Cardiovascular Risk and Coronary Artery Calcium Scoring

Recent advances in the field of cardiovascular medicine have brought new and more accurate ways to predict one's future risk of cardiovascular events (heart attacks and strokes). By knowing your risk level, your personal physician can then tailor a treatment and preventive plan to lower your risk.

In 1998, cardiologists formulated the Framingham 10-year risk calculator to help predict individualized future risk for heart attacks and heart disease death, taking into account: age, sex, LDL cholesterol, HDL cholesterol, blood pressure, blood pressure treatment status, diabetes and smoking status. In 2013, a new risk calculator was endorsed by the American College of Cardiology (ACC) and the American Heart Association (AHA) called the Pooled Cohort Risk calculator that gives an estimate of one's future risk of heart attacks, strokes, and coronary heart disease death, taking into account essentially the same variables except with race added. The Pooled Cohort Risk calculator has been validated for adults between the ages of 40 and 79, and can easily be accessed during a visit with your personal physician.

Critics of these calculators pointed out that an estimate of intermediate or low risk may be misleading, compared to real-life population data. Concurrent with these developments, the direct CT scan imaging of coronary arteries to derive a calcium score became more accurate and had accumulated enough clinical evidence by 2018, that the AHA and the ACC recommended the consideration of a calcium score in those at intermediate or borderline risk based on a risk calculator alone.

A calcium score is obtained by having a CT scan of the heart without the need for IV contrast that detects calcium-containing plaque in the coronary arteries. Scientific studies have proven that an increased amount of calcium in the coronary arteries accurately predicts a higher future risk of heart attacks. Conversely, a calcium score of zero, the PERFECT score, usually indicates a lower risk of future coronary heart disease.

Plaque formation (atherosclerosis in an artery) is a progressive process over many years, due to cholesterol deposition into the walls of arteries which leads to inflammation and eventual plaque buildup (a mixture of fatty deposits, cellular breakdown products, calcium and fibrin scar tissue).

Risk factors for atherosclerosis include: age, high blood pressure, smoking history, high cholesterol, diabetes, chronic kidney disease, obesity, sedentary lifestyle, chronic inflammation in the body, peripheral vascular disease, family history of vascular disease, and possibly even having a type A personality.

(The ACC and AHA have also identified other risk-enhancing factors: metabolic syndrome (large waist circumference, high triglycerides, elevated blood pressure, prediabetes and low HDL cholesterol), history of early Smenopause or preeclampsia, South Asian ancestry, and presence of other cardiac risk factors by blood testing, such as elevated high-sensitivity CRP, elevated Lp(a), and elevated apoB).

A large plaque can be DANGEROUS, causing blood flow limitation to the heart muscles, with eventual angina (chest pain due to coronary heart disease) and a risk for heart attacks. However, up to 50% of people with severe plaque buildup do NOT have recognized symptoms of chest pain, shortness of breath with exertion or exercise intolerance. In these people, the first sign of any problems could be a heart attack itself (sudden plaque rupture, leading to a catastrophic thrombosis with often complete blockage of a coronary artery).

Knowing your future cardiovascular risk is of the upmost importance, to prioritize efforts to these major modifiable risk factors:
1. diet (aiming for less saturated and trans fats intake and more natural fruits, vegetables and fiber intake, with more omega-3 fatty acid intake from fish and/or plant sources)
2. avoidance of smoking
3. blood pressure control
4. cholesterol control
5. physical activity (150 minutes a week of moderate-intensity exercise or 75 minutes per week of vigorous-intensity exercise)
6. weight control
7. management of type 2 diabetes.

For some people, a calcium score can refine the risk estimates derived by a risk calculation alone, especially if the risk estimate comes back as intermediate (or if other risk-enhancing factors exist that a risk calculator does not take into account). Those already deemed at very low or very high risk by the traditional risk factors will probably not benefit from getting a calcium score. The downsides of calcium scores are potential false negative results (not all plaque is calcified), potential false positive non-cardiac findings (the lungs and the upper abdomen are often included in the images) that can lead to additional scanning, radiation exposure associated with CT scans, and potentially out-of-pocket costs.

As always, please consult your personal physician, if you are interested in knowing your risk for future cardiovascular problems, and any need for refining your risk estimate by cardiac scanning.

Administrative Update

We are very excited to announce our newest physicians- **Kelly Givens, MD** at Dallas- Junius, **Emmanuel Lee, MD** at Austin, and **Katrina Bradford, MD** and **Amby Bindra, MD** at our new Dallas-Walnut Hill location. All are accepting new patients. Please visit ntphp.com/accepting-new-patients, where you can easily find our concierge medicine physicians that are actively taking new patients. Please join us in welcoming our newest additions!

Healthy Habits

BBQ Chicken Skewer Salad Recipe

(from The Defined Dish website)

Ingredients

Chicken Skewers:
· 2 pounds boneless skinless chicken breasts, diced
· 3 tbsp avocado oil
· 1 tsp kosher salt
· 2 cups BBQ sauce (Primal Kitchen brand suggested (or any no sugar added sauce))
· 8 [6-inch] wooden skewers pre-soaked

Herby Ranch:
· 1 cup of avocado oil-based mayonnaise
· ½ cup unsweetened full fat coconut milk
· 2 tbsp lemon juice
· 1 tbsp red wine vinegar
· 1 tsp kosher salt
· 1 tsp onion powder
· 2 cloves minced garlic
· ¼ cup finely chopped fresh dill fronds
· ¼ cup finely chopped fresh parsley
· 1 tsp freshly cracked black pepper

Salad:
· 4 ears corn
· 2 tbsp avocado oil
· 8 cups thinly sliced romaine lettuce or 2 small heads
· 6 green onions thinly sliced (green part only)
· 16oz grape tomatoes, quartered
· 1 [15-ounce] can black beans, drained and rinsed
· ¼ cup loosely packed freshly chopped cilantro leaves
· 2 tbsp freshly chopped basil leaves
· 1 avocado peeled and seed removed and diced

Directions

1. Add the diced chicken to a large bowl with the oil, salt, and 1 cup of BBQ sauce. Stir until well combined.
2. Set aside to let marinate for ~ 20 minutes at room temperature.
3. To make the ranch. Add mayo coconut milk, lemon, red wine vinegar, salt, onion powder, and garlic to a medium bowl and blend using the immersion blender. Then Stir in the dill, parsley and black pepper. Refrigerate until ready to use.
4. Next, Rub the corn with the avocado oil to evenly coat.
5. Heat grill over medium-high heat (350-400 degrees F) and lightly oil the grill grates with a paper towel and tongs.
6. Once the grill is hot add the corn and cook until tender ~10-12 minutes total and turning every 2 minutes.
7. While cooking the corn place the chicken skewers on the grill and cook on the first side for 3 to 4 minutes. Flip the skewers and then baste the grilled side generously with the reserved BBQ sauce. Cook until chicken is cooked through~3-4 more minutes. Transfer the corn and the chicken aside and let the corn cool enough to handle.
8. Once chicken and corn are cooked, combine the lettuce, green onions, tomatoes, black beans, cilantro, and basil in a large bowl. Add your desired amount of dressing to the salad and toss until the lettuce is well coated.
9. Slice the corn from the cobb and add to the salad along with the diced avocado, gently toss once more to combine.
10. Top with grilled chicken and enjoy!

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