

# Heart to Heart

A man wearing a blue baseball cap, sunglasses, and a red t-shirt is holding a yellow pickleball on a black paddle. He is looking towards the camera with a slight smile. The background is a blurred outdoor setting with green foliage.

WakeMed Heart & Vascular News  
Fall 2022

Let's Play  
Pickleball!

Getting a Closer  
Look at the Heart

WakeMed  
North Hospital  
Earns Chest Pain  
Accreditation

# TAKE with...

SAROJ NEUPANE, MD



**Q: What are some of your favorite things to do in the fall?**

I enjoy spending time with my Australian cattle dog, Milo, and taking him for hikes in the parks around Raleigh. Fall travel is great, too. I recently visited Banff National Park in Canada. I also enjoy going out to eat and experiencing all the cuisines that Raleigh has to offer, especially during Restaurant Week and at the N.C. State Fair in October.

To learn more about our Chronic Total Occlusion program visit [wakemed.org/hearts](http://wakemed.org/hearts) or use this code:



*Saroj Neupane, MD, is a board-certified interventional cardiologist who is highly-skilled in performing the most complex coronary interventions. Let's get to know more about Dr. Neupane, his unique skillset and what he loves to do most in the fall.*

**Q: Tell us a little bit about yourself.**

I was born and raised on a farm in a small village in Nepal. I moved to the United States in 2009 after finishing medical school. I completed my internal medicine and general and interventional cardiology training in Detroit, where I lived for 10 years before moving to North Carolina to join the WakeMed team in 2019. After medical school, I worked for a year as a travel physician in the mountains of Nepal, taking care of climbers and hikers. I traveled with groups of hikers and provided emergency first aid and medical assistance for things such as altitude sickness, and food- and water-borne illnesses.

**Q: Why did you choose to work in cardiology?**

I learned during my residency training that I really loved interacting with patients, and cardiology gives me the opportunity to do that, while also being part of a field that is constantly changing and evolving. I feel challenged every day to learn more so that we're always doing what is best for our patients with the most up-to-date information that's available.

My favorite aspect of interventional cardiology is the immediate impact we have on patient outcomes and quality of life – whether it's opening an acute blockage during a heart attack or helping relieve symptoms related to heart disease (such as chest pain, fatigue, etc.) that are hindering a patient's daily life.

**Q: You have a highly-technical area of expertise – tell us a little bit about that.**

I was fortunate enough to have complex and high-risk interventional training at Henry Ford Heart & Vascular Institute in Detroit following my interventional cardiology fellowship. This year-long fellowship was entirely focused on treating patients with complex coronary artery disease, such as chronic total occlusions (when an artery is 100 percent blocked), or those patients who aren't a candidate for bypass surgery but are experiencing significant symptoms. Because of my specialty training, I can offer specialized interventional procedures to many patients who are often told there are no other treatment options for their blockages.

**Q: What's new/on the horizon in interventional cardiology, and how is WakeMed Heart & Vascular evolving with the field?**

WakeMed Heart & Vascular is embracing the newest technologies and tools available that are used to treat patients with cardiovascular disease. We were the first center in North Carolina to treat patients with heavily calcified blockages in coronary arteries with a new technique called intravascular lithotripsy. We are also involved in some of the latest clinical trials for upcoming treatment options, such as drug-coated coronary balloons or newer temporary solutions that can be used instead of stents (bioresorbable scaffolds). It's exciting to be on the leading edge of these new technologies.

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American Heart Association.  
**Heart Walk.**



## Congratulations on an AMAZING 2022 Heart Walk!

This year was WakeMed's top fundraising year in the history of the Triangle Heart Walk. Team WakeMed came in strong with 599 registered walkers, 76 teams and more than \$82,000 raised to support research, education and awareness around heart disease. Thank you to everyone for participating – we hope to see you next year!

**599** WALKERS | **76** WakeMed TEAMS | **\$82,000+** RAISED

# Getting a Closer Look at the Heart

## Advances in Cardiovascular Imaging Enhance Diagnosis and Treatment

The heart is an incredibly complex organ – and one that performs so many functions as part of the circulatory system. The ability to more clearly visualize the heart, and the many arteries and vessels leading to and coming from it, makes it possible for cardiologists to diagnose and perform treatments with greater precision and accuracy.

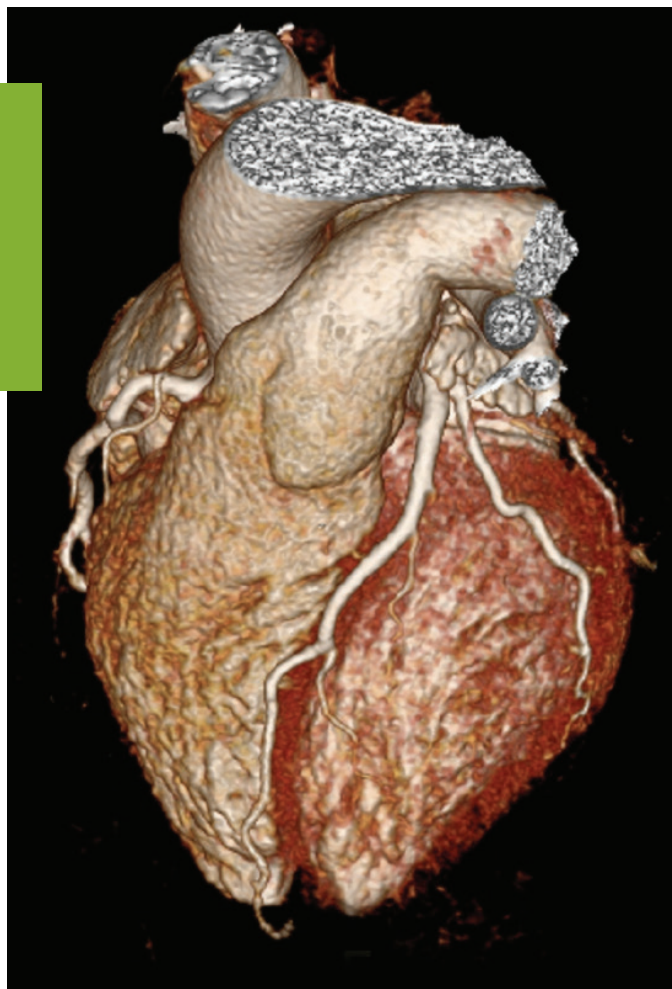
Two of the most advanced forms of cardiovascular imaging include coronary computer tomography angiography, also known as CCTA, and cardiac magnetic resonance imaging (MRI). Each of these advanced imaging modalities are noninvasive and offer cardiologists a great deal of information that can be used for a variety of purposes, such as:

- Screening for or diagnosing heart conditions;
- Determining if a heart attack has occurred and visualize the damage;
- Finding the cause of specific symptoms such as chest pain and shortness of breath;
- Monitoring the heart to determine whether treatments are working.

Let's explore both CCTA and cardiac MRI, when and why they're used, and how WakeMed Heart & Vascular is leading the way in the use of these advanced imaging techniques.

### All About Coronary Computed Tomography Angiography (CCTA)

A CCTA is a noninvasive, 3D imaging test that can help cardiologists identify plaque and blockages or narrowing of the coronary arteries – the hallmarks of coronary artery disease (CAD). While stress testing has been the primary method for diagnosing CAD in patients with chest pain for approximately 30 years, CCTA offers some significant advantages.



CCTA imaging

First, while a stress test helps a cardiologist diagnose coronary artery disease, it doesn't provide the location or the extent of the blockages. This often leaves the doctor needing more information, which often leads to an invasive cardiac catheterization that allows them to visualize the blockages and how they're impacting blood flow.

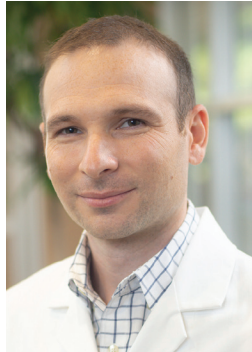
On the other hand, CCTA uses a combination of X-rays and computer technology to create detailed 3D images of the arteries in your heart. Through WakeMed's partnership with Siemens Healthineers, our CCTA program offers the highest quality images using the most state-of-the-art imaging technology.

By using CCTA when appropriate, cardiologists can get a clearer look at the blockage(s) to determine the best course of treatment. This means many patients can avoid the cath lab.

"Coronary CT is clinically emerging as the preferred method of assessing a patient with chest pain because it's noninvasive, yet gives us a great picture of where the blockages are and how much narrowing there is," explains Douglas Friedman, MD, WakeMed Heart &

Vascular – Cardiology. “Since the heart arteries can be directly visualized, it is much less likely for a significant blockage to be missed as will sometimes occur with a standard stress test.”

“Coronary CT is clinically emerging as the preferred method of assessing a patient with chest pain because it’s noninvasive, yet gives us a great picture of where the blockages are and how much narrowing there is.”



DOUGLAS FRIEDMAN, MD  
WakeMed Heart & Vascular – Cardiology

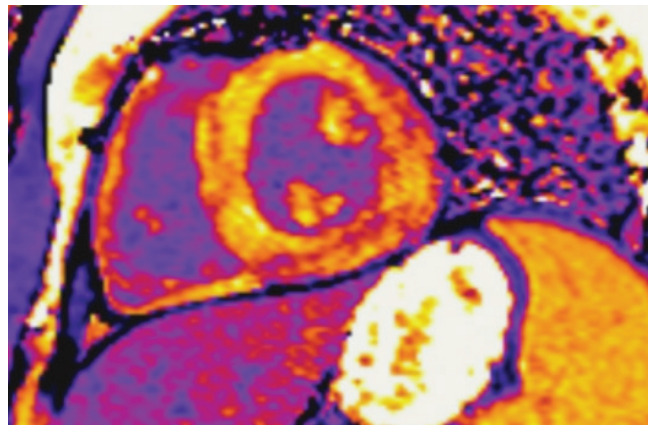
When undergoing a CCTA, dye (contrast) is injected through an IV line in the hand or arm. Unlike a cardiac catheterization, the procedure takes less than an hour and there’s no recovery time. CCTA is used most often for evaluating chest pain and it can be used to diagnose any type of heart disease including structural heart problems or aortic abnormalities.

While CCTA is a powerful diagnostic tool, it has its limitations. Specifically, CCTA can provide a much clearer picture of CAD than you’d get with a stress test, but it doesn’t provide quantitative data and can’t determine how each blockage is impacting blood flow – which are key questions to help the cardiologist determine how to treat the disease. As a result, some patients will still be referred for further invasive testing (e.g. cardiac catheterization) to determine the best course of treatment.

## Pairing CCTA With Artificial Intelligence

Fortunately, WakeMed will soon pioneer a new advanced technology known as HeartFlow FFRCT, which uses advanced algorithms that combine CT imaging and artificial intelligence to build a personalized, digital model of each patient’s coronary arteries. HeartFlow utilizes technology that helps cardiologists get a closer look at how blood is actually flowing through the heart – without having to perform a cardiac catheterization and a fractional flow reserve (FFR) assessment, which measures blood flow before and after a blockage.

“Applying this innovative technology to an already advanced form of cardiovascular imaging will give us an incredibly detailed view of the heart and its surrounding arteries,” explains Dr. Friedman. “As such, we’ll be able to make the most informed decisions to ensure our patients are getting the right treatment – while avoiding any unnecessary procedures. It will truly change the way we diagnose coronary artery disease at WakeMed.”

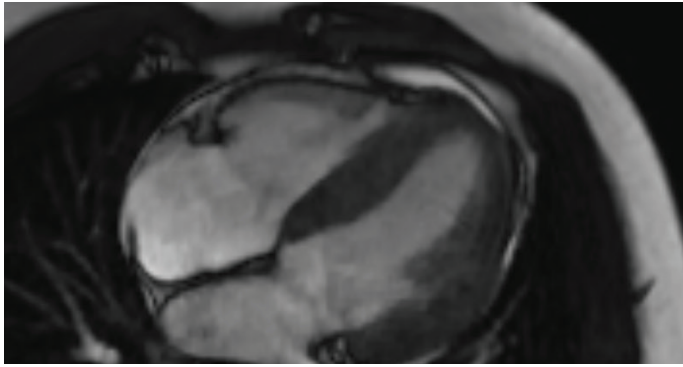


MRI scans

## Cardiac MRI

A cardiac MRI, often called a heart MRI, is a scan of your heart that uses radio waves and magnets to create detailed, high-quality images of the heart (including chambers, valves and muscles), as well as the aorta and surrounding vessels. MRIs are non-invasive and the patient is not exposed to radiation. For young patients or those with congenital heart disease, these benefits are invaluable in preventing long-term radiation exposure from other imaging studies such as CT, X-ray or ultrasound.

Due to the three-dimensional, highly-detailed images an MRI can provide, it can be used for many purposes, including diagnosing problems such as heart disease, heart failure, myocarditis, valve disease, congenital heart problems, or anatomic problems such as an enlarged heart,



thick heart muscle or problems with the aorta (e.g., tear, inflammation, dilation, narrowing). It can also be used to get a comprehensive analysis of heart structure, function and disease state.

For example, after a heart attack, a cardiac MRI can help your cardiologist assess damage to your heart or areas that aren't getting enough blood flow. The MRI images can also be used by cardiovascular surgeons and electrophysiologists to plan or map out a procedure, as well as to evaluate the success of the procedure once it's complete. Finally, a cardiac MRI can help your doctor determine whether a treatment is working or if your cardiovascular problems are getting worse or changing over time.



DEEPA  
KABIRDAS, MD

WakeMed Heart & Vascular – Cardiology

“ We call the cardiac MRI the one-stop shop because it has so many applications. Oftentimes, when we need more information about the heart beyond what we can get with another imaging modality, we'll order an MRI to get a closer look.”

WakeMed Heart & Vascular cardiologist Deepa Kabirdas, MD, has advanced training and completed a fellowship in cardiac MRI at Duke University Medical Center. “We call the cardiac MRI the one-stop shop because it has so many applications,” explains Dr. Kabirdas. “Oftentimes, when we need more information about the heart beyond what we can get with another imaging modality, we'll order an MRI to get a closer look.”

## Advances in Cardiac MRI

Dr. Kabirdas shares that the field of cardiac MRI continues to evolve – and that WakeMed Heart & Vascular is on the forefront of the technology. While years ago, a cardiac MRI took hours to perform, today most tests can be completed in 45 minutes to an hour thanks to advances such as automation and the use of artificial intelligence (AI). AI also helps clinicians instantly and accurately measure blood flow, which can help predict chances of heart attack and stroke – allowing cardiologists to recommend personalized treatments to improve patient outcomes.

4D flow is another emerging technology that only measures blood flow and gives physicians a four-dimensional view of where the blood is going.

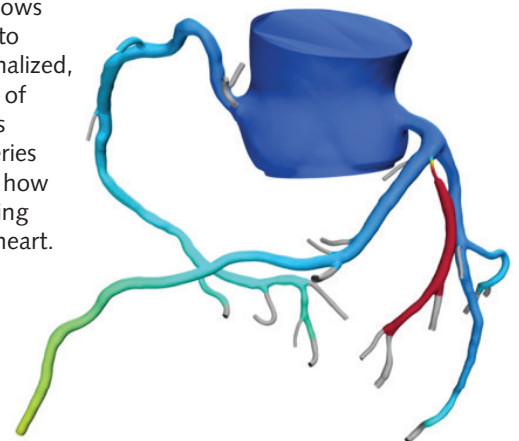
Dr. Kabirdas explains that this can help improve care for patients with leaky valves or those with congenital heart disease whose heart structure doesn't follow a ‘natural anatomy.’

Finally, Dr. Kabirdas highlights another emerging cardiac MRI technique known as T1 and T2 image mapping and quantification. T1 techniques can help identify abnormalities in the myocardial system in real-time, and can also offer quantitative assessments of those abnormalities. T2 techniques get into the cellular level of changes occurring in the heart and can be used to detect early breakdown of muscle before scar tissue forms.

“There's no doubt we'll continue to see the field of cardiac MRI continue to evolve, but it's already such a powerful tool,” Dr. Kabirdas explains. “By simply looking at a shadow on an MRI image, we can characterize the tissue and make important clinical decisions we couldn't make just 10 years ago.”

Cardiac MRI is currently performed at WakeMed Raleigh Campus and Cary Hospital – with both campuses utilizing the most advanced equipment available through its partnership with Siemens Healthineers.

HeartFlow allows cardiologists to view a personalized, digital model of each patient's coronary arteries to determine how blood is flowing through the heart.



# WakeMed First in Nation to Enroll Patient in Groundbreaking Clinical Trial



In September, WakeMed enrolled the first patient in a new, groundbreaking national clinical trial to reduce the size and potential irreversible damage of heart attacks. A heart attack is typically caused when oxygenated blood flow to the heart is blocked or reduced. Most often, the heart's tiny capillaries then swell, further restricting blood flow. If blood flow is not quickly restored, irreversible damage to the heart muscle occurs.

While timely percutaneous coronary intervention (PCI) restores blood flow to the main affected artery, flow through the capillaries is still restricted leading to muscle damage of the heart and often results in the patient suffering heart failure. The AMIHOT III clinical trial utilizes SuperSaturated Oxygen (SSO2) Therapy to improve blood flow through the capillaries, restoring heart tissue to normal oxygen levels and, in turn, reducing irreversible damage to the heart muscle.

## WakeMed Studies Innovative Treatment Options for Atrial Fibrillation Patients

WakeMed is now participating in two clinical trials around atrial fibrillation (AFib). AFib occurs when the upper chambers of the heart (atria) beat out of coordination with the lower chambers (ventricles) and contract rapidly and irregularly.

The first is a new minimally-invasive therapy for patients with AFib who are at risk for stroke – using a new device by Abbott known as the Amplatzer Amulet Left Atrial Appendage (LAA) Occluder. WakeMed Heart & Vascular physicians Ashish Patel, MD, and Frances Wood, MD, completed three of these procedures in August, becoming the first hospital in Eastern North Carolina to utilize the technology.

In some people with AFib, the LAA – a small, naturally occurring pocket connected to the upper left chamber of the heart – can allow blood to pool and increase the chance of clot formation, which can travel to the brain causing a stroke.

Amulet is the first and only minimally invasive treatment option to offer immediate closure of the LAA, utilizing dual-seal technology, preventing blood clots and reducing the risk of stroke in AFib patients. It also eliminates the need for blood thinners post-procedure, which AFib patients are often not able to take long-term.

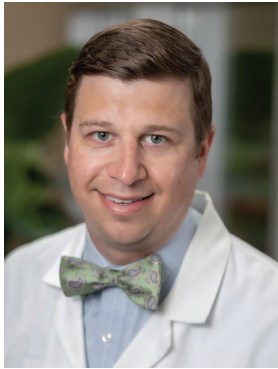


In the second trial, WakeMed treated its first AFib patients with the VARIPULSE™ Catheter as part of a U.S. clinical trial from Biosense Webster, Inc., part of Johnson & Johnson MedTech. The admIRE study is evaluating the pulsed field ablation technology to treat drug refractory symptomatic paroxysmal atrial fibrillation (PAF) during standard electrophysiology mapping and ablation procedures. This new ablation technique is also being evaluated to see if it can spare other tissues from inadvertent injury to adjacent structures such as the esophagus, pulmonary vein connective tissue and the phrenic nerve.

“Atrial Fibrillation is continuing to grow in prevalence around the world and electrophysiologists are looking for innovative treatment approaches to help drive efficiencies and better patient outcomes,” said Dr. Ashish Patel, medical director of WakeMed Heart & Vascular – Complex Arrhythmia. “If proven, these therapies are positioned to change how we treat atrial fibrillation, ultimately helping to improve the lives of patients.”

# NEW + NOTEWORTHY

## Welcome, New WakeMed Heart & Vascular Physicians!



**Edward (Ted) Hodges, MD**

Dr. Ted Hodges is a board-certified cardiologist with clinical interests in managing coronary artery disease, lipid disorders, congestive heart failure and atrial fibrillation. His special interests include valvular heart disease and multimodal cardiac imaging. Dr. Hodges

received his medical degree from the University of North Carolina at Chapel Hill and is fellowship-trained in cardiovascular medicine from Wake Forest Baptist Health. Dr. Hodges takes pride in communicating complex medical information in a way that his patients will understand. He sees patients at the Clayton Cardiology office.



**Saleen Khan, MD**

Dr. Saleen Khan is a board-certified cardiologist with clinical interests in women's health, heart failure, arrhythmias, and advanced imaging. She is also board-certified in cardiac CT, cardiac MRI, echocardiography, and nuclear cardiology. Dr. Khan

received her medical degree from Ross University School of Medicine in Portsmouth, Dominica. She completed her internal medicine residency and cardiology fellowship training at East Carolina University – Brody School of Medicine.

Dr. Khan believes in a holistic and patient-specific approach to treatment. She is fluent in Pashto, Urdu and Punjabi, and sees patients at the cardiology office in Cary.



### Let the WakeMed App Help You Find Your Way

Use the app to access directions to and inside our locations, and so much more, at your fingertips.

Use the QR code to access the Google Play Store or App Store. Enter WakeMed All Access and install the app.



### Congratulations to 2022 News & Observer Raleigh's Best Award Winners!

Each year, the *News & Observer* asks locals to nominate and vote for their favorite local businesses across a wide variety of categories. In the Health & Wellness category, WakeMed was proud to take home nine awards this year! Congratulations to the WakeMed Heart & Vascular – Cardiology practices and Peter Chan, MD, FACC, for earning this year's top honors as best cardiology practice and best cardiologist.





## North Hospital Receives Chest Pain Accreditation

We are proud to announce that WakeMed North Hospital has received Chest Pain Center Accreditation from the American College of Cardiology. The accreditation, which recognizes the hospital's demonstrated expertise and commitment in treating patients with chest pain, is based on a rigorous onsite evaluation of the team's ability to evaluate, diagnose and treat patients who may be experiencing a heart attack. Hospitals that have earned ACC Chest Pain Center Accreditation have proven exceptional competency in treating patients with heart attack symptoms.

"This accreditation is a significant milestone and demonstrates WakeMed's commitment to making it easier for patients to access high-quality cardiovascular care, all across Wake County," explains Judson Williams, MD, MHS, executive medical director, WakeMed Heart & Vascular. "Patients experiencing chest pain in Northern Wake County can take comfort in knowing they can get the exceptional care they need close to home at WakeMed North Hospital."

WakeMed North Hospital Chest Pain Accreditation team.

## WakeMed Cary Hospital Adds New Procedural Lab, Expands Electrophysiology Capabilities

WakeMed Cary Hospital will soon open its fourth procedural lab, featuring the latest, state-of-the-art equipment that allows us to diagnose and treat a wide range of cardiovascular conditions – including electrophysiological problems such as atrial fibrillation and other heart rhythm disorders.

"Expanding our heart and vascular labs at Cary Hospital means we can serve more patients than ever who need access to advanced cardiovascular care close to home," explains Tom Hughes, MHA, senior vice president & administrator, WakeMed Cary Hospital. "In addition, having a fourth lab will provide us additional space to enhance our electrophysiology offerings – which will serve a growing need and keep patients from having to travel outside of western Wake County for these important services."



# Let's Play Pickleball!

*Fun & Easy Sport  
Offers Numerous  
Heart Healthy Benefits*



Borrowing elements of tennis, badminton and ping-pong, pickleball is one of the most popular new sport trends to sweep the nation. In 2022, the Sports & Fitness Industry Association (SFIA) reported that pickleball is America's fastest-growing sport for the second year in a row.

Pickleball was created in 1965 by three Seattle-area dads who needed a new summertime activity to enjoy. Since then, the popularity of the sport has exploded. Experts estimate there are now more than 4.8 million pickleball players in the United States and the average player age is 38. Meanwhile, this hybrid sport is also especially popular with folks who are age 55 and up. In fact, according to the SFIA, 60 percent of core pickleball participants (those who play eight times or more per year) are age 55-plus.

## What is Pickleball?

By incorporating simple rules and using a badminton-sized court (smaller than a tennis court), pickleball is easy to learn, requires less running than tennis and, therefore, offers a more accessible workout for all ages and skill levels. However, it is still a great source of exercise and creates the opportunity for fun and socialization with friends and neighbors. It can even develop into something that is more fast-paced and competitive, depending on each player's preference.

The pickleball net is a modified tennis net, and the sport is played with a paddle, which is smaller than a tennis racquet, and a plastic ball with perforated holes, similar to a wiffle ball. It can be played indoors or outdoors by singles or doubles – doubles being the more popular method. Pickleball can even be played in your driveway.

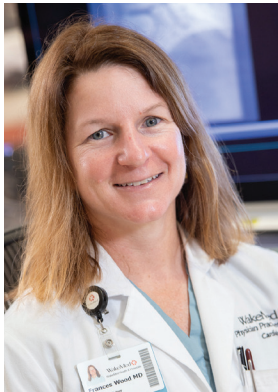
Games are about one hour long, and the sport is often appreciated for being low-impact on knees and joints, and causing less muscle strain. This comes from the smaller court, reduced amount of running and underhand serve method that is always used.

## The Cardiovascular Benefits of Pickleball

While the sport may seem pretty simple, pickleball provides a great form of moderate intensity exercise. And, we know that any activity that gets your heart pumping can help combat, control or lessen your risk of developing heart disease by:

- ✔ Decreasing blood pressure
- ✔ Regulating healthy cholesterol levels
- ✔ Supporting blood sugar regulation
- ✔ Reducing your chances for developing hypertension

Moderate exercise can also reduce your chances for heart attack and stroke. Additionally, because pickleball is considered an easier sport to learn – with less intimidating requirements and a foundation that is rooted in fun and socialization – people of all ages are more likely to try it out and get hooked. Any physical activity that becomes a consistent life habit is more likely to lead to physical benefits, especially those that improve cardiovascular health.



FRANCES WOOD, MD, FACC  
WakeMed Heart & Vascular

“People who regularly play a sport like pickleball are actually doing a lot of good for their hearts,” explains Frances Wood, MD, FACC, WakeMed Heart & Vascular. “I personally love pickleball for so many reasons. It’s fun and easy to learn, and the simple act of playing pickleball opens up blood vessels, and from there, it’s almost like a domino effect. When blood flows more easily through the vessels, the heart doesn’t have to work as hard, which reduces blood pressure. As a cardiologist, I highly recommend this type of low-impact sport that is fun, easy to approach, and has a positive impact on cardiovascular health.”

## Study Shows Pickleball’s Healthy Heart Connection

The case for pickleball contributing to a decreased risk for heart disease was investigated by the *International Journal of Research in Exercise Physiology* during a 2018 study. It followed 15 middle-age and older adults who played one hour of pickleball, three days per week for six weeks. At the conclusion of the study, the participants showed improved blood pressure, cholesterol and cardiorespiratory fitness levels. The cardiorespiratory fitness level is the level at which the heart, lungs and muscles collaborate during exercise for an extended amount of time, and it actually shows how physically fit and healthy a person is.

The study findings support the claim that pickleball is a great alternative to traditional exercise for middle-age and older adults due to its moderate intensity and positive modification of risk factors for cardiovascular disease.

### Pick Up a Paddle & Find a Court Near You

Pickleball may be the new best answer for making your exercise routine more fun and accessible, while creating life-long physical benefits. The sport is almost guaranteed to be available in your community or somewhere close by. Check out:

#### Local Parks & Recreation Departments

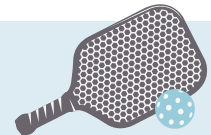
- > [raleighnc.gov/pickleball](http://raleighnc.gov/pickleball)
- > [townofcary.org/recreation-enjoyment/sports/adult-sports/adult-pickleball](http://townofcary.org/recreation-enjoyment/sports/adult-sports/adult-pickleball)
- > [hollyspringsnc.gov/283/Tennis-Pickleball](http://hollyspringsnc.gov/283/Tennis-Pickleball)
- > [apexprd.org/activities/pickleball](http://apexprd.org/activities/pickleball)

#### YMCA of the Triangle

- > [www.ymcatriangle.org/programs/sports-adult/adult-pickleball](http://www.ymcatriangle.org/programs/sports-adult/adult-pickleball)

Or, visit the USA Pickleball “Places 2 Play” page online to learn more: [usapickleball.org/play/places-2-play](http://usapickleball.org/play/places-2-play). Additionally, visit [usapickleball.org](http://usapickleball.org) for basic tips and strategies on how to play.

### Pickleball’s Other Health Benefits



In addition to cardiovascular health, pickleball can have a positive impact in numerous other areas of your physical health, all of which can help improve quality of life and longevity.

- Improved hand-eye coordination
- Improved agility
- Improved muscular endurance
- Strengthening of forearms, biceps, triceps, hamstrings and quads
- Decreased risk of depression
- Creation of more opportunities for socialization, leading to reduced feelings of loneliness
- Improved immunity to illness and disease
- Better sleep at night

# Falling for Flavor

## *Delicious Seasonal Spices That Are Healthy Too*

Fall and winter in North Carolina are a perfect time to get cozy by the fire with warm, seasonal beverages, baked goods and dishes made with some classic, flavorful spices. The good news is that many of these popular 'cold weather' spices that can fill your home with scents of the season also offer numerous heart healthy benefits.



### How Our Favorite Fall & Winter Spices Promote Better Health

Some of the most popular fall and winter recipes include a combination of cinnamon, cloves, ginger, nutmeg and turmeric. Rich and savory, these spices are easy to enjoy without the guilt. They are low in fat and cholesterol, and often high in antioxidants, which protect your cells from damage, and help fight illness and disease. Some even help with controlling blood sugar, promoting better circulation, and enhancing digestive health.

**Here's a closer look at what these spices have to offer:**

**Cinnamon** – Derived from the bark of the cinnamon tree, cinnamon promotes blood sugar control, helps prevent the harmful clumping of blood platelets, strengthens the cardiovascular system, contributes to lower cholesterol, and helps block the growth of harmful bacteria in the digestive system. It also contains phytochemicals, which have an anti-inflammatory effect. Less inflammation can help decrease the risk for heart disease, obesity, inflammatory bowel diseases, arthritis and many more serious health conditions.

**Cloves** – Giving cloves their brown color, beta-carotene is abundant in this spice. The body converts beta-carotene into vitamin A, which promotes better vision and eye health, and strengthens the immune system. Cloves are also rich in antioxidants and are a vital source for manganese, a mineral that regulates blood sugar levels, supports better brain function and helps build stronger bones. Cloves are known for their anti-inflammatory properties as well.

**Ginger** – For more than 2,500 years, ginger continues to be used for medicinal purposes in China. Ginger comes from a root, and one of its natural components, gingerol, benefits gastrointestinal motility, or the emptying of the stomach to relieve nausea. Ginger also helps open up the body's circulation, which leads to less pain, less cramping, better digestion and enhanced exercise performance. Meanwhile, ginger has a hand in disrupting the growth of harmful bacteria, such as E. coli in the colon.

**Nutmeg** – Nutty and slightly sweet, nutmeg is best used in small amounts; a little bit goes a long way. Larger quantities of nutmeg can cause some symptoms of toxicity, however, with the right measurements (about 1/8 of a teaspoon), nutmeg can help with achy joints and muscle pain, promote better liver and kidney function, and create a calming effect over the body by reducing fatigue and stress.

**Turmeric** – Derived from the root of the curcuma longa plant, turmeric can credit its health benefits to its main active component, curcumin. Curcumin is rich in antioxidants and has anti-inflammatory properties. Turmeric is also used as a dietary supplement to help prevent or improve conditions such as arthritis, digestive disorders, respiratory infections, allergies, liver disease and depression. Not only that, research has shown that turmeric may contribute to reduced risk of memory loss and dementia.



### Did You Know?

During the cooking or baking process, heat can affect a spice's nutrient make-up and health benefits. While the nutrient levels of clove and cinnamon remain constant during exposure to high temperatures, turmeric, nutmeg and ginger can actually become more beneficial to good health when heated.

## Clever Ways to Spice It Up

Ramp up the flavor of your favorite fall and winter snacks, drinks and meals, and achieve delicious and healthy results, by using these popular spices in unexpected ways.

"Using spices is a great way to incorporate flavor into your recipes without adding calories or fat – and they can often be used in lieu of salt or sugar, which can make it easier to keep your dishes heart-healthy," explains Monika Kraus, RD, WakeMed registered dietitian.

- 1 Instead of sprinkling sugar, add a few dashes of cinnamon to your oatmeal, coffee, baked sweet potato or apple slices. Cinnamon can also be added to peanut butter toast, a bowl of chili, or yogurt.
- 2 Nutmeg is an essential ingredient when making pumpkin or apple pie. It can also be used to flavor seasonal roasted vegetables.
- 3 Turmeric is the perfect addition to your fall or winter soup. You can even blend it into your scrambled egg mixture or sprinkle on your tacos.
- 4 Ginger can be purchased in pickled, dried or powdered form. Pickled ginger pairs perfectly with sushi, while the spice in powdered form is great in soup. Thinly sliced fresh ginger can be used to make a relaxing cup of warm ginger tea.
- 5 Add ground cloves to chai tea, pumpkin smoothies, vanilla pudding or a pumpkin muffin mix for extra flavor.



## Holiday Spiced Cider

**16 SERVINGS**  
(SERVING SIZE: ROUGHLY ¾ OF A CUP)

### INGREDIENTS

- 5 ½ cups water
- 4 black chai tea bags
- 6 cups apple cider
- 1 ½ cups cranberry juice
- ½ cup orange juice  
(recommend low sugar options like Trop50®)
- 4 (3-inch) cinnamon sticks
- 3 whole cloves
- Extra cinnamon sticks for garnish (optional)

### INSTRUCTIONS

- 1 Bring the water to a boil in a medium saucepan. Remove from heat and add tea bags.
- 2 Cover and let steep for 5 minutes. Discard the tea bags.
- 3 In a 6- to 8-quart pot, combine apple cider, cranberry juice, orange juice, cinnamon sticks, cloves and the steeped tea.
- 4 Bring to a boil and reduce heat. Discard the cinnamon sticks and cloves.
- 5 Serve warm and garnish with cinnamon sticks if desired.

Chill for up to 3 days. Can be served warm or cold.

**Nutritional Information Per Serving:** 16 calories, 0g protein, 0.2g fat, 4g sugar, 1.75mg sodium, 1g fiber

## Apple Bread Pudding

*Recipe courtesy of American Heart Association*

**SERVES 12**  
(SERVING SIZE: ONE 3X4-INCH PIECE)

### INGREDIENTS

- Cooking spray
- 1 large egg + 1 large egg white
- 1 cup fat free milk
- 2 tbsp brown sugar
- 1 tsp vanilla extract
- 1 tsp ground cinnamon
- ½ tsp ground cloves or allspice
- 6 slices light, whole-grain bread, cubed
- 3 medium apples (cored, cut into ½-inch cubes)
- ½ cup raisins (optional)
- ½ cup chopped walnuts (optional)



### INSTRUCTIONS

- 1 Preheat oven to 350° and lightly spray a 9-inch square baking dish with cooking spray.
- 2 In large bowl, whisk together the egg, egg white, milk, brown sugar, vanilla, cinnamon and cloves.
- 3 Stir the bread, apples, walnuts and raisins into the mix.
- 4 Pour the mixture into the baking dish.
- 5 Bake for 40 to 45 minutes, or until the cubes are golden brown. Serve warm.

**Nutritional Information Per Serving:** 131 calories, 5g protein, 1.0g fat, 0.5g sat. fat, 26g carbohydrates, 16g sugar, 154mg sodium, 32g cholesterol, 5g fiber



## Innovation & Collaboration Lead to Promising Results With New Treatment

Earlier this year at 76 years young, Marlene Walbek wasn't at all feeling young at heart. For years, she had battled atrial fibrillation, heart failure and high blood pressure. Unfortunately, Marlene's symptoms started to progress – and her quality of life was deteriorating quickly due to extreme shortness of breath.

She went from spending time with her husband and family, running basic errands and living an active life to becoming nearly bedridden. By the spring of 2022, Marlene rarely left her chair and struggled to get up and walk to the kitchen or bathroom without gasping for breath. She knew it was time to get help.

A long-time patient of Pavlo Netrebko, MD, with Cary Cardiology, she explained her symptoms and underwent significant testing – including a stress test, nuclear testing, cardiac catheterization, and more. She was diagnosed with hypertrophic cardiomyopathy (HCM), which is a genetic condition that is usually caused by changes that cause the heart muscle to thicken. A thickened heart muscle makes it difficult for the blood to leave the heart and get to the rest of the body – which can lead to fatigue and shortness of breath, among a host of other symptoms. For some patients, it causes no symptoms and can lead to sudden cardiac death.

Her symptoms had become so severe that Dr. Netrebko referred Marlene to Stuart Russell, MD, with WakeMed's Advanced Heart Failure team. "When I referred Marlene to Dr. Russell, she was suffering from the most advanced stage of heart failure (Class IV), and her quality of life was extremely limited," explains Dr. Netrebko. "I knew we needed to get her treated quickly to avoid further deterioration or complications."

By that time, Marlene's HCM was causing such severe shortness of breath that her care team was considering drastic intervention – they were initially planning to refer her for an open heart surgery known as a septal myectomy.

This procedure involves removing the thickened part of the heart's septum and often a



Marlene and Van Walbek

valve repair. While this approach would have offered Marlene the relief she desperately wanted, open heart surgery always comes with risks – not to mention a significant recovery period. They could all agree this wasn't an ideal option.

Fortunately for Marlene, in May, the FDA approved a new medication – the first of its kind for the treatment of hypertrophic cardiomyopathy. Camzyos® (mavacamten) is part of a new class of medications used to treat adults with HCM by directly targeting the proteins that cause the heart to contract. After further evaluation, Drs. Netrebko and Russell agreed it offered a promising treatment alternative to open heart surgery for Marlene.

Dr. Russell prescribed the medication in June. After just three months, Marlene's symptoms had drastically improved. She went from struggling to get out of her chair to being able to perform chores around the house and go shopping without struggling to breathe.

Dr. Netrebko says Marlene's heart failure has improved from Class IV to Class II – marking significant progress in her ability to get around and remain active. While she still has shortness of breath, Marlene is feeling significantly better on the new medication.

"Marlene's story is a great example of how WakeMed Heart & Vascular is on the leading edge of applying new and emerging therapies," explains Dr. Russell. "In this instance, our collaborative and innovative treatment approach helped her avoid a major surgery – which is always in a patient's best interest."

Today, Marlene is thrilled to be able to clean her own house and get out of the house with her husband again. "I'm so grateful for my doctors and nurses who worked so hard to find out what was going on – I call myself their 'problem child,' but they stuck with me and found a treatment that allowed me to avoid surgery," Marlene shares. Nearly a year later, she looks forward to the holidays and spending quality time with her children and grandchildren.

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