

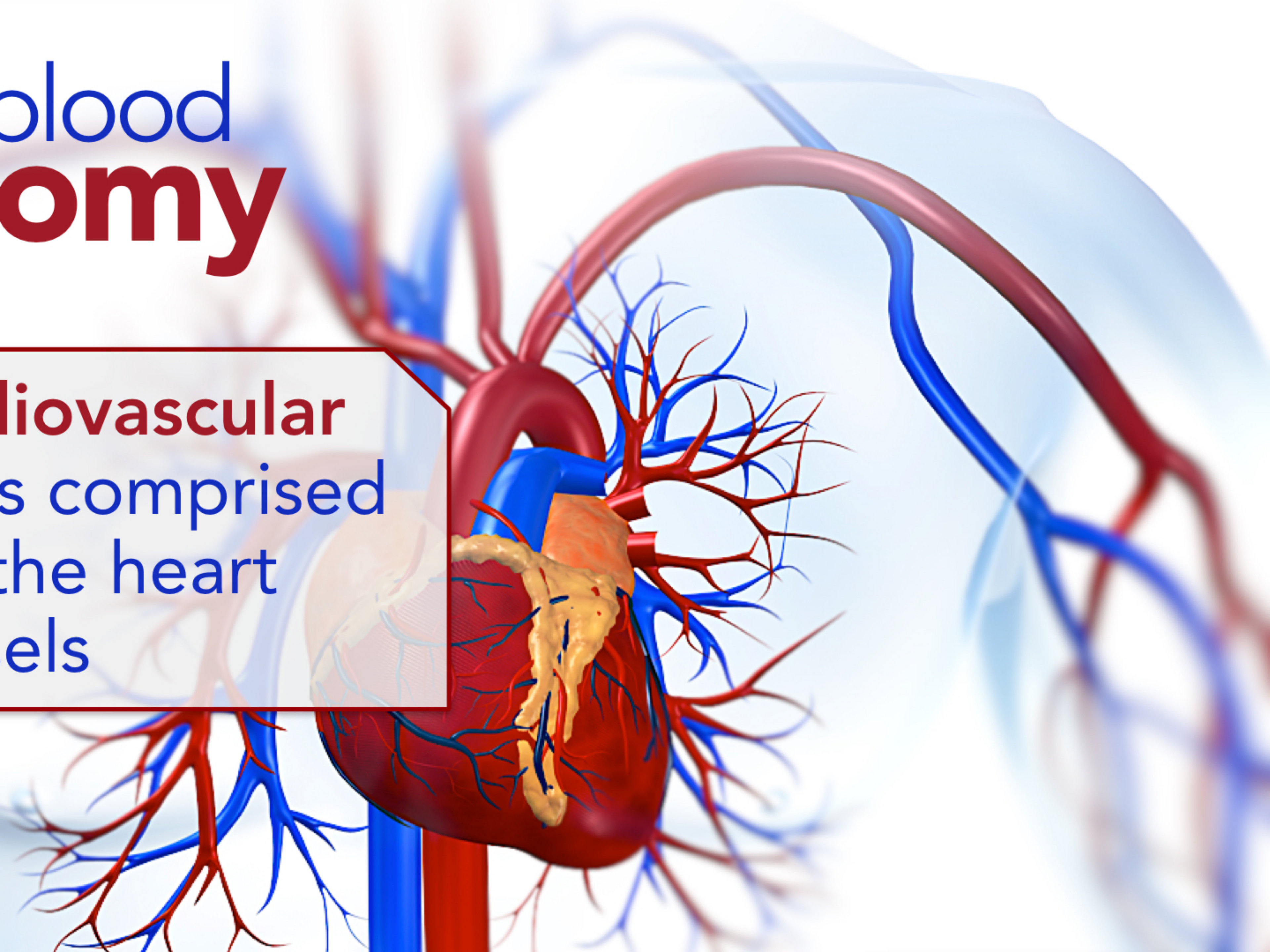


Cardiovascular
HEALTH

USANA®

Your blood **Anatomy**

The **cardiovascular system** is comprised of both the heart and vessels



Blood Vessels

An anatomical illustration of the human circulatory system. The heart is centrally located, shown in a reddish-brown color. It is connected to a network of blood vessels. Arteries, shown in red, branch out from the heart to the rest of the body. Veins, shown in blue, collect blood from the body and return it to the heart. Capillaries are shown as a dense network of tiny vessels connecting the arteries and veins. The background is a light blue silhouette of a human torso.

CAPILLARIES

Small, thin vessels that connect arteries and veins

ARTERIES

Carry oxygen-rich blood to the body

VEINS

Carry oxygen-depleted blood and waste back to the heart and lungs



**This system of arteries,
capillaries, and veins is over**

60,0005

miles long!

Blood Vessels



Like the heart itself, peripheral arteries play a key role in cardiovascular health



Blood Vessels

Deliver nutrients to the body

Limit nutrient delivery when narrowed or hardened

Play a role in blood pressure, a risk factor for cardiovascular disease

Cardiovascular Health

The most common behavioral risk factors of cardiovascular complications are:



Obesity

RAISES cholesterol and triglyceride levels

LOWERS "good" HDL cholesterol

INCREASES blood pressure

INDUCES type-2 diabetes



Impact of Obesity

on cardiovascular disease and type-2 diabetes
Average years LOST compared with ideal weight



Activity

Physical activity also plays a role in the maintenance of healthy blood pressure and cholesterol levels

Physical activity can help you maintain a healthy weight



Smoking

increases the **RISK** of:

Coronary heart disease

Stroke

Peripheral artery disease

Aortic aneurysm



Smoking

On average, smokers

DIE

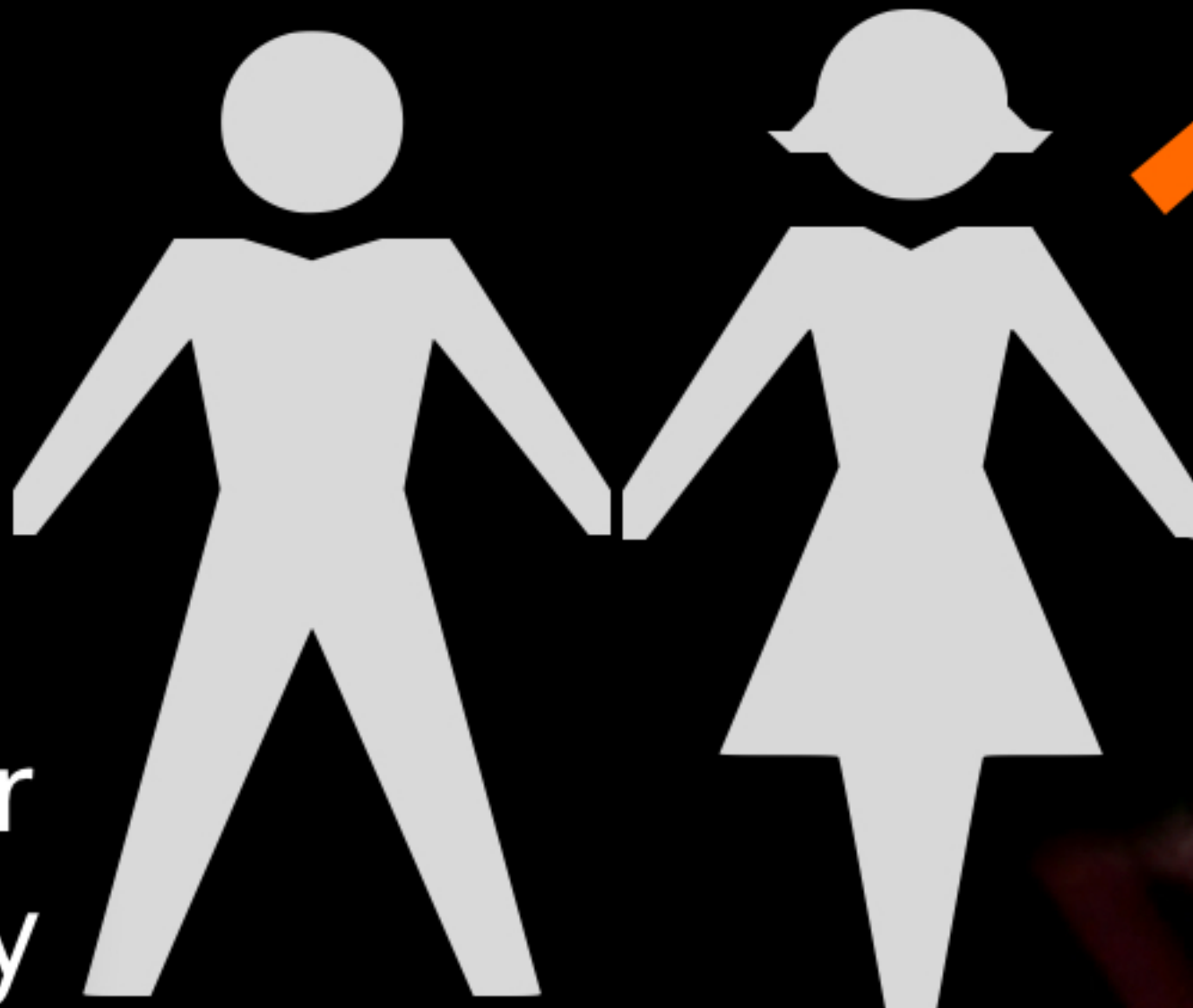
13-14 years

earlier than non-smokers



Heavy Drinking

Always in **MODERATION**

2 per day  **1** per day



A close-up, low-angle shot of a condensation-covered beer bottle, tilted diagonally across the frame. The bottle is the central focus, with its neck on the left and body extending towards the right. The condensation is thick and glistening, highlighting the texture of the glass. The background is a soft, out-of-focus gradient of light to dark grey.

Drinking MORE

increases the **RISK** of:

Obesity
High blood pressure
Strokes



Diet

INCREASE

Fruits and vegetables
Lean meats
Omega-3 fatty acids
Fiber

LIMIT

Red meat
Saturated fat
Trans fat
Added sugars
Sodium ($< 2,400$ mg / day)



Diet & Supplements

Nutrients play a key role
in cardiovascular health

Fiber

Vitamin D

Omega-3 fatty acids

B vitamins

Magnesium

Vitamin C

Flavonoids

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Fiber



Soluble fiber from foods, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease.

Threapleton DE, Greenwood DC, Evans CE, et al. Dietary fibre intake and risk of cardiovascular disease: systematic review and meta-analysis. BMJ. 2013;347:f6879.

Rimm EB, Ascherio A, Giovannucci E, Spiegelman D, Stampfer MJ, Willett WC. Vegetable, fruit, and cereal fiber intake and risk of coronary heart disease among men. JAMA. 1996;275(6):447-51.

Wolk A, Manson JE, Stampfer MJ, et al. Long-term intake of dietary fiber and decreased risk of coronary heart disease among women. JAMA. 1999;281(21):1998-2004.

Vitamin D

Sufficient amounts play an important role in the maintenance of cardiovascular health.

Judd SE, Tangpricha V. Vitamin D deficiency and risk for cardiovascular disease. The American journal of the medical sciences. 2009;338(1):40-4.

Nitta K. Impact of Vitamin D Metabolism on Cardiovascular Disease. International Journal of Clinical Medicine. 2011;02(05):531-537.

Wang TJ, Pencina MJ, Booth SL, et al. Vitamin D deficiency and risk of cardiovascular disease. Circulation. 2008;117(4):503-11.

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Omega-3 Fatty Acids

Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease

Hu FB, Bronner L, Willett WC, et al. Fish and omega-3 fatty acid intake and risk of coronary heart disease in women. *JAMA*. 2002;287(14):1815-21.

Hu FB, Cho E, Rexrode KM, Albert CM, Manson JE. Fish and long-chain omega-3 fatty acid intake and risk of coronary heart disease and total mortality... *Circulation*. 2003;107(14):1852-7.

Iso H, Kobayashi M, Ishihara J, et al. Intake of fish and n3 fatty acids and risk of coronary heart disease among Japanese: the Japan Public Health Center-Based (JPHC) Study Cohort I. *Circulation*. 2006;113(2):195-202.



B vitamins



As part of a well-balanced diet that is low in saturated fat and cholesterol, folic acid, vitamin B6 and B12 may reduce the risk of vascular disease

Magnesium

plays an important role in
the maintenance of
healthy blood pressure
and overall
cardiovascular health

Qu X, Jin F, Hao Y, et al. Magnesium and the risk of cardiovascular events: a meta-analysis of prospective cohort studies. *PLoS ONE*. 2013;8(3):e57720.
Kass L, Weekes J, Carpenter L. Effect of magnesium supplementation on blood pressure: a meta-analysis. *Eur J Clin Nutr*. 2012;66(4):411-8.

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Vitamin C

functions as an essential cofactor
(a compound necessary for the activity of an enzyme)
in the biosynthesis of collagen,
which plays a key role in blood
vessel structure.

Vitamin C

collagen is the most abundant structural protein, and found in:

Blood vessels

Muscle

Teeth

Bones

Skin



Vitamin C

is an antioxidant and
neutralizes free radicals

Vitamin C

also helps regenerate
other antioxidants

Carr AC, Frei B. Toward a new recommended dietary allowance for vitamin C based on antioxidant and health effects in humans. Am J Clin Nutr. 1999;69(6):1086-107.

Bruno RS, Leonard SW, Atkinson J, et al. Faster plasma vitamin E disappearance in smokers is normalized by vitamin C supplementation. Free radical biology & medicine. 2006;40(4):689-97.

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Flavonoids


A close-up photograph of a hand holding a bunch of fresh, bright orange carrots with their green leafy tops. The background is a blurred grocery store aisle with various other vegetables like lettuce and tomatoes visible.

Fruits and vegetables are a human's main source of these numerous health benefits, including:

Antioxidant activity

Heart health protection

Immune support

A woman with dark hair tied back is lifting a black dumbbell. She is looking down at the weight with a focused expression. The background is a blurred gym environment with other people and equipment.

Flavonoid

consumption can support
endothelial function

Loke WM, Hodgson JM, Proudfoot JM, Mckinley AJ, Puddey IB, Croft KD.

Pure dietary flavonoids quercetin and (-)-epicatechin augment nitric oxide products and reduce endothelin-1 acutely in healthy men. Am J Clin Nutr. 2008;88(4):1018-25.

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Grape Seed Extract

Contains proanthocyanidins,
which are flavonoids found in
purple grapes and berries



Grape Seed Extract

Like other flavonoids, grape proanthocyanidins may help **improve** endothelial function

Stein JH, Keevil JG, Wiebe DA, Aeschlimann S, Folts JD.

Purple grape juice improves endothelial function and reduces the susceptibility of LDL cholesterol to oxidation in patients with coronary artery disease. Circulation. 1999;100(10):1050-5.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Grape Seed Extract

Grape flavonoids may also help in the maintenance of healthy cholesterol levels

da Silva Porto PA, Laranjinha JA, de Freitas VA. Antioxidant protection of low density lipoprotein by procyanidins: structure/activity relationships. 2003. Biochem Pharmacol 66(6):947-54.
Frémont L, Belguendouz L, Delpal S. Antioxidant activity of resveratrol and alcohol-free wine polyphenols related to LDL oxidation and polyunsaturated fatty acids. 1999. Life Sci 64(26):2511-21.
Ivanov V, Carr AC, Frei B. Red wine antioxidants bind to human lipoproteins and protect them from metal ion-dependent and -independent oxidation. 2001. J Agric Food Chem 49(9):4442-9.

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That's where
USANA[®]
Proflavanol[®] **C**
comes in!



Proflavanol[®] C

A unique blend of:

Poly C[®] (vitamin C)

Grape-seed extract

Poly C™

Raises the levels of
vitamin C in the blood
longer than ascorbic
acid alone

CONTAINS:

Calcium

Magnesium

Potassium

Zinc ascorbates



This collaborative study found that supplementation with **grape seed extract** and **vitamin C** has a **positive influence on healthy blood flow** to support cardiovascular health, and **significantly increases circulating blood levels of vitamin C and epicatechin**

GRAPE SEED EXTRACT PLUS VITAMIN C IMPROVES INDICES OF VASCULAR HEALTH

Sherene M. Shenouda¹, Naomvi M. Hamburg¹, Monika Holbrook¹, William Chung¹, Mustali Dohadwala¹, Tara Caiano¹, Mai-Ann Duess¹, Matthew Kluge¹, Vasilii Chernyshev², Corey Tabit¹, Erik Schneider², Toni McKinnon², Tim Wood², John Cuomo², Brian Dixon², Natalie Eich², Joseph A. Vita¹

¹Boston University School of Medicine; 88 East Newton Street, C-818; Boston, MA 02118;

²USANA Health Sciences, Inc; 3838 West Parkway Blvd; Salt Lake City, UT 84120

INTRODUCTION

Cardiovascular diseases (CVD) are the leading cause of hospitalization and death in industrialized societies (1). Deficits in vascular endothelial function appear to be a critical factor underlying the progression of nearly all types of CVD. Although the mechanism of endothelial dysfunction has yet to be fully defined, a decrease in nitric oxide (NO) production and/or bioavailability appears to be a common underlying factor.

There is increasing evidence that oxidative stress plays a role in the loss of NO signaling (2-6). In particular, increased vascular superoxide production is associated with inactivation of NO and loss

Because oxidants and oxidative stress appear to be central in CVD, there is a strong reason to believe antioxidants may provide significant protection. Previous studies showing benefits of antioxidants on cardiovascular health suggest that intakes should be well above the current RDA's (7-9). For example, Vita and coworkers have shown increased arterial vasodilation 2 hours following oral administration of 2 grams of ascorbic acid (10). In addition, diets rich in plant foods are also associated with a decreased risk for CVD (11). Plant foods are rich in flavonoids and may provide additional cardiovascular protection. Schroeter et al, for example, found that flavonoid intake (specifically epicatechin

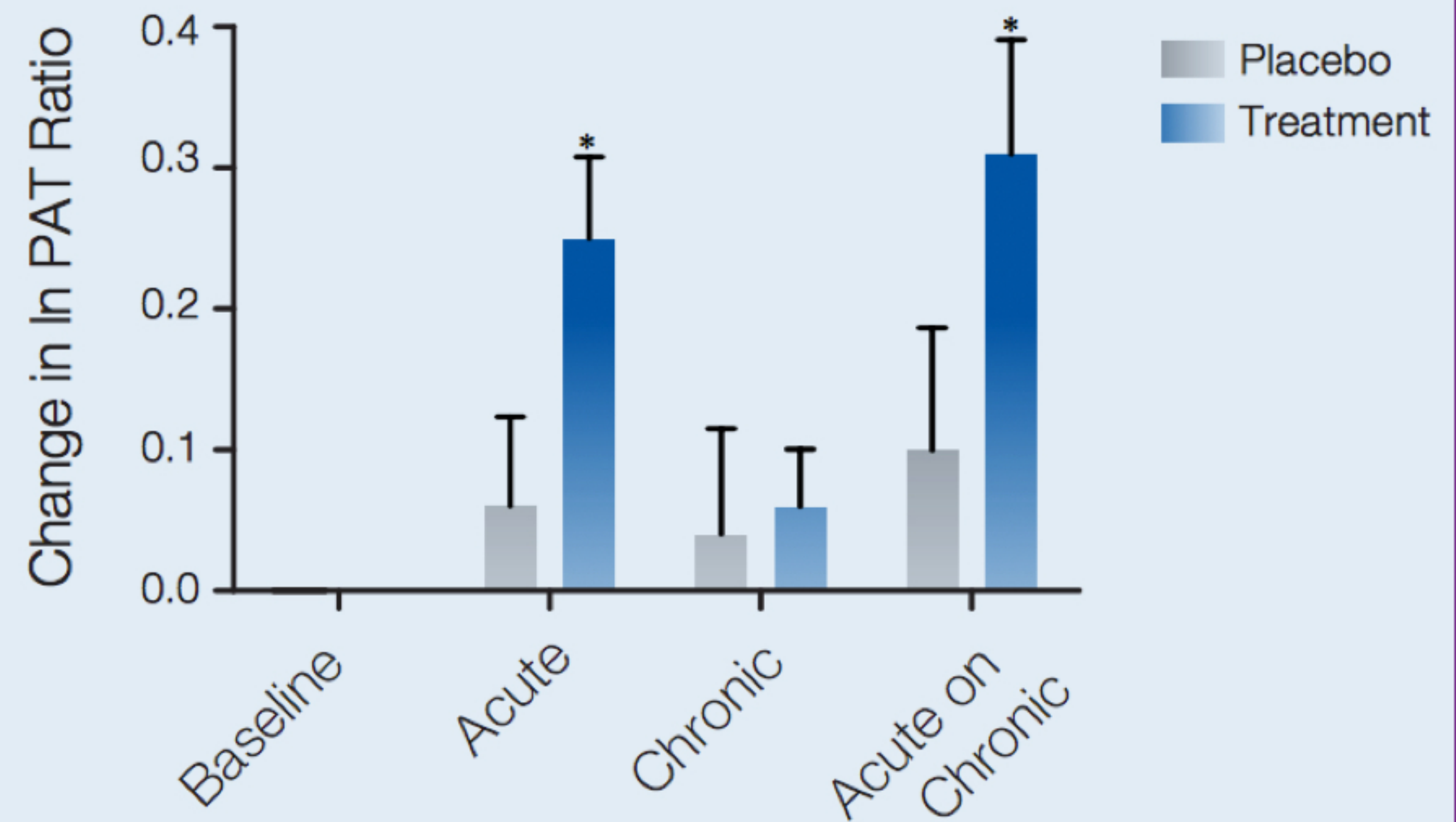
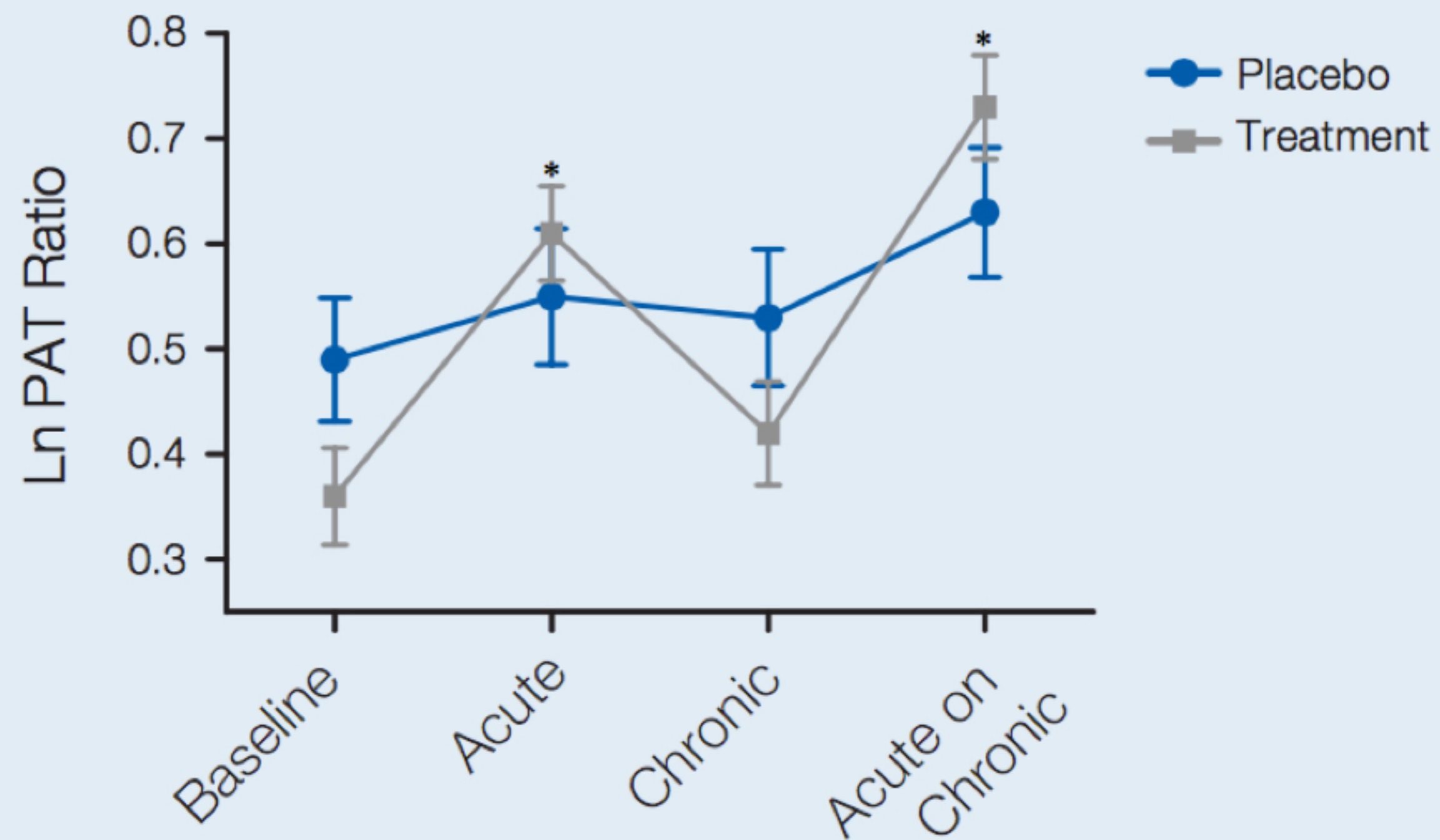
the beneficial vascular effects following consumption of flavonoid-rich food (12).

Grape seed extract (GSE) is a common dietary supplement that is rich in flavonoids, including epicatechin. Thus, we hypothesized that the combination of GSE and ascorbic acid would improve endpoints of vascular health, including endothelium-dependent vasodilation. To test this hypothesis, we performed a double-blind, randomized, placebo-controlled crossover study to examine the effects of GSE (450 mg/day; USANA Health Sciences) in combination with ascorbic acid (1500 mg/day; USANA Health Sciences) for 4 weeks in subjects



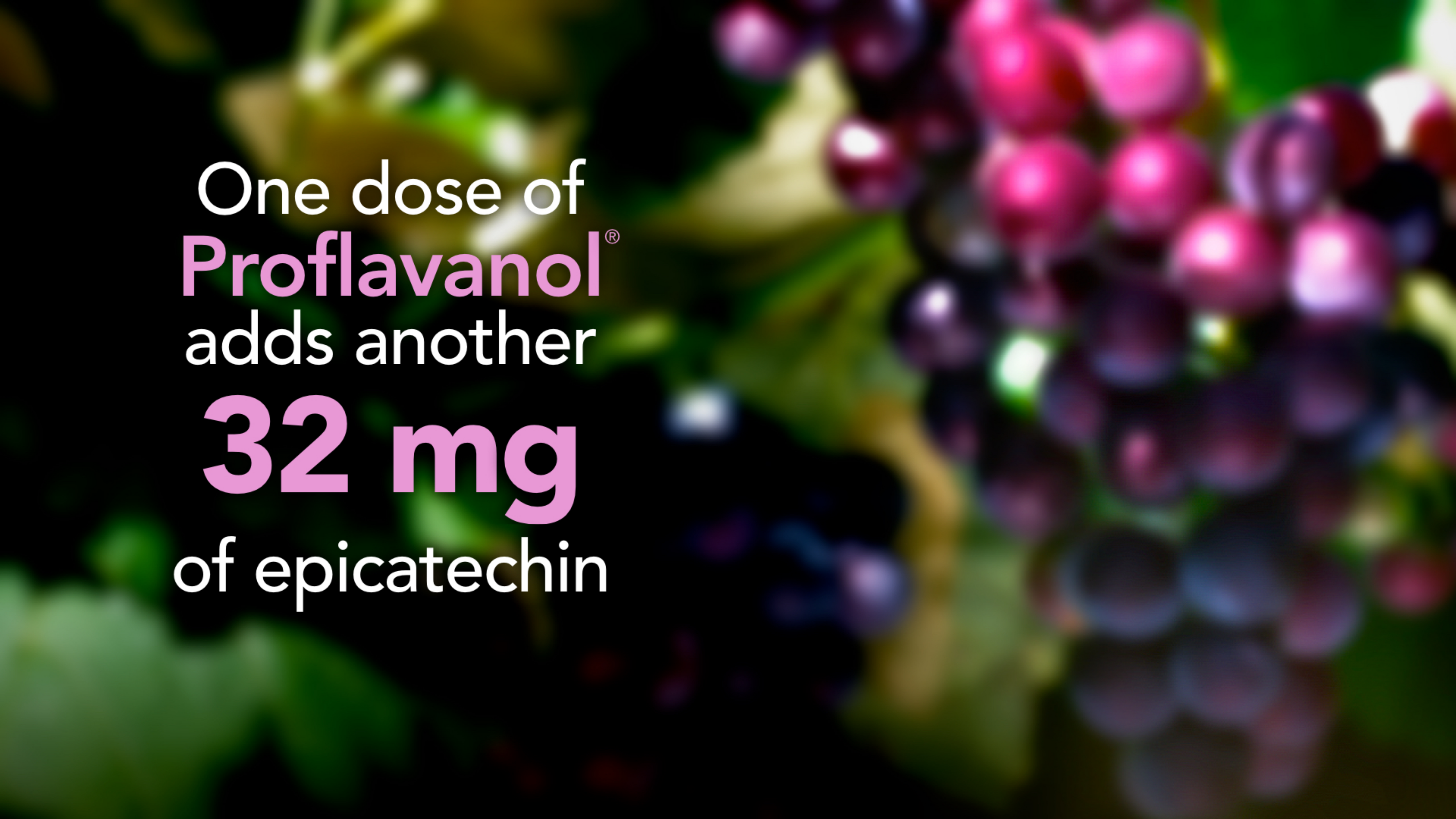
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Improved MICROVASCULAR function



https://www.usana.com/media/File/dotCom/company/science/crb/CR_GSE_Vascular_Health_Poster.pdf

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One dose of
Proflavanol[®]
adds another
32 mg
of epicatechin

One dose of
Proflavanol[®]
adds another
32 mg
of epicatechin

That is
equal to nearly
300 gm
of red grapes

Poly C™

Vitamin C (as POLY C™) is required for
collagen synthesis

It is literally like the mortar in a brick wall,
holding our cells and tissues together



May JM, Harrison FE. Role of vitamin C in the function of the vascular endothelium. Antioxid Redox Signal. 2013;19(17):2068-83.

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Poly C™

Vitamin C is also widely accepted as an important nutrient for maintaining healthy immune function. It does this by stimulating both the production and function of leukocytes - AKA: white blood cells.

Jariwalla RJ, Harakeh S. Mechanisms underlying the action of vitamin C in viral and immunodeficiency disease. In: Vitamin C in Health and Disease. New York: Marcel Dekker, Inc.; 1997:309-322.

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The
USANA® **DIFFERENCE**

The **USANA**® **DIFFERENCE**



Our dietary supplements are produced in our own **STATE-OF-THE-ART MANUFACTURING FACILITY**, using quality standards that are above and beyond what is required for dietary supplements.

The **USANA**® **DIFFERENCE**

POTENCY

Guaranteed that what is on the label is in the product

COMPOSITION

Contains what it's supposed to and in the right proportions

QUALITY

Meets all specified expectations

IDENTITY

Ingredients meet label claim

STRENGTH

Offers the correct concentration of ingredients

PURITY

Free from impurities or contaminants

USANA[®] ADHERES to the highest standards





USANA[®]

is a member of the **United Natural Product Alliance** – an association of dietary supplement and functional food companies that share a commitment to provide consumers with natural health products of superior:

QUALITY • BENEFIT • RELIABILITY

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and other **HEALTH BENEFITS**, consider these
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