CMBM
Webinar Series

This webinar is hosted by Kathie Madonna Swift, MS, RDN, LDN, Food As Medicine Education Director for the Center for Mind-Body Medicine, presented by Canyon Ranch Medical Director and Food As Medicine Faculty Cindy Geyer MD, ABIM, ABOIM, ABLM.

This webinar is made possible in part by a grant from the Scheidel Foundation.

Scheidel FOUNDATION
Built on the Love of Family and Community

Taking Women's Health to Heart

Cindy Geyer, MD
Medical Director
Canyon Ranch Lenox

CMBM's Food as Medicine for Women's Health Webinar Series

CanyonRanch

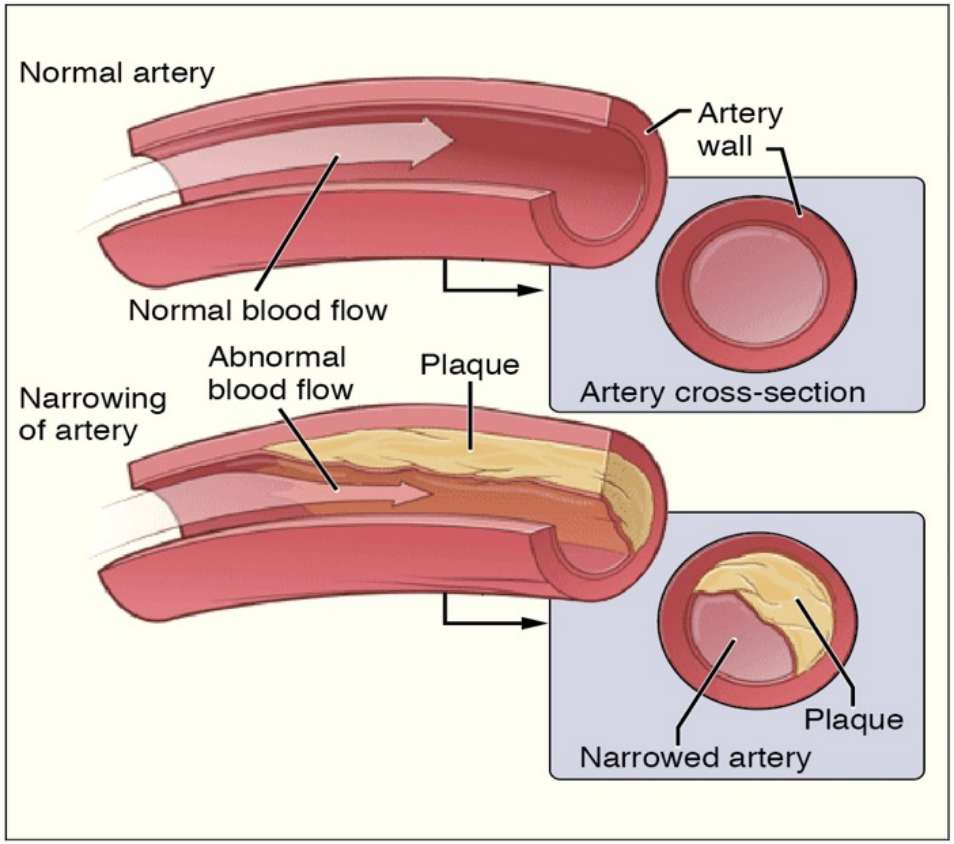
Heart Disease in Women

- Leading cause of death for women over 50: 1/3 women die from heart attack or stroke
- Symptoms may differ for women and can go unrecognized
- Outcomes after a heart attack tend to be worse for women

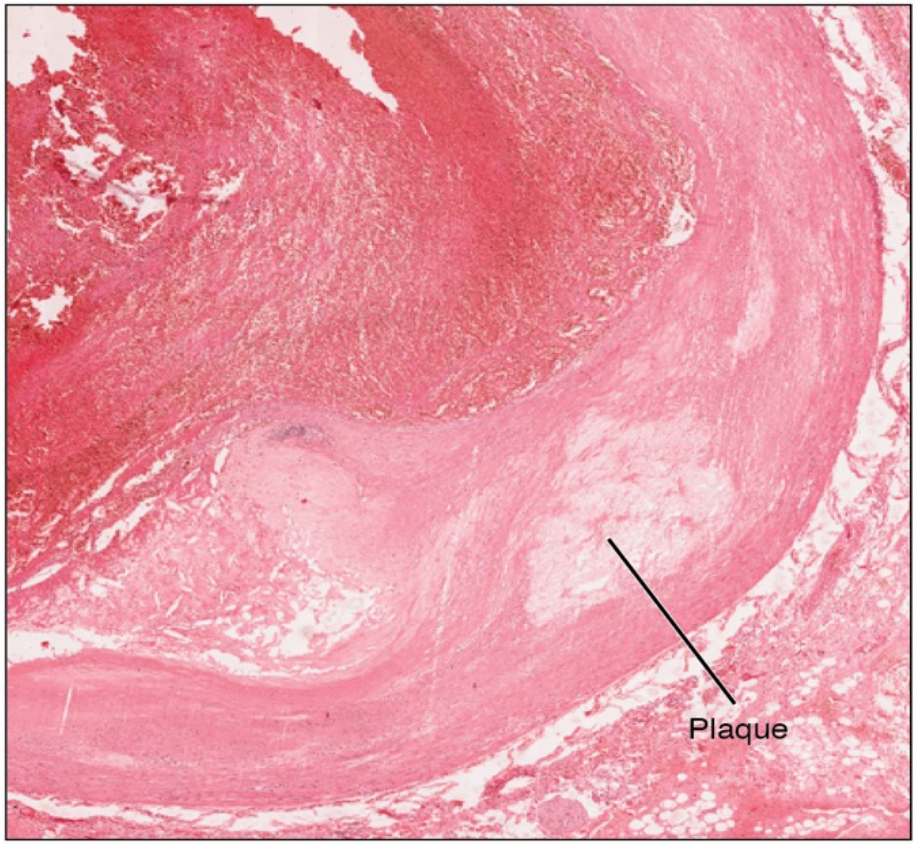
www.goredforwomen.org

Risk Factors for Heart Disease

- Family history, age
- Smoking
- Sedentary lifestyle/low fitness
- High blood pressure
- Dyslipidemia (quantity and quality of cholesterol)
- Diabetes/insulin resistance
- Overweight with “apple” shape
- Inflammation
- Stress
- “Western” dietary pattern



(a)

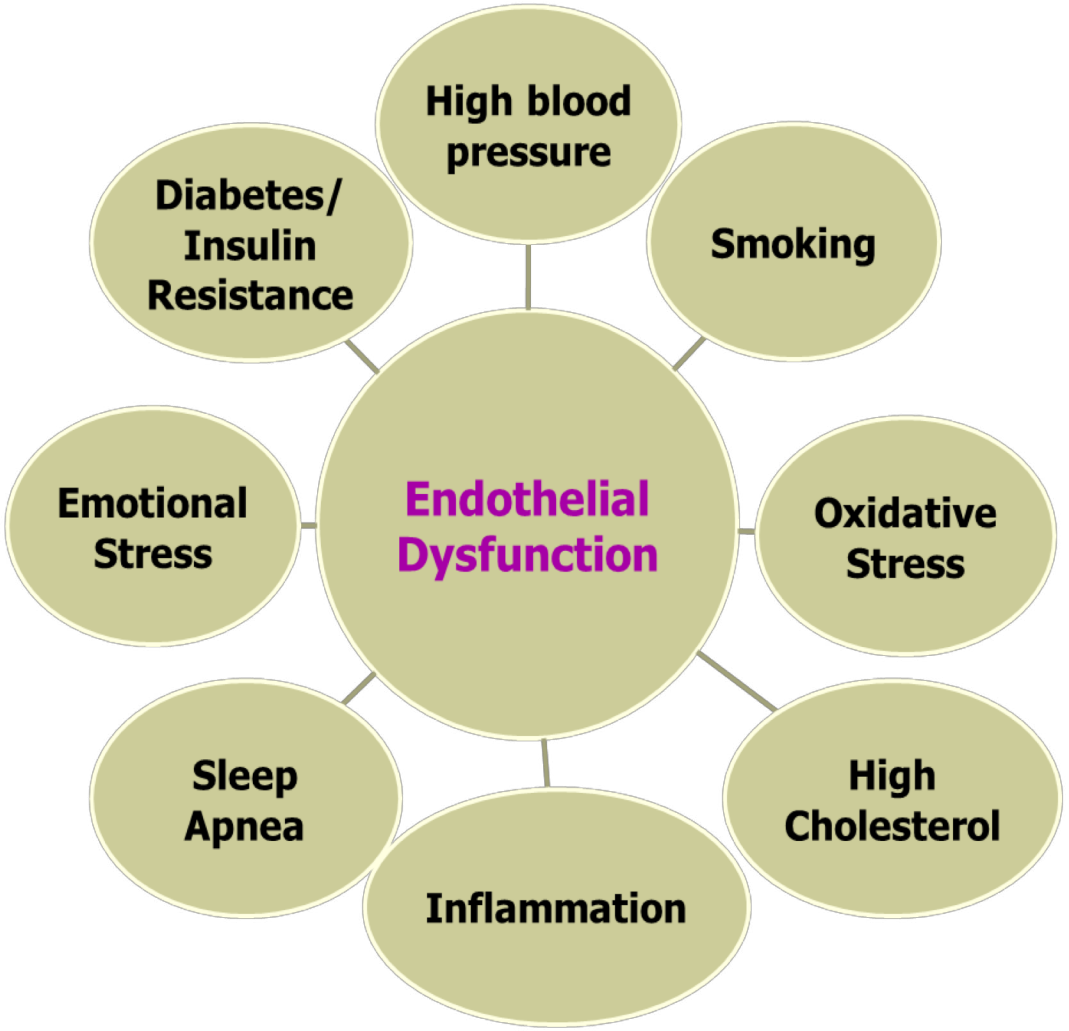


(b)

INOCA: Ischemia and No Obstructive Coronary Artery Disease

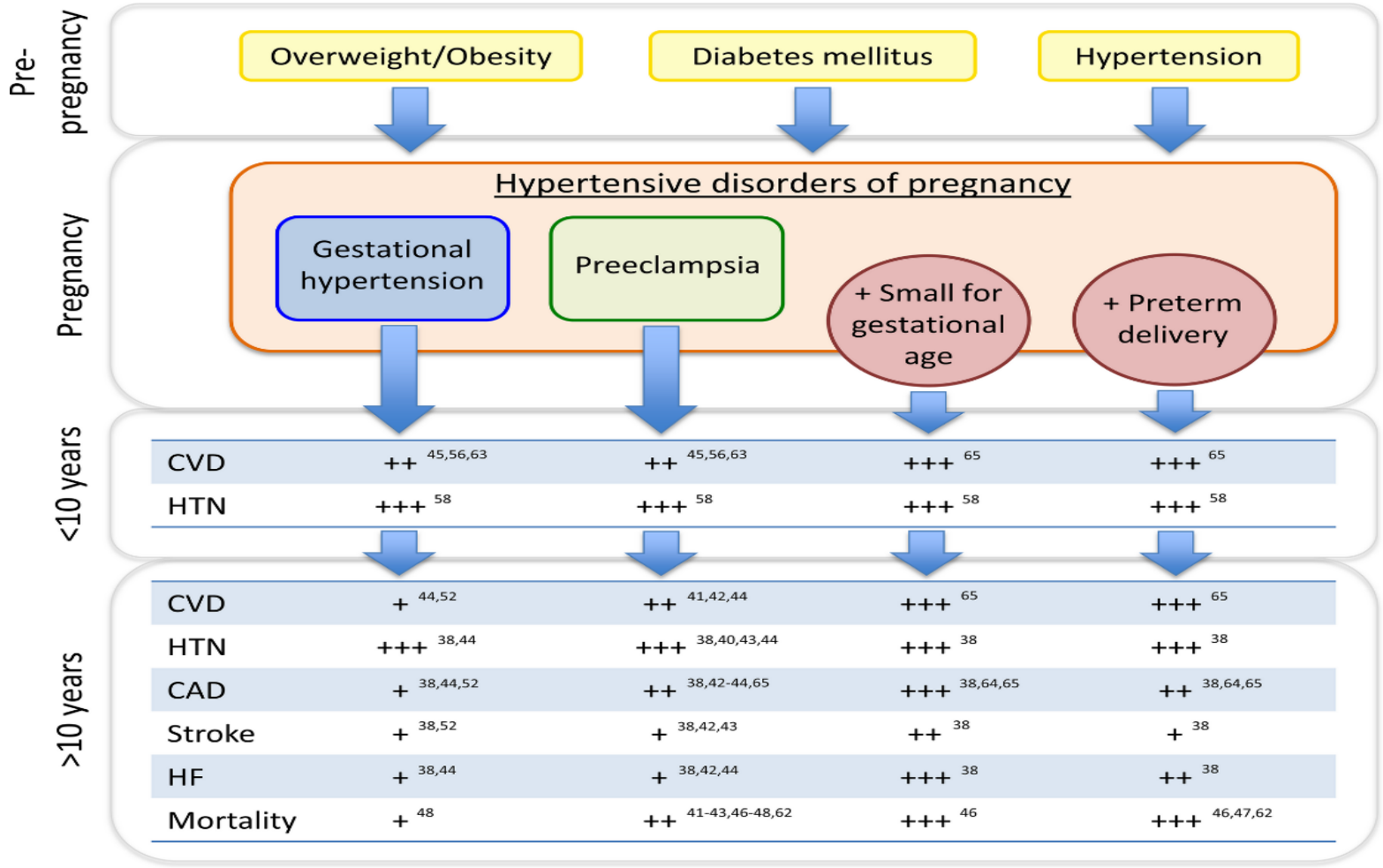
- Previously known as Cardiac Syndrome X
- 20-30% of women with ischemic heart disease
- 2.5 times higher risk heart attack, stroke, hospitalization with CHF
  - *Circulation 2017;135(11):1075-1092*
  - *Clin Cardiol 2018;41(2):185-193*

Endothelial Dysfunction



Endothelial Function: Early Marker of Blood Vessel Health

Auton Neurosci 2012; 169(2):107-112



Hypertensive Disorders of Pregnancy and Future Maternal Cardiovascular Risk, Volume: 7, Issue: 17, DOI: (10.1161/JAHA.118.009382)

2018 ACC/AHA Cholesterol Guidelines

- In all individuals, emphasize a heart healthy lifestyle across the life course
- In adults 40-75 evaluated for primary ASCVD prevention, have a clinician-patient risk discussion before starting statin therapy
  - Recognized preeclampsia, premature menopause, presence of inflammatory condition as contributors to risk
  - *Am J Coll Cardiol Nov 2018; doi:10.1016/j.jacc.2018.11.003*

hs-CRP, Lipids, and Risk of Future Coronary Events: *Women's Health Study*

Heart Disease as an Inflammatory Process

- Elevated CRP predicted future vascular events at every level of cholesterol:HDL
- High CRP with low cholesterol was equal to risk of high cholesterol alone
- Women with both high chol:HDL and elevated CRP: 9X higher risk
  - *NEJM 2000;342;836-843*

Factors Promoting Inflammation

- Obesity (VAT)
- Infections
- Smoking
- Sedentary lifestyle
- Stress
- Oral contraceptives and hormone therapy
- Excess calories
- Red meat/ saturated fat ?
- High glycemic diets
- Hydrogenated oils
- Food allergies
- Dysbiosis
- Toxic exposure (endogenous exogenous)
- Autoimmune conditions

Metabolic Syndrome: Insulin, Diabetes and the Heart

- 35% of US adults and 50% of those >60 meet criteria for metabolic syndrome
  - 5X increased risk T2DM
  - 2X increased risk CVD in next 5-10 years
  - 2-4X increased risk CVA
  - 3-4X increased risk MI
    - 2X increased risk of death after event

JAMA 2015;313(19):1973
Circulation 2009;120(16):1640-5

Diagnosis of the Metabolic Syndrome

RISK FACTOR	DEFINING LEVEL
– Overweight/obesity	• BMI >25 kg/m2
– Abdominal obesity	
• Men	• waist > 40 in (WHR >0.9)
• Women	• waist > 35 in (WHR >0.8)
– Low HDL	
• Men	• <40 mg/dL
• Women	• <50 mg/dL
– High triglycerides	• >150 mg/dL
– High blood pressure	• >130/85
– High fasting glucose	• >100 mg/dL

Circulation 2009 Oct;120(16):1640-5

Metabolic Syndrome: additional health impacts for women

- Polycystic ovarian syndrome
- Infertility
- Gestational diabetes
- Higher rates breast and uterine cancer
- Higher risk fibroids and endometriosis
- Higher rates of asthma, osteoarthritis
- Higher rates of depression

Waist Circumference: the Importance of VAT

- Visceral Adipose Tissue (VAT): independently associated with metabolic syndrome, *particularly among those of normal body weight*

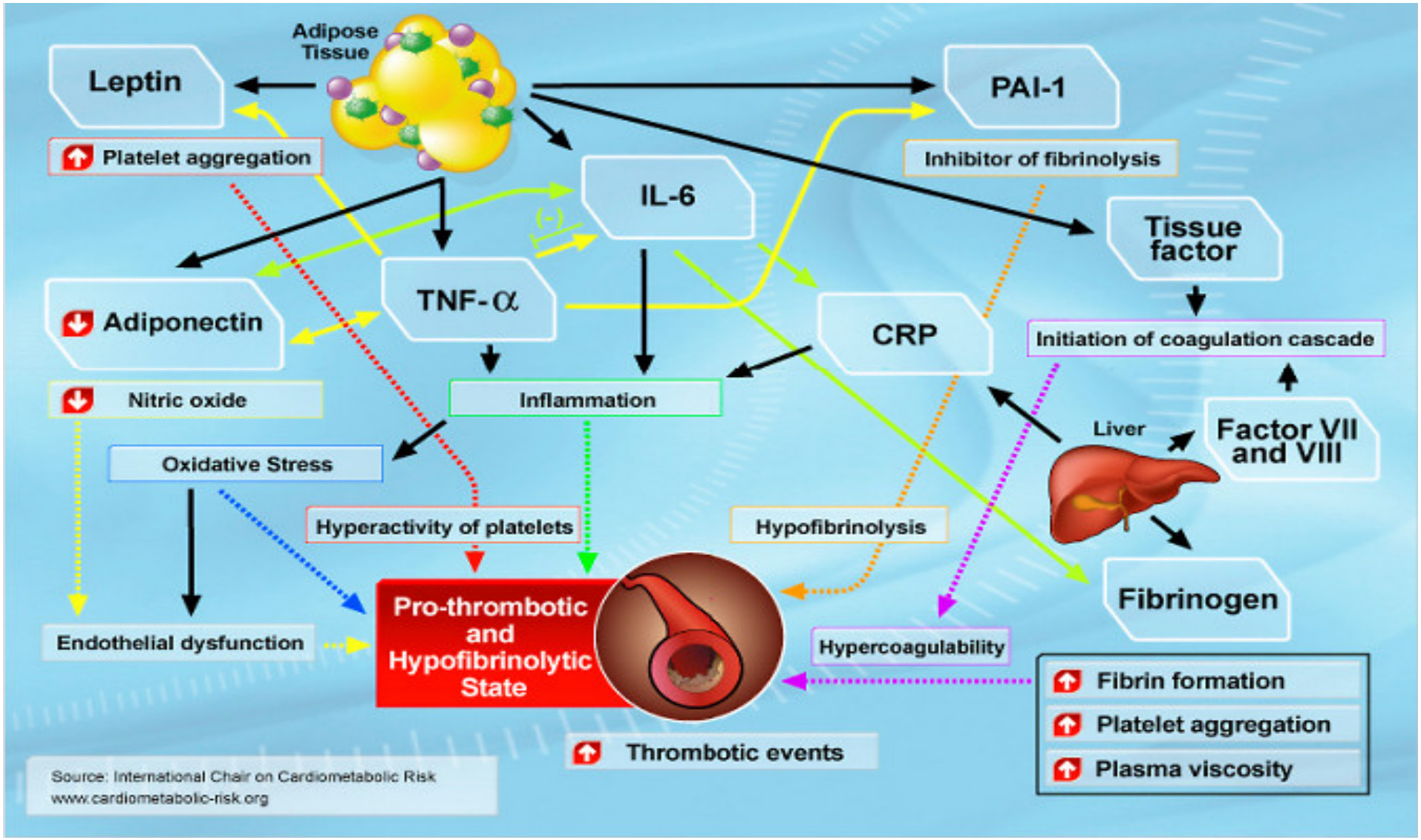
  Arch Intern Med 2005 Apr;165:777-83

- Nurses Health Study: waist >35 inches → 2X risk of death from heart disease or cancer

  Circulation 2008;117(13):1658-67

- EPIC-Norfolk study: hypertriglyceridemic-waist predicts heart risk

  CMAJ 2010 Sept;182(13):1427-32



www.myhealthywaist.org

The Gut and Cardiometabolic Syndrome

- Microbiome "signature" of T2DM:
  - Lower overall microbial diversity
  - Depletion of butyrate-producing bacteria
  - Depletion of akkermansia mucinophila and mucin-producing goblet cells
  - *Contributes to immunometabolic effects and gut derived endotoxemia that exacerbate inflammation and insulin resistance*
    - *Gut 2014;63:1513-1521*

"Western" Diet and Cardiovascular Risk: Interheart Study

- Graded, positive association between diet and risk
  - those in the highest quartile of "western" score: 92% increased risk of MI compared to the lowest quartile (OR 1.92)
- Diets high in fried foods, salty snacks, eggs and meat versus fruits and veggies
  - *Circulation 2008 Oct;118:1929-37*

Best Diet for Weight Loss?

- DietFITS: 12 month study
- High fat low carb versus high carb low fat
- Both equally effective for weight loss, results not correlated with insulin levels
  - *JAMA 2018;319(7):667-679*

- *Predimed Study: Med Diet plus EVOO or nuts*
- *Reduced risk DM, CAD; improved metabolic markers*

  - *Prog Cardiovasc Dis 2015;58:50-60*

Can We Say What Diet Is Best for Health?

D.L. Katz[1,2] and S. Meller[2]

[1]Prevention Research Center, Yale University School of Public Health, Griffin Hospital, Derby, Connecticut 06418; email: david.katz@yale.edu

[2]Yale University School of Medicine, New Haven, Connecticut 06510

	Low-carbohydrate	Low-fat/ vegetarian/vegan	Low-glycemic	Mediterranean	Mixed/balanced	Paleolithic
Health benefits relate to:	Emphasis on restriction of refined starches and added sugars in particular.	Emphasis on plant foods direct from nature; avoidance of harmful fats.	Restriction of starches, added sugars; high fiber intake.	Foods direct from nature; mostly plants; emphasis on healthful oils, notably monounsaturates.	Minimization of highly processed, energy-dense foods; emphasis on wholesome foods in moderate quantities.	Minimization of processed foods. Emphasis on natural plant foods and lean meats.
Compatible elements:	Limited refined starches, added sugars, processed foods; limited intake of certain fats; emphasis on whole plant foods, with or without lean meats, fish, poultry, seafood.					
And all potentially consistent with:	**Food, not too much, mostly plants[a,b,c].**					

[a]From Reference 135.
[b]Portion control may be facilitated by choosing better-quality foods which have the tendency to promote satiety with fewer calories.
[c]While neither the low-carbohydrate nor Paleolithic diet need be "mostly plants," both can be.

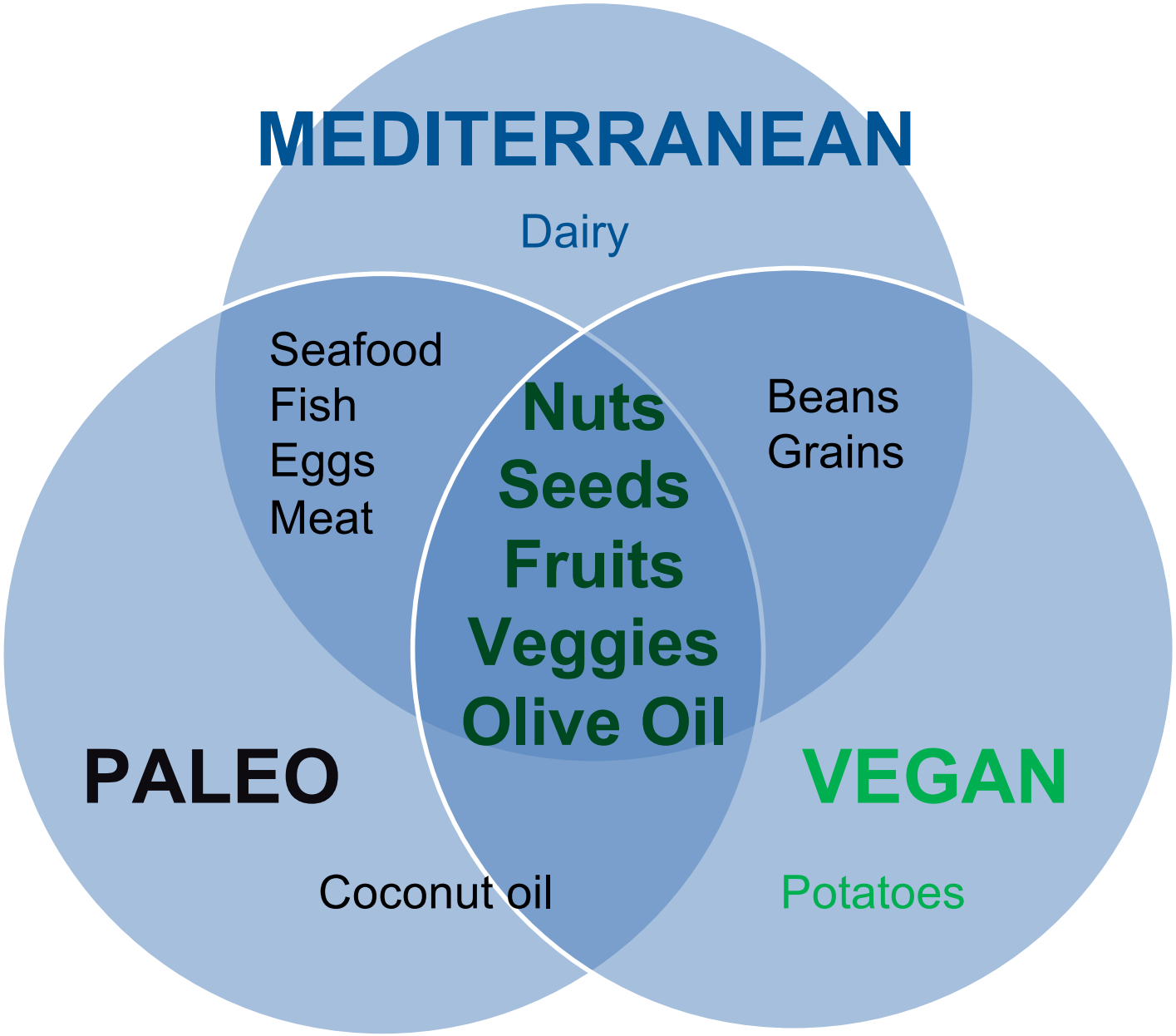
Katz DL, Meller S. 2014.
Annu. Rev. Public Health. 35:83–103

TrueHealth INITIATIVE

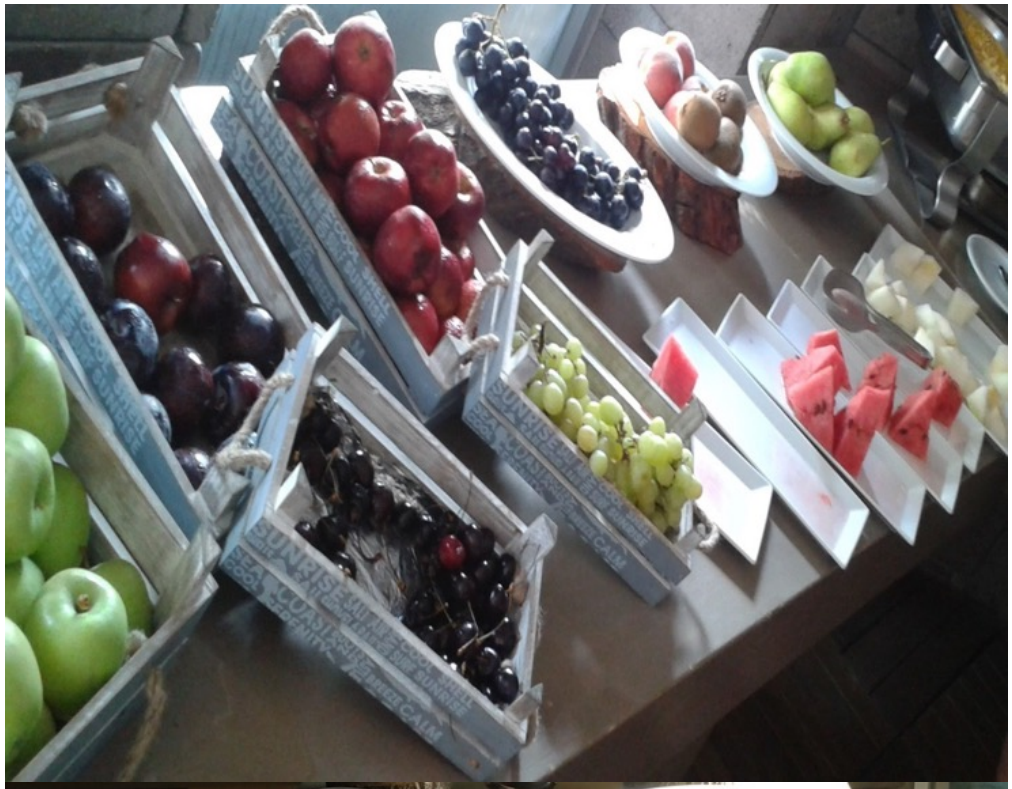
Processed Foods

Refined Sugars

Refined Industrial Oils



Food, not too much, mostly plants" – **Michael Pollan**



Calorie Restriction and Health

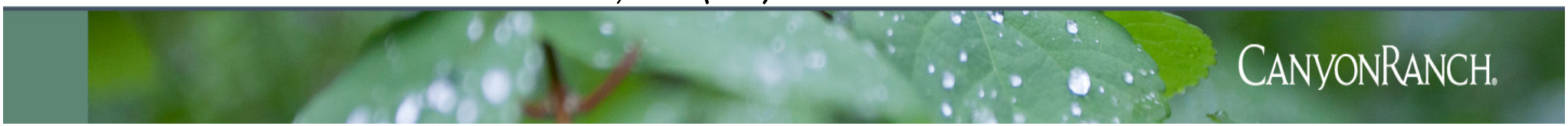
- CALERIE trial: 6 months calorie restriction
  - lowered oxidative stress, body temperature, fasting insulin
  - lowered triglycerides, diastolic blood pressure, factor VIIc and liver lipid (fat)
  - increased HDL cholesterol
- 3 months of calorie restriction: improved verbal memory by 20%
  - Sensitivity to insulin and levels of CRP (inflammation) also improved

PNAS 2009;106(4):1255-80

Obesity 2008;16(6):1355-62

Atheroscerosis 2009;203(1):206-13

JAMA 2006;295(13):1539-48



Timing of Meals and Cardiometabolic Risk

- Late night eating: 2 X risk of obesity
- 12 week study: Time Restricted Feeding (breakfast/lunch): lower weight, less fatty liver, and better glucose tolerance than same calories over 6 meals
  – *Nutrients 2017;9(3):222*
- High carb dinner worsened glycemic control
  – *Sci Rep 2017;7:44170*

- Higher proportion of calories in the evening: higher CRP
- Prolonging overnight fast: lower CRP
  – *PloS One 2015;10(8):e0136240*

Autoimmune conditions and cardiometabolic risk

- Psoriaris: >2X increased risk metabolic syndrome
  - *J Am Acad Derm 2013 Apr;68(4):654-62*
- Rheumatoid Arthritis: 2-3X increased risk cardiovascular disease in women independent of traditional risk factors
  - Increased inflammation
  - Alteration in HDL structure and function
    - *Acta Cardiol 2014 Apr;69(2):111-8*

What about statins?

- Benefits:
  - block enzyme involved in cholesterol production
  - Reduce inflammation (CRP), stabilize vulnerable plaques
  - Improve endothelial function
  - May slow plaque progression
  - Reduce risk of a second cardiac event in women who have already had a heart attack

Statins: potential downsides

- Negative impact on mitochondrial function
- Increase risk of diabetes
- Muscle aching, inflammation, decrease in exercise tolerance
- "Behavioral" effect: more people on statins have increased calorie and fat consumption
  - *Treat the person and her cardiovascular risk, not her cholesterol number*

Lifestyle, Diabetes and Heart Health

- 80% of diabetes and heart attacks may be preventable with healthy lifestyle (90% with healthy BMI/abdominal waist circumference)
  - Exercise
  - High fiber/low GI/low trans fats/high P/S ratio
  - Nonsmoking
  - Moderate alcohol intake

Arch Intern Med 2009;169:798-807
J Am Coll Cardiol. 2015;65(1):43-51

Secondary prevention of coronary artery disease: Exercise vs statins

Variable	Exercise	Statins
Cardiorespiratory fitness	Increase	No change or decrease
Cardiovascular mortality	Decrease	Decrease
Diabetes mellitus	Decrease	Increase
Cognitive function	Increase	No change or decrease
Fall risk	Decrease	No change or increase
Obesity/adiposity	Decrease	No change
Quality of life (*Physical domain*)	Increase	No change

Mayo Clinic Proceedings 2015 90, 1314-1319DOI: (10.1016/j.mayocp.2015.08.014)

Fitness and the Heart

- High fitness: 10 X lower risk metabolic syndrome/diabetes!
- Lower risk heart disease, heart failure and stroke
- 3 months of training:
  significant improvement in glucose, blood pressure, cholesterol
  weight

Diabetes Care 31:1242–1247, 2008
Stroke. 2016 Jul;47(7):1720-6

Stress and the Heart

The INTERHEART Study: 52 countries

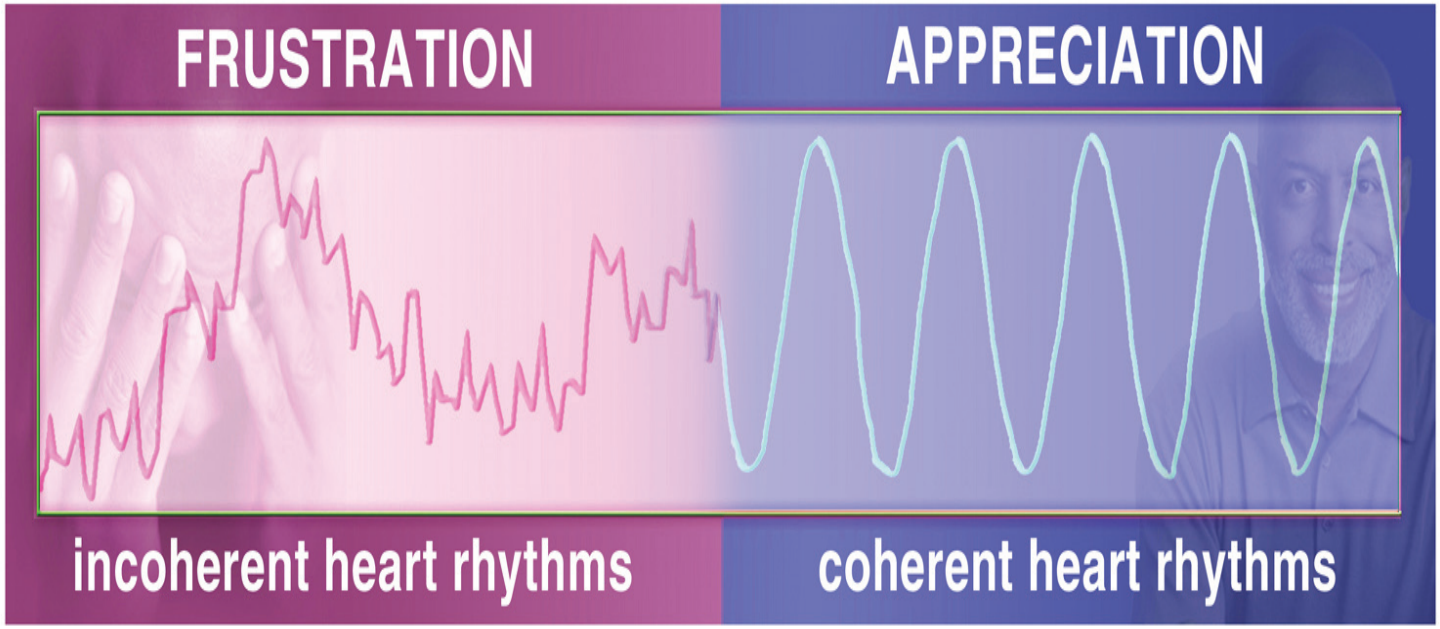
- Psychosocial stress (work, home, finances, major life events): increased risk heart attack
- Equal to risk from high blood pressure or abdominal obesity

Lancet 2004 Sep 11-17;364(9438):953-62

Adults: the more private and work life stress, the higher the risk of Type 2 diabetes

PLoS One 2015 Sep 22;10(9)

Emotions are Reflected in Heart Rhythms



Institute of HeartMath®

Sexual Assault/Harassment

- Sexual harassment: higher prevalence hypertension and poor sleep
- Sexual assault: higher prevalence depressed mood, anxiety and poor sleep
  - *JAMA Intern Med 2019;179(1):48-53*

  - *Important to establish trust, ask, take women's reports seriously*

Relationships, Social Support and CHD risk

- Loneliness and social isolation associated with 30% increased risk CHD/stroke
  - *Heart 2016;102(13):1009-1016*
- Women who "self silenced" during conflict with spouse: 4X ↑risk of death from CHD
  - Marital happiness, satisfaction or disagreements did not predict risk
    - *Psychosom Med 2007;69(6):509-513*

Takotsubo Cardiomyopathy: Broken Heart Syndrome

- 1-2.5% of patients coming in with acute coronary symptoms
- Precipitated by intense emotional or physical stress
- Exaggerated response to stress hormones: 90% of cases are postmenopausal women
- Estrogen may have a protective role
  - *Curr Cardiol Rev. 2013 Aug; 9(3): 191–196*
  - *Am Heart J. 2016 Feb; 172: 53–63*

Hormones and the Heart: an Evolving Story

- Timing, type and route of delivery are key
- Safest/most potential benefit on improving artery elasticity, slowing artery plaque progression, improving insulin sensitivity:
  - Within 3-5 (10?) years of last period
  - Transdermal route, estradiol form

- *Cochrane review: 48% lower risk of heart disease death for women starting HT before age 60*
- *Official AHA guidelines: do not recommend HT for the sole reason of protecting the heart*

- *Still need to consider estrogen's impact on breast cancer risk*

Atrial Fibrillation in Women

Risk factors:

- Genetics
- Age
- High BMI
- HTN
- DM
- Valvular heart disease
- Coronary artery disease
- Heart failure
- Sleep apnea
- Alcohol
- Hyperthyroidism
- Inflammation

Gender Differences:

Less common (23%)

Higher risk stroke

Higher mortality

Worse symptoms/QOL

Exercise lowers risk

(men: U shaped relationship with exercise and a fib)

Nat Rev Cardiol 2016;13(6):321-332

Sleep and the Heart

- Sleep apnea: strong predictor of metabolic syndrome, hypertension, cardiovascular and stroke risk, atrial fibrillation
- Underdiagnosed in women:
  - 2-3 times less likely to report classic symptoms of OSA

- Upper airway resistance syndrome more prevalent
  - Home studies, traditional diagnostic criteria less sensitive
  - Daytime functioning equally affected

Women and Sleep Apnea

- 30X more prevalent in PCOS
- More common in pregnancy, increases risk GDM/ HTN/ preeclampsia/ underweight babies/ C section

  Snoring: doubles risk
- >4X increase in sleep apnea in the menopause transition
  - *Biomed Res Int 2016;2016:1764837*
  - *Nat Sci Sleep 2018;10:45-64*

Sleep: Quality, Quantity, Timing

- Allow enough hours in bed, create a sanctuary for sleep
- Use breathing practices to transition to rest
- Timing of meals, movement and light to realign circadian rhythm
- Restless leg syndrome/ periodic limb movements more common in women, can be linked to low ferritin
- Don’t miss sleep apnea!

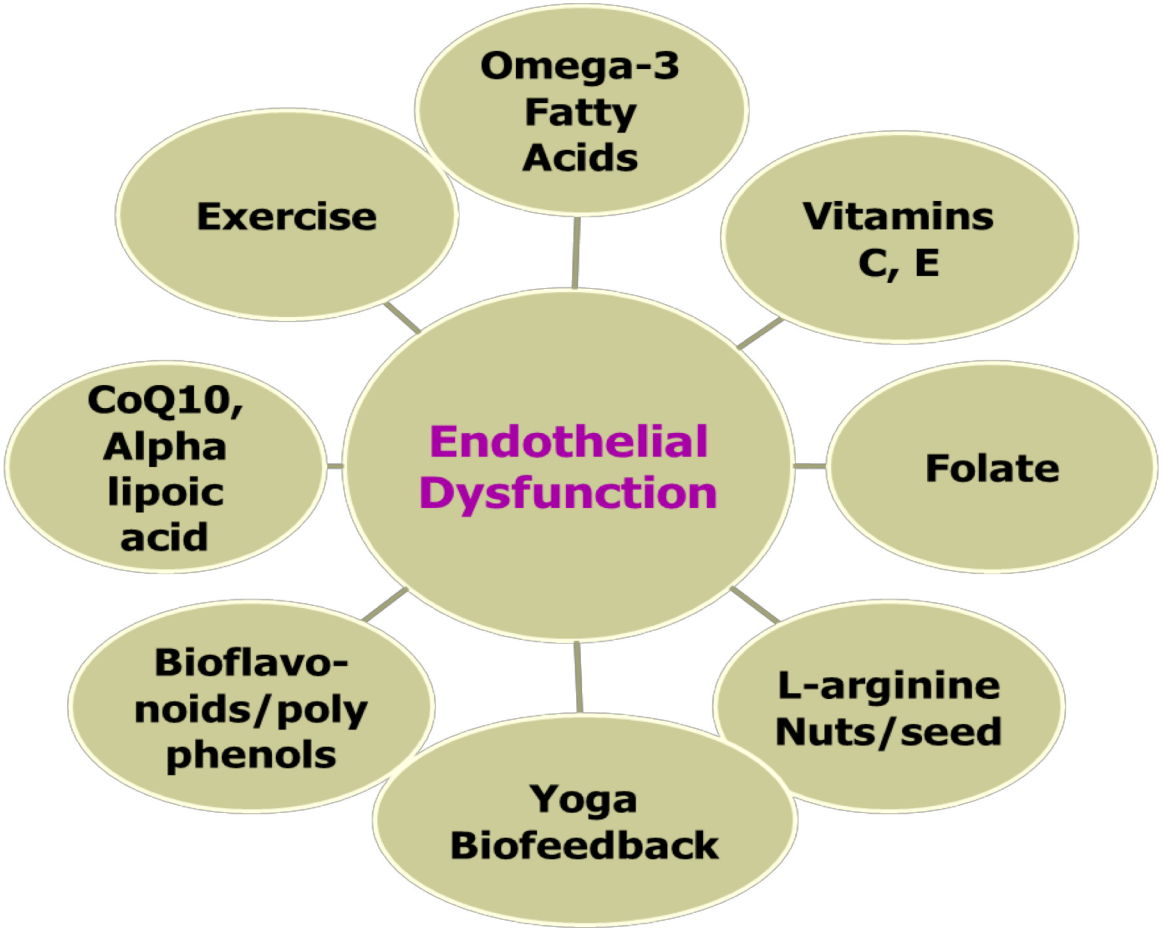
“White Coat” Hypertension

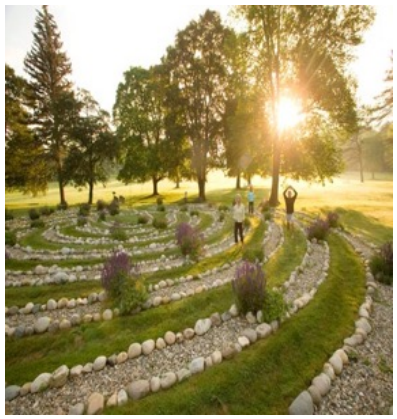
- Helpful diagnostics:
  - 24- hour blood pressure monitoring
  - Home blood pressure monitoring
  - Sleep study
  - Measurement of artery elasticity
  - Cardiometabolic stress test- what happens to blood pressure with exercise?

Key Predictors of Heart Health for Women

- Family history
- Pregnancy history: GDM, preeclampsia, pregnancy induced hypertension
- Polycystic ovarian syndrome
- Cholesterol- quantity and quality (particle size)
- Blood glucose, insulin, Hgb A1c
- Body composition/visceral adipose tissue
- hsCRP-inflammation; autoimmune conditions
- Artery elasticity, blood pressure
- Fitness level
- Stress, sleep, and social connections

Endothelial Health: Nutrition and Lifestyle





Behav Pharmacol. 2018;29(2,3):140-151
Heart Rate Variability reflects impact of diet and lifestyle

Drumming and the Heart

- Djembe drumming:
  - Low to moderate exercise
  - Safe for people of all ages and ability
  - Lowers stress and anxiety
  - Reduces blood pressure
  - Reduces inflammation
    - *PLoS One. 2016; 11(3): e0151136*
    - *J Cardiovasc Med (Hagerstown) 2014;15(6):441-6*

CMBM: Healing Hearts Worldwide

CMBM

Webinar Series

This webinar has been recorded. The presentation and the slides will be available within 24 hours at CMBM.org/webinar.

Food As Medicine for Women's Health

May 19 – 24, 2019
Esalen Institute
Big Sur, CA


Kathie Madonna Swift, MS, RDN, LDN


James S. Gordon, MD


Amy Shinal, MSW, LCSW


Catherine McConkie, NC


Cindy Geyer, MD


Aviva Romm, MD

cmbm.org/fam

Healing the Healer

Presented by Aviva Romm, MD

Thursday, March 20, 2019
12:30 EST / 9:30 PST

cmbm.org/webinar