The Problem

Cardiovascular disease is the number one cause of death of both men and women in the US; very often the first symptom is sudden death; stroke is also a major cause of disability and death in the US; one stroke related death occurs every 3 minutes, and African Americans are twice as likely to have a heart attack or a stroke.
Is prevention a fantasy, or the future of medicine? A panoramic view of recent data, status, and direction in cardiovascular prevention.

- Kones R.
- Cardiometabolic Research Institute and the Institute for Spirituality and Health at the Texas Medical Center, 8181 Fannin Street, U314, Houston, TX 77054, USA.
- Abstract

Americans are under assault by a fierce epidemic of obesity, diabetes, and cardiovascular disease, of their own doing. Lowered death rates from heart disease and reduced rates of smoking are seriously threatened by the inexorable rise in overweight and obesity. Latest data indicate that 32% of children are overweight or obese, and fewer than 17% exercise sufficiently. Over 68% of adults are overweight, 35% are obese, nearly 40% fulfill criteria for the metabolic syndrome, 8-13% have diabetes, 34% have hypertension, 36% have prehypertension, 26% have prediabetes. 15% of the population with either diabetes, hypertension, or dyslipidemia are undiagnosed, 59% engage in no vigorous activity, and fewer than 5% of the US population qualifies for the American Heart Association (AHA) definition of ideal cardiovascular health. Health, nutrition, and exercise illiteracy is prevalent, while misinformation and unrealistic expectations are the norm. Half of American adults have at least one cardiovascular risk factor. Up to 65% do not have their conventional risk biomarkers under control. Of those patients with multiple risk factors, fewer than 10% have all of them adequately controlled. Even when patients are treated according to evidence-based protocols, about 70% of cardiac events remain unaddressed. Undertreatment is also common. Poor patient adherence, probably well below 50%, adds further difficulty in reducing cardiovascular risk. Available data indicate that only a modest fraction of the total cardiovascular risk burden in the population is actually now being eliminated.

A fresh view of these issues, a change in current philosophy, leading to new and different, multimechanistic methods of prevention may be needed. Adherence to published guidelines will improve substantially outcomes in both primary and secondary prevention. Primordial prevention, which does not allow risk values to appear in a population, affords more complete protection than subsequent partial reversal of elevated risk factors or biomarkers. Current evidence supports recent calls for massive educational programs supporting primordial prevention, individual responsibility and pride in achieving population-wide ideal cardiovascular health through lifestyle modification. Environmental and social changes will be necessary, along with major supportive adjustments in the food industry and the assistance of the media. Cooperation is critical to the success of such an initiative.

- PMID: 21183531 [PubMed - in process]
The Cardiovascular Continuum

- Myocardial infarction
- Persistent cardiac damage
- LV dilatation and remodeling
- Chronic heart failure
- Cardiovascular risk factors
- Atherosclerosis
- Coronary artery disease
Risk Assessment
GGT

- **Association between serum gamma-glutamyltransferase activity and carotid intima-media thickness.**
- **Eroglu S, Sade LE, Polat E, Bozbas H, Ulus T, Muderrisoglu H.**
- Department of Cardiology, Faculty of Medicine, Baskent University, Ankara, Turkey. serpileroglu@gmail.com.

**Abstract**

Serum gamma-glutamyltransferase (GGT) activity is a **marker of oxidative stress and activity is associated with cardiovascular disease**. Carotid intima-media thickness (IMT) is a noninvasive predictor of atherosclerosis. We investigated the association between serum GGT activity and carotid IMT. Fifty-five persons who had normal liver function tests were consecutively enrolled. Carotid IMT was evaluated in the right and left common carotid arteries. The averaged values of carotid IMT and serum GGT activity were compared. Serum GGT activity correlated with carotid IMT ($r = .396$, $P = .003$). Serum GGT activities were increased in patients with carotid intimal hyperplasia compared with those without intimal hyperplasia ($20.3 \pm 11.2$ vs $34.3 \pm 16.1$ U/L; $P = .001$). Serum GGT activity is associated with carotid IMT. This finding supports the concept that **elevated serum GGT activity is a marker of atherosclerosis**
Endothelial Dysfunction

Endothelial Dysfunction

IS THE PRECURSOR OF:

- Sleep Apnea
- Hypertension
- Raynaud’s Disease
- Diabetes
- Renal Failure
- Pregnancy/Preeclampsia/Monitorying
- Stroke
- Dementia
- Memory Loss
- Vision Loss
- Heart Attack
- Heart Failure
- Angina
- Erectile Dysfunction
- Peripheral Arterial Disease (PAD)
Inflammation

Inflammation is good for you but the key to good health, the real secret, is helping your body *balance* the intricate systems of pro-inflammatory and anti-inflammatory forces.
It’s All About BALANCE!
Inflammation

TIME

THE SECRET KILLER

The surprising link between INFLAMMATION and HEART ATTACKS, CANCER, ALZHEIMER'S and other diseases

What you can do to fight it
Chronic Inflammation

- Cardiovascular Diseases:
  - Atherosclerosis
  - Cerebrovascular disease
  - Heart failure
  - Cardiomyopathy
  - Stroke

- Diabetic Complications:
  - Cardiomyopathy
  - Atherosclerosis
  - Chronic renal failure
  - Retinopathy, Sepsis
  - Neuropathy

- Neurological disorders:
  - Alzheimer's
  - Parkinson's
  - ALS
  - Dementia

- Metabolic Disorders, Complications:
  - Fatty liver disease
  - Heart disease
  - Type 2 Diabetes
  - CKD
  - Sleep apnea

- Cancer:
  - Lung cancer
  - Kidney cancer
  - Gastric cancer
  - Colon cancer
  - Pancreatic cancer
  - Lymphoma

- Bone, Muscular & Skeletal Disease:
  - Osteoporosis
  - Osteoarthritis
  - DCD
  - Muscular dystrophy

- Chronic Inflammatory Disease:
  - IBD, COPD, RA, Psoriasis
  - Chronic pancreatitis
  - CIDP, CICLD
Hostility Increases Inflammation

- New research shows that healthy people with high levels of anger, hostility or depression also have high blood levels of **C-reactive protein**, an indicator of inflammation of the arteries. More and more, heart experts are recognizing that this arterial inflammation is key to the cardiovascular disease process, and this latest study suggests reductions in anger might help reduce heart woes.

- "Anger seems to predict an increased risk of heart disease in initially healthy individuals, and several studies have shown that," said study author Edward Suarez, an associate professor of psychiatry and behavioral sciences at Duke University. However, until now, no one had studied links between anger and inflammation. "This is the first step to link the behavior to this [heart disease] mechanism - one that’s garnering a lot of attention" among cardiologists, he said.

- The findings appear in the September issue of Psychosomatic Medicine.

- In the study, Suarez tested C-reactive protein (CRP) blood levels in 121 healthy, nonsmoking men and women between 18 and 65 years of age. On the same day, he also measured each participant’s level of anger, hostility and depression using a series of standard psychological tests. He found that - in the absence of heart disease risk factors such as smoking, obesity and high blood pressure - high levels of these negative emotional states "significantly predicted the blood level of CRP." **Those who were prone to anger, hostility or depression had two to three times higher CRP levels than their more mellow peers, the researchers said.**

- It’s not yet clear why this association exists, but studies are under way to shed light on pathways by which anger or depression might encourage inflammation. In one study, Suarez plans to track patients for two years, to see if hotheaded individuals are any more likely to develop elevated CRP levels over time.

- Other studies are planned that focus on anger's effect on stress hormones such as noradrenaline and norepinephrine. The latter hormone, in particular, works on a second chemical, **nuclear factor-kappa B**, "as a kind of 'off/on' switch" for inflammation," Suarez said. "When that switch is turned on, it begins a cascade of events that leads to the promotion or release of inflammatory proteins."In the meantime, people concerned about their heart health might want to just "cool it" when tempers flare. "It’s very important to pay attention to how we can change these behaviours," Suarez said. "I know it isn’t easy, though." "It’s difficult to change patterns of behaviour that are intrinsic to who we are as individuals, so it’s not going to be an overnight thing," he added. "But we can start by saying, 'What gets me angry?' and 'If I get angry, do I start to feel depressed and withdrawn from my social network?' Also, take a stress break. **If a walk around the park can calm you down, do it,**" Suarez said.
Anger can bring on a heart attack or stroke

- A hostile heart is a vulnerable heart By William J. Cromie
  Harvard News Office

- Think about this the next time someone cuts you off in traffic or in a grocery store line: Anger can bring on a heart attack or stroke.

- That’s the conclusion of several studies at Harvard Medical School and elsewhere. One study of 1,305 men with an average age of 62 revealed that the angriest men were three times more likely to develop heart disease than the most placid ones.

- Angry older men, as stereotypes go, are most vulnerable. But excessive ire can take a toll at any age. Researchers at Johns Hopkins School of Medicine tracked 1,055 medical students for 36 years. Compared with cooler heads, the hotheads were six times more likely to suffer heart attacks by age 55 and three times more likely to develop any form of heart or blood vessel disease.

- The conclusion is clear: Anger is bad for you at any age. "Among young adults, it's a predictor of premature heart disease later in life," says Harvey Simon, an associate professor of medicine at Harvard Medical School.

- Most anger research has focused on men, so whether the same risk applies to women remains unknown. One study, published in 1995, found that, during two hours after an angry outburst, an individual's risk of having a heart attack was more than twice that of someone who had not lost their cool. Out of 1,623 people in that study, 301 were women.

- "Almost all the anger research I'm familiar with has focused on men," notes Simon. "However, based on a 2006 study of road rage, I would guess that women are less prone to severe anger and thus to its deleterious effects, which include heart attack, stroke, and even impaired lung function."

- A Harvard study, published in August, concluded that men who showed high hostility at the start of the eight-year investigation exhibited significantly poorer lung function at the end of it. "This research shows that hostility is associated with poorer [lung] function and more rapid rates of decline among older men," notes Rosalind Wright, an assistant professor at the Harvard School of Public Health.

- Strokes of anger

- Over the years, then, anger increases a man’s and, probably less so, a woman’s chances of heart disease. But, what about a single burst of rage, the guy who cuts in front of you just before the exit ramp? The answer apparently is "yes." In the Harvard study of 1,623 patients, which included 501 women, intensive anger more than doubled their risk of heart attack if the emotion occurred in the two hours previous to the heart attack.

- In an evaluation of 200 stroke patients in Israel, researchers linked a bout of intense anger to a 14-fold increase in risk of stroke within two hours of the emotional incident.

- Results from a study published this year found that of more than 2,500 patients treated in emergency rooms in Missouri hospitals, about 500 of them were torn by anger just before the injury. The greater the anger, the higher the risk, researchers concluded.

- Anger comes in many doses: annoyance, irritability, frustration, vexation, resentment, animosity, ire, indignation, wrath, and rage, for example. Most people know when they’re mad. If not, someone is bound to tell them so, sooner or later.

- Psychologists have developed a scale that rates anger levels. It’s a true-or-false test that presents statements like: "At times I feel like smashing things." "I easily become impatient with people." "I’ve been so angry at times that I’ve hurt someone in a physical fight."

- Once you decide how irate you are, you need to decide what to do about it. For a start you can see your family doctor about the wisdom of taking an aspirin a day. Harvard researchers recently found that a single low-dose (81 mg) pill can reduce anger-caused heart attacks by 40 percent. In other words, a daily aspirin may cut the risk of breaking an angry heart by almost half.

- How to be cool

- Simon adds more advice in the September issue of Harvard Men’s Health Watch, which he edits. "Try to identify the things that bother you most and do your best to change them," he suggests. "Learn to recognize warning signs of building tension, such as a racing pulse, fast breathing, or a jumpy, restless feeling. When you recognize such signals, take steps to relieve the tension. Often something as simple as a walk can cool things down."

- Don’t boil in silence. Talk out your feelings with your spouse, partner, or a good friend. If that doesn’t work, write down your feelings. Try to explain to yourself why you are so irritated or vexed.

- Simon also suggests learning to meditate, or experimenting with deep breathing exercises. Also, you can, with practice, change behaviors that light your fuse. Here are some examples: Don’t always try to have the last word. Try not to raise your voice. Don’t curse. Wait a few seconds when you feel on outburst coming on then try to express yourself calmly. Don’t grimace or clench your teeth. Practice smiling.

- If all such efforts fail, angry people can seek professional help. A 2002 study reported that stress management classes can protect men from anger-induced heart problems, and individual counseling may be even better.

- Another possible resource involves evidence that some antidepressants may help protect against a broken heart. "Depression is hard on the heart," Simon says. "We think, although it hasn’t been proven, that easing depression will ease anger as well."

- "Regular exercise," Simon adds, "is also an excellent way to reduce both mental stress and physical risk factors like blood pressure, cholesterol, blood sugar, insulin, and body fat. And whether your fuse is short or long, you should never light up or expose yourself to tobacco in any form. And always be aware that emotions affect your health as much as diet and exercise. The link between mind and heart is strong."

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Researchers have started scientifically looking at such cases and calling it the *Broken Heart Syndrome*. In health care terminology we call this condition *stress Cardiomyopathy*. Cardiomyopathy is *heart muscle weakness*. It can occur after various emotional and physical stressors such as fear, surprise, anger and the death of a loved one. Stress cardiomyopathy affects primarily women and occurs most frequently in middle aged women and women over age sixty. Many of the women that have been studied have no prior history of heart disease and the majority are postmenopausal. There is no known reason for the increase frequency in women in these age groups and postmenopausal women in particular. Physical stressors can fuel a stroke or seizure and as mentioned emotional stressors such as fear, grief and anger can cause this condition.

A woman who is emotionally dis-stressed can suddenly and unexpectedly experience a heavy feeling in the chest, shortness of breath, abnormal rhythm of the heart, low blood pressure, congestive heart failure and shock. It can be life threatening. She may appear sad, express feelings of sadness, lock of concentration and difficulty sleeping at night. The *good news* is there can also be a quick and complete recovery.
Symptoms

- Sudden death
- Temporary visual loss
- Jaw pain
- Neck pain
- Chest pain or pressure (activity, but can occur at rest)
- Arm pain
- Nausea
- Abdominal pain with eating
- Erectile dysfunction
- Pain or cramps with walking

ANY EXERTIONAL DISCOMFORT SHOULD BE EVALUATED
Holistic Evaluation

1. Holistic physical exam- look for indicators of heart disease (e.g. ear crease, abdominal or visceral obesity); blood pressure, pulse, fitness assessment, Comprehensive Cellular Environmental Analysis (acid/alkaline balance, oxidative stress, heavy metals)

2. Bioenergetic Assessment

3. Cutting edge laboratory tests:
   - **Health Diagnostics Laboratory Test**- advanced cardiac blood test-assesses biomarkers that are reflective of endothelial dysfunction (viscosity, inflammation, oxidative stress)
   - **PreDx**-advanced lab test that stratifies risk for development of diabetes
   - Hormone levels-hormone imbalance linked with heart disease
   - Fatty acid assessment
   - Hair Mineral Analysis-mercury associated with heart disease more than cigarette smoking!

4. EKG plus high tech cardiovascular tests:
   - Autonomic Nervous System (ANS) testing
   - Digital Pulse Analysis

5. Supporting imaging studies:
   - Carotid Intimal Media Thickness (younger than 50)
   - Carotid US (older than 50)
Treatment

- Stress Management - attitude of gratitude, forgiveness
- Let Food Be Your Medicine - whole foods, avoid trans-fats, rainbow diet, healthy fats
- Hydration - avoid acidifying, dehydrating, sugar-laden beverages
- Weight management
- Adequate sleep
- Quit smoking
- Regular Exercise
- Spinal Manipulation - Chiropractic, Osteopathy
- Heavy Metal Detoxification if indicated
- Brush and Floss Teeth twice daily
- Take adequate amounts of vitamin D₃
- Balance the hormones
- Targeted *high quality* nutritional supplements
- Earthing
Relax
Restorative Sleep
Sleep duration as a risk factor for cardiovascular disease

- **Sleep duration as a risk factor for cardiovascular disease- a review of the recent literature.**
- Nagai M, Hoshide S, Kario K.
- Division of Cardiovascular Medicine, Department of Medicine, Jichi Medical University School of Medicine, Yakushiji, Shimotsuke, Tochigi, Japan.
- **Abstract**
- Sleep loss is a common condition in developed countries, with evidence showing that people in Western countries are sleeping on average only 6.8 hour (hr) per night, 1.5 hr less than a century ago. Although the effects of sleep deprivation on our organs have been obscure, recent epidemiological studies have revealed relationships between sleep deprivation and hypertension (HT), coronary heart disease (CHD), and diabetes mellitus (DM). This review article summarizes the literature on these relationships. Because sleep deprivation increases sympathetic nervous system activity, this increased activity serves as a common pathophysiology for HT and DM. **Adequate sleep duration may be important for preventing cardiovascular diseases in modern society.**
More zzzs

- Sleep. 2010 Aug 1;33(8):1037-42.
- **Sleep duration and cardiovascular disease: results from the National Health Interview Survey.**
- Sabanayagam C, Shankar A.
- Department of Community Medicine, West Virginia University School of Medicine, Morgantown, WV 26505-9190, USA.
- **Abstract**
  - **BACKGROUND:** Previous studies have shown that both short and long sleep durations are related to increased likelihood of diabetes and hypertension. However, the relation between sleep duration and cardiovascular disease (CVD) is not clear. We examined the hypothesis that compared with sleep duration of 7 hours, shorter and longer sleep durations are independently related to CVD.
  - **METHODS:** We conducted a cross-sectional study of 30,397 National Health Interview Survey 2005 participants ≥ 18 years of age (57.1% women). Sleep duration was categorized as < or = 5 hours, 6 hours, 7 hours, 8 hours, and > or = 9 hours. The main outcome of interest was the presence of any CVD (n = 2146), including myocardial infarction, angina, and stroke.
  - **RESULTS:** We found both short and long sleep durations to be independently associated with CVD, independent of age, sex, race-ethnicity, smoking, alcohol intake, body mass index, physical activity, diabetes mellitus, hypertension, and depression. Compared with a sleep duration of 7 h (referent), the multivariate odds ratio (95% confidence interval) of CVD was 2.20 (1.78, 2.71), 1.33 (1.13, 1.57), 1.23 (1.06, 1.41), and 1.57 (1.31, 1.89) for sleep duration < or = 5 h, 6 h, 8 h, and > or = 9 h. This association persisted in subgroup analyses by gender, race-ethnicity, and body mass index categories. Also, similar associations were observed when we examined myocardial infarction and stroke separately.
  - **CONCLUSION:** Compared with sleep duration of 7 h, there was a positive association between both shorter and longer sleep durations and CVD in a representative sample of US adults. These results suggest that sleep duration may be an important marker of CVD.
Eat Whole Foods
Quercetin

- Quercetin is a naturally-occurring polar auxin transport inhibitor. [citation needed]
- Foods rich in quercetin include black and green tea (Camellia sinensis; 2000–2500 mg/kg), capers (1800 mg/kg), lovage (1700 mg/kg), apples (44 mg/kg), onion, especially red onion (1910 mg/kg) (higher concentrations of quercetin occur in the outermost rings), red grapes, citrus fruit, tomato, broccoli and other leafy green vegetables, and a number of berries, including raspberry, bog whortleberry (158 mg/kg, fresh weight), lingonberry (cultivated 74 mg/kg, wild 146 mg/kg), cranberry (cultivated 83 mg/kg, wild 121 mg/kg), chokeberry (89 mg/kg), sweet rowan (85 mg/kg), rowanberry (63 mg/kg), sea buckthorn berry (62 mg/kg), crowberry (cultivated 53 mg/kg, wild 56 mg/kg), and the fruit of the prickly pear cactus. A recent study found that organically grown tomatoes had 79% more quercetin than conventionally grown. [16]
- A study by the University of Queensland, Australia, has also indicated the presence of quercetin in varieties of honey, including honey derived from eucalyptus and tea tree flowers. [18]
Beetroot Juice

- **Acute blood pressure lowering, vasoprotective, and antiplatelet properties of dietary nitrate via bioconversion to nitrite.**
- Clinical Pharmacology, William Harvey Research Institute, Barts & the London School of Medicine and Dentistry, Queen Mary University of London, Charterhouse Square, London EC1M 6BQ, UK.

**Abstract**

Diets rich in fruits and vegetables reduce blood pressure (BP) and the risk of adverse cardiovascular events. However, the mechanisms of this effect have not been elucidated. Certain vegetables possess a high nitrate content, and we hypothesized that this might represent a source of vasoprotective nitric oxide via bioactivation. In healthy volunteers, approximately 3 hours after ingestion of a dietary nitrate load (**beetroot juice 500 mL**), BP was substantially reduced (Δ(max) -10.4/8 mm Hg); an effect that correlated with peak increases in plasma nitrite concentration. The dietary nitrate load also **prevented endothelial dysfunction induced by an acute ischemic insult** in the human forearm and **significantly attenuated ex vivo platelet aggregation** in response to collagen and ADP. Interruption of the enterosalivary conversion of nitrate to nitrite (facilitated by bacterial anaerobes situated on the surface of the tongue) prevented the rise in plasma nitrite, blocked the decrease in BP, and abolished the inhibitory effects on platelet aggregation, confirming that these vasoprotective effects were attributable to the activity of nitrite converted from the ingested nitrate. These findings suggest that dietary nitrate underlies the beneficial effects of a vegetable-rich diet and highlights the potential of a **“natural” low cost approach for the treatment of cardiovascular disease.**
Quercetin

- **Quercetin Enhances VDR Activity, Leading to Stimulation of Its Target Gene Expression in Caco-2 Cells.**
- **Inoue J, Choi JM, Yoshidomi T, Yashiro T, Sato R.**
- Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo.

**Abstract**

Vitamin D receptor (VDR) is a nuclear receptor that regulates the expression of genes involved in calcium homeostasis. **Activation** of VDR is thought to be a promising drug target for osteoporosis. Using a VDR-driven luciferase expression assay for screening a naturally occurring food component, we identified quercetin as a VDR activator. Quercetin also activated the GAL4 DNA-binding domain fused to the VDR ligand-binding domain. Moreover, it was confirmed that quercetin increases the mRNA level of TRPV6, which is a VDR target gene, in Caco-2 cells. These results indicate that quercetin enhances VDR activity through the alteration of cofactor recruitment, thereby stimulating its target genes while providing a new function for quercetin as the VDR activator.

- [LinkOut - more resources](#)
Garlic

- **Effect of garlic on atherosclerosis and its factors.**
- **El-Sabban F, Abouazra H.**
- Department of Family Sciences, College for Women, Kuwait University, Kuwait. farouk.elsabban@cfw.kuniv.edu
- **Abstract**
  Dietary patterns in the Mediterranean, characterized by high consumption of fruits and vegetables, especially garlic, are believed to be beneficial to the regional patterns of atherosclerotic disease. Garlic and many of its preparations have been widely recognized as effective in the prevention and treatment of atherosclerosis and other risk factors for cardiovascular disease. This review article examines the evidence from numerous scientific studies that have utilized various formulations of garlic and its preparations with varying results. It highlights the need for standardization of available garlic products to allow for better comparison of research findings in drawing conclusions about the beneficial effects of garlic on atherosclerosis.
- **PMID: 18557469 [PubMed - indexed for MEDLINE]**
Protective effect of lycopene on serum cholesterol and blood pressure: Meta-analyses of intervention trials.

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Abstract

BACKGROUND: Cardiovascular disease is associated with oxidative stress, inflammatory processes, and vascular dysfunction. Lycopene, a carotenoid found in tomatoes, is an antioxidant with a protective effect on lipid peroxidation and anti-atherosclerotic capacity. This review summarises current evidence on the effect of lycopene on serum lipid concentrations and blood pressure.

METHODS: We searched the PubMed and Cochrane databases for intervention studies between 1955 and September 2010 investigating the effect of lycopene on blood lipids or blood pressure for a minimum duration of 2 weeks. We conducted meta-analyses using a random effect model of all studies fitting the inclusion criteria. Additionally, we conducted subgroup meta-analysis of serum lipid concentrations by lycopene dosage and subgroup meta-analysis by baseline blood pressure.

RESULTS: Twelve studies (13 trial arms) meeting the inclusion criteria investigated the effect of lycopene on serum lipids, and four studies examined its effect on blood pressure. Meta-analysis on serum lipids revealed a significant cholesterol-lowering effect of lycopene for total serum cholesterol (mean change±SE: -7.55±6.15mg/dl; p=0.02) and low-density-lipoprotein (LDL) cholesterol (mean change±SE: -10.35±5.64mg/dl, p=0.0003) in the subgroup of trials using lycopene dosages of ≥25mg daily, whereas subgroup meta-analysis of trials using lower lycopene dosages was not significant. Meta-analysis of the effect of lycopene on systolic blood pressure of all trials suggested a significant blood pressure reducing effect (mean systolic blood pressure change±SE: -5.60±5.26mm Hg, p=0.04).

CONCLUSIONS: Our meta-analysis suggests that lycopene taken in doses ≥25mg daily is effective in reducing LDL cholesterol by about 10% which is comparable to the effect of low doses of statins in patient with slightly elevated cholesterol levels. More research is needed to confirm suggested beneficial effects on total serum cholesterol and systolic blood pressure.
Strawberries decrease atherosclerotic markers in subjects with metabolic syndrome.


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Abstract

Strawberries have been reported to be potent antioxidants and reduce cardiovascular risk factors, such as elevated blood pressure, hyperglycemia, dyslipidemia, and inflammation in limited studies. We hypothesized that freeze-dried strawberry supplementation will improve blood pressure, impaired glucose, dyslipidemia, or circulating adhesion molecules in obese subjects with metabolic syndrome, thereby lowering cardiovascular risk factors in these subjects. Twenty-seven subjects with metabolic syndrome (2 males and 25 females; body mass index, 37.5 +/- 2.15 kg/m(2); age, 47.0 +/- 3.0 years [means +/- SE]) consumed 4 cups of freeze-dried strawberry beverage (50 g freeze-dried strawberries approximately 3 cups fresh strawberries) or equivalent amounts of fluids (controls, 4 cups of water) daily for 8 weeks in a randomized controlled trial. Anthropometrics and blood pressure measurements, assessment of dietary intakes, and fasting blood draws were conducted at screen and 8 weeks of the study. Strawberry supplementation significantly decreased total and low-density lipoprotein cholesterol (5.8 +/- 0.2 to 5.2 +/- 0.2 mmol/L and 3.5 +/- 0.2 to 3.1 +/- 0.1 mmol/L, respectively [means +/- SE], P < .05) and small low-density lipoprotein particles using nuclear magnetic resonance-determined lipoprotein subclass profile vs controls at 8 weeks (794.6 +/- 94.0 to 681.8 +/- 86.0 mmol/L [means +/- SE], P < .05). Strawberry supplementation further decreased circulating levels of vascular cell adhesion molecule-1 vs controls at 8 weeks (272.7 +/- 17.4 to 223.0 +/- 14.0 ng/mL [means +/- SE], P < .05). Serum glucose, triglycerides, high-density lipoprotein cholesterol, blood pressure, and waist circumference were not affected. Thus, short-term freeze-dried strawberry supplementation improved selected atherosclerotic risk factors, including dyslipidemia and circulating adhesion molecules in subjects with metabolic syndrome, and these results need confirmation in future trials.
Move!
Exercise-induced Modulation of Endothelial Nitric Oxide Production

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- **Abstract**
- In the arterial wall nitric oxide (NO) is the key transmitter for endothelium-dependent regulation of vascular tone. It is produced in intact endothelial cells by endothelial NO synthase (eNOS) as the key enzyme from L-arginine. Endothelial NO generation is highly regulated by mechanical, humoral, and metabolic factors. The regulation of NO synthesis occurs at different levels: ENOS gene polymorphisms are related to eNOS expression and activity and may potentially increase coronary event rate, mRNA expression is influenced by estrogen status and shear stress, mRNA stability is enhanced by vascular endothelial growth factor (VEGF), and final enzyme activity is regulated by the phosphorylation status at serine/threonine residues. Released from endothelial cells NO is rapidly transported to the neighboring vascular smooth muscle cells (VSMCs), where it induces the production of cGMP as a second messenger. CGMP in turn increases Ca(2+) uptake into intracellular calcium stores thereby lowering [Ca(2+)](i) and inducing VSMC relaxation and vasodilation. On its way to the VSMCs NO may be prematurely degraded by reactive oxygen species. On the other hand, **chronic endurance exercise** with regular bouts of increased laminar flow along the endothelium has the potential to increase eNOS mRNA expression and phosphorylation via AKT (protein kinase B) and to **reduce oxidative stress by improving antioxidative protection**. The growing knowledge about the complex regulation of NO synthesis and degradation in cardiovascular diseases and its response to exercise has led to a new understanding of the **protective effects of long-term habitual physical activity against atherosclerotic heart disease and vascular aging**.

- PMID: 21235458 [PubMed - as supplied by publisher]
Physical exercise and endothelial dysfunction.

- [Article in English, Portuguese, Spanish]
- Ghisi GL, Durieux A, Pinho R, Benetti M.
- Universidade do Estado de Santa Catarina, Florianópolis, SC, Brasil. gaby_melo@hotmail.com
- Abstract
- The role of the endothelium was considered mainly as a selective barrier for the diffusion of macromolecules from the lumen of blood vessels to the interstitial space. During the last 20 years, many other functions have been defined for the endothelium, such as the regulation of the vagal tonus, the promotion and inhibition of neovascular growth and the modulation of inflammation, of platelet aggregation and coagulation. This finding is considered one of the most important concepts in modern vascular biology. Currently, atherosclerosis is the prototype of the disease characterized in all its phases by an endothelial dysfunction, defined as an insufficient offer of nitric oxide (NO), which predisposes the endothelium to oxidative stress, inflammation, erosion and vasoconstriction. In this sense, several experimental studies have demonstrated that physical exercise is capable of restoring and improving the endothelial function. The impact of exercise on the endothelium has been broadly discussed. Considering its vasodilating effect and the risk factors, the possibility of treating coronary artery disease and its outcomes without the inclusion of physical exercise became inconceivable. However, the literature is still controversial regarding the intensity of physical effort that is necessary to cause significant protective alterations in endothelial functions. Moreover, the association between intense physical exercises and increased oxygen consumption, with a consequent increase in free radical formation, is also discussed.
Filtered Water
Aquasana
www.drsalter.com
Hydration and disease

- Hydration and disease.
- Manz F.
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- Abstract
- Many diseases have multifactorial origins. There is increasing evidence that mild dehydration plays a role in the development of various morbidities. In this review, effects of hydration status on acute and chronic diseases are depicted (excluding the acute effects of mild dehydration on exercise performance, wellness, cognitive function, and mental performance) and categorized according to four categories of evidence (I-IV). Avoidance of a high fluid intake as a precautionary measure may be indicated in patients with cardiovascular disorders, pronounced chronic renal failure (III), hypoalbuminemia, endocrinopathies, or in tumor patients with cisplatin therapy (IIb) and menace of water intoxication. Acute systemic mild hypohydration or dehydration may be a pathogenic factor in oligohydramnios (Ila), prolonged labor (IIa), cystic fibrosis (III), hypertonic dehydration (III), and renal toxicity of xenobiotica (Ib). Maintaining good hydration status has been shown to positively affect urolithiasis (Ib) and may be beneficial in treating urinary tract infection (Iib), constipation (III), hypertension (III), venous thromboembolism (III), fatal coronary heart disease (III), stroke (III), dental disease (IV), hyperosmolar hyperglycemic diabetic ketoacidosis (Iib), gallstone disease (III), mitral valve prolapse (Iib), and glaucoma (III). Local mild hypohydration or dehydration may play a critical role in the pathogenesis of several broncho-pulmonary disorders like exercise asthma (IIb) or cystic fibrosis (Ib). In bladder and colon cancers, the evidence on hydration status' effects is inconsistent.
- Publication Types, MeSH Terms
Earthing
Earthing

- Can electrons act as antioxidants? A review and commentary.
- Oschman JL.
- Nature's Own Research Association, Dover, NH 03821-1935, USA. joschman@aol.com
- Abstract
- A previous study demonstrated that connecting the human body to the earth during sleep (earthing) normalizes the daily cortisol rhythm and improves sleep. A variety of other benefits were reported, including reductions in pain and inflammation. Subsequent studies have confirmed these earlier findings and documented virtually immediate physiologic and clinical effects of grounding or earthing the body. It is well established, though not widely known, that the surface of the earth possesses a limitless and continuously renewed supply of free or mobile electrons as a consequence of a global atmospheric electron circuit. Wearing shoes with insulating soles and/or sleeping in beds that are isolated from the electrical ground plane of the earth have disconnected most people from the earth’s electrical rhythms and free electrons. The most reasonable hypothesis to explain the beneficial effects of earthing is that a direct earth connection enables both diurnal electrical rhythms and free electrons to flow from the earth to the body. It is proposed that the earth’s diurnal electrical rhythms set the biological clocks for hormones that regulate sleep and activity. It is also suggested that free electrons from the earth neutralize the positively charged free radicals that are the hallmark of chronic inflammation. A relationship between cortisol and inflammation was established in the pioneering work of H. Selye published in the 1950s. Current biomedical research has led to an inflammation hypothesis that is establishing chronic inflammation as the culprit behind almost every modern chronic illness. The research summarized here and in subsequent reports provides a basis for a number of earthing technologies that restore and maintain natural electrical contact between the human body and the earth throughout the day and night in situations where going barefoot on the earth is impractical. It is proposed that free or mobile electrons from the earth can resolve chronic inflammation by serving as natural antioxidants.
- PMID: 18047442 [PubMed - indexed for MEDLINE]
Earthing

- The biologic effects of grounding the human body during sleep as measured by cortisol levels and subjective reporting of sleep, pain, and stress.
- Ghaly M, Teplitz D.
- Comment in:

**Abstract**

- **OBJECTIVES:** Diurnal cortisol secretion levels were measured and circadian cortisol profiles were evaluated in a pilot study conducted to test the hypothesis that grounding the human body to earth during sleep will result in quantifiable changes in cortisol. It was also hypothesized that grounding the human body would result in changes in sleep, pain, and stress (anxiety, depression, irritability), as measured by subjective reporting.
- **SUBJECTS AND INTERVENTIONS:** Twelve (12) subjects with complaints of sleep dysfunction, pain, and stress were grounded to earth during sleep for 8 weeks in their own beds using a conductive mattress pad. Saliva tests were administered to establish pregrounding baseline cortisol levels. Levels were obtained at 4-hour intervals for a 24-hour period to determine the circadian cortisol profile. Cortisol testing was repeated at week 6. Subjective symptoms of sleep dysfunction, pain, and stress were reported daily throughout the 8-week test period.
- **RESULTS:** Measurable improvements in diurnal cortisol profiles were observed, with cortisol levels significantly reduced during night-time sleep. Subjects’ 24-hour circadian cortisol profiles showed a trend toward normalization. Subjectively reported symptoms, including sleep dysfunction, pain, and stress, were reduced or eliminated in nearly all subjects.
- **CONCLUSIONS:** Results indicate that grounding the human body to earth ("earthing") during sleep reduces night-time levels of cortisol and resynchronizes cortisol hormone secretion more in alignment with the natural 24-hour circadian rhythm profile. Changes were most apparent in females. Furthermore, subjective reporting indicates that grounding the human body to earth during sleep improves sleep and reduces pain and stress.
- PMID: 15650465 [PubMed - indexed for MEDLINE]
ACTION PLAN

- Assess risk factors
- Establish your baseline of biomarkers
- Accept the reality of where you are
- Reduce and eliminate all modifiable risk factors (quit smoking, etc)
- Increase things that promote health (balance hormones, positive attitude, etc)
- Use high quality nutritional supplements: Orthomolecular Products: 1.800.842.0924. Program code SALT 10 (receive discount)
- **InflammaCore, Resvoxitrol, Triplichol, OrthOmega**
- Monitor biomarkers to establish improvement-Enroll in a Vibrant Health Investment Program (VHIP) at The Centre For Vibrant Health And Wellness
- Live a healthy, happy and vibrant life!
“I wish above all things that you prosper and be in health even as your soul prospers”
3 John 2