Asian Indians in Nutrition and Dietetics Member Interest Group

Asian Indians in Nutrition and Dietetics
a member interest group of the Academy of Nutrition and Dietetics

Community Leader: Rita Batheja, MS, RDN, CDN, FAND
Communications Coordinator: Aarti Batavia RDN CLT FSCP IFMCP

Asian-Indian Cardiovascular Disease Uniqueness and the Role of Nutrition Therapy

Diana Noland, MPH RD CCN LD

This webinar will be recorded and available. A copy of the slides and CEU will be emailed to you after the event.

Contact the Academy's membership team at Phone: 312/899-0040 (ext. 5000) or email **membership@eatright.org** to join.

Access the AIND website at http://aind.webauthor.com/.

Asian-Indian Cardiovascular Disease ***Uniqueness:*** the Role of Medical Nutrition Therapy

AIND MIG Webinar

Diana Noland, MPH RD CCN LD

March 29, 2016

Diana Noland, MPH RD CCN LD

Sequoia Family Medicine

Burbank, CA

dnoland@sequoiamedicine.com

IFMNT Clinical Dietitian

Adjunct faculty, U of Kansas Med Ctr.

Author, Speaker

Expert Witness

DIFM: Excellence in Clinical Practice Award

DIFM: Lifetime Achievement Award

Institute for Functional Medicine Certified Practitioner (IFMCP Cand.)

Board Certified Clinical Nutritionist (CCN)

Objectives

1. Pathophysiology of Cardiovascular Disease

2. Uniqueness of Asian-Indian physiology/genomics – identifying the biomarkers

3. Medical Nutrition Therapy Interventions personalized for Asian-Indian individuals

Pathophysiology of Cardiovascular Disease

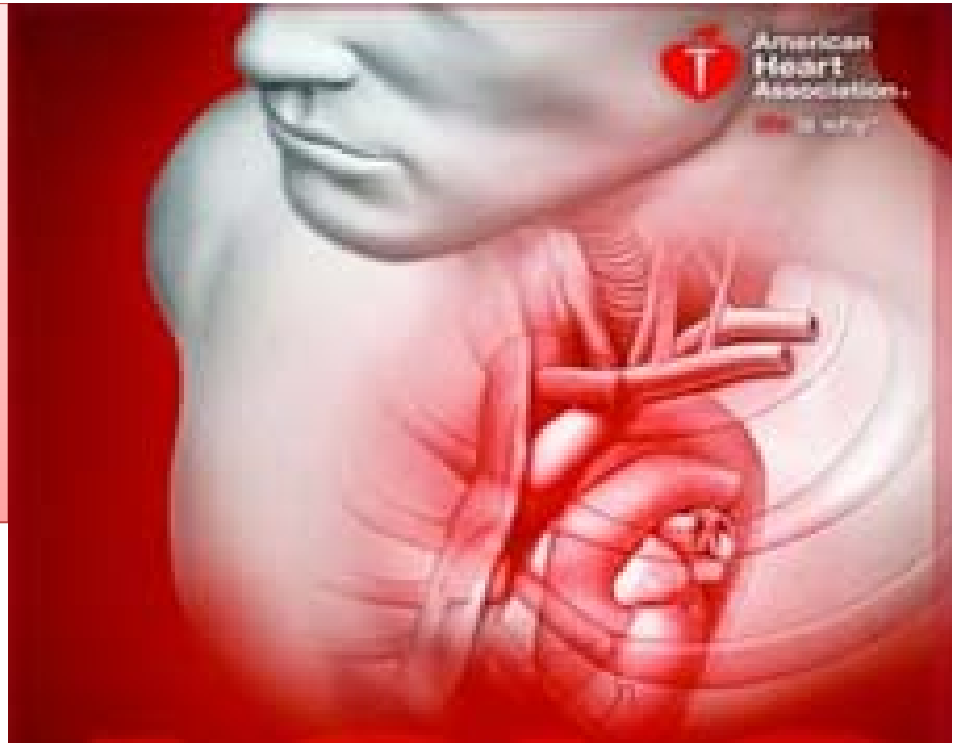
Conventional Therapy

STATINS Rx ~

Targeted approach: non-HDL-C, ApoB, Chol/HDL-C

ATP IV Adult Treatment Panel (ATP/NCEP)

2015 American Heart Association



Cholesterol

Lowering your cholesterol LDL

Obesity
Tips to overcome obesity
Healthy eating

Lifestyle
Physical activity
Lowering blood pressure
Controlling blood sugar
Quit smoking

Rx

Statins

Obesity should be managed and treated like a disease

- Eat fewer calories than your body needs (calculate BMI yearly)
- Exercise more
- Change unhealthy behaviors.
  - Excess alcohol
  - Smoking

The Beating Heart – American Heart Association

Total Cholesterol	Category
Less than 200	Desirable
200 - 239	Borderline High
240 and above	High

HDL*	HDL-Cholesterol Category
60 or more	Desirable - helps to lower risk of heart disease
Less than 40	Major risk factor -- increases the risk for developing heart disease

Triglycerides	HDL-Cholesterol Category
Less than 150	Normal (desirable) heart disease
150-199	Borderline high
200-499	High
>500	Very high

LDL Cholesterol	LDL-Cholesterol Category
Less than 100	Optimal
100 - 129	Near optimal/above optimal
130 - 159	Borderline high
160 - 189	High
190 and above	Very high

BMI Body Mass Index ~ Ht/Wt

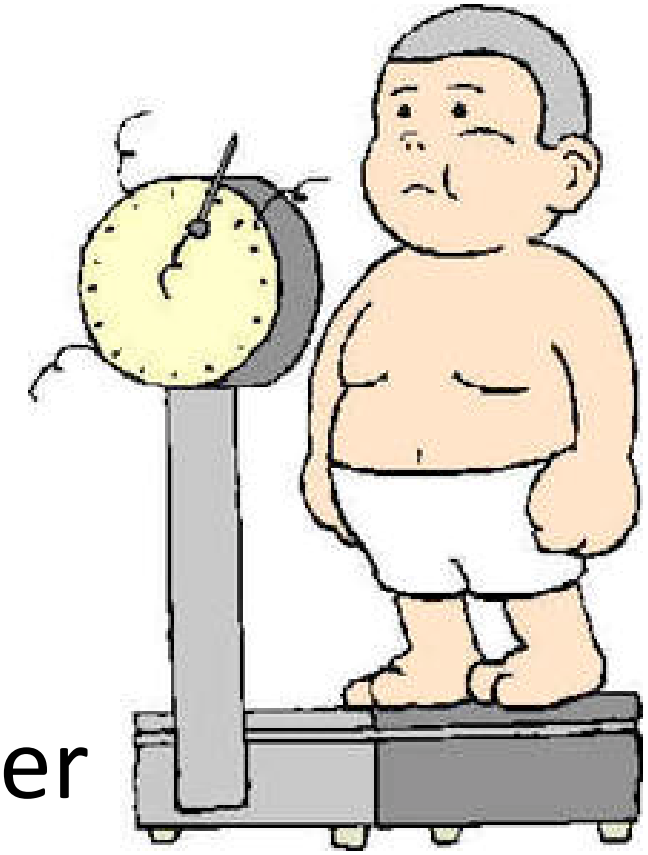
BMI USA Categories:

Underweight = <18.5

Normal weight = 18.5–25

Overweight = 25–29.9

Obesity = BMI of 30 or greater



Summary of Major Recommendations for the Treatment of Blood Cholesterol to Reduce ASCVD Risk in Adults: NCEP/ATP

Hi intensity Statin

- Primary Prevention 21+ yo LDL-C = or >190 mg/dL
- Persons with Diabetes 40-75 yo LDL-C 70-189 mg/dL; or Triglycerides >500 mg/dL
- Persons without Diabetes LDL-C 70-189 mg/dL

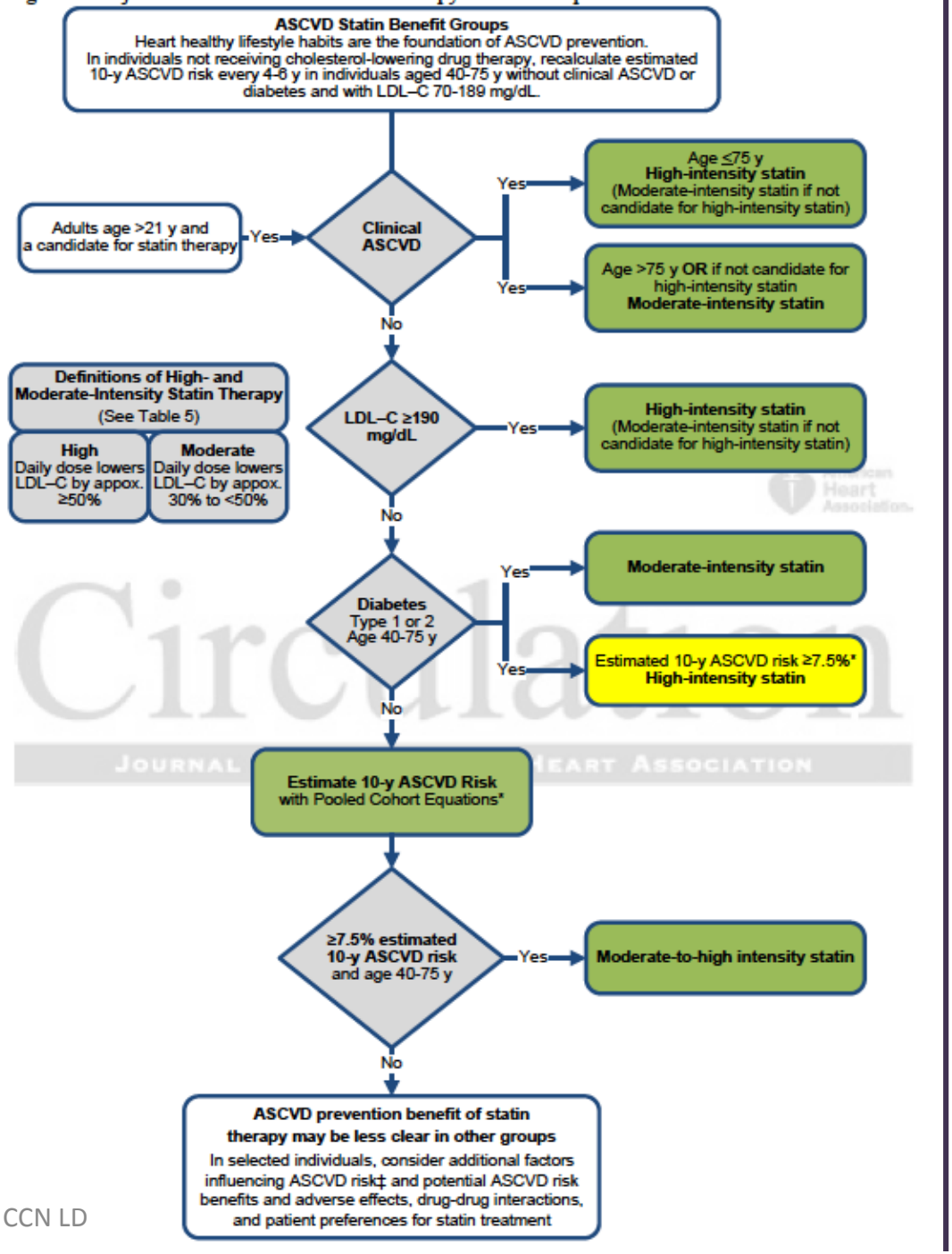
Encourage heart-healthy lifestyle habits for all individuals

Initiate or continue appropriate intensity of statin therapy

Regularly monitor adherence to lifestyle and drug therapy with lipid and safety assessments

Stone NJ, et al. 2013 ACC/AHA Blood Cholesterol Guideline

Figure 2. Major recommendations for statin therapy for ASCVD prevention



- More than 787,000 people in the U.S. died from heart disease, stroke and other cardiovascular diseases in 2010. That's about **one of every three deaths in America.**
- About 2,150 Americans die each day from these diseases, one every 40 seconds.
- Cardiovascular diseases claim more lives than all forms of cancer combined.
- About 83.6 million Americans are living with some form of cardiovascular disease or the after-effects of stroke.
- Heart disease is the No. 1 cause of death in the world and the leading cause of death in the United States, killing almost 380,000 Americans a year.

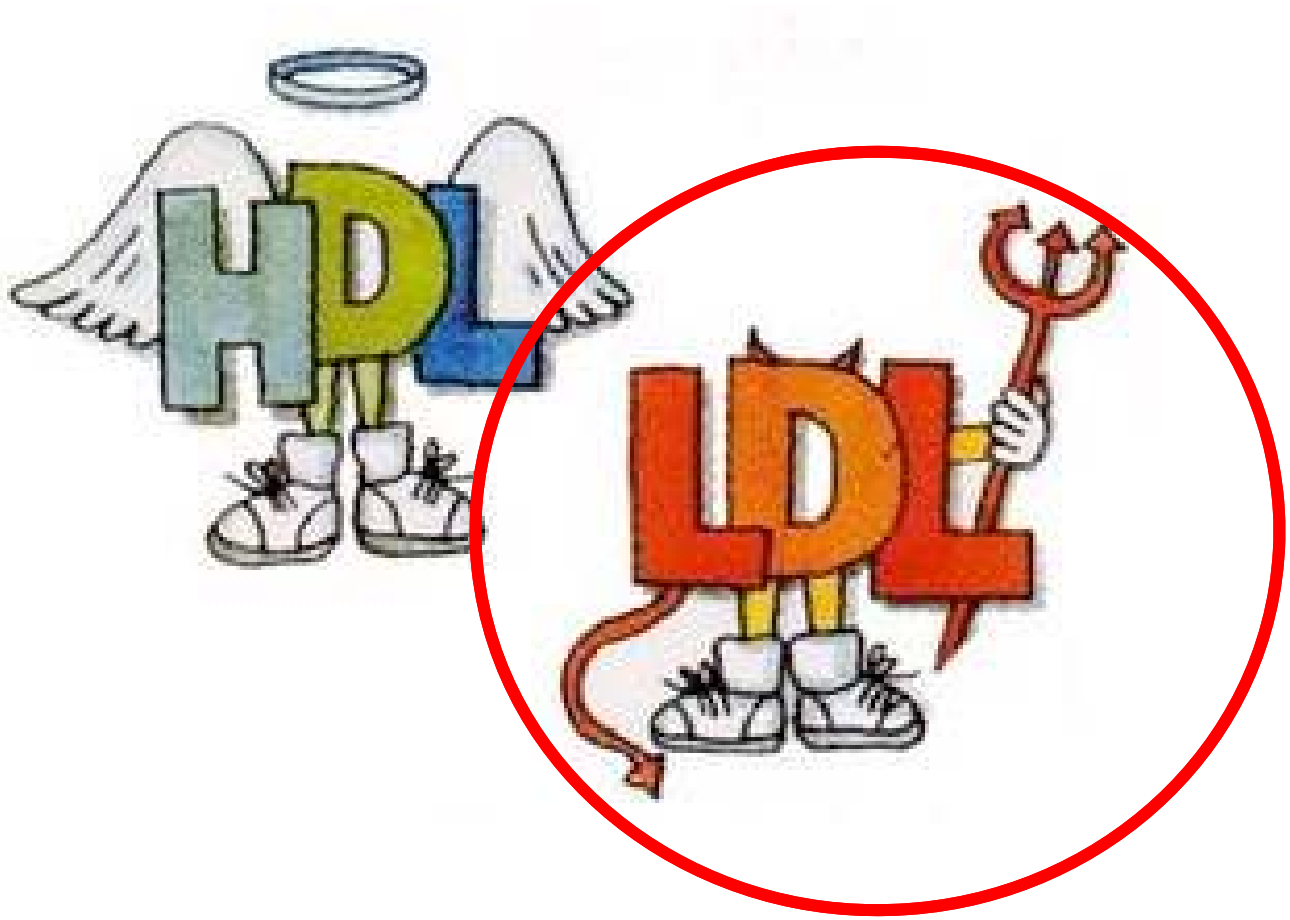
Uniqueness of Asian-Indian physiology/genomics

SMOKING

Low Asian men
~0% Asian women

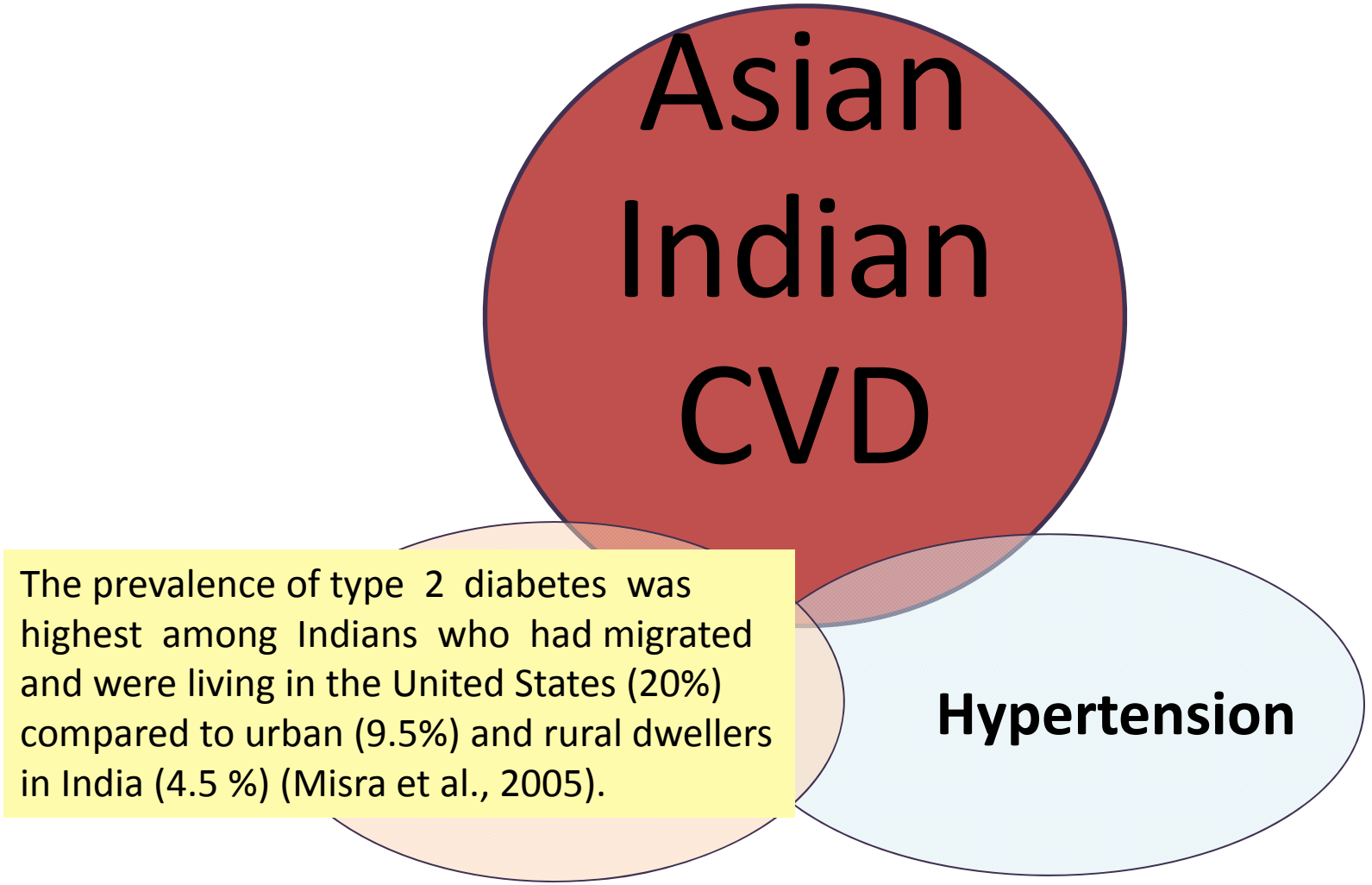
HIGH BLOOD PRESSURE

Same as other ethnic groups



Same as other ethnic groups

CVD ~ Diabetes ~ HTN



The prevalence of type 2 diabetes was highest among Indians who had migrated and were living in the United States (20%) compared to urban (9.5%) and rural dwellers in India (4.5 %) (Misra et al., 2005).

CVD ~ Diabetes ~ HTN

American Heart Association
life is why™

AMERICAN HEART ASSOCIATION NEWS

New calculations expose racial differences for inherited heart disease

By AMERICAN HEART ASSOCIATION NEWS

Asian-Americans have become the fastest growing racial group in the United States, with a growth rate of 2.9 percent

American Heart Association.
life is why™

AMERICAN HEART ASSOCIATION NEWS

Chronic conditions revealed in Asian-American study-diabetes, hypertension and renal disease.

By AMERICAN HEART ASSOCIATION NEWS

Little has been known about Asian-American patients with heart failure, said the report's lead author, Dr. Feng "Johnson" Qian, assistant professor of Health Policy and Management at the University at Albany School of Public Health.

Records from 2003 to 2010 came from states that had heart disease and stroke death information for **the six largest Asian-American subgroups** – Chinese, Japanese, Filipino, Asian Indian, Korean and Vietnamese Americans – which account for 84 percent of Asians in the United States, according to the U.S. Census.

First CAD risk 1950s

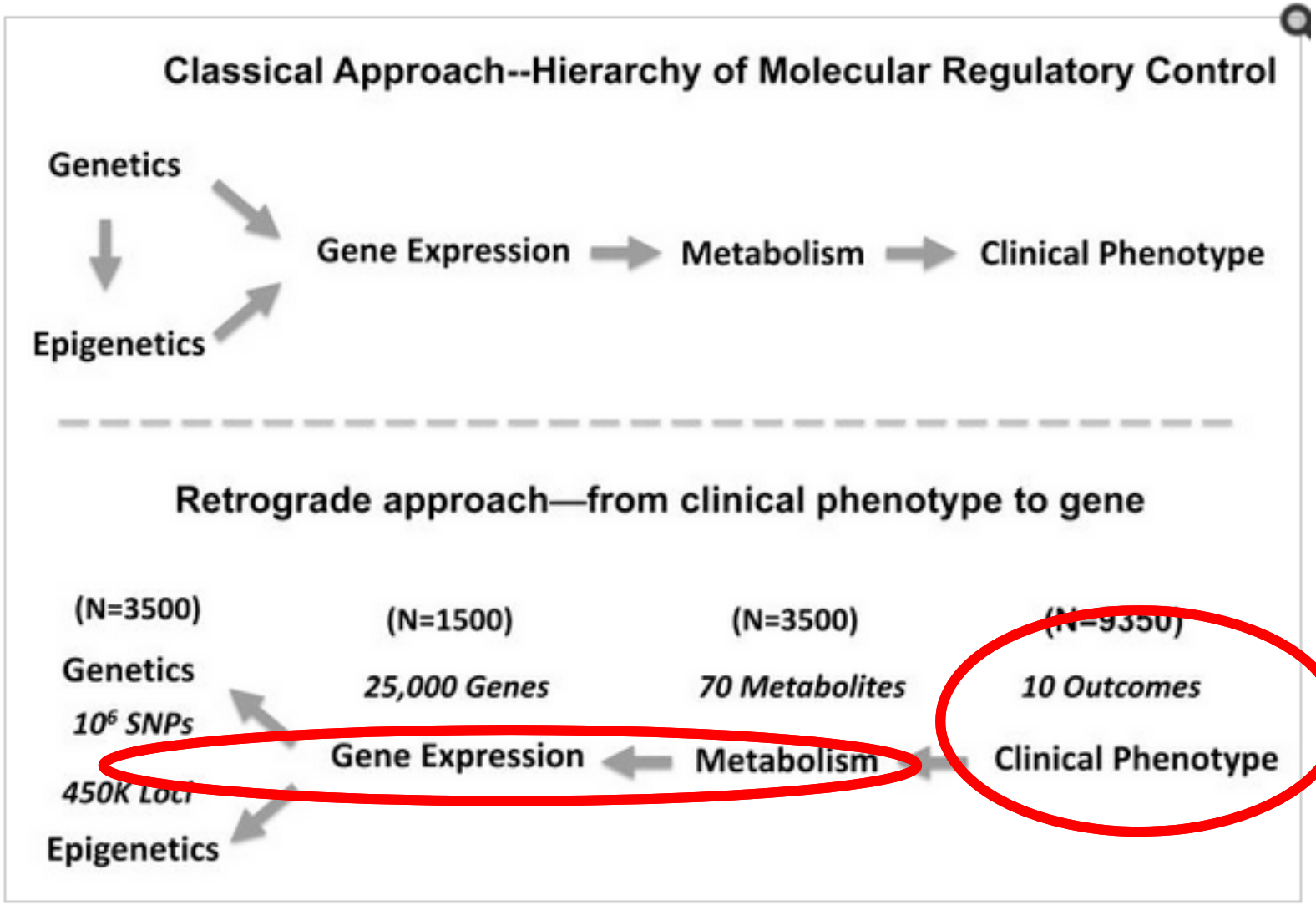
- Reports of increased CAD risk and mortality among South Asians **first appeared in Singapore in the 1950s** (7), and subsequently in Fiji (8,9).
- A **four times greater risk** of heart disease
- Heart attacks strike South Asian men and women **at younger ages**
- **1 in 3** in this group will die from heart disease **before age 65**.

Urban and South Asians **Premature** Risk

It is well established that South Asians face an increased risk of **premature coronary artery disease (CAD)**, a pattern that has been recorded among Indians in **urban** India, and among **South Asian** migrants in other countries (3–6).

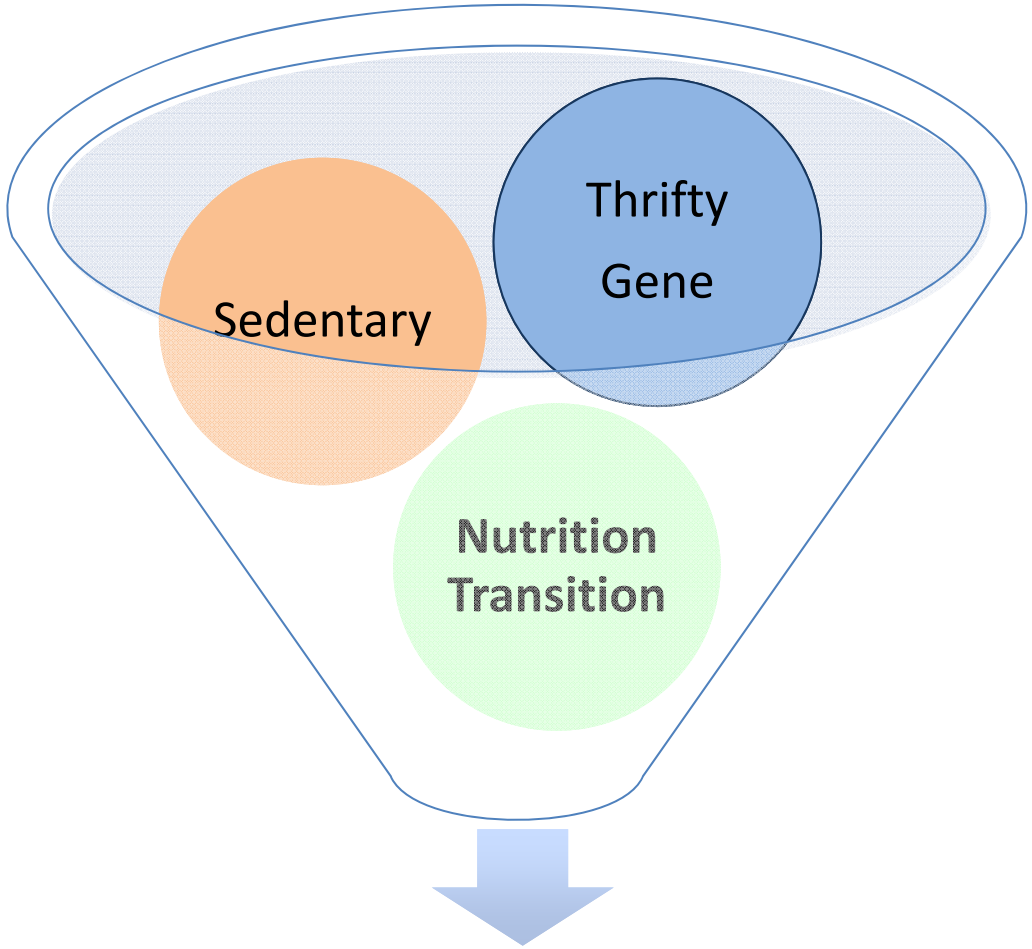
SYSTEMS BIOLOGY

Figure 3

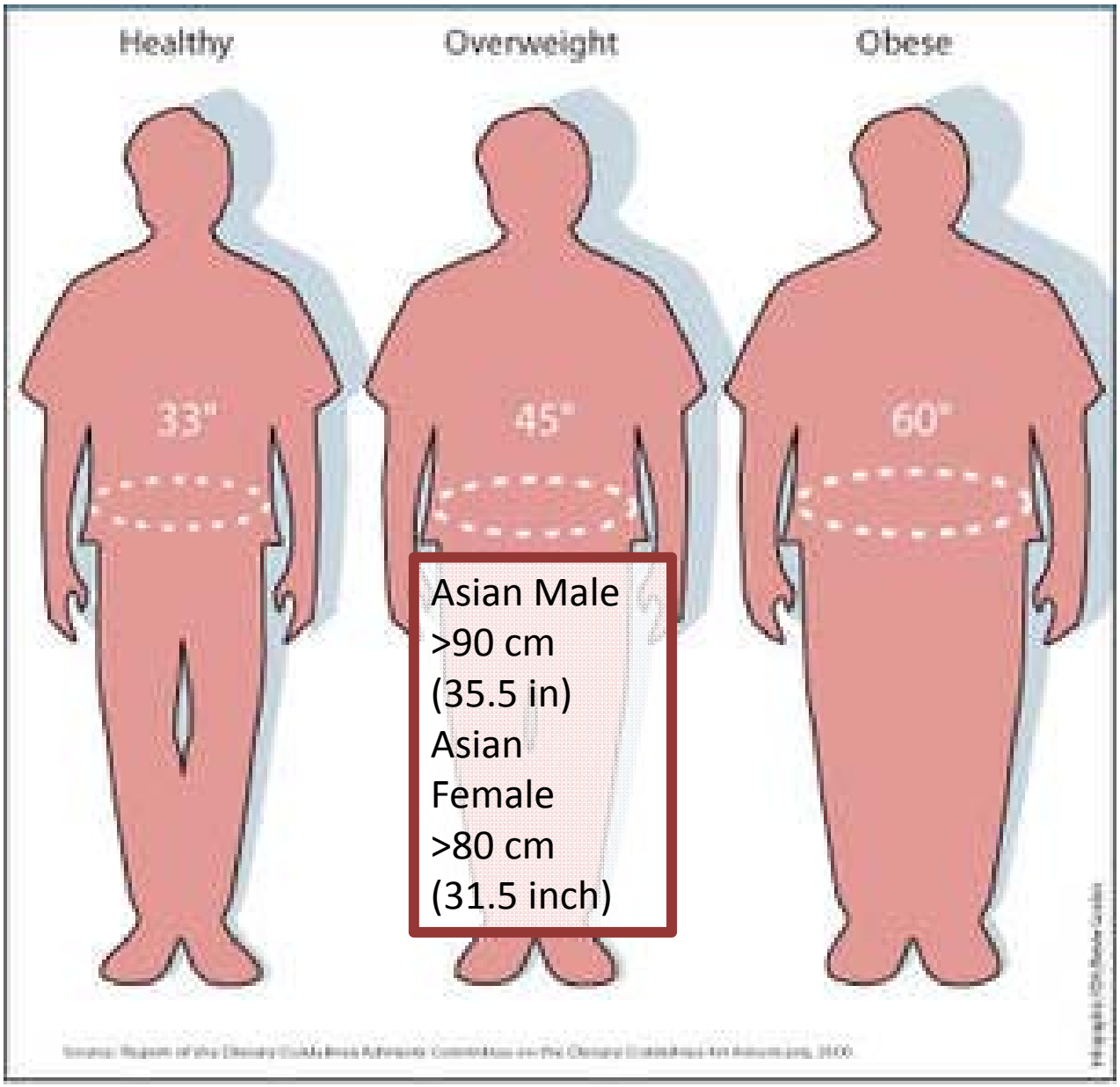


Circulation. 2012 Aug 28; 126(9): 1110–1120

Perfect Storm?



2-3 x greater Asian-Indian premature risk Heart Disease than industrial societies



The World Health Organization (WHO), one of the original proponents of the BMI guidelines, recently reviewed **growing evidence that Asians are at risk for excess morbidity and mortality at lower BMI levels.**

waist-to-hip ratio
waist circumference
a more effective evaluation of CHD and diabetes risk for South Asians (Greenhalgh, 1997; McKeigue et al., 1991).

Waist Circumference

BMI ~~>25~>23~~

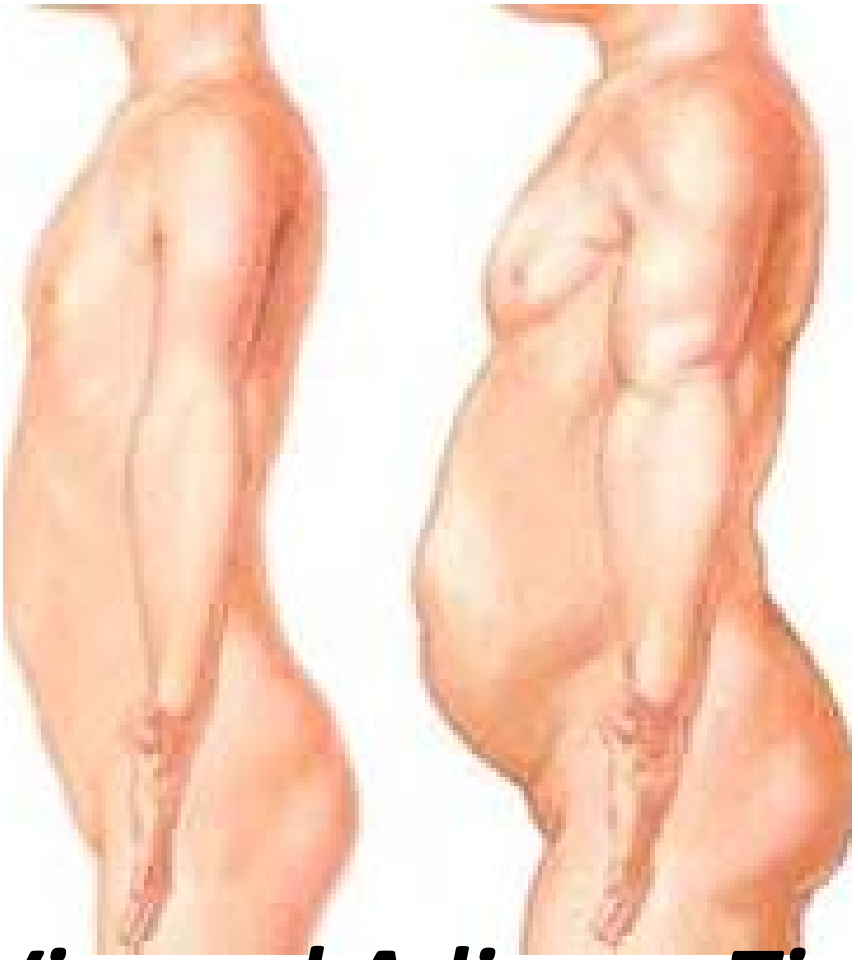
Asian **>23**

Waist/Hip

Female

Men

"Thin-fat phenotype"
Muscle-thin but body-fat



Visceral Adipose Tissue

Visceral Fat / Insulin Resistance

Glucose / Insulin

Central Adiposity

Metabolic Syndrome

ATP III Guidelines

Waist circumference Elevations

41% Urban Asian adults

(27.9% normal plasma glucose)

BMI Body Mass Index ~ Ht/Wt

BMI W.H.O. Asian Categories:

Underweight = <17.8

Normal weight = **18.5–22.2**

Overweight = 23–25.3

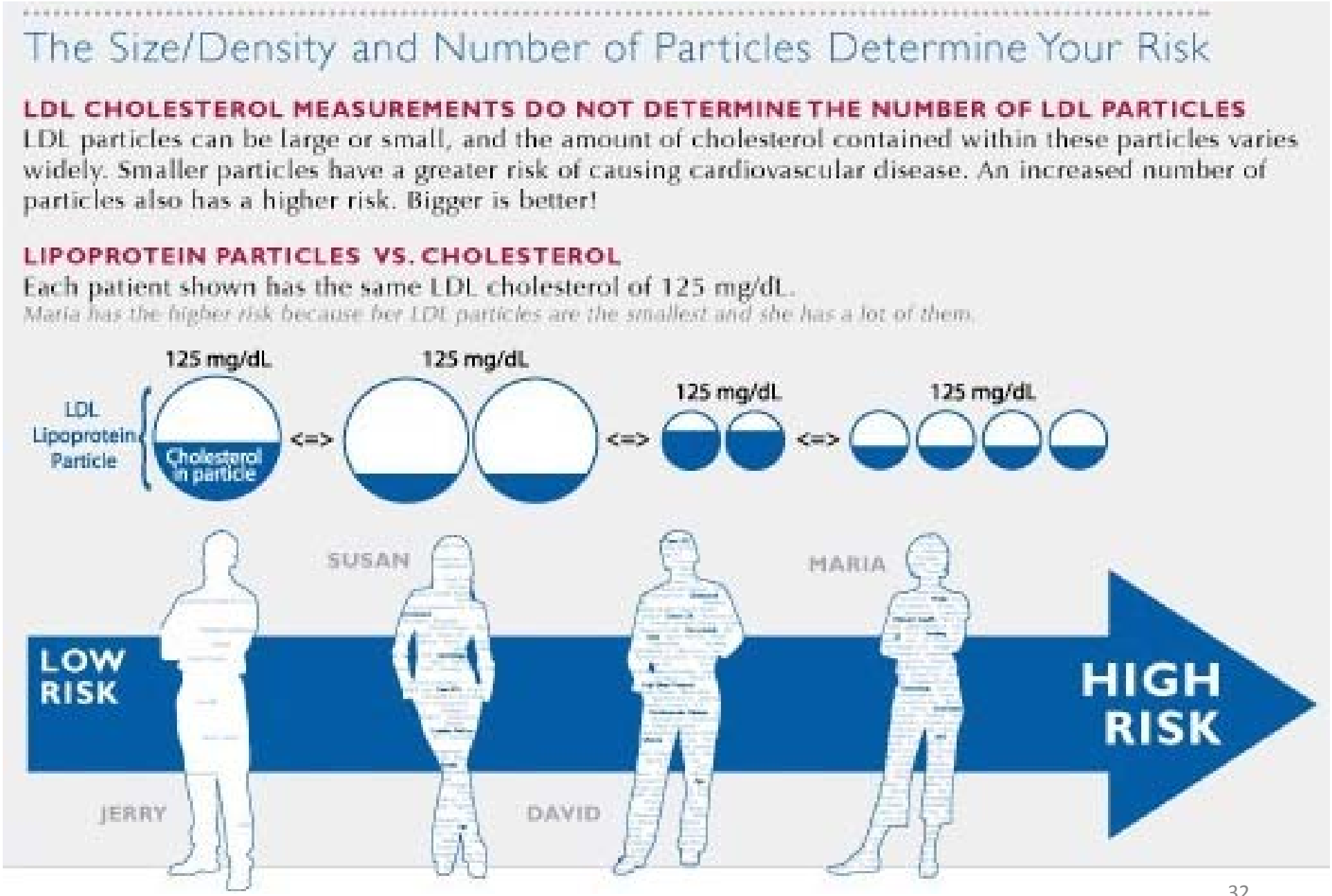
Obesity = BMI of 26 or greater

United Kingdom have shown that CAD mortality in South Asians is up to 50% higher than in the general population (10,11).

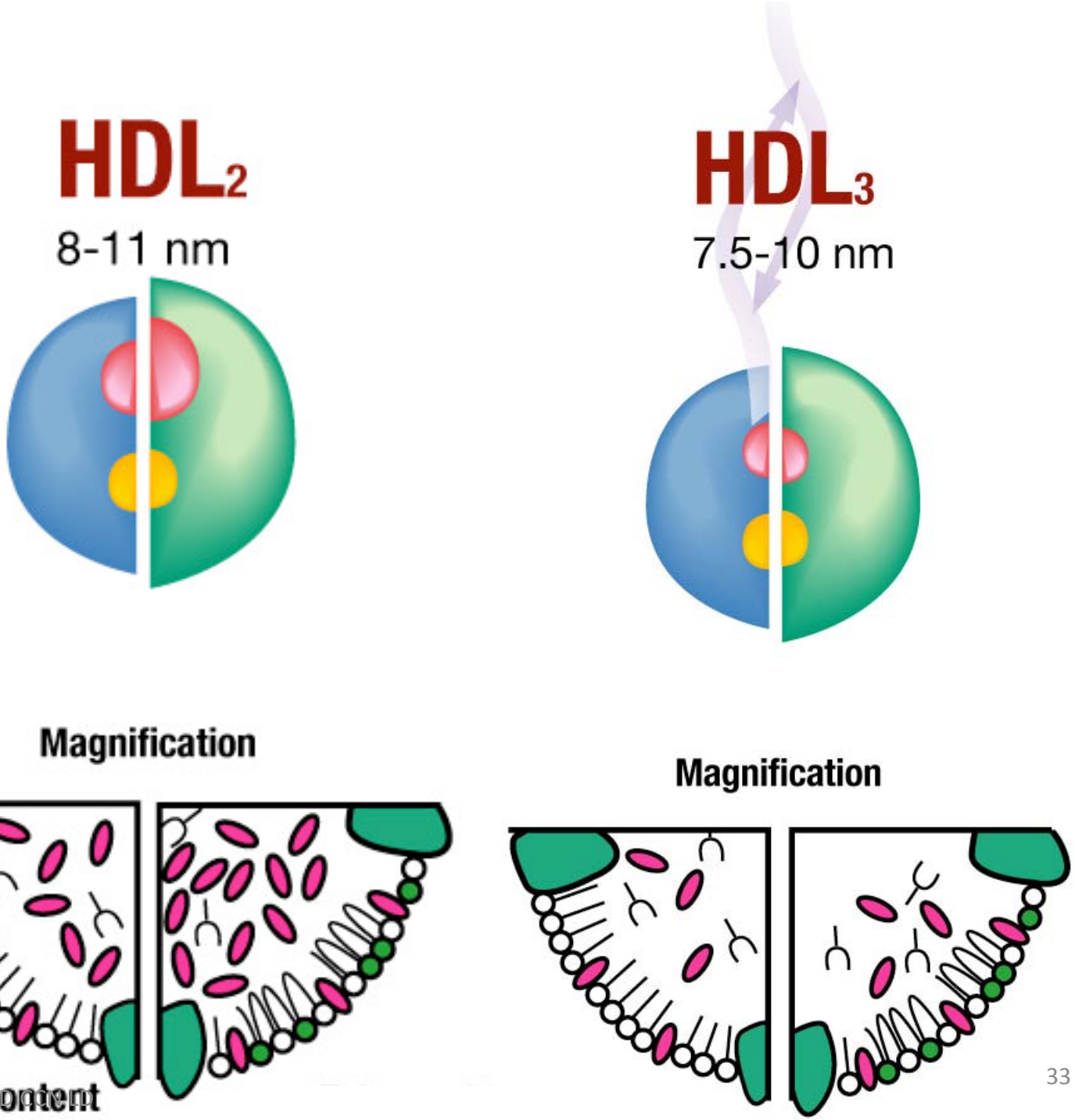
- Low plasma HDL cholesterol,
- high plasma triglyceride levels
- high prevalence of Type 2 diabetes
- Insulin Resistance

have been consistently found in South Asians overseas.

Lipoprotein Particle Testing™

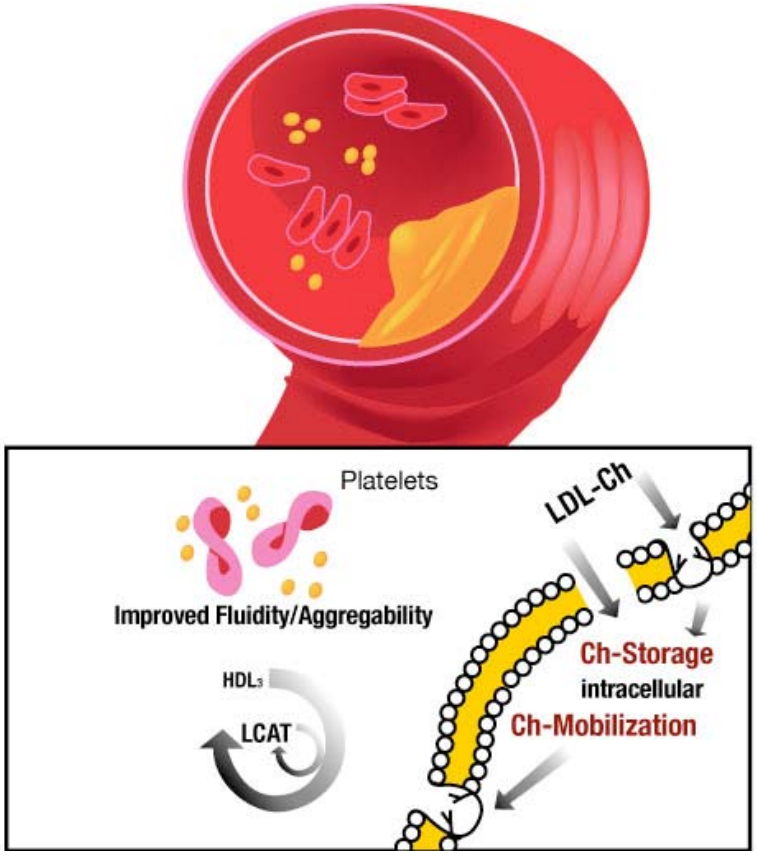


http://www.spectracell.com/clinicians/products/lpp/



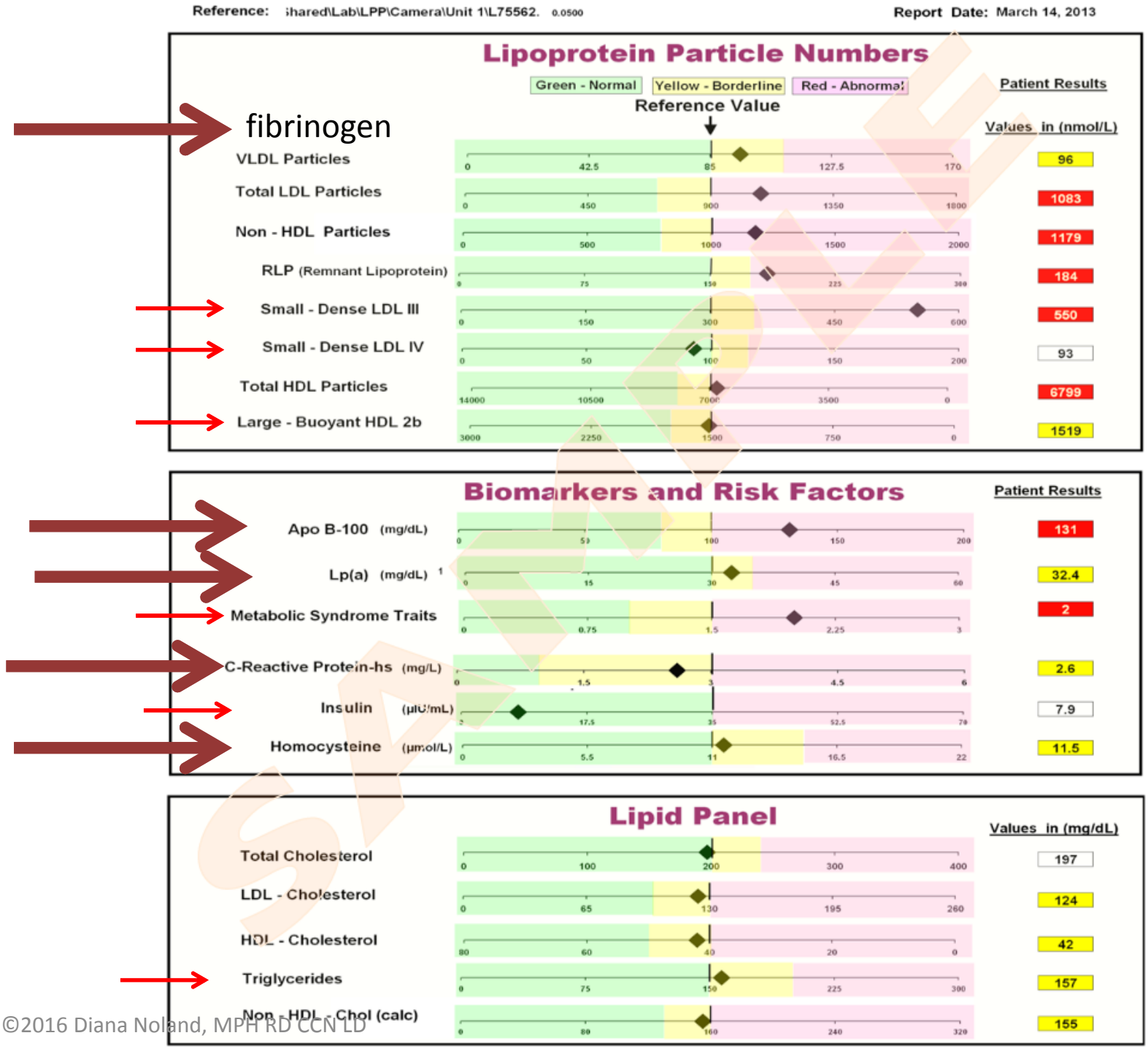
cholesterol acytransferase (LCAT)

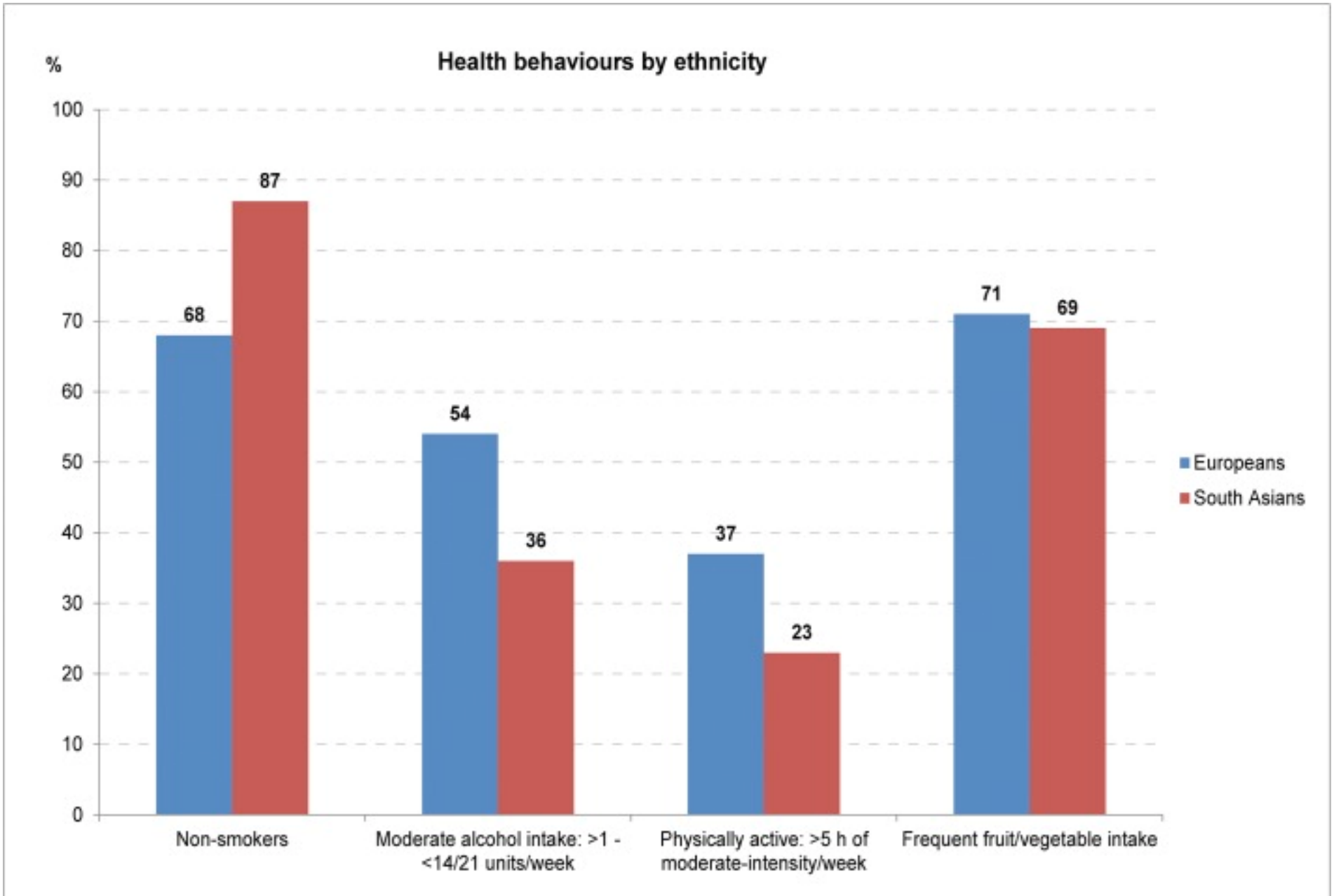
reverse transport of cholesterol from the vascular walls to the liver



NCEP Specific Risk Factors:

- Lp(a)
- RLP (Remnant Lipoprotein)
- HDL2b
- Small-dense LDL





Distribution of four individual health behaviours by ethnicity; the SABRE study, UK.

South Asians and Cardiovascular Risk

by Milan Gupta, Narendra Singh, and Subodh Verma

- ↑ Prothrombotic milieu: Clotting risk
- ↑ Inflammation milieu
  - ↑ CRP-hs
  - ↑ Adipokines/Central Adiposity
  - ↑ Insulin Resistance
  - ↓ Adiponectin (cardioprotective)

Circulation
Volume 113(25):e924-e929
June 27, 2006

Medical Nutrition Therapy
Interventions personalized for Asian-Indian individuals

Therapy Goals

- **lower** raised triglycerides (TG), total cholesterol (T-Ch), LDL cholesterol (LDL-Ch);
- **increase the anti-atherogenic fraction of HDL²** cholesterol (HDL-Ch);
- **prevent** deposition Cholesterol plaque
- **mobilize and remove** deposited Chol (in atheromas) from vascular walls, for instance by enhancing the reverse transport of cholesterol to the liver;
- **reduce raised platelet aggregation**.

Advanced Integrative & Functional Nutrition Practitioner

nutritional consultation

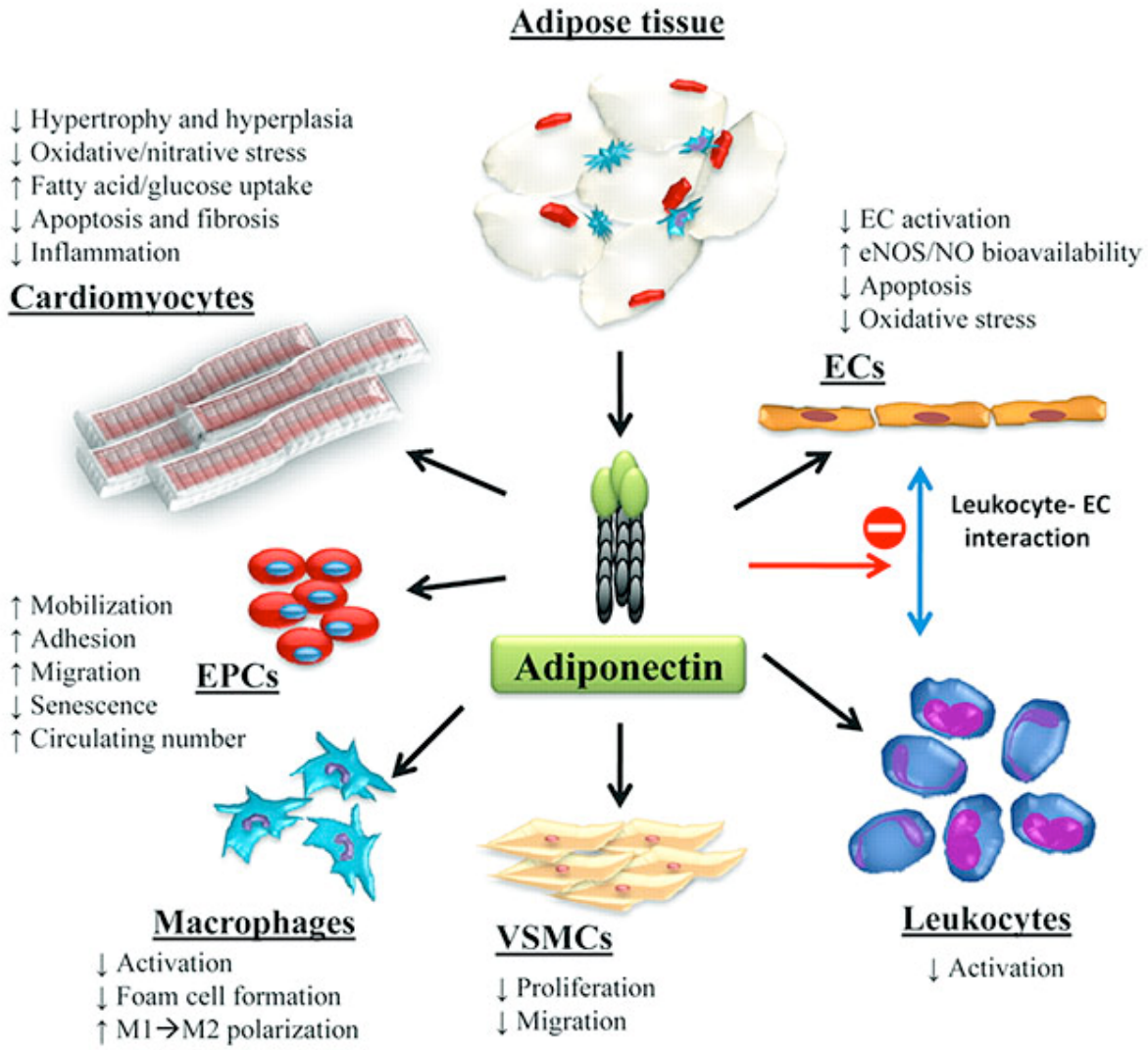
↑Prothrombotic milieu: Clotting risk

- Balanced nutritional oils
- Check blood values: fibrinogen & platelets
- Quality sleep
- Physical Activity
- Sufficient Nutrient Status

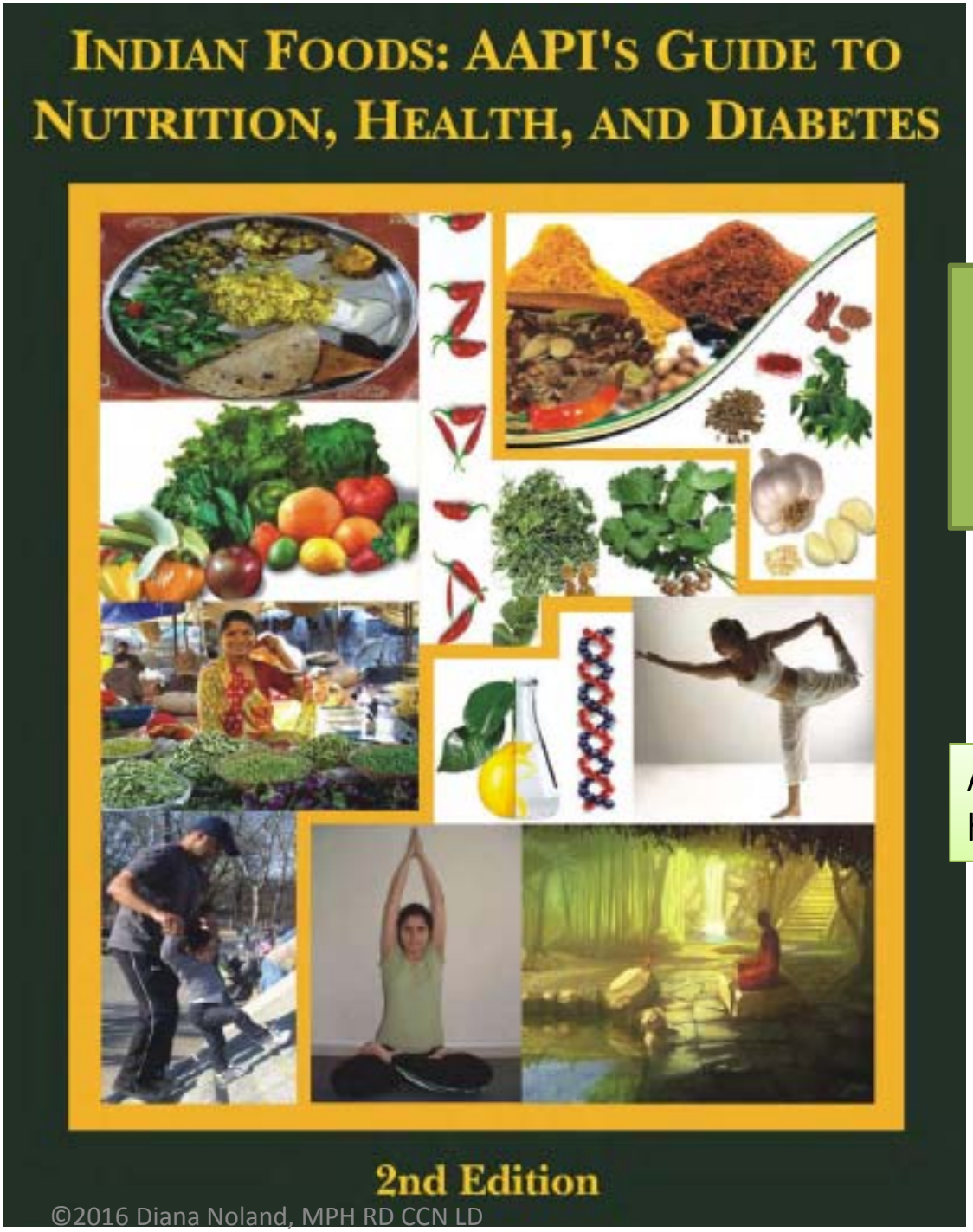
↑Inflammation milieu

- ↑ CRP-hs – skeletal health, no infection, healthy teeth, healthy waist circumference
- ↑ Adipokines/Central Adiposity- manage insulin/glucose
- ↑ Insulin Resistance - manage insulin/glucose
- ↓ Adiponectin (cardioprotective)-

Vegetables and fruits stimulate adiponectin fat-burning hormone



Foods adiponectin promoting: Avocado, Olive oil, Pumpkin seeds, chocolate, Peanuts, Monounsat'd fats, Omega 3, coffee [avoid processed, hi sugar foods]
Lifestyle adiponectin promoting: exercise, good sleep



Indian Foods: AAPI's Guide To Nutrition, Health and Diabetes

SECOND EDITION

Also visit the CDC web for food info: http://foodpyramidindia.org/index.html

DIETARY FATS

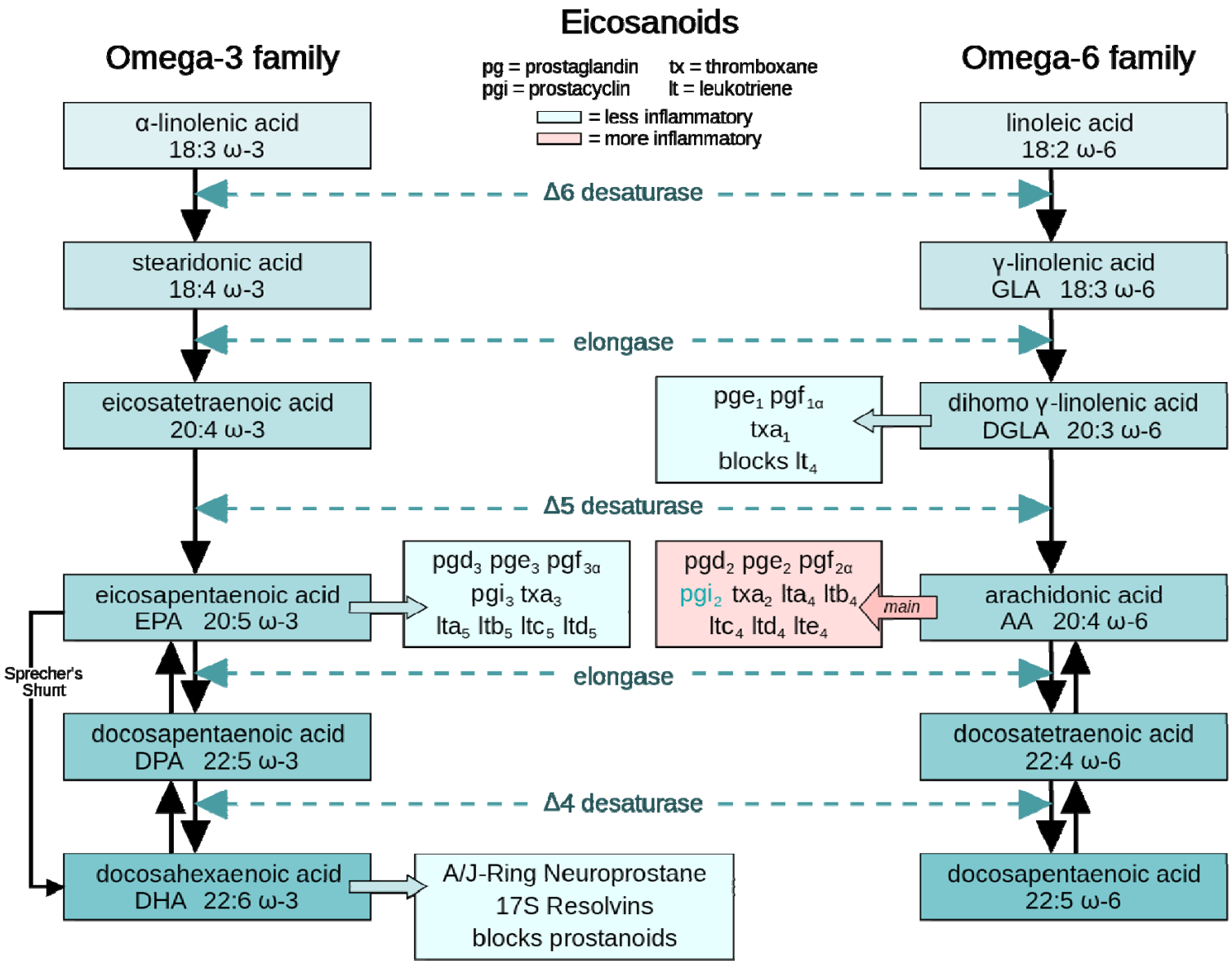
Many lacto-vegetarians Asian-Indian

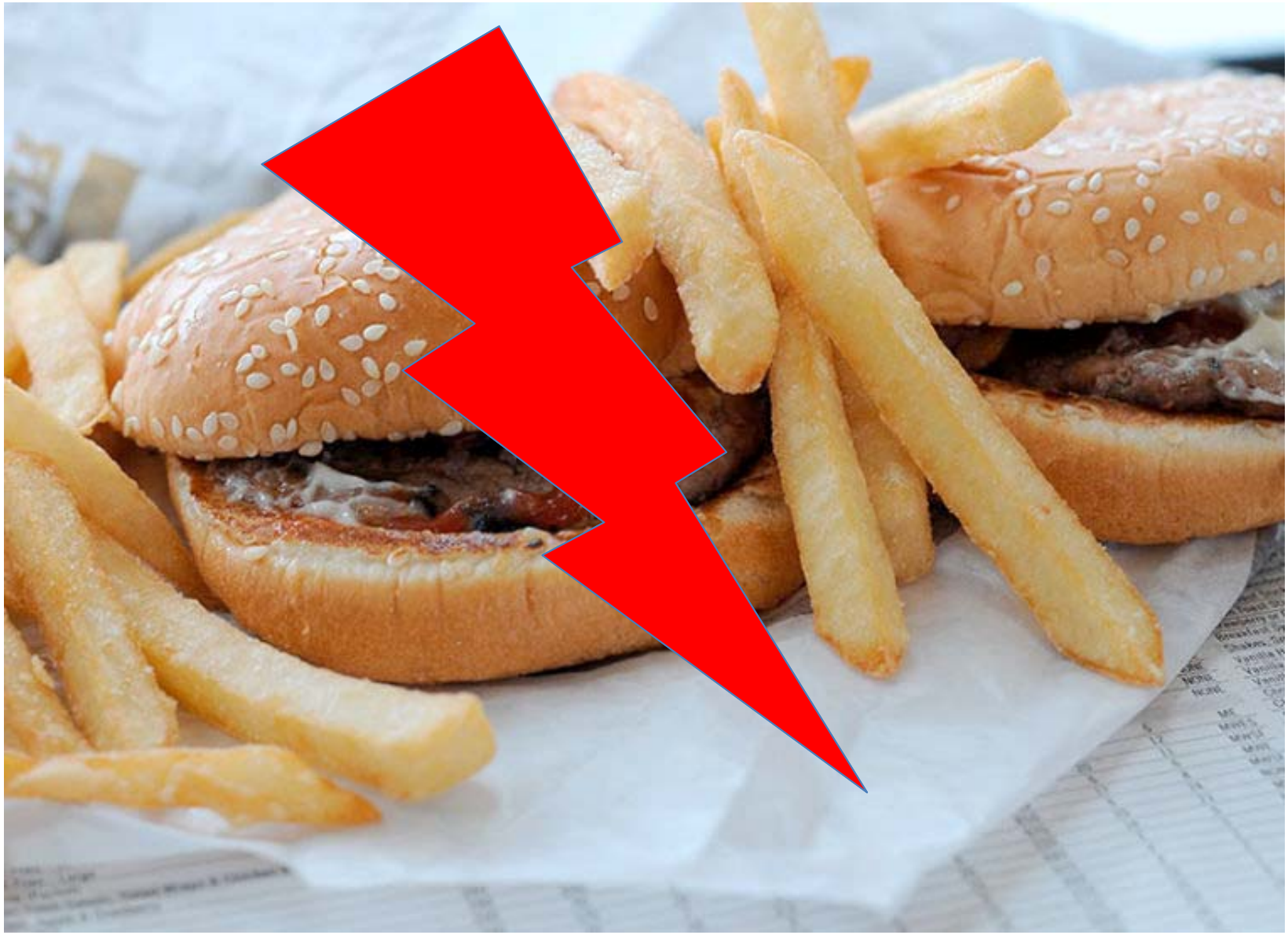
- Return to traditional diet with spices
  - Coconut oil
  - Ghee from Pasture fed cows
  - Nut oils, vegetable oils
  - Omega 3: spices, nuts, seeds, grass fed milks (fish)
  - Linoleic Acid EFA: nuts, seeds, grass fed milks
  - Short Chain Fatty Acids (Butyrate, etc) for health gut
  - Oleic/Omega 9: nuts (macadamia, pine nuts), avocado
  - Phosphotidylcholine/choline: lentils, Dahl, milk grass-fed (egg yolk)
  - Meats: water cooked, baked (avoid frying, charring)
- Return to physical lifestyle – walk, walk, walk
- Return to good sleep (lower stress)

AVOID: modern processed foods: margarines, PUFA unbalanced, heat processed oils.

AVOID: Highly processed low fiber starches (rice, flatbreads, desserts), too much fruit

FUNCTION – think Eicosanoids





Deep fried in GMO-high-oleic soybean oil, TRANS FATS

Dietary Supplements:

Fish Oils
GLA oils
Phosphotidylcholine
(Phytonutrients)

Some other beneficial effects of spices are:

* Fenugreek seeds delay gastric emptying & **stimulate insulin secretion & hence are beneficial in diabetics**. It is also a rich source of **omega-3 fatty acids**.

* Garlic is known to be an antioxidant as it **prevents LDL oxidation** hence is useful in patients with coronary artery disease.

* Fennel seeds, cinnamon & cardamom are used for their carminative properties.

* Ocimum (Tulsi) & ginger are used for treating cough & cold.

* Melon seeds, pumpkin seeds have health benefits like those provided by nuts.

* Turmeric is used for its antiseptic properties and is also supposed to prevent Alzheimer's disease.

UNPROCESSED PLANTS!!!

50-60% colorful variety of vegetables

Limit fruit to 1 – 2 servings daily: fresh, frozen, low pesticide

Contain:

- Phytonutrients
- Phytosterols
- Fiber >25 g daily
- Vitamins: B, C
- Minerals
- PUFA oils
- (Fermented:probiotic)

http://foodpyramidindia.org/fghl-south-india.html

Functional Foods

-Direct cellular nutrition
-Bypasses GI malabsorption
-Immediate therapeutic effects
-Condition specific IV therapy
-Alleviates nutritional deficiency

IV / IM Nutritional Therapies

The Patient's Story Retold	**Physiology and Function: Organizing the Patient's Clinical Imbalances**
Antecedents Genomics	Assimilation Defense & Repair
Triggering Events	Structural Integrity Energy
Mediators/Perpetuators Nutrient Insufficiencies: D, Ess Fatty Acids	Communication Transport Biotransformation & Elimination Toxins: Lead / Mercury

Fundamental Lifestyle Factors

Sleep & Relaxation	Exercise & Movement	Nutrition & Hydration	Stress & Resilience	Relationships & Networks
	Sedentary	Nutrition Transition since 1950s		

Name:_____ Date:_____ CC:_____

Set your goals

Reach your goals

Monitoring and Evaluation until goals are reached

Asian-Indian Cardio Checklist for MNT

- ❑ Waist circumference
- ❑ BMI and body fat%
- ❑ Inflammation Status
- ❑ Biochemistry
  - ❑ CRP-hs
  - ❑ Lipid Pane –Lipoprotein Particle: HDL^2 / HDL^3, LDL particles
  - ❑ Lipoprotein(a) and APO-B
  - ❑ Adiponectin
  - ❑ DPV-docasapentanoic acid
  - ❑ EPA
  - ❑ DHA
  - ❑ TSH
  - ❑ Electrolytes
  - ❑ CBC
  - ❑ Homocysteine
  - ❑ Glucose and Insulin, fasting and HgbA1C
  - ❑ Vitamin D25-OH
- ❑ Diet History: check Carbs, vegetable intake, Processed foods, balance
- ❑ Fats & Oils Survey: check for balance EFA and metabolites
- ❑ Blood Pressure
- ❑ Signs and Symptoms/Medical Symptoms Questionnaire
- ❑ Physical Exam – signs of inflammation, color

WISH LIST LABS:

Methylmalonic Acid B12
Vitamin A retinol
CDSA Comp Dig Stool An.
DHEA-S
Cortisol
Women: Progesterone
Men: Testosterone
Genomic:
VDR-vitamin D receptor
MTHFR 677 C/1298C
COMT
Liver enzymes:
ALT, AST, GGT, ALK PHOS
Nutrient elements
(minerals) & Toxic metals
(rule out toxic metals)

“Food speaks messages to your living cells”

“May all be happy; may all be healthy; may all enjoy prosperity; may none suffer.”

-Ayurveda quote-

Sarve bhavantu sukhinah sarve santu niramayah
Sarve bhadrani pasyantu ma kascid duhkhabhag bhavet

REFERENCES

- The following references are provided from:
  - Spectracell.com
  - Diana Noland, MPH RD CCN LD

The Role of MICRONUTRIENTS In HEART DISEASE

DID YOU KNOW...

- Since 2010, heart disease has been the #1 killer of non-communicable disease globally?
- Heart disease kills more Americans than the next five top causes combined, including cancer, diabetes and accidents?
- 1 in 3 Americans and Asian-Indians currently have some form of heart disease?
- Asian-Indians die more from premature heart disease than other ethnic groups?

MICRONUTRIENTS AND HIGH BLOOD PRESSURE

High blood pressure can result in physical damage to the walls of our blood vessels. Although the causes of hypertension often overlap, micronutrient deficiencies can cause or worsen this condition. Several mineral deficiencies such as zinc, copper, calcium and magnesium have been linked to high blood pressure.

Research also suggests that a high level of oxidative stress eventually takes its toll on our arteries, ultimately causing hypertension. Several studies of coenzyme Q10 lowered blood pressure significantly. Antioxidant vitamins C and E help blood vessels maintain their flexibility, allowing them to easily dilate and contract. The powerful antioxidant lipoic acid reduces blood pressure by inhibiting inflammatory responses in the blood vessels. Vitamin D deficiency is linked to hypertension because it contributes to endothelial dysfunction, a condition where the lining of blood vessels cannot relax properly and secrete substances that promote inflammation of the blood vessel lining

http://www.spectracell.com/media/uploaded/3/0e2747181_1388158638_358heartdiseaseinformationsheet1113-pdf.pdf

PREVENT ARTERIAL "SCARRING"

Vitamin B6, B12, folate, serine and choline are all necessary to properly metabolize homocysteine and reduce the risk of arterial scarring. In fact, B-vitamin therapy has been an effective treatment for reducing heart disease and blood pressure.

KEEP YOUR HEART MUSCLE STRONG

The heart's requirement for energy compared to other muscle tissues is incredibly high. Carnitine is an amino acid that facilitates the transport of fatty acids into heart cell mitochondria, thus helping the heart meet its strong demand for chemical energy. It also helps muscles, including the heart, recover from damage, such as from a heart attack. Vitamin B1 (thiamine) is another key component in energy metabolism by helping the heart increase its pumping strength. Deficiencies of vitamin B1 (thiamine) have been found in patients with congestive heart failure, as long-term use of diuretic drugs, which are often prescribed to those patients, deplete the body's storage of thiamine. Coenzyme Q10 is also required by cardiac tissue in large amounts to properly function. Statin drugs deplete the body of CoQ10, so deficiencies of CoQ10 in statin-users are particularly common. The side effect of statin therapy is frequently observed as muscle pain.

HEART DISEASE IS AN INFLAMMATORY PROCESS

Scientists now emphasize that heart disease is actually an inflammatory condition within the blood vessels. Inflammation and oxidative stress work together damaging arteries and impairing cardiac function. Several antioxidant nutrients minimize this inflammatory process. Glutathione is the most potent intracellular antioxidant and actually helps to regenerate other antioxidants in the body. Cysteine, glutathione, B2, selenium, Vitamin E and Vitamin C work together to reduce oxidative stress throughout the entire cardiovascular system. It is essential that balance in the antioxidant system is critical and that use of a single antioxidant may be detrimental. 2

http://www.spectracell.com/media/uploaded/3/0e2747181_1388158638_358heartdiseaseinformationsheet1113-pdf.pdf

HOW WELL DO YOUR ARTERIES FIGHT OXIDATIVE STRESS?

An optimal antioxidant status is particularly important in the prevention of chronic diseases such as heart disease and stroke. Since many antioxidants work together synergistically, measuring a single antioxidant may not provide an accurate picture of total antioxidant function.

PREVENTING ATHEROSCLEROSIS

One of the major culprits in heart attacks and stroke is the buildup of plaque within the arteries throughout the body. Lipoproteins become dangerous when they are oxidized, making them "sticky" and causing blockage of the arteries (atherosclerosis). Micronutrient deficiencies accelerate atherosclerosis. One study showed that oleic acid (found primarily in olive oil) reduces oxidative damage to lipoproteins. It also facilitates absorption of vitamin A in the gut, which is important because vitamin A is linked to lower levels of arterial plaque, primarily due to its antioxidant effect in protecting lipids from oxidation. Vitamin K supplementation to deficient people slowed the progression of plaque formation in major arteries. Vitamin B3 (niacin) lowers blood cholesterol (fats in the blood), inhibits the oxidation of LDL, and is currently the most effective drug available for raising the heart-protective, good HDL cholesterol. One study on side products made from vitamin B5 (pantothenic acids) showed a decrease in blood triglycerides and cholesterol, and evidence suggests that vitamin E can even retard existing atherosclerosis. Another study showed that inositol, a member of the B vitamin family, decreases dangerous small, dense lipoproteins that easily penetrate blood vessel walls and cause atherosclerosis.

PREVENTING STROKE

A recent study on more than 20,000 people concluded that adequate vitamin C levels reduced risk of stroke by over 40%. Similar studies on calcium, magnesium, folate and biotin all concluded that adequate levels of these nutrients contribute to a reduction in the incidence of stroke. 3

http://www.spectracell.com/media/uploaded/3/0e2747181_1388158638_358heartdiseaseinformationsheet1113-pdf.pdf

NAME: _____ DATE: _____

Fats and Oils

Please indicate how many times PER WEEK you eat the following fats/oils.

OMEGA 9 *(stabilizer)* ~50% of daily fat calories Oleic Fatty Acid	___ Almond Oil ___ Almonds/Cashews ___ Almond butter ___ Avocados ___ Peanuts ___ Peanut butter (natural/soft)	___ Olives ___ Olive Oil ___ Sesame Seeds/Tahini ___ Hummus (tahini oil) ___ Macadamia Nuts ___ Pine Nuts
OMEGA 6 *(controllers)* *Essential Fatty Acid Family* *~30% of daily fat calories* **LA → GLA → DGLA → AA**	___ Eggs (whole), organic (AA) ___ Meats (commercial) (AA) ___ Meats (grass-fed, org) (AA) ___ Brazil nuts (raw) ___ Pecan (raw) ___ Hazelnuts/Filberts (raw) ___ Hemp Seeds	___ Evening Primrose (GLA) ___ Black Currant Oil (GLA) ___ Borage Oil (GLA) ___ Hemp Oil ___ Grapeseed Oil ___ Sunflower Seeds (raw) ___ Pumpkin seeds (raw)
OMEGA 3 *(fluidity/communicators)* *Essential Fatty Acid Family* *~10% of daily fat calories* ALA → EPA → DHA	___ Fish Oil capsule: ↑DHA ___ Fish Oil capsule: ↑EPA ___ Fish (salmon/fin-fish) ___ Fish (shellfish) ___ Flax seeds/meal	___ Flax Oil ___ UDO's DHA Oil ___ Algae ___ Greens Powder w/algae ___ Chia seeds
BENEFICIAL SATURATED *(structure)* *~10% of daily fat calories* Short Chain/Medium-chain Triglycerides	___ Coconut Oil ___ Butter, organic ___ Ghee (clarified butter) ___ Dairy, raw & organic	___ Meats, grass-fed ___ Wild game ___ Poultry, organic ___ Eggs, whole organic
DAMAGED FATS/OILS (promoting stress to cells & tissues) *Should be <5% (try to avoid)* Trans Fats Acrylamides Odd-Chain Fatty Acids VLCFA/damaged	___ Margarine ___ Reg. vegetable oils (corn, sunflower, canola) ___ Mayonnaise(Commercial) ___ Hydrogenated Oil (as an ingredient) ___ "Imitation" cheeses ___ Tempura	___ Doughnuts (fried) ___ Deep-fried foods ___ Chips fried in oil ___ Reg. Salad dressing ___ Peanut Butter (JIF, etc) ___ Roasted nuts/seeds ___ Non-dairy products

Asian Indians in Nutrition and Dietetics

a member interest group of the Academy of Nutrition and Dietetics

Thank you!!

Thank You!

Asian Indians in Nutrition and Dietetics
a member interest group of the
Academy of Nutrition and Dietetics

Contact Rita Batheja for questions about AIND. krbatheja@gmail.com

aind.webauthor.com

Visit eatrightpro.org to join the AIND community.

Register for AIND's Upcoming Webinar:

Making Sense of FODMAP Diet

Marlisa Brown RDN

Friday, May 6, 2016

1:00 pm eastern