



Fighting blood clots through education

The Beat

DECEMBER 2022

A publication of the North American Thrombosis Forum



NATF wishes you a happy holiday season!



Cholesterol and Blood Clots: What's the Connection?

Most people think of cholesterol as a bad thing but cholesterol itself is not inherently unhealthy. In fact, it's a necessary building block within the body. Cholesterol is needed to build healthy cell membranes and also serves as the precursor for a variety of hormones.

However, cholesterol levels that are too high can cause health issues. Research has shown that people with high cholesterol are more likely to suffer from blood clots in both the arteries and the veins. (Arteries carry blood away from the heart to other parts of the body. Veins carry blood to the heart from other parts of the body.) Diseases caused by blood clots, including heart attacks and strokes, are among the **leading** causes of death in the US, so it's important to understand how cholesterol impacts blood clot risk, and how you can reduce your risk.

TYPES OF CHOLESTEROL

Although cholesterol itself is always the same molecule, we sometimes refer to different "types" of cholesterol. Cholesterol is carried in the blood on different carrier proteins, also known as lipoproteins.

Continued on page 3

Inside

Cholesterol and Blood Clots: What's the Connection? . . . 1

A Heart-Healthy Holiday Recipe 2

New Digital Campaigns . . . 5

Upcoming Patient Events . . 5

NATF Board and Staff 6

A Heart-Healthy Holiday Recipe

Check out this [heart-healthy holiday recipe](#), courtesy of the American Heart Association (AHA).



BAKED APPLES AND PEARS WITH ALMONDS

INGREDIENTS

4 small Granny Smith or Golden Delicious apples and/or pears (can also substitute any variety of apple as available or on sale)

1/4 cup unsalted almonds (chopped)

2 tablespoons dried, unsweetened cranberries or raisins

1/2 teaspoon ground cinnamon

2 teaspoons honey

INSTRUCTIONS

1. Preheat the oven to 400°F. Fill a small baking dish with 1/4 inch of water. Set aside.
2. Cut 1/2 inch off the top of the apples. Reserve the tops.
3. Using a spoon or paring knife, core out the apples, leaving the bottoms intact.
4. In a small bowl, combine the almonds, cranberries, and cinnamon, stirring gently.
5. Drizzle the honey over the almond mixture, stirring until the almonds and cranberries are coated.
6. Spoon the almond mixture into the apple cavities. Replace the tops. Place the apples in the baking dish. Bake, covered loosely with aluminum foil, for 30 minutes. Remove the foil. Bake for 15 minutes, or until the apples are tender and lightly golden.

Find more healthy holiday recipes on the [AHA website](#).



There are two primary types of lipoproteins in the blood:

- Low-density lipoprotein (LDL) carries cholesterol to the body's tissues. Although cells do need cholesterol, too much of it can deposit in the walls of arteries, leading to reduced blood flow and other health problems. Because of this, LDL is sometimes known as "bad cholesterol."
- High-density lipoprotein (HDL) carries cholesterol from the tissues back to the liver; the liver then eliminates excess cholesterol from the body. HDL is sometimes known as "good cholesterol."

People who have higher levels of LDL are at an increased risk for heart attacks and strokes. In general, higher levels of HDL are considered to be protective and decrease the risk of these issues. However, **new research** has shown that certain types of HDL may also increase risk, and extremely high levels of HDL **may not** be ideal.

HOW CAN HIGH CHOLESTEROL LEAD TO BLOOD CLOTS?

When cholesterol levels in the blood (especially LDL cholesterol) are too high, excess cholesterol can adhere to the walls of the arteries. This process is known as atherosclerosis. Over time, these cholesterol deposits harden and form plaque. This hardening process occurs due to a buildup of calcium and fibrin. Fibrin is a protein that's also involved in blood clotting.



Left: Healthy artery; right: Artery with plaque

Plaques cause the arteries to narrow and stiffen, leading to a reduction in blood flow. Sometimes a plaque can rupture, meaning that it tears open. Ruptured plaque can trigger the formation of a clot that blocks blood flow through the artery. If this process occurs in the heart or the brain, it leads to a heart attack or stroke.

Research also shows that high LDL levels are associated with a higher risk of clots in the veins. Clots in the veins aren't triggered by plaques; in fact, plaques only form in arteries, due to the significantly higher blood pressure found there. This means that a different mechanism must be involved when it comes to the risk of venous blood clots, though the exact pathway is unclear.

Some researchers believe that chronic inflammation causes both high LDL and blood clots. LDL cholesterol has also been shown to activate **platelets**, which can lead to clots. It's also possible that high LDL doesn't directly increase blood clot risk, but rather that similar risk factors, such as being overweight, increase both LDL levels and the risk of clots.

HOW TO REDUCE YOUR RISK OF CHOLESTEROL-RELATED BLOOD CLOTS

Controlling your LDL cholesterol levels is important to reduce your risk of blood clots. It's generally **recommended** that healthy adults have their cholesterol levels checked at least once every four to six years. You may need your levels checked more often if you have risk factors, such as diabetes or a family history of heart disease.

Make sure that you're visiting your doctor for preventive care on a regular basis and talk with your healthcare team about how often you should be screened. There are generally no symptoms of high LDL cholesterol, so you'll need a blood test to find out what your levels are.

Lifestyle changes are always recommended if you have high LDL levels, which include: (continued on page 4)



RECOMMENDED LIFESTYLE CHANGES FOR HIGH LDL LEVELS



EXERCISE ON MOST DAYS OF THE WEEK.

Ideally, you should aim to get at least 150 minutes of physical activity each week, which is about 20 minutes per day.



EAT A HEALTHY DIET.

Eat less saturated fat (found in red meat and dairy products) and increase omega-3 fats (such as olive oil). Try to eliminate trans fats, which are found in certain packaged foods.



IF YOU SMOKE, TRY TO QUIT.



LIMIT YOUR ALCOHOL CONSUMPTION TO A MAXIMUM OF ONE DRINK PER DAY.

Men under age 65 may be able to have up to two drinks per day.



IF YOU'RE OVERWEIGHT, MAKE AN EFFORT TO LOSE WEIGHT

Even losing just a few pounds can make a significant difference in your risk. Your doctor may be able to give you some advice or refer you to a trusted **health coach** to help you make the necessary changes for weight loss.

CAN CHOLESTEROL MEDICATIONS REDUCE THE RISK OF BLOOD CLOTS?

Your doctor may recommend a cholesterol-lowering medication to reduce your LDL levels. There are a few different options, but statins are the most commonly prescribed medications and **research** shows that they can reduce the risk of both venous and arterial blood clots.

There are a few possible ways that statins may decrease the risk of blood clots:

- By lowering LDL cholesterol, statins can stop plaques from forming in arteries, which decreases the risk of plaque rupturing and triggering a clot. (However, this effect is only associated with a decrease in arterial blood clots.)
- Statins are believed to influence the expression of certain genes, meaning that they change the levels of certain proteins that cells make. Statins may increase the levels of certain proteins that prevent blood clots.

- Statins are also known to have an anti-inflammatory effect. Because inflammation can **lead to** blood clots, decreasing inflammation also decreases the risk of clots.

Although statins have been used for decades to lower LDL cholesterol, newer medications, including ezetimibe and PCSK9 inhibitors, are becoming more widely used. These medications have also been **found** to reduce the risk of blood clots and may have **fewer** side effects. Some people take both statins and another cholesterol-lowering drug at the same time to get their cholesterol under control.

If you have side effects from your cholesterol medications, talk with your doctor. They may be able to **switch** your medications or help you manage the side effects so that you can still get the benefits of lowering your LDL.

Remember that even if you're taking medications, it's still important to maintain a heart-healthy lifestyle. Keeping your LDL cholesterol under control can help to reduce your risk of serious complications and improve your chances of living a long and healthy life. ■



Upcoming Patient Events

Support Group for Newly Diagnosed Patients

Hosted by Joelle Hochman, RRT, Chair of Patient Engagement and Education



We're pleased to offer a virtual support group experience specifically for patients who've recently had a blood clot.* All meetings start at 7:00 PM EST.

January 19, 2022
February 9, 2022
March 16, 2022

April 20, 2022
May 18, 2022

*This group is primarily geared towards patients who've had a blood clot in the past 12 months – but participants at any stage of diagnosis are welcome! If you're a longtime reader of *The*

Beat, please help us spread the word about this support group! More information can be found on our [website](#).

NATF Support Group

This virtual support group is designed for patients at all stages of their blood clot journey. If you had your blood clot 20 days ago or 20 years ago, we welcome you to join us!

2023 dates coming soon! Check our website for up-to-date information.

All meetings begin at 7:00 PM EST.

To register for these programs, please visit [Patient Events](#) on our website or email events@thrombosis.org.



New Digital Campaigns

Did you know NATF has launched two new digital campaigns on our website, thrombosis.org?

IS THIS NORMAL?!

Curious about what's "normal" after having a blood clot? Find out the answers to commonly asked questions in our [new patient series](#).

Is it normal...

Is it normal to wear compression stockings while flying (after having a DVT)?

Very Common Semi-Common Very Rare

Yes.
Compression stockings (or socks) are often recommended for flying, traveling, or sitting for extended periods. Compression stockings improve blood flow by placing pressure on the legs and can help relieve leg pain and swelling.

This is meant to be a guide only. Please contact your doctor with any questions or concerns.

THROMBOSIS TIPS

Learn even more about thrombosis (blood clots) with #ThrombosisTipTuesday, a collection of tips on treating thrombosis, preventing future blood clots, and living a heart-healthy lifestyle after a clotting event.

#ThrombosisTipTuesday

Beginning Exercise

Week 1
Aim to walk 30 - 45 minutes each day, 5 days a week

Week 2
Walk for 10 minutes, 3-4 times per day.

Week 3
Walk for 20 minutes, 3 times per day.

Week 4
Walk for 30 minutes, 2 times per day.

Week 5
Walk for 40 minutes, once per day.

Have a question that's not covered? Email us at info@thrombosis.org.

New tips are added every Tuesday! Follow us on [Instagram](#), [Twitter](#) or [Facebook](#) to see new posts. Visit the [Thrombosis Tips page](#) on our website to see all of the tips.

NATF Board and Staff

BOARD MEMBERS

Samuel Z. Goldhaber, MD
President

*Associate Chief and Clinical Director,
Division of Cardiovascular Medicine
Director, Thrombosis Research Group*
Brigham and Women's Hospital
Professor of Medicine
Harvard Medical School

John Fanikos, RPh, MBA
Treasurer

*Director of Pharmacy Business
and Financial Services*
Brigham and Women's Hospital
*Assistant Professor of Clinical Pharmacy
Practice*
**Northeastern University, Massachusetts
College of Pharmacy**

Jawed Fareed, PhD
Co-Chair, Research & Science

*Director, Hemostasis and Thrombosis
Research Laboratories*
Loyola University Medical Center
*Professor of Pathology and
Pharmacology*
Loyola University Medical Center

Joelle Hochman, RRT
**Chair, Patient Engagement
& Education**

Founder and Lead Respiratory Therapist
Pulmonary Health Coaching

Gregory Piazza, MD, MS
**Chair, Healthcare Provider Engagement
& Education**

*Staff Physician, Division of Cardiovascular
Medicine*
Section Head, Vascular Medicine
Brigham and Women's Hospital
Associate Professor of Medicine
Harvard Medical School

Christian Ruff, MD, MPH
Co-Chair, Medical Advisory Board

*Associate Physician, Cardiovascular
Medicine Division*
Brigham and Women's Hospital
Associate Professor of Medicine
Harvard Medical School

Jelena Spyropoulos, PhD
Chair, Corporate Partnerships

Clinical Strategy Lead
Medscape Education Global

STAFF

Kathryn Mikkelsen, MBA
Executive Director
KMikkelsen@thrombosis.org

Courtney Anderson
Director of Operations
CJohnson@thrombosis.org

Aviva Schwartz, MA
Director, Content & Education
Co-Chair, Medical Advisory Board
ASchwartz@thrombosis.org

Maggie Newberg
Director of Marketing
MNewberg@thrombosis.org