



Heart to Heart

WakeMed Heart & Vascular News
Summer 2022

Bountiful
Blueberries -
Good for
Your Heart

When Peripheral Artery
Disease Affects Quality of Life

WakeMed
Heart & Vascular
Takes Top Honors

TAKE with...



Ellen Dillavou, MD, FACS, RPVI

Ellen Dillavou, MD, FACS, RPVI is a board-certified vascular surgeon who is highly-skilled in advanced procedures designed to treat vascular disorders. Let's get to know Dr. Dillavou, how she came to be a vascular surgeon, and what she loves about summer.

Q: What are some of your favorite things about summer?

I have two teenage boys, so I enjoy spending time with them – travelling both locally and more broadly. For us, summer is filled with small trips with the kids. I had never been around a beach before coming to North Carolina, so that's a top destination for us. When it comes to summer eating, foods like fresh, sweet corn and garden tomatoes bring me back to my farm days.

Q: Tell us a little bit about yourself.

I grew up on a farm in Albert Lea, Minn., as the oldest of four girls – so I had my fair share of farm work and babysitting in my early youth. I didn't realize I wanted to become a doctor until college when I began as a psychology major, which sparked my interest in medicine. During medical school, I fell in love with surgery. I have always enjoyed working with my hands and the technical nature of vascular surgery made it a perfect fit. One of my college professors once said 'There's no A minus in vascular surgery – it's either a win or a failure', and he was right. I figure I can help my patients win by improving their quality of life through advanced vascular procedures.

Q: What do you enjoy most about being a doctor?

Hands down, it's about helping people feel better. When I was choosing a career, I knew that I wanted to make a difference in people's lives. As a doctor, I get to do that every day. Our interventions help people enjoy a better quality of life and that's very important to me. I also enjoy building long-term relationships with my patients – listening to them and developing a therapeutic partnership that includes education and open discussion, which means we get to work together toward a common goal.

Q: What's up next for WakeMed's Vascular Surgery program?

We're very growth-focused right now and that's exciting. There's so much population growth overall, and since the risk for vascular problems increases with age – an aging population means more patients who need our services. But, it's not just about growth – it's about bringing new and advanced services for our patients. The Southeast has the highest amputation rate in the U.S., so I'm proud that we're bringing in Dr. Sira Duson from the University of Maryland to work with Dr. Siva Ketha in interventional cardiology to develop a multidisciplinary limb salvage service designed to reduce preventable amputations and to better coordinate care for patients who are at risk for amputation. We're also welcoming another new surgeon, Dr. Chris McQuinn, later this summer to support our continued growth. It's great to see WakeMed investing in the services our community really needs, and to be a part of this growth.

Q: You're the leader of WakeMed's Vascular Surgery division. What do you think makes a good physician leader?

There are different leadership styles, and I have been most motivated by leaders who foster a spirit of unity and lead by supporting the team. I am so fortunate to have great support from our WakeMed administration and want to make sure to support my team in the same way. My goal is to figure out where people are most comfortable and give them an environment where they can flourish. This also involves getting to know people personally to figure out what is important to them, little and big things, and trying to honor those needs. I think that is what builds trust and loyalty – to feel like you are seen as a person and that your team cares about you. I believe people in healthcare are overwhelmingly smart, hardworking people who want to do a good job because that is who they are. My goal as a leader is to create an environment where they can do just that.

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WakeMed Heart & Vascular Practices & Providers Recognized for Excellence

Each year, Professional Research Consultants (PRC) identifies health care organizations that have gone above and beyond to achieve excellence with the patient experience. Using patient satisfaction survey data collected throughout the year, the PRC Excellence in Healthcare Awards are based on the percentage of patients who rate the Overall Quality of Care/Overall Quality of Doctor Care (for providers) as “excellent.” In 2022, numerous cardiovascular clinical areas and practices, as well as dozens of WakeMed Heart & Vascular providers, were recognized for their excellent performance. Congratulations to our many departments and providers for their commitment to delivering an exceptional patient experience.



See page 9 for a full listing of award winners.

When Peripheral Artery Disease (PAD) Affects Quality of Life



Walking shouldn't be painful – and in most cases, it's not just a normal sign of aging. Yet, far too often, patients who experience *claudication* – the clinical term for leg pain that occurs during activity such as walking – simply ignore the pain or mistake it for another problem.

However, pain in the legs that occurs while walking is the most common sign of peripheral artery disease (also known as PAD). Patients with PAD in its early stages experience pain while they're moving, but the pain goes away with rest. It's easy to see how this common symptom can have a real impact on quality of life. Everything from walking, grocery shopping, traveling, or playing with grandchildren is harder when it hurts. This article explores everything you need to know about PAD, with insight from WakeMed's medical director of Vascular Surgery Dr. Ellen Dillavou.

What is PAD?

Peripheral artery disease is the often underdiagnosed and undertreated 'cousin' of heart disease. It's a common circulatory problem that occurs when the arteries become narrowed or blocked due to plaque buildup (atherosclerosis). This in turn reduces blood flow to the limbs, which can cause pain or discomfort. When organs and tissues don't get the blood flow they need, they can become damaged over time – leading to tissue damage or death (gangrene). Gangrene from PAD typically occurs in the toes and/or feet and can result in amputation.

PAD Signs, Symptoms and Risk Factors

While most of us are aware of heart disease, its risk factors and complications, PAD gets a lot less attention – and often goes undetected. Because both PAD and heart disease are caused by plaque build-up, they're often linked – making early diagnosis and treatment important to prevent further complications such as heart attack or stroke.

Signs & Symptoms

- In some cases, PAD can be mild or have no symptoms
- Pain, discomfort, fatigue or cramping in the leg or hip muscles when walking or climbing stairs that goes away with rest
- Numbness or weakness in the leg(s)
- Coldness in lower leg or foot, when compared to the leg/foot on the other side of the body
- Sores or wounds on toes, feet or legs that have difficulty healing
- Change of color or shiny skin on the legs
- Hair loss or slower hair growth on feet/legs
- Slowed growth of toenails
- Zero or weak pulse in legs or feet
- Erectile dysfunction in men
- Aching or cramping in the arms when performing manual tasks

Am I at Risk for PAD?

Risk factors for peripheral artery disease include:

- Smoking or tobacco use (80% of patients with PAD are smokers or former smokers)
- Having Type 2 diabetes
- Being over age 50 (risk increases with age)
- Having a personal or family history of heart or blood vessel disease
- Having high blood pressure and/or high cholesterol
- Having a blood clotting disorder
- Having kidney disease or being on dialysis

Diagnosing PAD

Patients who think they may have PAD should talk to their primary care doctor or cardiologist. In most cases, the physician will begin with a visual exam, looking carefully at your feet and legs for signs of disease. They'll also talk to you about your medical history, risk factors, and any signs or symptoms you may have. Additional testing may include an ultrasound test called an ankle/brachial index (ABI), which will measure the blood pressure in both your legs and arms to compare and evaluate blood flow in both areas. Angiography can locate the specific areas of blockage.

Yet, because PAD is so prevalent, it's often present without symptoms. But Dr. Dillavou explains that treating PAD is really only necessary for

those patients whose disease is affecting their quality of life. "Because all treatments come with inherent risks, we don't typically treat asymptomatic patients," explains Dr. Dillavou. "Instead, we'll start with basic lifestyle modifications and move onto treatment only when and if symptoms arise. The goal of treatment for PAD is truly to improve quality of life, and to ensure we preserve all toes and limbs for the long-term."

PAD Disease Progression

STAGE 1	STAGE 2	STAGE 3	STAGE 4
Asymptomatic PAD Patient may have early signs of disease, but isn't yet experiencing symptoms. No treatment needed, although lifestyle modifications can help prevent disease progression.	Claudication Patient has pain in legs with activity, but pain subsides when at rest. Treatment may include lifestyle modifications and/or medication therapy for related chronic conditions (e.g., diabetes, high blood pressure or cholesterol).	Rest Pain Patient experiences leg pain while at rest – often disrupting their sleep. Treatment may include aggressive lifestyle modification, medication therapy and/or procedural options.	Tissue Loss/Critical Limb Ischemia Patient experiences a variety of severe symptoms including: constant leg pain/cramping, numbness or tingling, wounds, infections or ulcers that won't heal on their own. For this stage, critical intervention(s) to remove the blockages are necessary to preserve toes and limbs.

WakeMed Resources for Patients With PAD

WakeMed Vascular Surgery

Our team of experienced vascular surgeons offer the most advanced care for patients with PAD, including diagnosis, disease management, and the latest minimally-invasive endovascular procedures.

Offices in Cary, Raleigh and Midtown Raleigh

(919) 350-7600

WakeMed Wound Care

Many patients with PAD experience non-healing wounds that, if left untreated, could lead to toe or limb loss. WakeMed Wound Care offers diagnostic testing, nutritional evaluation, pressure-relieving devices and specialized dressings, infection control, education and hyperbaric oxygen therapy.

Offices in Cary and Raleigh

(919) 350-4515

Quit With WakeMed

Our virtual tobacco cessation program can help patients reduce or quit the use of tobacco, following a proven model that is approximately 10 times more effective than quitting on your own. Treatment options may include medication, counseling or a combination of both, and you'll meet with your tobacco treatment team regularly so you can stay on track.

Virtual Tobacco Cessation Program

(919) 350-QUIT (7848)

PAD – Disease Management & Treatment Options

Managing PAD can help improve quality of life – while reducing the risk of serious related health problems, such as amputation. Management generally includes a variety of lifestyle modifications and medication therapy – with innovative procedural interventions available for patients with advanced disease.

Lifestyle Modifications

Quit Tobacco Use

For smokers and tobacco users, the best way to limit disease progression is to quit all tobacco use. Continuing to use tobacco can lead to faster disease progression and has been linked to complications such as limb amputation, heart attacks or even death. Quitting tobacco can reduce these risks while also helping to reduce painful symptoms (claudication) that can improve quality of life.

"While I know it's not easy, I tell my PAD patients that quitting smoking is the best investment they can make in their long-term health and quality of life."



ELLEN DILLAVOU, MD, FACS, RPVI
WakeMed Vascular Surgery

Focus On a Healthy Diet & Get Walking

Eating a healthy, nutritious and balanced diet that's high in fiber, but low in cholesterol, fat and sodium can help prevent the atherosclerosis that causes PAD. In terms of exercise, walking is the most important activity for patients with PAD. That's because it can stimulate the growth of new

blood vessels, which can help improve symptoms. Dr. Dillavou says that patients who participate in a structured walking program can often double their comfortable walking distance within just 3-6 months.

Medical Therapy for PAD

Oftentimes, patients with PAD will need help managing other risks and/or conditions to prevent the progression of atherosclerosis. This could include medications used to help patients manage their diabetes, hypertension (high blood pressure) or hyperlipidemia (high cholesterol) – as well as those used to prevent blood clots.

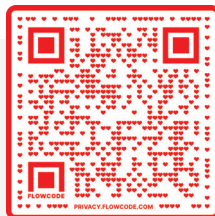
Procedural Options for PAD

When PAD becomes advanced, there are a variety of procedures that can help restore blood flow to clogged arteries. In many cases, minimally-invasive endovascular procedures involving the use of catheters, wires and stents can help treat the blocked areas without the need for open surgery.

- **Angioplasty** is a common procedure that allows a highly-trained vascular surgeon to use a balloon to reopen the affected arteries to restore blood flow. WakeMed Heart & Vascular uses the latest technology such as drug-coated balloons, which are proven to help prevent restenosis (future blockages).
- In cases where the artery is blocked by a blood clot, **thrombolytic therapy** (clot-dissolving drug) may be injected, or the clot may be pulled out to restore flow. If the narrowing of the arteries is too severe, or the clot is too large, an **open bypass surgery** may be recommended (which can be performed in our new, state-of-the-art hybrid operating room).



Join the WakeMed Heart & Vascular team for the 2022 American Heart Walk



The annual American Heart Association Heart Walk is coming up this fall – and you're invited to join the WakeMed team by using the QR code above. On Sunday, September 25, at PNC Arena in Raleigh, we'll get our hearts pumping together by walking roughly three miles, honoring survivors of heart disease and raising lifesaving research funds for the American Heart Association.



Thank you to WakeMed Heart & Vascular's **Sandra Van Scoy, RN, BSN, NE-BC**, and **Patricia Jones, RN**, from 3B Cardiovascular Surgical Intermediate Care for their many dedicated years of service leading WakeMed's American Heart Association Walk team. Both are retiring this summer, and we are grateful for their commitment to WakeMed Heart & Vascular patients.



Electrocution of the Heart: Chen Lee's Story



Dr. Siva Ketha and Chen Lee

On May 20, 2021, Chen Lee was replacing a ceiling light socket in the hallway of his home. Suddenly, a high voltage of power surged through and electrocuted him. Chen says, "Afterwards, my gait, hand and left-side chest began to feel abnormal. Weak and uncomfortable, I thought that I may have had a stroke, so I asked my son to call 911."

Emergency Medical Services (EMS) workers arrived quickly and transported Chen to the WakeMed Raleigh Campus Emergency Department where the Heart & Vascular team greeted him for testing and treatment of a suspected heart attack.

After an echocardiogram, Chen's diagnosis was confirmed as an acute myocardial infarction (AMI), or heart attack. He had a total blockage in numerous arteries that supplied blood to his heart muscle, and quickly underwent a series of procedures to restore oxygen to the heart muscle. WakeMed Heart & Vascular physician, Siva Ketha, MD, FACC, placed three stents and Chen was released the next day with plans for follow-up – as there were additional blockages that would need to be addressed in the near future.

Chen says, "The operation was very successful and saved my life. I am so thankful for the medical care I received from my WakeMed team." Just a few weeks later, Chen was brought back to the Heart Center to treat the 90% blockage in his right coronary artery with two additional stents.

All was well until seven months later in November 2021. Chen had a small pain in the lower part of his chest and felt short of breath when he walked. When his symptoms did not subside, he headed back to WakeMed. After bloodwork and an exploratory cardiac catheterization, the care team determined that Chen was once again suffering from blocked blood vessels.

"Chen had a classic case of restenosis, or re-narrowing of the arteries following his previous stent placement procedures," says Dr. Ketha. "This occurs in up to ten percent of patients in the six to nine months following their initial procedure. Thankfully, Chen took swift action and we were able to treat his blockage quickly" Dr. Ketha explains.

Taking Control of His Heart Health

Realizing the seriousness of the situation, Chen made a renewed effort to eat healthy and exercise along with taking his medications. Chen says, "After those three operations, I have continued to take my medicine on time, walk daily for exercise and eat healthy. I eat more fruits and vegetables, drink more water and no longer eat oily, salty or sugary foods. My cholesterol has gone down a lot, and I've taken off a little excess weight."

When he last returned to WakeMed Heart & Vascular, his cardiac ultrasound examination revealed that his heart muscle function had improved. Today, Chen takes five medications daily and feels great. His medications slow down the production of cholesterol in the body and treat high blood pressure and heart failure to help prevent stroke.

"When Dr. Ketha examined my chest, he said to me, 'I'm sorry my hands are cold,' and I answered, 'No, your hands are warm; they are wonderful hands because they have saved many lives.'"

- CHEN LEE

A Heart of Gratitude

Chen last saw Dr. Ketha in February 2022. It was a chilly day, and Dr. Ketha apologized for having cold hands as he prepared for Chen's exam.

Chen recalls, "When Dr. Ketha examined my chest, he said to me, 'I'm sorry my hands are cold,' and I answered, 'No, your hands are warm; they are wonderful hands because they have saved many lives.'"

Beyond Dr. Ketha, Chen also has a heart full of gratitude for the entire WakeMed Heart & Vascular care team, with a special shout out to cardiology nurse practitioner, Terri McDowell. He is also thankful for Primary Care provider Dr. Dustin R. Pierson; the EMS team, as well as his family and children. He's especially grateful to his son, Jason, who is currently in medical school at UNC-Chapel Hill and was responsible for that lifesaving 911 call.

NEW + NOTEWORTHY

Welcome, New WakeMed Heart & Vascular Physicians!



Sira Duson, MD, FACS

Dr. Sira Duson is a board-certified vascular surgeon dedicated to improving the overall health and quality of life of each patient. Her clinical interests include treating peripheral arterial disease and aortic disease through an endovascular approach. Dr. Duson

received her medical degree from Lewis Katz School of Medicine at Temple University in Philadelphia, and is fellowship-trained in vascular surgery from Georgetown University Hospital. Dr. Duson is committed to tailoring her treatment for each individual. She sees patients at the Heart Center and Cary Vascular Surgery office locations.



Christopher W. McQuinn, MD

Dr. Christopher McQuinn is a board-certified vascular surgeon with clinical interests in the spectrum of vascular disease, aortic, carotid, peripheral arterial disease, and thoracic outlet syndrome. Dr. McQuinn received his medical degree from SUNY Upstate Medical

University and completed his general surgery residency and surgical research fellowship at Ohio State Wexner Medical Center. He is also fellowship trained in vascular surgery from Ohio State Wexner Medical Center. He sees patients in the Heart Center and Cary Vascular Surgery office locations.



Robert Ferguson, DO

Dr. Robert Ferguson is a board-certified cardiovascular and thoracic surgeon specializing in minimally invasive robotic procedures. He earned his medical degree from West Virginia School of Osteopathic Medicine and completed his general surgery residency at

Virginia Tech – Carilion School of Medicine. Dr. Ferguson is fellowship trained in cardiothoracic surgery from The Wake Forest University School of Medicine. Dr. Ferguson strives to provide patients the best care through a patient and family-centered approach. Dr. Ferguson sees patients at the Heart Center and Cary Cardiovascular & Thoracic Surgery office locations.



Deepa Kabirdas, MD

Dr. Deepa Kabirdas is a non-invasive cardiologist with clinical interests in advanced cardiovascular imaging modalities including echocardiography, nuclear imaging, and cardiovascular MRI. She received her medical degree from TamilNadu Dr. M.G.R

Medical University in India, and completed her internal medicine residency at the Cleveland Clinic in Weston, Fla. Dr. Kabirdas is fellowship-trained in both adult cardiovascular diseases and cardiovascular MRI, with fellowship training from Albert Einstein Medical Center and Duke University, respectively. She sees patients at the Heart Center Cardiology office.

WakeMed Cardiothoracic Surgery Program Earns STS 3-Star Rating



WakeMed and its cardiothoracic surgeons earned a distinguished three-star rating from the Society of Thoracic Surgeons (STS) for its patient care and outcomes in four major procedure areas. The STS star rating system is one of the most sophisticated and highly regarded overall measures of quality in health care, rating the benchmarked outcomes of cardiothoracic surgery programs across North America.

WakeMed is proud to have achieved STS Three-Star rating performance for:

- Coronary Artery Bypass Graft (CABG)
- Coronary Artery Bypass Graft (CABG) + Aortic Valve Replacement (AVR)
- Aortic Valve Replacement (AVR)
- Mitral Valve Repair (MVR)

This rating, for reporting period December 2021 through June 2022, represents the highest category of quality and places WakeMed among the elite for these procedures in North America.



WakeMed Recognized for Treatment of Heart Attack Patients

Raleigh Campus and Cary Hospital have received the American College of Cardiology's NCDR Chest Pain – MI Registry Platinum Performance Achievement Award for 2022. The facilities are part of an elite group of only 240 hospitals nationwide to receive the honor. The award reinforces WakeMed's commitment to and success in implementing a higher standard of care for heart attack patients, it also signifies that we have reached an aggressive goal of treating these patients to standard levels of care as outlined by the American College of Cardiology/American Heart Association clinical guidelines and recommendations.

The American Heart Association Recognizes WakeMed for Top Quality Heart Failure & Stroke Programs

The WakeMed physicians and staff who care for stroke and heart failure patients were recognized once again for delivering the highest level of care. Congratulations to our teams for earning national Get With the Guidelines® Quality Awards and Target honors from the American Heart Association.

Our Raleigh Campus and Cary Hospital teams both meet or exceed national guidelines for:

- Proper use of medications and other treatments
- Incorporating evidence-based guidelines for stroke and heart failure care
- Reducing the amount of time it takes a stroke patient to move from arrival in the ER to treatment
- Providing education on staying healthy after stroke, managing heart failure and overall health
- Proper medications, treatment, monitoring and education for patients with Type 2 diabetes

Congratulations and thank you to our teams for working so hard for our stroke and heart failure patients!



PRC Award Winners

Heart & Vascular Departments Honored With 5-Star Awards

Invasive Cardiology – Raleigh Campus

CV & Thoracic Surgery – Cary & Raleigh Campus offices

Advanced Heart Failure

Cardiology – Brier Creek, Clayton, Oberlin, Raleigh Campus offices

Complex Arrhythmia

Structural Heart

Vascular Surgery – Midtown & Raleigh Campus offices

Heart & Vascular Providers Honored With 5-Star Awards

Mark Englehardt, MD

Tanaya Foster, PA-C

Brian Go, MD

Tapan Godiwala, MD

Jason Haag, MD

George Hamrick, MD

John Kelley, MD

Jimmy Locklear, MD

Mary McNeely, PA-C

Chelsea Ngongang, MD

Melissa Oliver, PA-C

Ashish Patel, MD

Jessica Revels, FNP

Stuart Russell, MD

Kathryn Salisbury, NP

Marc Silver, MD

Joshua Vega, MD

Matt White, MD

Frances Wood, MD

Cardiovascular & Thoracic Surgery

Alden Maier, MD

Trevor Upham, MD

Judson Williams, MD

State-of-the-Art Hybrid Operating Room Brings Together Advanced Imaging & Robotic Surgical Technology



WakeMed recently opened a new Hybrid Operating Room (OR) at the WakeMed Raleigh Campus, giving WakeMed Heart & Vascular patients access to the very latest in advanced imaging and surgical technology. The space features a highly-advanced imaging device, the Siemens Healthineers ARTIS pheno. WakeMed is pioneering the use of this technology as the first hospital in North Carolina to install the device.



CHARLES HARR, MD
WakeMed Heart & Vascular

Offering the highest image quality at the lowest possible radiation doses, the ARTIS pheno provides faster scan times, better accuracy and visualization for physicians, and most importantly – better outcomes for patients. It brings together the best in radiology and cardiac intervention programs for a broad spectrum of surgical procedures, and features a robotic C-arm that seamlessly integrates into the multi-tilt surgical table. Its advanced guidance tools and 3D assessments offer physicians added accuracy, precision and visualization during minimally invasive surgical procedures and complex surgery cases.

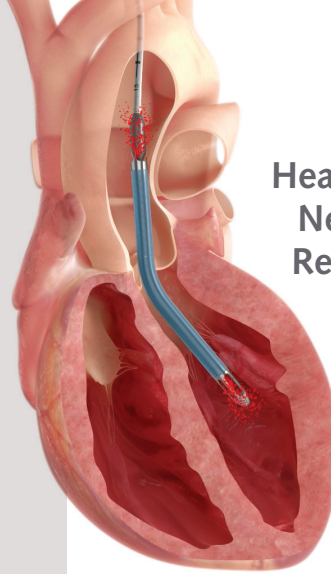
“This Hybrid OR allows us to bring our patients the very latest and greatest in technology. The better you can visualize the anatomy, the safer it is and the more effective it is for the patient,” explains Charles Harr, MD, cardiothoracic surgeon and chief medical officer for WakeMed Raleigh Campus.



WakeMed Experts Share Best Practices for Recovery from Cardiac Surgery

Earlier this summer, a large team of WakeMed Heart & Vascular providers and staff took part in the Enhanced Recovery After Surgery (ERAS) Cardiac Training Course in Raleigh. Approximately 75 clinicians, representing 11 institutions from multiple states attended the conference, which was hosted by Edwards Lifesciences. As pioneers in enhancing surgical recovery, Judson Williams, MD; Dan Fox, MD; and Gina McConnell, RN, presented best practices, experiences, and lessons learned in establishing WakeMed’s Cardiac ERAS program.

WAKEMED HEART & VASCULAR
TeleHeartCare
HELPING ♥ HEARTS ♥ HEAL



**Heart & Vascular First –
New Device Enhances
Recovery & Outcomes
for High-Risk Heart
Surgery Patients**

**Tele Heart Care Supports Heart Surgery
Patients at Home**

Heart surgery is serious business – and WakeMed Heart & Vascular is committed to providing not only the highest quality surgical care with the best outcomes, but also to supporting our patients in the weeks following their procedure. This summer, WakeMed launched Tele Heart Care – which is a new program that allows our surgical patients to get the extra support they need once they're sent home from the hospital. It's designed to optimize recovery as well as reduce complications and the risk for readmission to the hospital.

Tele Heart Care allows patients to connect with a member of the heart surgery care team two to three times, either by telephone or by virtual visit, during the two weeks after discharge from the hospital. During this time, patients are encouraged to weigh themselves, take their blood pressure and track their blood oxygen levels (using an over-the-counter pulse oximetry device) while journaling their results as well as noting any symptoms or concerns that may occur.



The WakeMed Heart & Vascular Tele Heart Care team

“Tele Heart Care allows us to extend the exceptional care we provide at the hospital to support our patients and their families as they navigate the complexities of recovering from heart surgery once they return home,” explains Judson Williams, MD, executive medical director of WakeMed Heart & Vascular. “With this program, we can be proactive and ensure our patients are doing well – which will ultimately help ensure our patients experience a safer, healthier recovery – avoiding complications and reducing the likelihood that they’ll have to come back to the hospital.”

This spring, WakeMed Heart & Vascular surgeon Dr. Bryon Boulton placed WakeMed’s first Impella 5.5 with Smart

Assist device in a critically-ill patient whose heart needed additional support in order to undergo major open heart surgery (coronary arterial bypass graft/CABG). Unlike previous Impella models, this revolutionary device is implanted through a vessel in the chest, allowing patients to get up and ambulate (walk) immediately following surgery – which has been tied to better outcomes, shorter hospital stays and faster recovery. Clinical trial data also shows the Impella 5.5 improves survival rates and helps more patients restore their native heart function after surgery.

“As heart surgeons, we know that open heart surgery can be stressful...That’s why WakeMed Heart & Vascular is committed to using the most advanced tools and technologies available.”



BRYON BOULTON, MD
WakeMed Heart & Vascular

“As heart surgeons, we know that open heart surgery can be stressful for our patients and their families,” explains Dr. Bryon Boulton, WakeMed Cardiovascular & Thoracic Surgery. “That’s why WakeMed Heart & Vascular is committed to using the most advanced tools and technologies available such as the latest Impella device, so we can provide our patients with the highest level of care while supporting a faster and safer recovery.”

Explore the World Safely – Traveling Tips for a Healthy Body & Mind



For many, the “golden years” represent a great time to slow down, enjoy retirement, and in many cases, take the time to travel. Traveling can be exciting and fun, and scientists have often touted the many benefits of exploring the world around us, with various studies demonstrating a link between travel and greater happiness, creativity and empathy. But, there are plenty of other benefits to traveling – including positive gains for your mental and physical health.



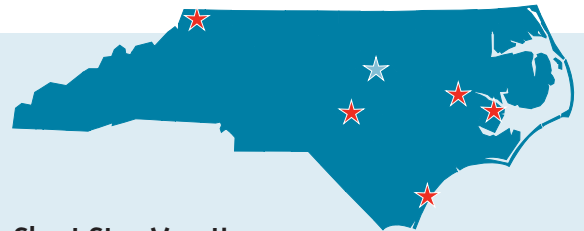
SHEEL TOLIA, DO, FACC
WakeMed Heart
& Vascular

WakeMed Heart & Vascular cardiologist Dr. Sheel Tolia explains, “For many, travel is a great way to stay connected to family and friends, and for others, it’s a way to reduce stress – both of which are good for physical and mental health.”

And, increasingly, science is telling us that what’s good for mental health is also good for our physical health – and more specifically, even our cardiovascular health. In fact, according to a Scientific Statement issued by the American Heart Association in 2021, as well as related research published in the journal *Circulation*, ‘...psychological health can positively or negatively impact a person’s health and risk factors for heart disease and stroke’.

Yet, for some patients with heart disease, travel may feel overwhelming. Dr. Tolia explains that for individuals with heart disease, there are many benefits to getting out and experiencing a change of scenery.

“As cardiologists, we want our heart patients to continue to get out and experience life to the fullest because we know it’s good for the body and mind. For many patients, travel is a priority, so I like to give them the tools and information they need to feel healthy and safe enough to do so without added anxiety.”



Short Stay Vacations: Quick Trips From the Triangle

For patients who don’t feel comfortable traveling overseas, or even getting on an airplane, consider local travel. We’re fortunate to live close to the mountains and coast, with plenty of destinations in between. Here are some popular spots to consider:

- Southern Pines/Pinehurst: Under 90 minutes
- Kinston: Approximately 90 minutes
- Wilmington/Wrightsville Beach: Approximately two hours
- New Bern: Approximately two hours
- Boone/Blowing Rock: Approximately three hours



Dr. Tolia's Top Tips for Traveling with a Heart Condition

- **Talk to your cardiologist.** If you're concerned about an upcoming trip, check in with your doctor, who can provide helpful guidance and/or reassurance. Depending on your history and condition, your cardiologist may have specific recommendations (e.g., wear compression stockings during flights, watch sodium intake, etc.).
- **Get your prescriptions ready.** Be sure to have enough medication to cover your trip – and even a few days' extra, particularly if you're flying (flight delays and cancellations are at an all-time high). Also, bring a comprehensive medication list in case they get misplaced and you need to have them refilled.
- **Research local medical care.** Identify the nearest/best medical facility where you're going and look into what your health insurance may cover. You may want to bring a copy of your most pertinent medical records (which can be made available via WakeMed MyChart).
- **Think about diet.** While you don't have to obsess about everything you eat, remember that eating out often means more sodium, fat and calories. Particularly for those patients with cardiomyopathy and/or heart failure, pay attention to your fluid and sodium intake throughout the trip.
- **Let technology help.** If you're the anxious type, and you'd find comfort in keeping tabs on certain vital signs (e.g., heart rate/rhythm, pulse oxygen, etc.) consider bringing or wearing something such as the Apple Watch, FitBit, Kardia Mobile or a pulse oximetry device. These devices can help you identify any potential concerns early and may offer peace of mind.



The Many Benefits of Travel

Getting out of your element isn't just fun – it can be good for you, too. Here are just a few of the benefits.

- 1 **It Can Improve Your Cardiovascular & Metabolic Health.** A study published in the *American Journal of Epidemiology* in 1992 found that women who took very few vacations (less than one every 6 years) were twice as likely to have a heart attack or experience coronary death than those women who had several breaks per year. A similar study found that men who took fewer vacations were far more likely to die from coronary heart disease than those who took more vacations. Lastly, a 2019 study published in the journal *Psychology & Health* found those who took more vacation days had fewer metabolic syndrome incidences or symptoms than those who didn't – and that the risk for metabolic syndrome 'decreased by nearly a quarter with each additional vacation taken.'
- 2 **Travel Keeps You Moving.** Whether you're lifting luggage, trekking the airport or taking a stroll through a museum, you'll likely get more 'steps' and overall movement when you're traveling. The best part? It won't even feel like exercise!
- 3 **Vacations Can Help Lower Stress.** Numerous studies have shown that vacations can help reduce stress. Since stress is known to negatively impact blood pressure and cholesterol – travel can officially be considered good for your heart! And, research has shown that these effects can be felt during the weeks leading up to *and* after the vacation – amplifying the power of travel beyond just the trip itself.
- 4 **It Helps You Stay Connected.** Taking a vacation to visit with family or friends can help decrease feelings of loneliness and social isolation, both of which have been linked to higher risk for cardiovascular disease in post-menopausal women. And, even if you travel alone, making connections with strangers while travelling can decrease these feelings.
- 5 **Planning and Taking Trips Can Actually Make You Happier.** A 2014 study from Cornell University showed how the anticipation of an experience like travel (as opposed to buying material goods) can significantly increase a person's happiness. Another study demonstrated that people who have a trip planned are at their happiest.

Bountiful Blueberries: Good For Your Heart

Blueberries are an easy-to-eat, heart healthy snack that can be enjoyed all year long. Particularly during the summer months, fresh blueberries are abundant in North Carolina. You can find them at the grocery store, local farmers market, or enjoy a day picking berries at a local farm. Regardless of where you get your blueberries, their health benefits are undeniable – helping them earn their well-deserved title as a superfood.

Health Benefits of Blueberries

When it comes to your heart, eating a diet rich in blueberries has proven benefits as demonstrated in numerous clinical studies. According to a 2019 study published in the *American Journal of Clinical Nutrition*, eating one cup of blueberries a day may reduce your risk of heart disease and increases your HDL (good cholesterol). Blueberries also contain anthocyanin, a powerful antioxidant named after the Greek words for flower “Anthos” and blue “kuanos”. An observational study published in a 2013 issue of *Circulation* found that a high intake of anthocyanins was linked to a 32% lower risk of heart attacks. Another 2015 study published in the *Journal of Academic Nutrition* suggests that blueberries could offer health benefits for people with high blood pressure, which is a major risk factor for heart disease. Other studies have shown that blueberries may help with memory, blood pressure regulation, insulin sensitivity in Type 2 diabetics, and reduce the risk of certain cancers. At the same time, blueberries are a high-fiber, low-calorie, filling snack – with one cup providing eight grams of fiber and just 80 calories. Finally, blueberries are high in antioxidants, vitamin C, vitamin K and manganese – all of which provide significant health benefits.

Did You Know?

While many fruits aren't native to North America, blueberries have grown on this continent for an estimated 13,000 years or more. Here in North Carolina, most blueberries are grown in the southeastern part of the state where the soil is highly acidic – particularly in Bladen County, located about 100 miles south of Wake County.



Seven Creative Ways to Incorporate More Blueberries Into Your Diet

Often referred to as nature's candy, blueberries are great as a stand-alone snack – but if you want to get creative, the possibilities are endless for this healthful fruit. While fresh blueberries often come to mind in the summer, you can also purchase frozen or dried blueberries throughout the year. Here are some great ways to incorporate this superfood into your daily diet.

- 1 Toss a handful of blueberries into a salad for a sweet and refreshing taste.
- 2 Make a smoothie with frozen blueberries instead of ice.
- 3 For a tasty snack, mix blueberries into yogurt.
- 4 Serve blueberries with a dollop of whipped cream and a sprinkle of nuts.
- 5 Make ice cubes with blueberries. Simply place 2-3 berries in each cube, fill the tray with water, and freeze. Then mix it into your water for a tasty treat.
- 6 Add blueberries to your morning oatmeal. It will help to increase the fiber content and adds a sweetness to your breakfast. Try adding cinnamon and nutmeg for additional flavor.
- 7 Make a healthy trail mix with dried apricots, dried blueberries, and unsalted nuts/seeds.



Blueberry Barbecue Sauce

16 SERVINGS
(SERVING SIZE: 2 Tbsp)

INGREDIENTS

- | | |
|-------------------------------------|---------------------------------------|
| 1 tbsp olive oil | 1 tbsp Dijon mustard |
| 2 cloves garlic, minced | ¼ cup ketchup, regular or low sodium |
| 1 small yellow onion, minced | 1 tbsp Worcestershire sauce |
| 1 red Thai chili pepper, minced | ½ tsp salt |
| 1 tbsp tomato paste | ½ tsp freshly ground black pepper |
| 4 cups blueberries, frozen or fresh | ¼ tsp ground cayenne pepper, optional |
| 1 tbsp balsamic vinegar | |
| 1 tbsp maple syrup | |

INSTRUCTIONS

- 1 Heat olive oil in a pan over medium-low heat.
- 2 Add garlic, onion, and chili pepper. Cook about 5 minutes.
- 3 Add the remaining ingredients and stir to combine.
- 4 Reduce heat to low and cover pan. Stir every 20 to 30 minutes until it reaches desired consistency.
- 5 Blend sauce with an immersion blender or spoon to desired texture.
- 6 Allow to cool (it will thicken as it cools).
- 7 Store in the refrigerator. Serve with your favorite BBQ foods!

Nutritional Information Per Serving (2 Tbsp): Calories: 50; Total Fat: 1g; Saturated Fat: 1g; Cholesterol: 0mg; Fiber: 1g; Sodium: 200mg

Baked Blueberry and Banana Nut Muffins

SERVES 12
(SERVING IS ONE MUFFIN)

INGREDIENTS

- | | |
|------------------------------|---|
| 3 cups oats | 1 tsp ground cinnamon |
| 1 ½ cups low-fat milk | 1 tsp vanilla extract |
| 2 ripe bananas, mashed | ½ tsp salt |
| ⅓ cup brown sugar | 1 cup fresh blueberries |
| 2 large eggs, lightly beaten | ½ cup chopped toasted pecans or walnuts |
| 1 tsp baking powder | |



INSTRUCTIONS

- 1 Preheat oven to 375°F.
- 2 Coat a muffin tin with cooking spray.
- 3 Combine all ingredients except the blueberries and pecans in a bowl.
- 4 Fold in blueberries and pecans.
- 5 Pour the mixture into the muffin cups and bake for 25 minutes or until a toothpick inserted comes out clean.
- 6 Serve warm or at room temperature.

Nutritional Information Per Muffin: Calories: 180; Total Fat: 6g; Saturated Fat: 1g; Cholesterol: 33mg; Fiber: 3g; Sodium: 124mg



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