

# Bale/Doneen Live Chat Session

Amy Doneen MSN, ARNP

June 13, 2012

5:30-6:30 pm PST

# Outline for today's discussion

## New Data:

Chocolate

Aspirin/bleeding

Statins/fatigue

Pistachios and BP

SEARCH data base

Endurance Training

Exercise in General

Review Articles x 2

## Cases – all people that have been in this week and last week:

1. National fruits and vegetable month
2. Endurance training – safe?
3. NT-Pro BNP
4. Long Term MPO
5. Stay off Actos?



# Dark chocolate reduces blood pressure

- Randomized, controlled, investigator-blinded, parallel-group trial with 44 adults, aged 56 to 73
- 18 weeks: one square (6.3 g) (30 cal) of dark chocolate per day or matching polyphenol-free white chocolate
- Dark-chocolate reduced mean systolic BP by 2.9 mm Hg ( $p < 0.001$ ) and diastolic BP by 1.9 mm Hg ( $p < 0.001$ )

*JAMA* 7/4/2007; 298:49-60

# Chocolate Lowers BP and CV Risk

- Observational survey data of 19,357 people; aged 35 to 65; 8-12 yr. follow-up
- Quartiles of average daily chocolate consumption: top  $\geq 7.5$  grams to bottom  $\leq 1$  gram
- Top quartile compared to bottom: 27% less likely to have a heart attack and 48% less likely to have a stroke
- Cocoa content is important; the higher the cocoa content the better; i.e. dark chocolate; 10 g of dark chocolate contains roughly 50 calories; less dark the more calories

Buijsse, B, et al. *Eur Heart J* 2010: DOI:10.1093/eurheartj/ehq068.  
Available at: <http://eurheartj.oxfordjournals.org>.

# Chocolate Associated with Lower Stroke Risk

- 33,372 women; 1,549 incident strokes in 10 yrs.

Multivariable stroke risk for a 50-g/week increase in chocolate

Stroke	Relative risk	95% CI
Total	0.86	0.77-0.96
Cerebral infarction	0.88	0.77-0.99
Hemorrhagic stroke	0.73	0.54-0.99

Larsson SC, et. al. *J Am Coll Cardiol* 10/18/2011; 58:1828-1829.



# Dark Chocolate:

## Effectiveness and Cost Effectiveness

2013 people with HTN, Met Synd with no history of CV disease and no HTN rx.

Treatment effects associated with dk. Chocolate derived from published meta-analyses used to determine the absolute number of cardiovascular events with and without treatment. Costs assoc with CV events and treatments were applied to determine potential funding required for dk chocolate therapy.

Daily consumption of dark chocolate (60-70% cocoa) can reduce CV events by 85/10,000 treated over 10 years.

\$42.00 per person per year spent on dark chocolate to see these results.

*Zomer, E, Owen, A, et al. The Effectiveness and Cost Effectiveness of Dark Chocolate Consumption as prevention therapy in people at high risk of CV disease. Posted: 6/7/2012: BMJ, BMJ Publishing Group..*

Study	Study design: Therapy	Duration (days)	Dosage (g/d)	Polyphenols per daily dosage (mg)
<b><u>SBP effects:</u></b>				
Taubert et al	Crossover: dk/wt	14	100	500
Grassi et al	Crossover: dk/wt	15	100	500
Taubert et al	Parallel: dk/wt	126 (18 wks)	6.3	30
Grassi et al	Crossover: dk/wt	15	100	1008
Muniyappa et al	Cross: flavonol	14	31 cocoa	900 (control: 28)
<b><u>Cholesterol:</u></b>				
Grassi et al	Crossover: dk/wt	15	100	88
Taubert et al	Parallel: dk/wt	126 (18 wks)	6.3	30
Balzer et al	Cross: flavonol	30	54	963 (control: 75)
Muniyappa et al	Cross: flavonol	14	31 cocoa	900 (control: 28)

*Zomer, E, Owen, A, et al. The Effectiveness and Cost Effectiveness of Dark Chocolate Consumption as prevention therapy in people at high risk of CV disease. Posted: 6/7/2012: BMJ, BMJ Publishing Group..*

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# Effectiveness and cost effectiveness of dark chocolate -

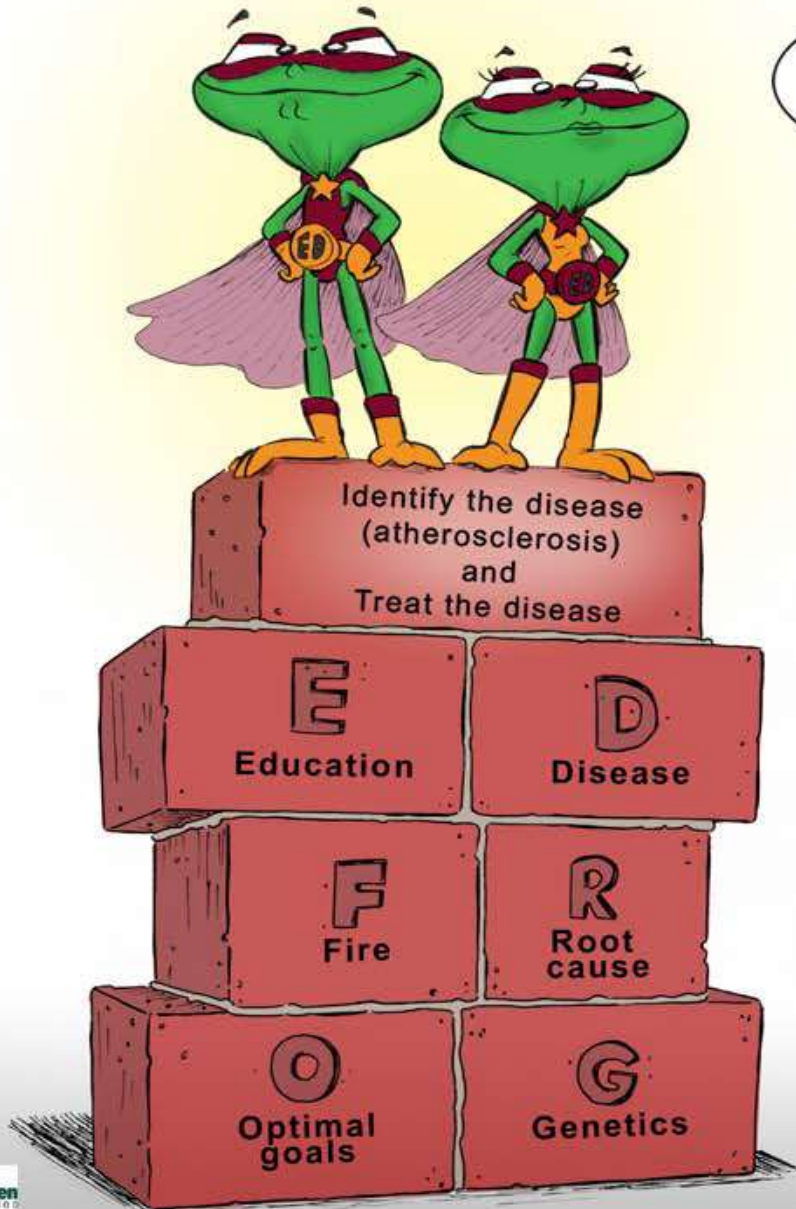
Compliance Level	Non-fatal CV Events prevented/ 10,000 people	Fatal CV events prevented/ 10,000 people	Years of life saved	Monies avail annually per person
100% comp.	70 (55-85)	15 (5-20)	40 (15-60)	\$42 (31-58)
90% compl.	60 (50-80)	10 (5-20)	35 (5-55)	\$39 (27-54)
80% compl.	55 (40-70)	10 (5-15)	30 (10-50)	\$34 (23-47)

With 100% compliance, dark chocolate consumption could potentially prevent 70 non-fatal (interquartile range 55-85) and 15 fatal (5-20) CV events per 10,000 population treated over 10 years. The estimated incremental cost effectiveness ratio was \$52,500 per years of life saved when \$42 per person per year was assumed to have been spent on a prevention strategy using dark chocolate.

*Zomer, E, Owen, A, et al. The Effectiveness and Cost Effectiveness of Dark Chocolate Consumption as prevention therapy in people at high risk of CV disease. Posted: 6/7/2012: BMJ, BMJ Publishing Group..*

# What's the difference?

## Bale/Doneen method



## Standard of Care



# Bleeding risk and Aspirin Therapy

Italian National Health Service: New users of low-dose aspirin ( $\leq 300\text{mg}$ ) from 2003-2008.

Of 241,844 individuals taking aspirin, 186,425 were selected for inclusion and compared with an equal number not taking aspirin. Median follow-up of 5.7 years, there were 1.6 million person-years of observation.

Results:

6907 first episodes of major bleeding – require hospitalization

4487 GI bleeds and 2464 intracranial hemorrhages

Rate of total

*Siller-Matula JM. Hemorrhagic complications associated with aspirin: An underestimated hazard in clinical practice. JAMA June 6, 2012; 307:2318-2320*

# Bleeding risk and Aspirin Therapy

## Results:

6907 first episodes of major bleeding – require hospitalization  
(4487 GI bleeds and 2464 intracranial hemorrhages)

Total Hemorrhagic events per 1000 person-years:

Aspirin users: 5.58

Non-Aspirin users: 3.60

IRR (incidence rate ratio) 1.55, and 1.54 per 1000 person years.

BD Take Away: Disease Treatment paradigm, low dose ASA is  $\leq 81$ mg and do aspirin resistant testing to make sure dose ok.

*Siller-Matula JM. Hemorrhagic complications associated with aspirin: An underestimated hazard in clinical practice. JAMA June 6, 2012; 307:2318-2320*



# Disease

HEALTHY

“Young” SOFT  
UNCALCIFIED PLAQUE

“Old” Hard  
CALCIFIED PLAQUE

Watch out! That young soft Plaque can be more dangerous than the old.

Plaque formation is an active process and its consistency changes over time. Some technologies (X-Rays) can only see hard calcified disease while others like ultrasounds can spot soft disease.

# US Preventive Services Task Force: Who should take aspirin to prevent cardiovascular disease?

“Aspirin use for men age 45-79 years old and women 55-79 years old when the potential for reducing MI outweighs the potential harm of bleeding”

## Questions:

1. Does aspirin prevent cardiovascular disease?
1. Do all men and women >45/55 have plaque?
2. Is plaque simply an age driven phenomenon?
3. How do we define primary/secondary/tertiary?

<http://www.ahrq.gov/clinic/cvd/aspprovider.htm>

# Patient Identification



## Primary

No disease.

Your gutter is cat free and we work to keep it that way.



## Secondary

Disease but no heart attack or stroke.

The cat is in the gutter. We need to make sure it doesn't get out

81 mg Aspirin



## Tertiary Prevention

Patient has had a heart attack or stroke.

The cat has gotten out of the gutter once before; we need to make sure it doesn't happen again.

81 mg Aspirin



# Statins and Fatigue...



# Statins and fatigue

1016 people (692 men, 324 women) with LDL 115-190 mg/dL and no CVD or DM - randomized to simvastatin 20mg, pravastatin 40mg or placebo x 6 mo.

Rated own changes from baseline in “energy” and “fatigue with exertion” – 5 point scale. (-2: much less to +2: much more)

Results:

Ave reduction of 0.25 points with simva and 0.17 points prava

Golomb BA, Evans MA, et al. Effects of statins on energy and fatigue with exertion: Results from a randomized controlled trial. Arch Intern Med June 11, 2012.

# Change in energy and exertional fatigue

Group	Placebo	Statin	p	Simva	p	Prava	p
All	-0.06	-0.21	0.005	-0.25	0.002	-0.17	0.06
Women	-0.06	-0.39	0.01	-0.47	0.004	-0.31	0.07

## Logistical regression analysis: Change in EnergyFatigEx Score

Group	Mean change	p
Statin	-0.51	0.001
Simvastatin	-0.68	0.001
Pravastatin	-0.33	0.03

Golomb BA, Evans MA, et al. Effects of statins on energy and fatigue with exertion: Results from a randomized controlled trial. Arch Intern Med June 11, 2012



# Pistachios reduce BP

28 adults with dyslipidemia completed a randomized, crossover, controlled-feeding study. All meals provided and calories controlled.

Average reductions in SBP were greater after diet containing 1 serving per day vs 2 servings per day of pistachios (mean change in SBP, -4.8 vs -2.4 mmHg,  $p < 0.05$ )

No effect of diet on fasting flow-mediated dilation.

*West S.G, Gebaurer S.Kl, et al. Hypertension. May 3, 2012; 60:58-63.*

# Diabetes and Children



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# SEARCH for Diabetes in Youth

2 components to the SEARCH:

1. Registry study of 25,000 with DM (4000 with T2DM)
2. Cohort study of 3000 children and adolescents with DM for at least 5 years who are being followed to watch for macro and microvascular complications

Data presented at 2012 ADA meeting: (2000-2009)

children <20 y.o. with T2DM increased 21%, up from 2.9 per 10,000 to 3.6 per 10,000.

*Hamman RF, Pettitt DJ, et al. Estimates of the burden of diabetes in United States Youth in 2009. American Diabetes Association 2012 Scientific Sessions; June 9, 2012; Philadelphia, PA*

# SEARCH for Diabetes in Youth

188,000 children and adolescents with diabetes in US

1. 168,000 T1DM & 19,000 T2DM
2. 12% with diabetic peripheral neuropathy including 26% of the T2DM children
3. Cardiac neuropathy also evident in these children, especially those with T2DM.

*Feldman EL, Marin CL, et al. Peripheral neuropathy in the SEARCH for Diabetes in Youth cohort: A pilot study. American Diabetes Association 2012 Scientific Sessions; June 9, 2012; Philadelphia PA.*





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# The Marathon.....and beyond..

- Number of Americans participating in marathons has gone up 20 fold over the last 35 years.
- SCD for marathoners – only 1 per 100,000
- The final mile of the 26.2 mile course accounts for 50% of the SCDs during the race.
- Fatality rate for triathlons is approximately twice that of marathons, largely due to increase in CV events during swim and drowning.

# Potential Adverse Cardiovascular Effects from Excessive Endurance Exercise

15 year observational study of 52,000 adults enrolled in the Aerobics Center Longitudinal Study (ACLS). Retrospective analysis

Healthy group – free from CVD, DM, Cancer

Overall: 2984 deaths and approximately 27% of the men and women participated in running as main form of exercise.

*O'Keefe, J., Harshal P, Lavie, C, et al. Potential Adverse Cardiovascular Effects Excessive Endurance Exercise. May Clin Proc. June 7 2012; 87(6): 587-595.*

# Potential Adverse Cardiovascular Effects from Excessive Endurance Exercise

Runners had 19% lower risk of all-cause mortality compared with non runners. U-shaped mortality curves for distance, speed and frequency

Optimal: Running 1-20 mi/week, speeds of 6-7 mph and frequency of 2-5 days were associated with a lower all-cause mortality.

Worse survival: higher mileage, faster paces, and more frequent runs.

*O'Keefe, J., Harshal P, Lavie, C, et al. Potential Adverse Cardiovascular Effects Excessive Endurance Exercise. May Clin Proc. June 7 2012; 87(6): 587-595.*

# Potential Adverse Cardiovascular Effects from Excessive Endurance Exercise

## Regular exercisers vs physically inactive:

Lower rates of disability

Mean life expectancy improved by 7 years

*O'Keefe, J., Harshal P, Lavie, C, et al. Potential Adverse Cardiovascular Effects Excessive Endurance Exercise. May Clin Proc. June 7 2012; 87(6): 587-595.*

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# Potential Adverse Cardiovascular Effects from Excessive Endurance Exercise

Chronic intense and sustained exercise can cause myocardial fibrosis, interventricular septum, and atrial & ventricular arrhythmias, coronary artery calcification, diastolic dysfunction and large artery wall stiffening.

Veteran endurance athletes have 5-fold increase in prevalence of Atrial Fibrillation

Intense exercise efforts can cause elevation in biomarkers of myocardial injury (troponin and B-type natriuretic peptide).

*O'Keefe, J., Harshal P, Lavie, C, et al. Potential Adverse Cardiovascular Effects Excessive Endurance Exercise. May Clin Proc. June 7 2012; 87(6): 587-595.*



# Bale/Doneen work-up for anyone participating in endurance exercise program

Define: primary/secondary/tertiary

Know Root causes of disease

Ask: *Why?*

Optimal goals – labs, dental, sleep, etc

Physical exam to include: Echo, Vascular Imaging and EKG, monitor?

Labs: hsCRP, F-2 Isoprostane, fibrinogen, MACR, LpPLA2, MPO, NT-ProBNP, Galectin-3.

Realize: Athletes are NOT immune to atherosclerosis!



# HERITAGE: Variability in HDL response to Exercise training.

- 675 sedentary, healthy, white & black men and women (from about 200 families), age 17-65
- 20 weeks of supervised cycle ergometer exercise. 3 x per week for 20 weeks progressing from initial duration of 30-50 minutes per session for the last 6 weeks of training.
- Most sign change noted in lipid profile was mean increase in plasma HDL of 3.6% with no sign difference noted by sex, generation or race.

*Leon, A.S., Gaskil S.E., et al. Variability in the response of HDL cholesterol to Exercise training in the HERITAGE family study. Int J Sports Med 2002; 23: 1-9.*

# Adverse Metabolic response to regular exercise: Is it rare or common?

7 studies, 1687 adults. Reproducibility: 60 subjects measured 3 times over a period of 3 weeks – SBP, HDL, TG, Insulin

Looking for adverse response – defined as an exercise-induced change that worsens a risk factor beyond measurement error and expected day-to-day variation.

*Bouchard, C., Blair, S., et al. Adverse Metabolic Response to Regular Exercise: Is it a rare or Common Occurrence. PLoS ONE 7 (5): April 25, 2012.*

# Adverse Metabolic response to regular exercise: Is it rare or common?

**HERITAGE** – 473, parents <65, offspring 17-41, 20 weeks exercise endurance training.

**DREW** – 326, menopausal, sedentary women. Non exercise and endurance exercise r/t wt loss

**INFLAME** – sedentary men and women 30-75 y.o. with elevated hsCRP, endurance and control with a mean of 204 min/week.

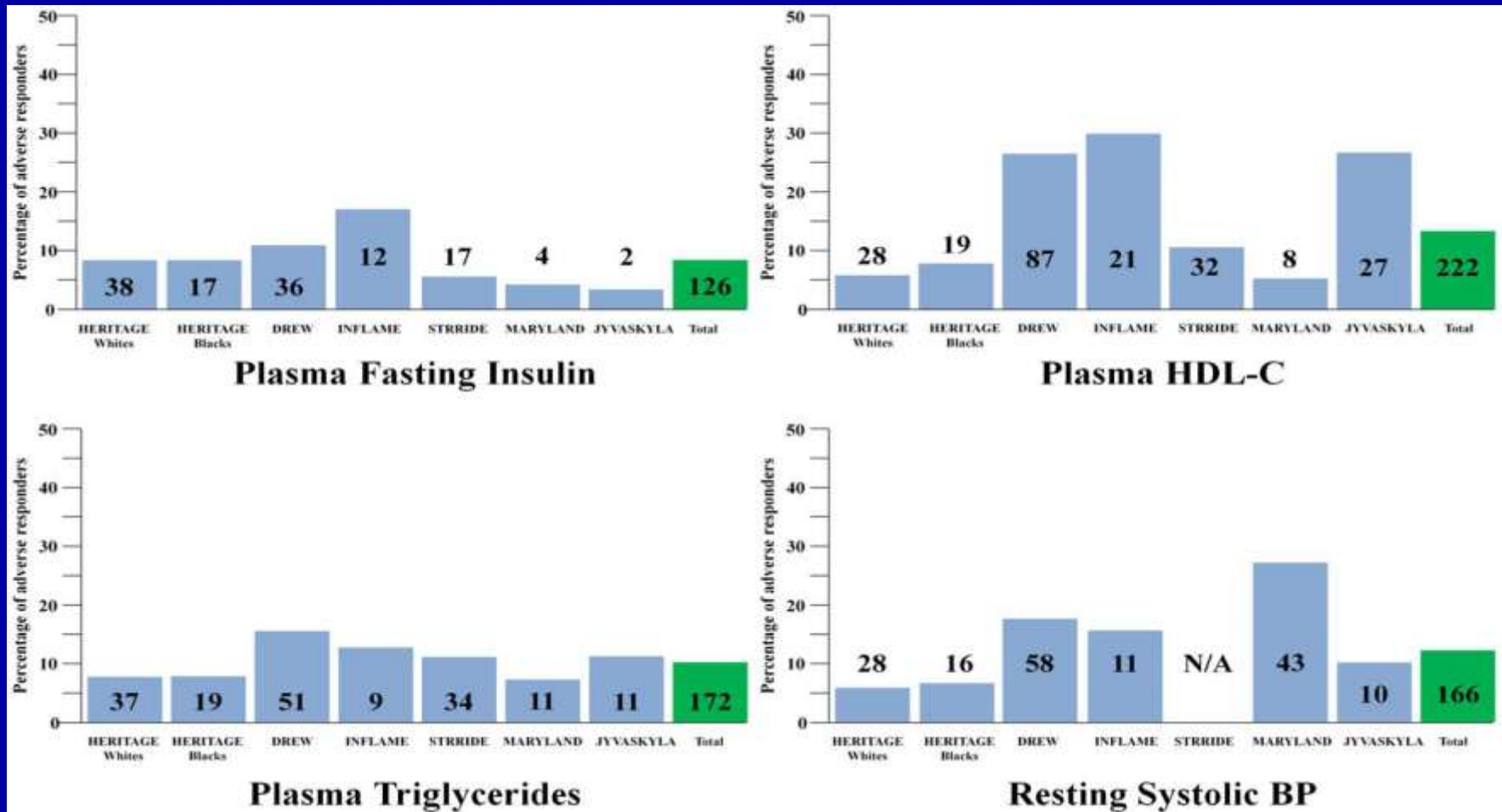
**STRIDE** – 40-50 y.o. sedentary, obese dyslipidemic men and women assigned three training programs for 6 months.

**MARYLAND** – 160 men and women age 50-75 sedentary, nondiabetic and nonsmoking – exercised 3 times/week for 6 months.

**JYVASKYLA** – 206 healthy, sedentary 40-67 year old men and women. Combined endurance and strength training groups who exercised for 21 wk

*Bouchard, C., Blair, S., et al. Adverse Metabolic Response to Regular Exercise: Is it a rare or Common Occurrence. PLoS ONE 7 (5): April 25, 2012.*

# Adverse Metabolic response to regular exercise: Is it rare or common?



*Bouchard, C., Blair, S., et al. Adverse Metabolic Response to Regular Exercise: Is it a rare or Common Occurrence. PLoS ONE 7 (5): April 25, 2012.*

# Adverse Metabolic response to regular exercise: Is it rare or common?

## Overall Interesting findings:

1. No substantive difference observed in the prevalence of AR's across the three levels of exercise energy expenditure – ranging from 4 to 12 kcal/kg of body weight per week.
2. Approx 7% of sedentary adults experienced AR's for at least 2 common cardiometabolic and diabetes risk factors following exposure to regular exercise.
3. Only a small minority of participants (<1%) exhibited ARs for 3 or more traits.

*Bouchard, C., Blair, S., et al. Adverse Metabolic Response to Regular Exercise: Is it a rare or Common Occurrence. PLoS ONE 7 (5): April 25, 2012.*



# Year in Review

## Articles of interest



# Nice review article to obtain...

Vascular Medicine in *Circulation* and the *Circulation*  
Subspecialty Journals 2010-2011

## 55 cited articles – ranging from:

Vascular age in children (2)

Vascular dysfunction in offspring of pre-eclamptic mothers (17)

Lipo(a) genetic variants (30)

Physical activity and vascular endothelial function (53)

*Circulation* June 5, 2012: Vascular Medicine in *Circulation* and the *Circulation*  
Subspecialty Journals. DOI: .1161/CIRCULATIONAHA.112.1169050



# Recent Advances in Preventive Cardiology and Lifestyle Medicine

Atherosclerotic and Hypertensive diseases (ischemic heart disease and cerebrovascular disease) are projected to be the most frequent causes of death world-wide for the year 2020.

Urgent need to recognize and treat CVD!

This is a Global Health Crisis. Seeking broad international consensus and commitment of resources.

**BD Response:** We MUST track our clinical data in order to show that prevention through a disease treatment paradigm is the answer!

*Labarthe, D R., Dunbar S.D., Global Cardiovascular Health Promotion and Disease Prevention 2011 and Beyond. May 29 2012. Circulation. 2012; 125:2667-2676*

# Cases to discuss today: Goal: Real life – cases on my desk now.

1. June is National Fruits and Vegetable Month
2. Endurance exercise? Are you safe?
3. NT-Pro BNP utility in AF patient.
4. Long term MPO Case
5. Can she stay off Actos?

# Case #1: Natl' Fruits and Vegetable Month -

Mary. DOB 1.24.1922. Lives alone age 90

First met Mary at age of 83 September 2005.

Reason: Eye and Breast Cancer – imaging showed “blocked artery on r. side of head”. CAD 2001, stent x 3. Referred to me from PCP.

Initial testing:

2005: cIMT mean CCA 1.072mm with ++ soft internal

2005: Carotid Duplex: WNL

2004: Stress Thallium: WNL, EF 60%

2005: ABI: WNL

2005: AAA: WNL

Regular CXR and EKG: WNL



# Mary – Root Causes & Treatment

## Dx/Root Causes of ASVD

1. Hyperlipidemia
2. Pre-hypertension
3. CAD – stent x 3
4. ASVD – cIMT
5. Insulin resistance – IGT
6. IR dyslipidemia
7. Metabolic syndrome
8. KIF 6
9. 9P21
10. Apo E 3/3
11. Low Vitamin D

## Treatment

- Entry (2005): Ativan, Zocor, Toprol, Aspirin, Vit E
- Now (5.22.2012)
  - Niaspan 1000mg
  - Omega 3: 1 gram
  - Simvastatin 10mg
  - Vitamin D3 5000mg
  - Aspirin 81mg
  - Plavix 75mg
  - Ramipril 2.5mg
  - IR: tried TZD.....now: lifestyle

	9/2005	2006	2007	2008/09	2010	2011	2/2012
TC	157	138	136	153	143	142	160
TG	156	166	119	133	118	87	162
HDL	40	50	59	52	69	69	81
LDL	86	55	60	74	50	56	47
TC/HDL	3.9	3.3	2.5	2.9	2.0	2.1	1.9
FBS/A1c	95/6.0	113/5.6	101/5.7	92/5.8	107	108	100
2 h OGTT	170						
hsCRP	1.4	0.6	0.4	1.4	1.0	1.2	0.8
MACR	6.4	6.3	4.2	6.0	13	7	19
Lp-PLA2	209	182	150	145	236	176	186
NT-BNP	41	96	467	61	101	82	99
Vit D				37	58	74	66
Treat:		TZD	Off tzd	D3			Lifestyle!
IMT	1.072	1.073	1.16	1.13	1.15	1.14	1.22

	9/2005	2011	2/2012
TC	157	142	160
TG	156	87	162
HDL	40	69	81
LDL	86	56	47
TC/HDL	3.9	2.1	1.9
FBS/A1c	95/6.0	108	100
2 h OGTT	170		
hsCRP	1.4	1.2	0.8
MACR	6.4	7	19
Lp-PLA2	209	176	186
NT-BNP	41	82	99
Vit D		74	66
Treat:			Lifestyle!
IMT	1.072	1.14	1.22

February 2012: Mary pulled out her “vitamixer” and began to mix fresh vegetables and fruits for breakfast and lunch along with her regular diet. Exercise continued – walking and sit-n-be-fit program on Television. Still struggles with “sweat tooth” but limits sweets. No change in medication!



	9/2005	2011	2/2012
TC	157	142	160
TG	156	87	162
HDL	40	69	81
LDL	86	56	47
TC/HDL	3.9	2.1	1.9
FBS/A1c	95/6.0	108	100
2 h OGTT	170		
hsCRP	1.4	1.2	0.8
MACR	6.4	7	19
Lp-PLA2	209	176	186
NT-BNP	41	82	99
Vit D		74	66
Treat:			Lifestyle!
IMT	1.072	1.14	1.22

Labs: 4/25/2012:

Saw Dr Jeff Emery June 4 2012

TC: 90

TG: 32

HDL: 61

LDL: 23

TC/HDL 1.5

FBS: 93

A1C: 5.6

hsCRP: 6.1 – back injury

MACR: 5.0

Lp-PLA2: 176

Plan: Enjoy chocolate and cinnamon & juicing! Consider decrease in simva to 5 mg.





Kevin Smith

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# Case 2: Endurance – Is it OK?

19,330 ft.

## Climbers:

70 year old male and  
female with known  
ASVD and CAD, HTN  
and IR



# Established patients since 2004

- Both with known vascular disease – CAD and Carotid. Various challenges with med intolerances over the years. ALWAYS consistent with exercise.
- Prior to climb:
  - Daily exercise 30 min CV and followed scheduled progressive, slow build up which included stairs and weights.



## Pre and post climb:

- NT-Pro BNP <125
- Galectin 3's < 12
- Echo, EKG: WNL
- Inflammatory markers: all stable!!
- Dental: cleaning up to date every 3 months
  
- Only person on the climb that didn't make it was a 36 year old thin, healthy female – not prepared.
  
- Last visit: yesterday 6/12/2012 – doing well.  
During the climb she lost 8 pounds and still trying to put back on. Both did great.

# “How do I know if I’m O.K.?”



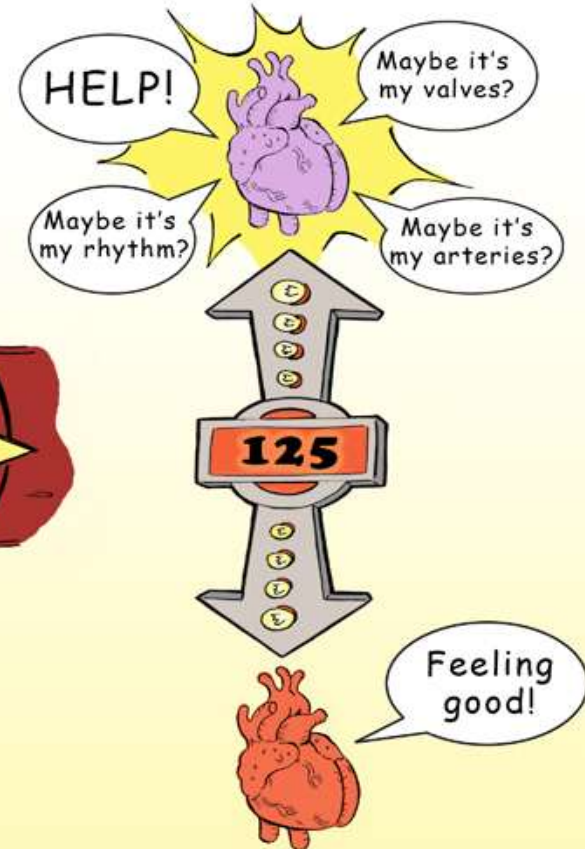
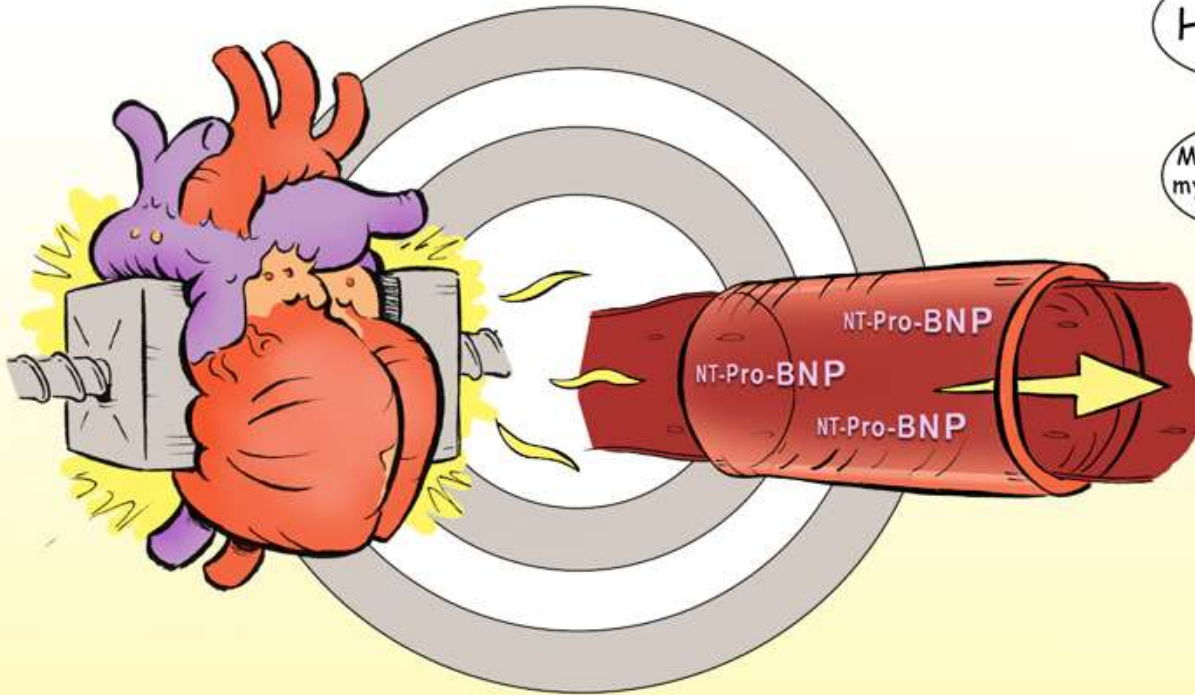
# Case 3: Using NT-Pro BNP with AF?

- Fred: Initiated care in 2002 – CAD, DM
- 2009: developed AF – had ablation 5.27.2011
- Last visit (today 6/13/2012) – question –  
“Amy – my cardiologist is doing EKG’s periodically to make sure I don’t have any more AF but I was never in AF all the time?” I couldn’t always tell if I was in AF or not – how do I know my heart is OK?”



# The Happy Heart Test

If your heart could talk,  
would it tell you it was happy?



## N Terminal Pro-Brain Naturetic Peptide

When the heart muscle is under strain, such as a clogged artery, an arrhythmia, a bad heart valve or muscle damage from a heart attack, **NT-Pro-BNP** is a hormone released into the blood from the muscle cells of the heart... basically asking for help.

A blood test measures your **NT-Pro-BNP** levels. If your level is under 125 most likely your heart is happy. If it is over 125 there is a 33% chance that your heart is not happy and under stress.



# NT-ProBNP

2006	127
2007	455 – adjusted BP meds, echo WNL
2008	130
2009	1168 – fatigue, SOB, sent in – AF dx
2/2010	153
11/2010	2190 – sent to Mayo to another EP –
2/2011	1518 – ablation scheduled for 5/27/2011
10/2011	258 – EKG WNL – “Am I ok?”
3/2012	102

# Case # 4: Long term MPO

- 63 year old female – moved to Hawaii !



# 63 year old female with coronary artery and carotid artery disease

- Family history – mom died at 74 with CHF and CVA, father died at 68 with CAD positive smoker, sister with coronary bypass surgery in her early 60's
- Lifestyle – retired, exercises off and on, non-smoker, recently lost 26 pounds with Jenny Craig – current weight 117 pounds, waist 24 inches, feels great (last appt prior to moving 11/1/2011)

# Structural and cause of disease -

## Positive CACS in 2003

Initial diagnosis: hyperlipidemia, pre-HTN, lipo (a), CAD (CACS)

Initial treatment included lifestyle advice, aspirin 81mg, ramipril 10mg, pravastatin 40 mg and Niaspan 1000mg.

Started following her atherosclerosis with carotid IMT testing in 2007 –

IMT started to show lack of improvement in 2008 – searching for answers led to investigation of MPO and other root causes of aggressive atherosclerotic process.

# 2008 – All Risk Factors Stable

TC: 136

TG: 39

HDL: 79

LDL: 49

TC/HDL: 1.7

Lipo(a): 68

FBS: 91

A1C: 5.5

OGTT: 2hr: 112

CBC, CMP, Thyroid all WNL

BP: 112/62

Pulse: 72

Resp: 16

Waist 26 inches

Weight: 128 pounds

Exercise: 5 x week

ETOH: 1 d: Apo E 3/3



# Despite stable risk factors, cIMT and inflammation WAY off -

CIMT 11/5/2008 –

Mean CCA IMT: 0.75 mm

Plaque: all SOFT lesions!

Right: 3.3mm S bulb, 3.3mm S internal

Left: 2.5 mm S bulb, 2.2 mm S internal

Inflammation –

hsCRP: 3.3mg/L

LpPLA2: 237

Fibrinogen: 346

MACR: 2.5

# Why? What are we missing??

11/24/2008:

- MPO: 955 !
- Patient already taking statin, niacin, fish oil, ramipril, aspirin.....what else to do?
  - Question:
    - Tried to increase Niaspan to 1500mg – stay at 1000
    - Changed to Crestor 10 mg from Pravastatin 40mg
    - ??Adding off label pioglitazone 7.5mg?

	11/24/2008	7/23/2009	8/17/2010	10/17/2011
TC		151	163	147
TG		35	48	36
HDL		94	91	80
LDL		50	62	60
TC/HDL		1.6	1.8	1.8
F2-Iso		2.09	1.2	1.14
hsCRP	3.8	2.5	1.2	0.8
MACR	2.5	2.5	3.5	7.0
Lp-PLA2	237	167	181	213
MPO	988	<245	155	168
FBS/A1C	99/5.8	91/ 5.6	85/5.7	92/5.8
Wt / Waist	132/28 inch	127/ 26 inch	121/25 inch	117/ 24 inch
BP		112/70	102/62	110/70
Tx change	Crestor 10, Pio 7.5	Vit D3 5000	Ramipril 5	No med change

# Annual Structural Assessment

	11/5/2008	9/7/2011
Mean CCA IMT mm	0.75mm	0.59mm
Plaque size mm; echo	R: 3.3 S L: 3.3 S	R: 3.6 H L: 2.4 H

	11/24/2008	7/23/2009	8/17/2010	10/17/2011	5/23/2012
TC		151	163	147	159
TG		35	48	36	42
HDL		94	91	80	96
LDL		50	62	60	55
TC/HDL		1.6	1.8	1.8	1.6
F2-Iso		2.09	1.2	1.14	1.14
hsCRP	3.8	2.5	1.2	0.8	1.5 !!
MACR	2.5	2.5	3.5	7.0	12.0 !!
Lp-PLA2	237	167	181	213	223 !!
MPO	988	<245	155	168	214
FBS/A1C	99/5.8	91/ 5.6	85/5.7	92/5.8	85/5.3
Wt / Waist	132/28 inch	127/ 26 inch	121/25 inch	117/ 24 inch	??
BP		112/70	102/62	110/70	??
Tx change	Crestor 10, Pio 7.5	Vit D3 5000	Ramipril 5	No med	??



# Questions to ask Robin at appointment?

- Inflammation??
  - Dental?
  - Lifestyle – exercise, stress, diet, weight?
  - Meds/changes?
  - Update IMT....

To be continued.....

# Work stress!

## Case 5: Stay off Actos?



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# Can Jill stay off Actos?

- Jill – started in clinic 2007, 39 year old female with metabolic syndrome, IR with IGT, ASVD, hyperlipidemia and HTN.
- Discovered to also have Apo E 4/4 and lipo(a), KIF 6 and 9P21 negative.
- Treatment: Crestor 10mg, Lovaza 1 gm, Niaspan 1000mg, Vitamin D3 4000 iu, Actos 30mg, Co-Q10 200mg, Aspirin 81mg

# 2008 – Fall 2011

- Stress at work was “unbearable”. After a few years, started to gain weight (40 pounds), started drinking 3-4 glasses of wine per night (Apo E 4/4), not sleeping, stopped exercising. Developed horrible environmental allergies and was on 5 different allergy drugs. Also – had 5 gum graphs for periodontal disease with antibiotic treatment 11/2010
- At Fall 2011 visit – told Jill – her health was being desperately affected by her job.
- Stress: “To be in an environment for which you perceive a lack of control”. **GAIN CONTROL!!**

	11/13/2007	2008 job!!	2009	2010	10/2011 **
Weight	152	169	180	183	180
BP	118/70	136/80	110/72	118/80	120/80
TC/HDL	3.2	2.3	2.3	2.5	2.7
TG/HDL	3.8	1.2	1.2	2.8	2.0
hsCRP	0.8	0.4	1.0	1.4	1.3
MACR	11.1	6.9	4.8	3.9	10.0
Lp-PLA2	148	134	101	169	191
FBS/A1C	93/5.4		93/5.5		88/5.4
OGTT	2hr 122	Actos	185/160		157/119

**\*\*Fall 2011 appointment: Told Jill she MUST change her life. Jill found a new job and left her employment Sept 2011. Got a trainer, started with the dietician, began a weight loss program.**

	10/2011	MED CHANGE	5/2/2012
Weight	180	OFF	174
BP	120/80	ACTOS	112/74
TC/HDL	2.7		2.7
TG/HDL	2.0	LIFESTYLE	TG 45, HDL 72
hsCRP	1.3	LIFESTYLE	0.6
MACR	10.0	LIFESTYLE	6.0
Lp-PLA2	191		150
FBS/A1C	88/5.4		96/5.3
OGTT	157/119		188/149

June 12, 2012 appointment: Loves her new job – still very busy but feels appreciated and in control of her environment. Working on carb/sugar reduction, wine only on weekends – limits to 1-2 glass with dinner, music, laughter.

Exercise: M/F: Trainer, T/TH: elliptical/weights, W: Yoga, S/S: walk outside on trails with husband and dog.



# Plan for Jill at this point -

- 1. Continue with ALL lifestyle efforts
- 2. Add: Dark Chocolate 7gm/day
- 3. Add: Cinnamon 2 gm/day
- 4. Long discussion regarding Actos....
  - Sugars – suggest go back on
  - Inflammation – suggest ok to stay off for now
  
  - Plan: Stay off Actos for now but lifestyle is essential.  
Goal: Waist <30 inches (37 inches now). In three months, repeat inflammation and OGTT – pt willing.

# Upcoming 2012 Bale/Doneen Method activities

- June 20-21 National NP meeting – 2 presentations
- June 22-23 AAOSH – Cleveland OH
- Sept 7-8 Reno Medical School Diabetes
- Sept 14-15 San Antonio Preceptorship
- Sept 20 BD Reunion meeting
- Sept 21-22 CHL – Inflammation meets lipids
- Nov 2 Bale/Doneen/Nabors – LVI Oral/Systemic
- Nov 9 - 10 Atlanta Preceptorship
- Nov 29 N.C. Family Practice Meeting

# BD Reunion!

GREAT guest speakers!

Data Review with Brad and Amy

Hopeful to offer a 1 hr CME Ethics course!!

September 20, 2012 – Las Vegas Nevada!

Register: Link on [www.baledoneen.com](http://www.baledoneen.com).