senior authors, the health system is at the forefront of research aimed at advancing best-practice and evidence-based techniques for preventing and treating injuries and improving health outcomes.

In sports medicine, the team is leading several innovative research projects aimed at reducing the risk of overuse injury in high-demand youth athletes as well as concussion research involving athletes. Henry Ford is also pioneering efforts monitoring real-time clinical outcomes in patients undergoing treatment for sports medicine conditions. These efforts will help optimize treatment algorithms for patients with sports medicine injuries. Other studies are focused on understanding how the treatment of rotator cuff tears affects long-term shoulder function, and the effects of surgical reconstruction techniques on knee and elbow function.

Practice management studies in the Orthopaedic service line include orthopaedic provider and patient perceptions of virtual care and whether orthopaedic providers are willing to work overtime to address COVID-19-related patient backlogs and financial deficits.

Research by our joint replacement, orthopaedic and orthopaedic trauma surgeons focus on better understanding disease processes and developing treatments for the musculoskeletal system. At the center of this focus is examining novel techniques and strategies for knee, hip and shoulder function and musculoskeletal diseases like osteoporosis and arthritis.

A couple of recent published studies are highlighted on the following pages. A comprehensive list of 2021 published articles can be viewed at: https://www.henryford.com/services/orthopedics/research.

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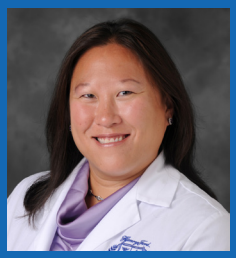


Stephanie Muh. M.D.

Return to Golf Following Reverse Total Shoulder Arthroplasty
– Dr. Stephanie Muh

Background:
The object of this study was to examine return to golf and changes in golf performance after shoulder arthroplasty. Additionally, we set out to determine if there were differences in return to play and performance between total shoulder arthroplasty (TSA) and reverse total shoulder arthroplasty (RTSA). We also examined pain during the golf swing to determine if there is a change in pain level after surgery.

Methods:
Patients were identified using a Current Procedural Terminology code 23472 search for TSA. A 19-question online survey was sent out to each patient with questions detailing golfing performance and pain during the swing before and after surgery. Comparisons were made to determine differences in pain, performance and enjoyment between TSA and RTSA groups before and after surgery.

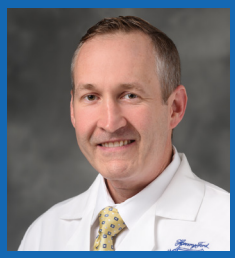
Results:
A total of 586 patients who underwent shoulder arthroplasty were sent the online survey via email. Of those patients, 33 identified themselves as golfers and who responded to the survey, resulting in an overall response rate of 5.6%. Twenty-three of 31 (74%) patients were able to return to golf following their procedure. Overall, the respondents who reported pain associated with golfing activity had significantly decreased pain after undergoing either TSA or RTSA. The RTSA group had a significant drop in driving distance following the procedure and this was significantly lower than the postoperative driving distance in the TSA group, despite an insignificant preoperative difference.

Conclusion:
Overall, TSA offers a safe and effective means for reducing pain during the golf swing in patients suffering from advanced shoulder osteoarthritis. While there were no significant changes in performance following TSA, individuals undergoing RTSA can be counseled that they are at risk for lower driving distances due to altered mechanics. Overall, patients were satisfied with their procedure and their ability to return to the golf course.

View abstract at:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8221441/

Preoperative Patient-Reported Outcomes Measurement Information System Global Health Scores Predict Patients Achieving the Minimal Clinically Important Difference in the Early Postoperative Time Period After Total Knee Arthroplasty.

– Dr. Jason Davis



Jason Davis M.D.

Introduction:
The patient-specific factors influencing postoperative improvement after total knee arthroplasty (TKA) are important considerations for the surgeon and patient. The primary purpose of this study was to determine which patient demographic factors influence the postoperative Patient-Reported Outcomes Measurement Information System (PROMIS) Global Health (GH) scores. In addition, we aimed to compare the prognostic utility of preoperative PROMIS-GH scores and the Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOOS-JR) in predicting postoperative improvement.

Methods:
This retrospective cohort study of a consecutive series of patients who underwent primary, unilateral TKA analyzed prospectively collected KOOS-JR and PROMIS-GH surveys. PROMIS-GH includes physical health (PH) and mental health scores. Patient demographic and presurgical characteristics were evaluated for prognostic capability in predicting postoperative improvement in the PROMIS scores and achievement of the minimal clinically important difference (MCID). Receiver operating characteristic curves were used to understand the prognostic thresholds of the preoperative PROMIS score and KOOS-JR for predicting MCID achievement.

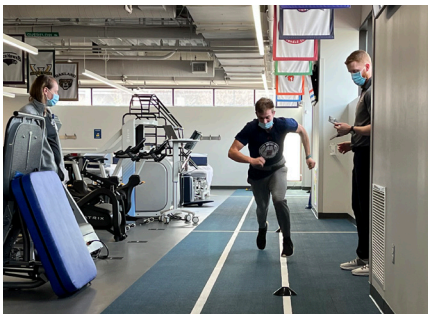
Results:
A total of 872 patients were included. Although unadjusted analyses showed associations between patient demographic factors and PROMIS-PH scores, multivariable regression analysis for predictors of MCID achievement demonstrated that PROMIS-PH was the only significant preoperative variable. Receiver operating characteristic analysis revealed that the area under the curve of PROMIS-PH (0.70; 95% CI, 0.67 to 0.74) was less than that of the KOOS-JR (0.77; 95% CI, 0.73 to 0.81; P = 0.032). Sensitivity and specificity for achieving the MCID were maximized for preoperative PROMIS-PH scores of ⩽ 38 (59% and 70%) and for preoperative KOOS-JR ⩽ 51 (71% and 69%).

Conclusions:
Preoperative KOOS-JR and PROMIS-PH scores predict clinically meaningful improvement after TKA. The KOOS-JR has greater prognostic utility in the early postoperative period.

View abstract at:
https://journals.lww.com/jaaos/Abstract/2021/12150/Preoperative_Patient_Reported_Outcomes_Measurement.21.aspx

Hip preservation procedure clears the way for athlete to return to sport

Advancements in the procedure allow patients to resume their regular activities more quickly and pain free.



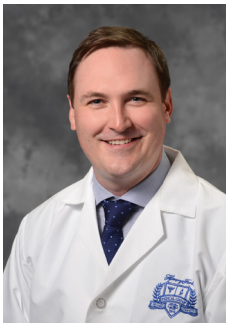
When Joey Liedel was sidelined by years of debilitating pain in both his hips, he turned to the Henry Ford Sports Medicine team to help him get back to the basketball court.

During his junior year of high school, Liedel was diagnosed with a severe case of femoroacetabular impingement (FAI), a common condition causing hip stiffness and pain, affecting competitive athletes and active older adults alike. In Liedel's case, the condition limits range of motion which, if left unchecked, can lead to osteoarthritis — the most common form of arthritis.

Liedel continued to play and fight through the pain until he could no longer during his freshman season in college. "At that point, my hips felt so tight that I couldn't play without pain," Liedel said.

To correct the hip impingement, Liedel underwent hip preservation surgery on both hips. Also known as hip arthroscopy, the minimally invasive procedure allows surgeons to look inside the hip joint using a scope to find and treat problems. Patients typically go home the same day of surgery. The condition can develop when the hip bones are not shaped normally and do not fit together perfectly, which can cause them to rub against each other and create the impingement. Hip impingement is one of the most common problems treated with the hip preservation procedure.

"Hip issues in young athletes in the past may have been misdiagnosed as groin pulls or muscle strains and only addressed with physical therapy," said T. Sean Lynch, M.D., who specializes in treating hip and knee disorders at Henry Ford. "Some athletes may have stopped playing the sport they loved as a result of the constant pain."



Dr. Lynch is one of a few surgeons in the Detroit area who specialize in hip preservation and currently performs the procedure at Henry Ford West Bloomfield Hospital and the new Henry Ford Medical Center – Royal Oak.

He adds that thanks to advancements in diagnosis, treatment and rehabilitation techniques, patients can resume their normal activities more quickly and pain free after hip preservation.

Since the procedure, Liedel is doing "fantastic," Dr. Lynch said. "I think he's a great example of a young athlete who, from diagnosis to treatment, has come back from not being able to play his sport by taking advantage of our one-stop surgical, rehabilitation and performance program to help facilitate and speed up his recovery."

Liedel has undergone about 40 bi-weekly sessions with physical therapists Chris Ryan at Henry Ford's Center for Athletic Medicine. Liedel will receive a medical evaluation before he transitions to the Henry Ford Sports Performance training phase of his rehabilitation.

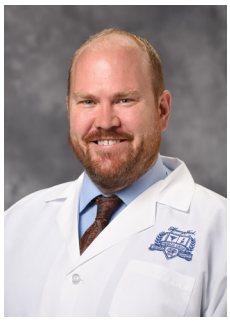
"What's unique about our facility is that we can see a patient through all phases of their recovery," Ryan said. "We work collaboratively with our doctors, athletic trainers and performance team to develop a treatment approach that is individually tailored for each patient."

Liedel said Dr. Lynch was a calming influence over his decision to have surgery. "I was very nervous before that first hip procedure because I've never had any type of surgery before," said Liedel. "Dr. Lynch calmed my fears about the procedure by constantly communicating with me and my family about everything that was going to happen and the results he wanted to achieve."

Less than 6 months removed from his second hip surgery, Liedel plans to resume basketball for his sophomore season. He said the pain in his hips is gone and he feels better than ever.

For further information on hip pain treatments visit www.henryford.com/services/joint-replacement/treatments/hip.

Henry Ford spine surgeon, first in Michigan to widely use UNiD™ rods with AI driven surgical planning to improve efficiency and cut OR time



Kevin Taliaferro, M.D., spine surgeon at Henry Ford Health is the first physician in Michigan to widely adopt using the recent FDA approved patient-specific UNiD™ Rods with Medtronic's spinal systems. This allows surgeons to tailor rods and other hardware before surgery that are best suited for a patient's unique anatomy and sagittal alignment needs.

In conventional spine surgery, surgeons manually bend spine rods in the operating room, to treat conditions including scoliosis, trauma, tumors, and complex degenerative conditions.

Dr. Taliaferro used the FDA approved technology on his first patient in September, 2021. He said surgeons can spend significant OR time bending rods manually and expects this will revolutionize care for patients with spine deformities.

"Using this integrated technology reduces the trays with rods and instrumentation in the OR from 5 trays to one tray. Through pre-surgical planning we have increased efficiency by cutting the OR time for spine surgery procedures approximately one hour. That is very significant for an average 8-hour procedure."

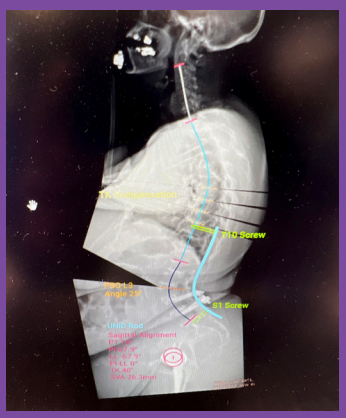
Dr. Taliaferro said that combining complimentary technologies including artificial intelligence, robotics and patient specific implants not only streamlines the workflow for staff but may lead to more predictable and precise alignment for patients.

The spine intelligence technology includes a database of thousands of surgical cases to power algorithms that visualize multiple permutations, allowing surgeons to better understand their patient's alignment before surgery, customize a surgical plan with biomedical engineers and use a patient-specific rod industrially bent in the optimal plane to help ensure the goals of the surgery are achieved. The technology helps visualize mechanisms above and below the spine that will most likely occur based on the surgical plan in order to enhance clinical and surgical workflow, increase reproducibility, with the goal of improve surgical outcomes. The use of spinal systems help provide immobilization and stabilization of spinal segments. The systems consists of a variety of screws and other implant components that can be rigidly locked into a variety of configurations, with each construct being tailor-made for the patient's unique anatomy and sagittal alignment needs.

"With the use of advanced navigation and robotic-assisted delivery of the screws combined with patient-specific rods, we are moving from a one size fits all approach for spinal implants that can not only increase efficiency but may ultimately achieve the goal of improved surgical outcomes by reducing surgical uncertainty," Dr. Taliaferro said.

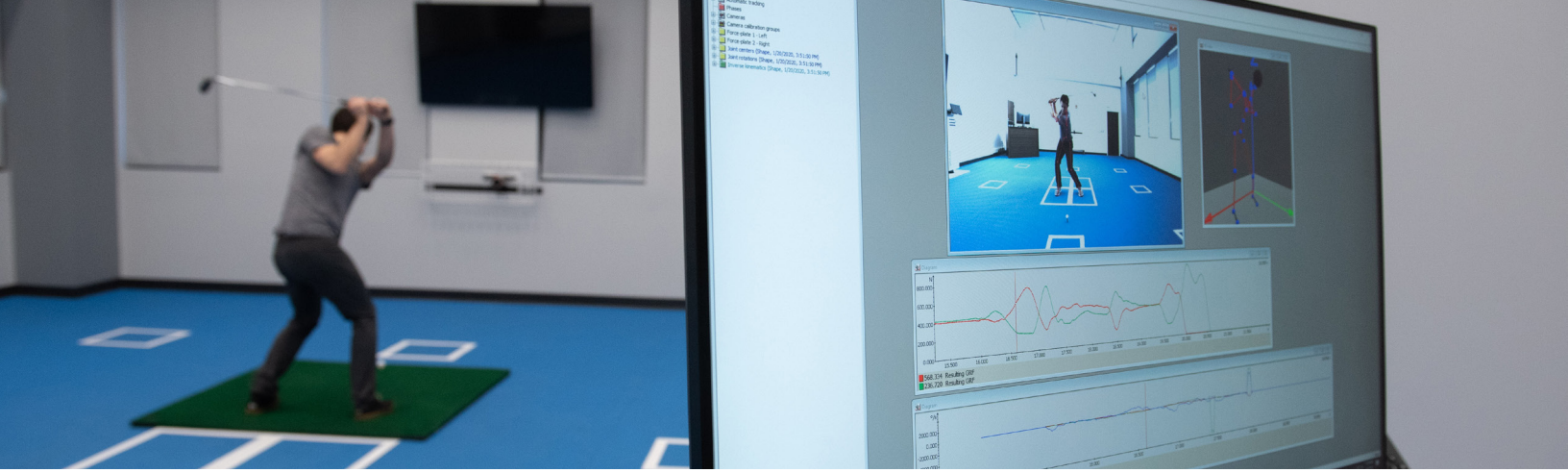
For further information on spine treatment visit www.henryford.com/spine.

Inadequate correction requiring revision surgery.



Medicrea preop planning software.

Second surgery using the Medicrea rods that were planned with the preop planning software.



Henry Ford Sports Performance Program equips athletes with a competitive edge

Whether engaging in general fitness, playing sports at the amateur or professional level or rehabbing an injury, Henry Ford Health Sports Performance Program utilizes an expert team of specialists combined with cutting-edge technology to optimize movement, rehab and prevent injuries and boost performance.

Highlights of the athletic performance training program at Henry Ford include:

- **State-of-the-art facility and technology:** Athletes have access to the latest sports performance technology in the nation at the Center for Athletic Medicine, including the first in the U.S. to utilize the Speedzone® system for speed and agility training. Other features include the 1080 Quantum Syncro, 3D/2D motion capture, instrumented treadmill, and other advanced tools to assist clinicians in developing a tailored performance program.
- **Experienced athletic trainers:** The team of experienced athletic trainers includes certified strength and conditioning specialists, uniquely qualified to create training and return-to-sport plans tailored to individual athletic goals.
- **Multispecialty care:** A skilled team oversees care across the treatment continuum from physician to physical therapy until participants are ready for performance training with the Henry Ford athletic trainers. Along the way the team includes additional specialists to make sure patients are getting optimal care including chiropractor, massage therapy, and nutrition among other specialties.
- **Access for athletes of all levels:** Training programs are catered to anyone striving for peak performance from recovery from an injury, including high school and collegiate athletes and weekend warriors.

Nick Parkinson, supervisor for Athletic Training and Sports Performance with Henry Ford Sports Medicine who oversees Sports Performance and works in the biomechanics labs at the Henry Ford Center for Athletic Medicine, says comprehensive health evaluations, movement screenings and fitness performance assessments are conducted before building the optimal training plan.

"Our facility utilizes motion-capture software, force plate technology, gait analysis and other tools to assess performance and progress. Athletes receive detailed reports and individualized recommendations every step of the way to optimize performance."

For those focusing on recovery, the right rest and recovery plan allows athletes to go harder and faster at each training session. Treatments include NormaTec® compression system, Game Ready® cold and heat therapy, instrument-assisted soft tissue mobilization and other services to aid in recovery.

For further information on the Henry Ford Sports Performance Program call 313.651.1917, visit HenryFord.com/SportsPerformance or email sportsperformance@hfhs.org.

Henry Ford Health orthopaedic medical center updates

Henry Ford Medical Center – Royal Oak

Henry Ford Medical Center – Royal Oak is now offering comprehensive care for the whole family. The new state-of-the-art, downtown facility offers several orthopaedic related specialties including, hand and wrist, foot and ankle, joint replacement, physical medicine and rehabilitation, spine, sports medicine and trauma. Additional care includes adult and pediatric primary care, a variety of specialty care services, ambulatory surgery, imaging, rehabilitation services including treatment for sprains/strains, back pain and sports injuries, an urgent care Walk-In Clinic, and complimentary two-hour parking in a nearby parking deck. **Visit henryford.com/RoyalOak for more information.**

Location:
110 East 2nd Street, Royal Oak, MI 48067

Henry Ford Medical Center-Chelsea

Henry Ford Medical Center – Chelsea is now open and provides a variety of orthopaedic services including occupational therapy, sports medicine and hand, foot and ankle, and knee and hip subspecialties.
Other services include a primary care walk-in clinic for non-emergency needs, along with a urology clinic.
Visit henryford.com/Chelsea for more information.

Location:
1145 S. Main Street, Chelsea, MI 48188

Henry Ford Medical Center-Plymouth

Henry Ford Medical Center-Plymouth is now open and provides orthopaedic services for sports medicine and hand and wrist, foot and ankle, and hip and knee and spine care in the clinic. Other services include primary care, multiple specialties and a standalone ER in the building. Same day lab, radiology and pharmacy services are also available for patients. **Visit henryford.com/Plymouth for more information.**

Location:
40777 Ann Arbor Road, Plymouth Township 48170.

Henry Ford offers bone health and fracture prevention clinic

Research has shown broken bones can have devastating health implications for older individuals, including greater risk of being admitted to the hospital for major medical conditions and of dying prematurely following their fracture. The Henry Ford Bone Health Clinic specializes in broken bones, orthopaedic trauma and bone health to help individuals understand bone loss and provide strategies to strengthen and improve bone density, in order to avoid fractures.

Henry Ford Hospital has received recognition for its bone health program, being named one of the Star Performers by the American Orthopaedic Association's (AOA) Own the Bone® program since 2019. This program aims to brings attention to the severe health implications of fragility fractures and the multi-faceted approach hospitals or clinics can incorporate to ensure these patients receive the most comprehensive care.

With osteoporosis being a key reason for bone loss, appointments are recommended for the following individuals.

- 50 years old or older with a history of a fractured bone or multiple fractures.
- 50 years old or older with an osteoporosis diagnosis.
- A woman who is 65 years old or older who has never fractured a bone.
- A man who is 70 years old or older who has never fractured a bone.

How to make an appointment

A doctor's referral is needed before scheduling an appointment. Lara Yatoma, a nurse practitioner in the Bone Health Clinic said referrals are welcome. "We would love to help you screen, prevent and treat your patients' osteoporosis to prevent future fractures."

Clinics are available at four locations across the metro-Detroit area on an appointment basis.

Individuals can schedule an appointment by calling 313.916.2181 or requesting an appointment at www.henryford.com/request-an-appointment. Video visits are also available.

The Henry Ford Bone Health and Fracture Prevention Clinic sees patients on a referral basis. Call 313.916.2181 to request an appointment. Video visits are also available.

Henry Ford Hospital
2799 West Grand Blvd. Detroit, MI 48202
Wednesday 7:40 a.m. – 3 p.m.
Thursday 1 p.m. - 3:40 p.m.

Henry Ford West Bloomfield Hospital
6777 West Maple Rd. West Bloomfield, MI 48322
Thursday 7:40 a.m. - 3 p.m.

Henry Ford Medical Center – Fairlane
19401 Hubbard Dr. Dearborn, MI 48126
2nd and 4th Monday of the month
7:40 a.m. - 3 p.m.

Henry Ford Medical Center - Troy
2825 Livernois Troy, MI 48083
1st, 3rd and 5th Monday of the month
7:40 a.m. - 3 p.m.

Henry Ford takes the lead as official team physicians for professional, college and high school athletics

As the leading health system in the region treating all levels of athletes, Henry Ford offers a full team of sports specialists with extensive credentials in providing care. Henry Ford Sports Medicine is the official team physicians for the Detroit Lions, Detroit Pistons, and the Detroit Free Press Marathon. In addition to support for several professional teams, including athletic services and strengthening and conditioning, Henry Ford also supports over two dozen Central and Southeast Michigan area high schools, colleges and universities, and dozens of local events throughout the year.

Below are just a few of our sports medicine team members.

Christina M. Chapski Eyers, Ed.D., AT, ATC

Eyers is the director of Athletic Training & Community Outreach at the Henry FordCenter for Athletic Medicine serving the Metro Detroit area where she has worked with professional, collegiate, and high school athletes. Educated at the University of Michigan, University of Alabama and Central Michigan University, she became a certified and licensed athletic trainer because as a young girl, sports were a big influence in her life. Pursuing a career in sports medicine allowed her to continue that passion while helping others.

In the 2010s, Eyers served as a member on the Board of Athletic Trainers through the Department of Licensing and Regulatory Affairs in Michigan. Transitioning to a national platform, she is an athletic trainer director for the Board of Certification, where she continues to serve the public and profession. A past president for the Michigan Athletic Trainers Society, Eyers was inducted into the MATS Hall of Fame in 2021. Recently, she was part of the Team USA as an athletic trainer for the 2022 Mozart Cup in Salzburg, Austria and represented Team USA at the ISU World Synchronized Skating Championships in Hamilton, Canada.

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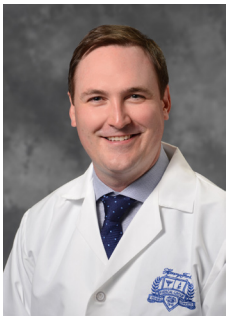

T. Sean Lynch, M.D.

Dr. Lynch, is a senior staff surgeon at Henry Ford Health and is the vice chairman of Academic Affairs for the Department of Orthopaedic Surgery. He was previously an associate professor of Orthopaedic Surgery at Columbia University Vagelos College of Physicians and Surgeons in New York City and director of the Center for Athletic Hip Injuries and Hip Preservation. He specializes in the nonoperative and operative treatment of hip and knee disorders in athletes of all levels and is an expert in hip surgery and knee ligament reconstruction with minimally invasive and arthroscopic techniques.

Dr. Lynch is a past competitive ice hockey player who is a team physician for the Detroit Lions as well as USA Hockey. While Dr. Lynch was at Columbia, he served as team physician with the New York Yankees, New York City Football Club (Major League Soccer) and Fordham University.

Dr. Lynch has won numerous research and education awards and lectures nationally and internationally on sports hip and knee injuries.

Ramsey Shehab, M.D.

Dr. Shehab serves as deputy chief of sports medicine and as the associate program director for the primary care sports medicine fellowship. He is also the lead medical physician for the Detroit Pistons and Oakland University.

As a former collegiate athlete and current CrossFit enthusiast, Dr. Shehab understands the importance of optimizing fitness and minimizing injury. His training in sports medicine has allowed him to better understand overuse patterns and acute injuries in athletics, so that he can return his patients to their activities quickly and safely, with a better understanding of their pain.

Vasilios Moutzouros, M.D.

Dr. Moutzouros was born and raised in Chicago, Illinois. He attended Loyola University and graduated magna cum laude in three years with a degree in biology. He went on to Loyola-Stritch School of Medicine where he graduated with honors and AOA recognition.

His orthopedic training was completed in Boston at the Tufts/New England Baptist Hospital Program. From there he completed the prestigious Cleveland Clinic sports medicine fellowship, covering the Cleveland Cavaliers, Indians and Browns.

Dr. Moutzouros moved to Henry Ford in 2007 and is currently the Chief of Sports Medicine. He is an official team physician for the Detroit Pistons, Wayne State University, Oakland University and Detroit Country Day. Dr. Moutzouros known for being approachable and going the extra mile to assure for the best care of all his patients. He specializes in ACL injuries, shoulder, knee and elbow sports injuries and Tommy John surgery.

Welcome Henry Ford Health orthopaedic and sports medicine specialists

Andrew M Moore, M.D.
Foot and Ankle Care

Board Certifications

- American Board of Orthopaedic Surgery - Orthopaedic Surgery

Education

- University of North Carolina at Chapel Hill - School of Medicine, NC
- Residencies & Internships
- University of Michigan, Orthopaedic Surgery, MI

Fellowships

- University of Rochester Medical Center, Orthopaedic Foot & Ankle, NY

Contact: 517.205.1431

Stephen Spadafore, M.D.
Sports Medicine, Family Medicine

Board Certifications

- American Board of Family Medicine - Family Medicine
- American Board of Family Medicine - Sports Medicine

Education

- Michigan State University College of Human Medicine, MI
- Residencies & Internships
- University of Colorado Medical School, Family Medicine, CO

Fellowships

- University of Michigan, Sports Medicine, MI

Contact: 517.205.1600

To refer a patient please visit **henryford.com/RPO** or call 877.434.7470.

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Orthopaedics