

The Right Diet and Lifestyle for a Healthy Heart



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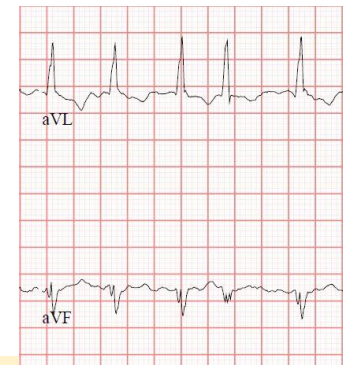
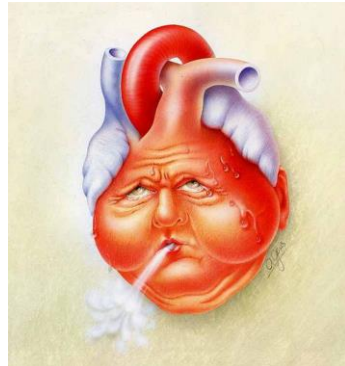
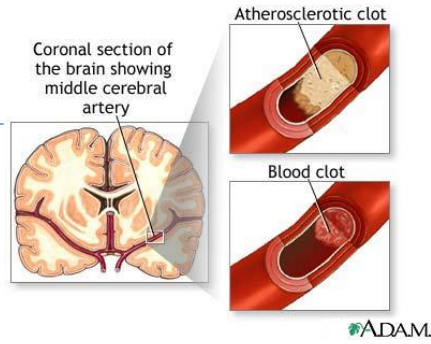
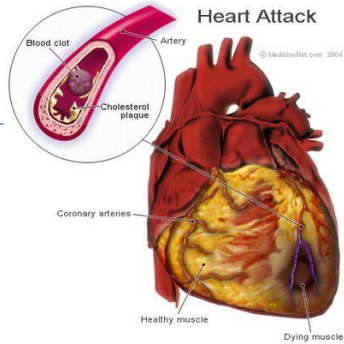
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**Hari and Madhu Varshney
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What are major Heart diseases?



***South Asians have one of the highest risk for CVD and diabetes in the world
Nearly 20% of heart disease deaths are caused by air pollution***

Sources: My Heart.net; google images
WHF air pollution policy brief

What determines Heart Diseases?

Modifiable

Non-Modifiable

Behavioral

- Tobacco
- Diet
- Physical Inactivity
- Stress

Biological

- High BP
- Diabetes
- Dyslipidemia (Bad Fats)
- Obesity (both generalized and abdominal)

Environmental

- Air Pollution
- Noise pollution
- Light
- Lead and Heavy metals in water

- Family history
- Age
- Ethnicity

Do genes have a major role to play in heart diseases ?

Yes and No

- Some genes (resulting in very high cholesterol) increase the risk of heart attacks >5-10 times but are extremely rare
- Common gene variations increase risk (for example BP may be higher by 4-5 mms of Hg)
- By contrast tobacco, diabetes mellitus and hypertension increase the risk 2-3-fold (RR or OR > 2-3)
- Diet, physical activity and smoking are major drivers
- *A combination of bad genes and bad lifestyle is a diabolic combination*

Lifestyle is half the problem of humans

3 FOUR 50

3 risk factors

- Unhealthy Diet
- Tobacco use
- Physical inactivity



4 Diseases

- Diabetes
- Heart Diseases
- Lung Diseases
- Cancers



50%

Deaths
worldwide

Almost every philosopher has given his/her wisdom on diet

- *As pleasure dwells with him who eats moderately, so disease (dwells) with the glutton who eats voraciously.*
- *Ambrosia (nectar of life) when consumed in excess can be poisonous*

Thiruvalluvar , Tamil sage and poet ?3 AD

A yogi (sage) eats once a day, a bhogi (foodie) eats twice, a rogi (patient) eats three times a day, and **with four meals a day, it takes four men to carry you to the funeral pyre**

Sarvagna, Kannada poet and Philosopher 16 AD

Even fate can be defeated by the mind : How?

Diet : What do most people think ?

“It would be nice if something made sense for a change”

Alice in Wonderland

After the talk do not say

D Dare

I I

E Eat

T Tonight

After the talk ask

D Do

I I

E Eat

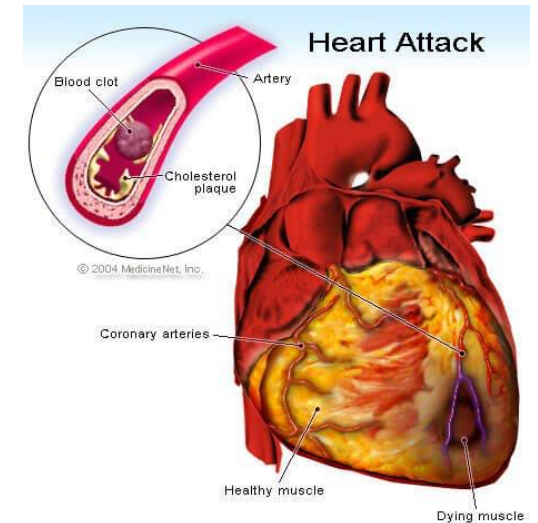
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Outline

- **Why is diet so important to heart?**
- **What are the controversies?**
- **My recommendations**

Diet is linked to heart disease in many ways

- Heart Attack
- Stroke
- Diabetes
- High blood pressure
- Obesity
- Complications in those who had a heart attack or stroke



Diet

Carbohydrates (energy)

Proteins (building blocks)

Fats (Storage)

Fibers (Bulk)

Salts

**Other micronutrients
(other functions)**

Moderation

**Portion
size**

Fats: The Good , Bad and Ugly : with apologies to Clint Eastwood

The Good fats

Unsaturated fatty acids and some saturated fats

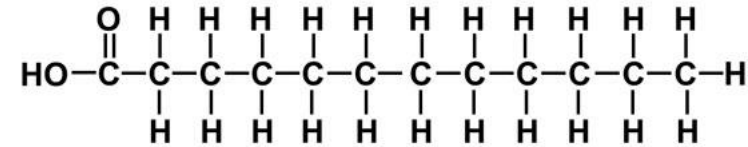
The Bad fats

Saturated fatty acids particularly the animal fats

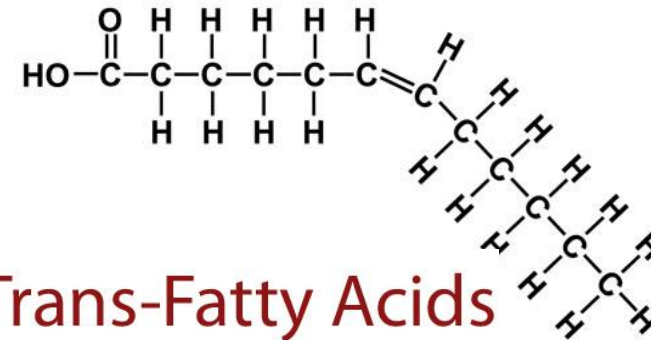
The Ugly Fats

Saturated fatty acids particularly the animal fats

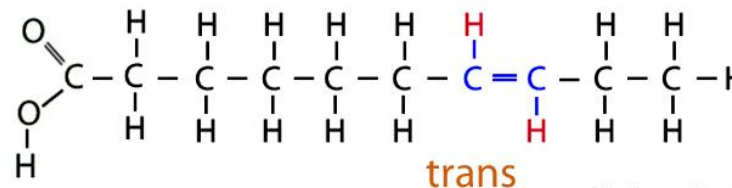
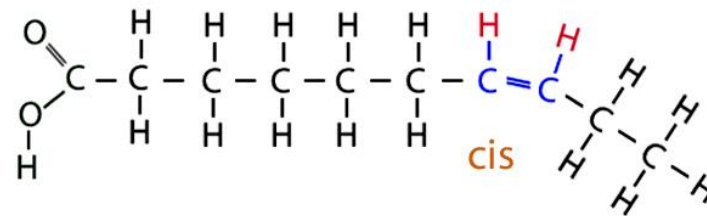
Saturated Fatty Acid



Unsaturated Fatty Acid



Cis- and Trans-Fatty Acids



The Big Fat Controversy and the Known Unknowns

- **Fats : Quantity vs Quality**
- **What replaces fats**
- **Source of fat**
- **To be definitely avoided: Transfats**

Common Food Sources Of Good Fats

Green leafy vegetables	Spinach, Amaranth, Mint, Fenugreek leaves and Drumstick leaves
Cereals	Most millets (Ragi,Bajra), Wheat, Quinoa, flax
Pulses and legumes	Rajma (Kidney beans), Soya bean (Edamame) and Black gram
Oils	Mustard/Rape seed, Groundnut, Soya bean, Linseed and Canola

• Omega-3 fatty acids

- Lower high blood pressure
- Improves blood sugar control
- Improves heart health
- Helps prevent cancer & Improves depression

Foods containing high TFA

- Noodles
- Cakes/Biscuits/Confectionaries
- Deep fried Indian sweets
- Cookies
- Doughnuts
- Potato chips
- French fries

Best sources of Omega-3 fatty acids

- Salmon, Whitefish, Albacore tuna, Flaxseeds, Walnut, Canola oil

Which oil should we be using

- **Olive vs others**
- **Avoid oils that are solid at room temperature; evidence for coconut preliminary**
- **Ghee**
- **Changing oils according to cooking practices**
- **Indian equivalent**

Why is there such an inconsistency in fat and Heart disease risk relationships?

- **All Saturated fats are not the same**
- **Sat fats from dairy products (odd chain) may be better**
- **Sat fats raise both LDL and HDL-C (good and bad cholesterol)**
- **For Indian diets Mustard or groundnut oil or rotating other oils may be a good idea**
- **Avoid reheating and rancid oils**
- **Ultimately portion size is important**

Some populations live longer despite high fat consumption: why?

Description of the Mediterranean diet constituents and their Indian equivalents

Dietary component	Mediterranean diet	Indian diet
Oils	Olive oil	Ground nut oil Mustard oil
Proteins	More fish, sea foods, chicken and legumes. Less red meat	Most from legumes/ pulses and less from non-vegetarian foods
Omega-3 fatty acids	Fish	Mustard oil, flax seeds
Carbohydrates (CHO)	Whole grains, complex CHO and more fibre	Refined cereals and processed foods.
Dairy	Low consumption	Frequent use of dairy in beverages, desserts
Fruits and Vegetables	Fresh raw fruits and vegetables	Low consumption of fresh fruits and vegetables
Alcohol	Wine	Beer and whisky

Trichopoulou A, Martínez-González MA, Tong TY, Forouhi NG, Khandelwal S, Prabhakaran D, Mozaffarian D, de Lorgeril M.. BMC Med. 2014 Jul 24;12:112.

The Cholesterol Conundrum

- **Does Dietary Cholesterol contribute to Serum Cholesterol?**
- **Do dietary saturated fats increase Serum Cholesterol ?**
- **Do dietary cholesterol and saturated fats increase CV mortality**

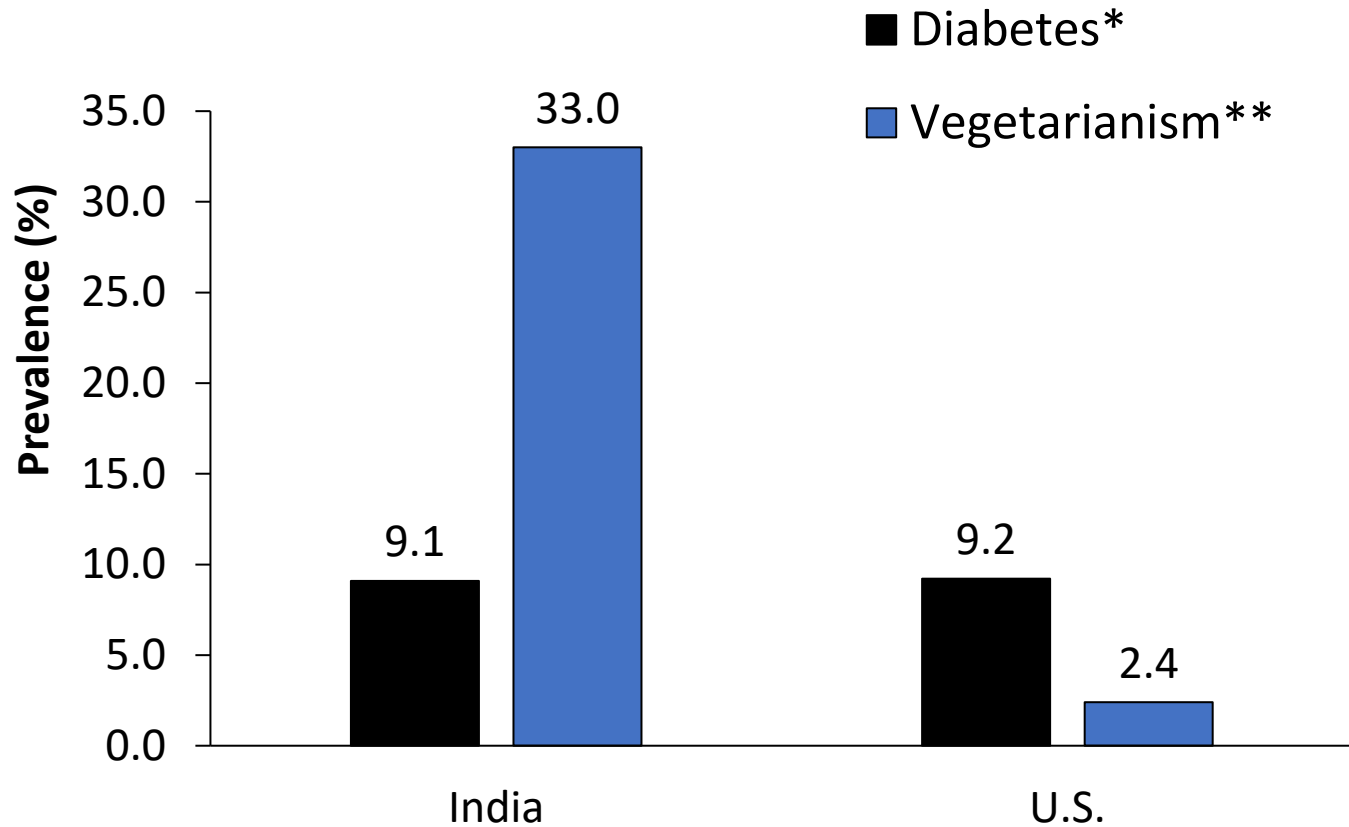
- **Several follow-up studies show no association between dietary cholesterol (egg consumption) and serum cholesterol, death and heart attacks**
- **Several meta-analysis and recent studies (PURE, Malmo diet Cancer study, Predimed) have shown that saturated fats may be neutral or protective**
- **However, cholesterol level depends on baseline consumption; 1 egg per day is ok in most individuals**

Carbohydrates and Sugars : Key issues

- **Reduce consumption of**
 - **Simple sugars**
 - **Energy Dense; Nutrient Poor Foods & beverages including fruit juices where the pulp has been removed**
- **Substitute foods with low glycemic index and higher fibre content**
- **Avoid excess energy intake (fats; sugars; alcohol)**



The South Asian Paradox





ELSEVIER

Contents lists available at ScienceDirect

Nutrition

journal homepage: www.nutritionjrn.com



Applied nutritional investigation

Vegetarianism and cardiometabolic disease risk factors:
Differences between South Asian and US adults



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*However, benefits
of vegetables
depends on how
we cook them and
also the right
choice*

- Vegetarians in both populations have a lower probability of overweight/obesity compared with non-vegetarians.
- Also stronger protection against central obesity.
- Stronger association for US vegetarian diets.

Why?

- **Contaminated Vegetarianism**
- **Deep fried foods have high transfats which are extremely dangerous and should be avoided/ reduced as much as possible**
- **Indian sweets are not only loaded with sugar but with transfats**
- **Transfats are highly atherogenic and cause plaque formation in the coronary arteries**



Glucose

Fat

Insulin



**Mysore Pak or
Mysore Plaque**

Vitamins, Antioxidants & Heart Diseases

- A biological rationale exists for protection against heart attacks
- Current evidence does not support anti oxidant supplementation; but intake of their primary food sources should be encouraged.
- **Berries and brightly colored vegetables are good source of antioxidants**
- **Role of Vit D ?**



Fruits and Vegetables

- **Protective against Heart attacks**
 - **Protective against Stroke**
 - **Reduce BP**
 - **Reduce Blood Sugar**
 - **Berries are rich in antioxidants, eating them can reduce multiple risk factors for heart disease.**
- **5 servings per day**



Image acknowledgement:
<https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/vegetables-and-fruits/>

Alcohol - CVD

- **Low consumption (< 2 drinks for men and < 1 drink for women) believed to protect the heart**
- **However, can ↑ Triglycerides, BP and risk of stroke**
- **In some populations (South Asians) harmful: ? Binge drinking; altered alcohol dehydrogenase; different drinking habits**
- **Many non heart harms : Injuries, accidents, domestic violence etc**



Image acknowledgement:
<https://www.thoughtco.com/where-does-alcohol-come-from-3975928>

Advise : Don't start if you don't drink; Drink in moderation if you have to

Salt: Some controversies

- High salt intake related to hypertension and stroke
- Recent studies: Very low salt intake bad
- **What should we do: People with heart failure should consult with their doctors regarding salt intake**
- **Others: Avoid adding salt to cooked food, salads and consume foods that have high salt content rarely**

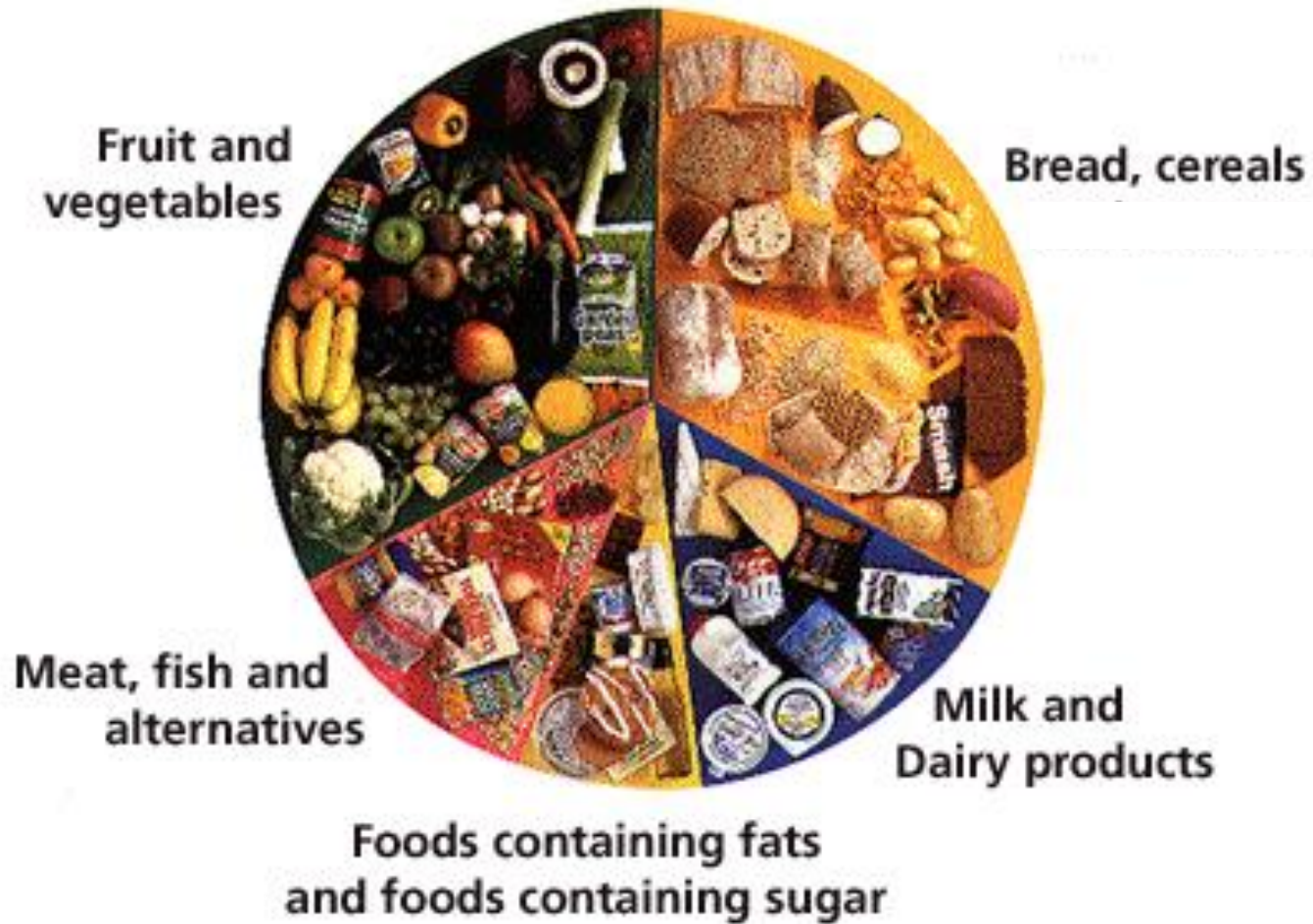


Image acknowledgement:
<https://www.heartfoundation.org.nz/about-us/news/blogs/salt-awareness-week>

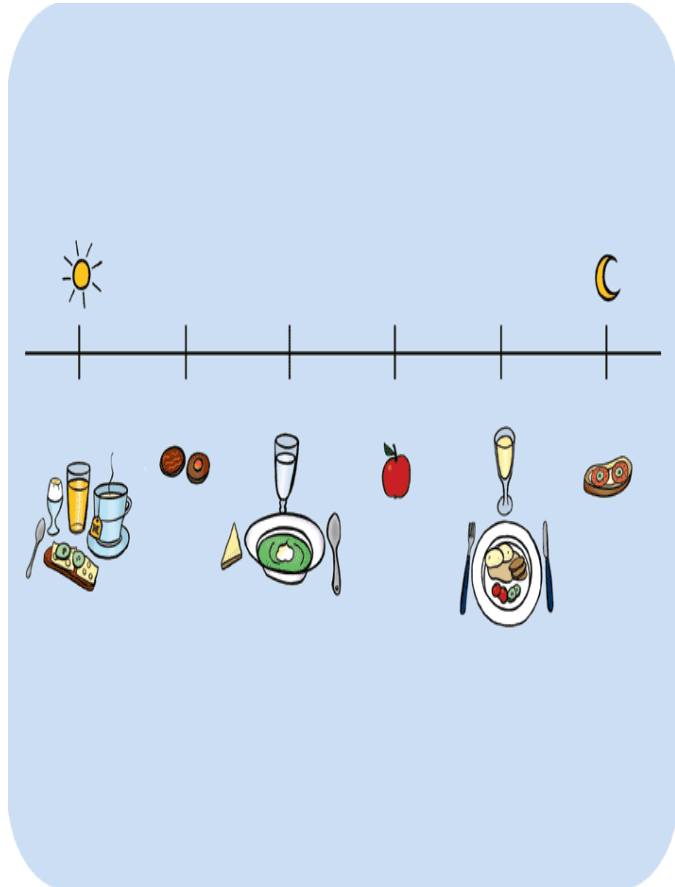
How do I plan my meal to keep my heart healthy?

PLATE MODEL

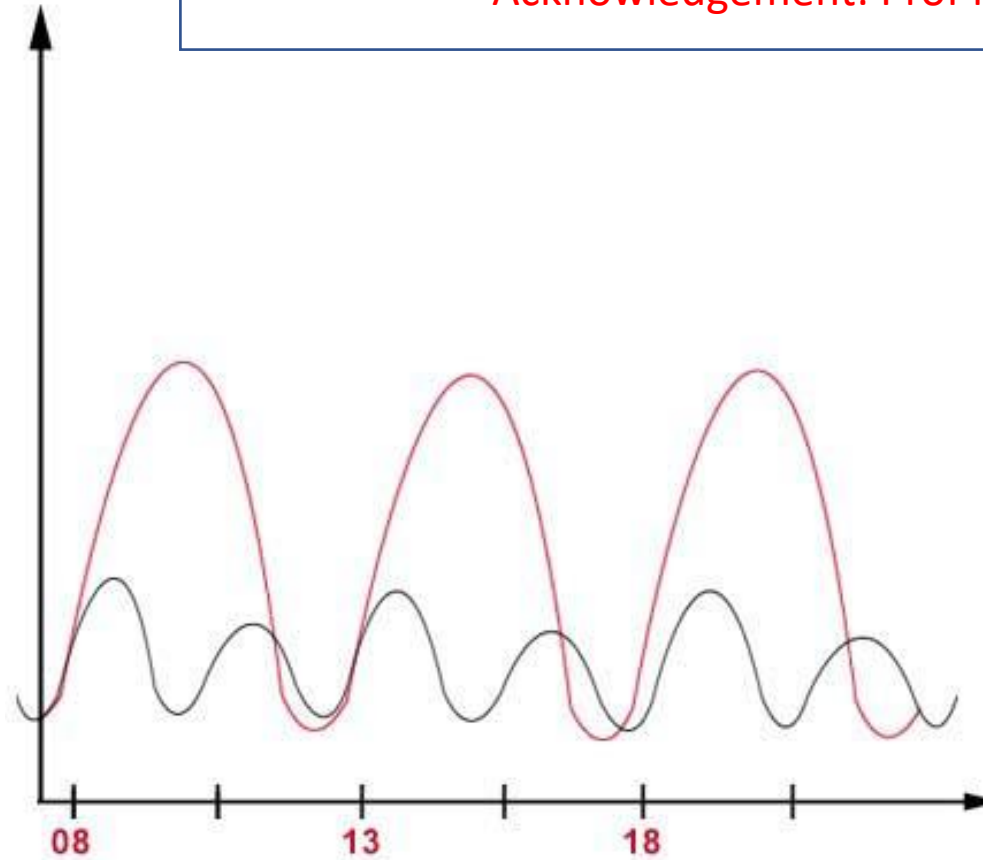
Balance of good health



Meals and Snacks



Acknowledgement: Prof Nikhil Tandon, AIIMS



**Never omit meals and snacks
Try and eat the same amount every day**

Recommendations - Eat More

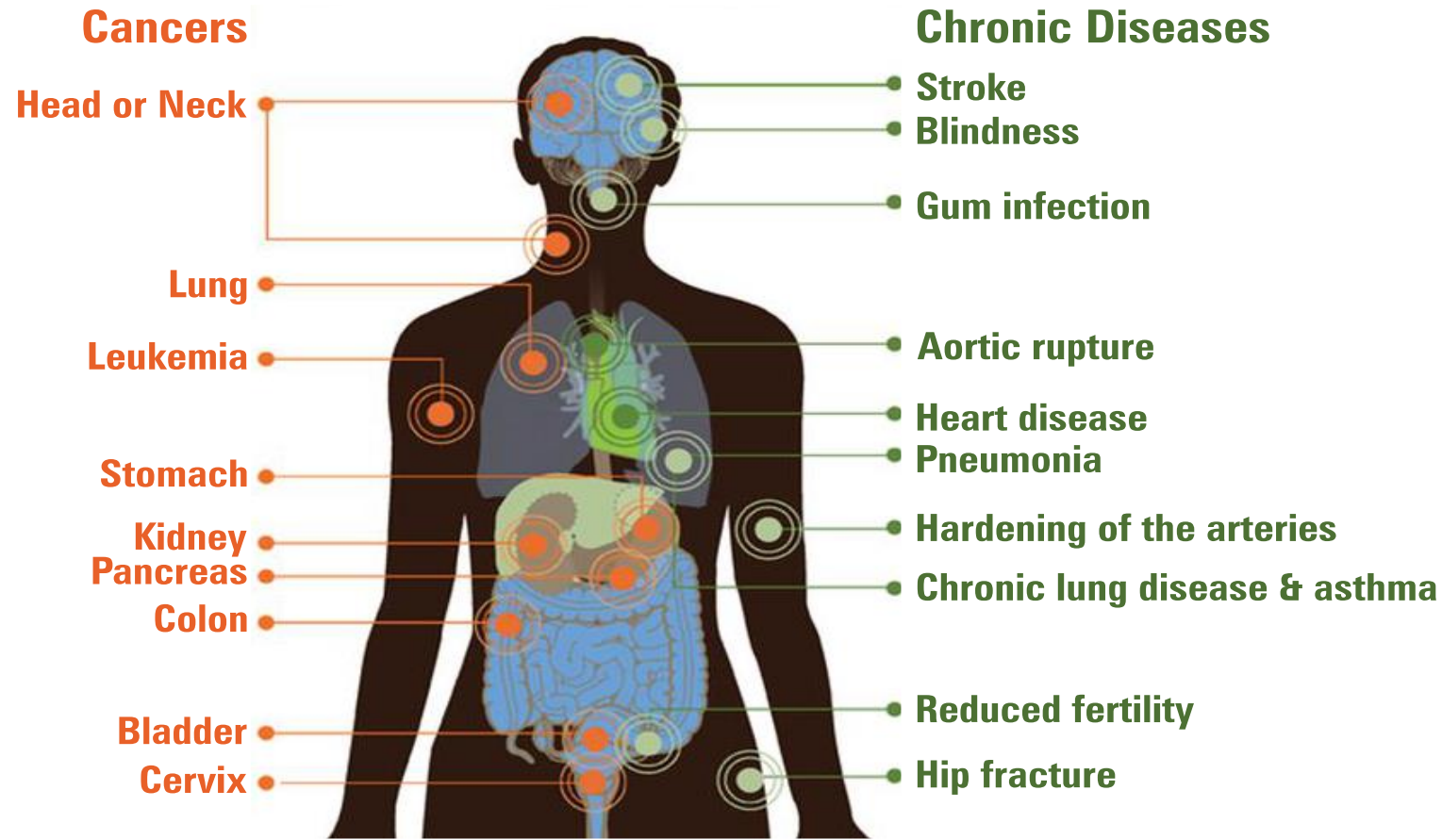
- 1. Healthy fats: raw nuts, olive oil, fish oils, flax seeds, or avocados.**
- 2. Nutrients: colorful fruits and vegetables—fresh or frozen, prepared without butter.**
- 3. Fiber: cereals, breads, and pasta made from whole grains or legumes.**
- 4. Omega 3 and protein: fish and shellfish, poultry.**
- 5. Calcium and protein: Egg whites, skim or 1% milk, low-fat or non-fat cheeses or yogurt.**

Recommendations - Eat Less

- 1. Trans fats from partially hydrogenated or deep-fried foods; saturated fats from whole-fat dairy or red meat.**
- 2. Packaged foods of any kind, especially those high in sodium.**
- 3. White or egg breads, granola-type cereals, refined pastas or rice.**
- 4. Red meat, bacon, sausage, fried chicken.**
- 5. Egg yolks, whole or 2 percent milk, whole milk products like cheese or yogurt.**

Risk from Smoking

Smoking can damage every part of the body

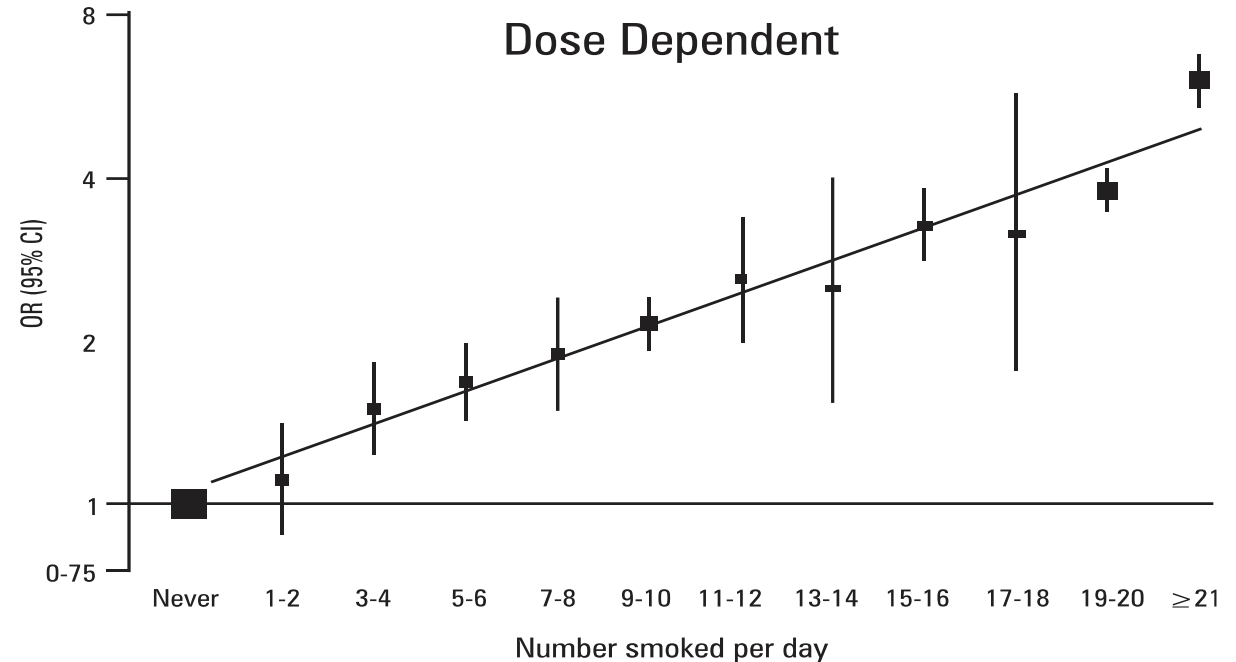


Adapted from CDC

INTERHEART Study

Case control study:

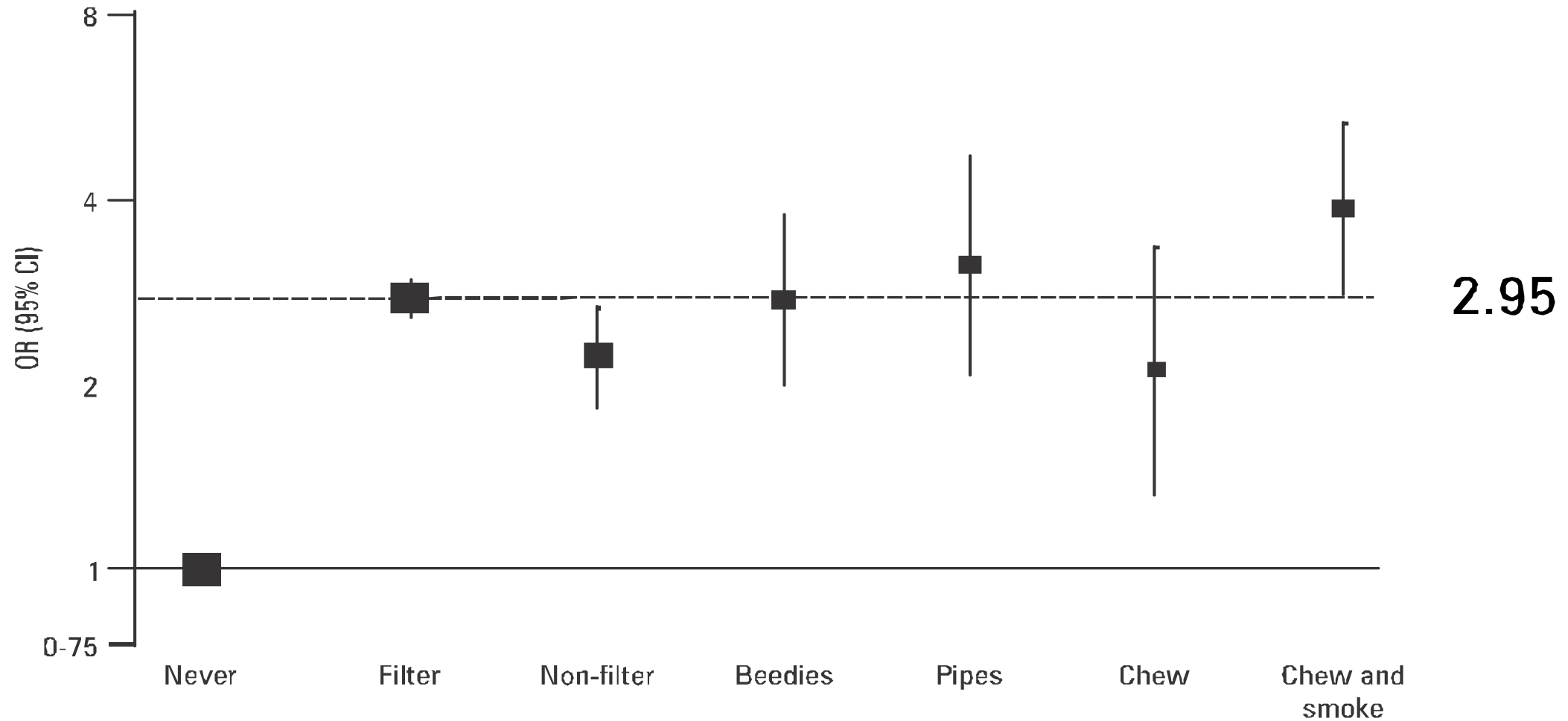
- N = 12461 cases & 14637 controls in 52 countries
- Nearly 3 times increased risk for nonfatal heart attacks among smokers



Risk of AMI with increasing numbers of cigarettes smoked, compared with individuals who have never smoked

Yusuf et al Lancet 2004
Teo et al Lancet 2006

Risk similar across different types of tobacco : 3 times higher

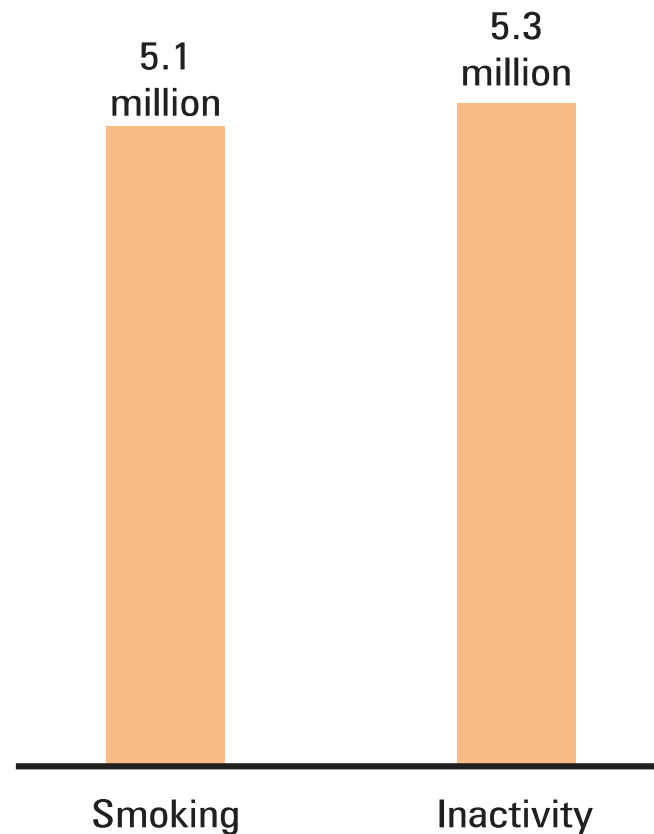


After the Last Cigarette.....

< 30 mins	Blood pressure and pulse return to normal
8 hours	CO levels in blood return to normal
24 hours	Endothelium better, chance of heart attack decreases
48 hours	Nerve endings begin regrowth
72 hours	Breathing becomes easier; lung capacity increases
2-12 weeks	Lung function increases 30%; circulation improves
1 year	Risk of CHD is half that of a smoker
3 years	MI risk is similar to that of never-smokers
5-15 years	Stroke risk reduced to that of never-smokers
20 years	Regression of atherosclerosis in peripheral arteries

Physical Inactivity is as Bad as Smoking

Global deaths per year



How does Physical Activity Prevent Heart Disease?

Heart Diseases

Prevents

- Diabetes and improves glucose metabolism

Increases

- HDL

Decreases

- Cholesterol
- Triglycerides
- LDL-C
- BP
- Body fat
- Obesity

Others

Decreases

- Osteoporosis/ Osteoarthritis
- Breast and Colon cancer
- Lower back pain
- Stress, anxiety , depression

Increases

- Strength and fitness



+



Sitting

The new risk factor -
Excessive sitting,
independent of physical
activity, is harmful to
health



WHO Global Recommendations for Adults aged ≥ 18 years

Physical activity includes

- recreational or leisure-time physical activity,
- transportation (eg. walking or cycling), occupational (i.e. work),
- household chores,
- sports or planned exercise



in the context of daily, family, and community activities

For Adults Aged 18 years and Above.....

- In order to improve cardio-respiratory and muscular fitness, bone health and reduce the risk of NCDs and depression the following are recommended:
 - **At least 150 minutes of moderate-intensity** aerobic physical activity throughout the week, or **at least 75 minutes of vigorous-intensity** aerobic physical activity throughout the week, or **an equivalent combination** of moderate- and vigorous-intensity activity
 - **Aerobic activity** should be performed in **bouts of at least 10 minutes** duration
 - **Muscle-strengthening** activities should be done involving major muscle groups **on 2 or more days a week**



Secondary prevention is important

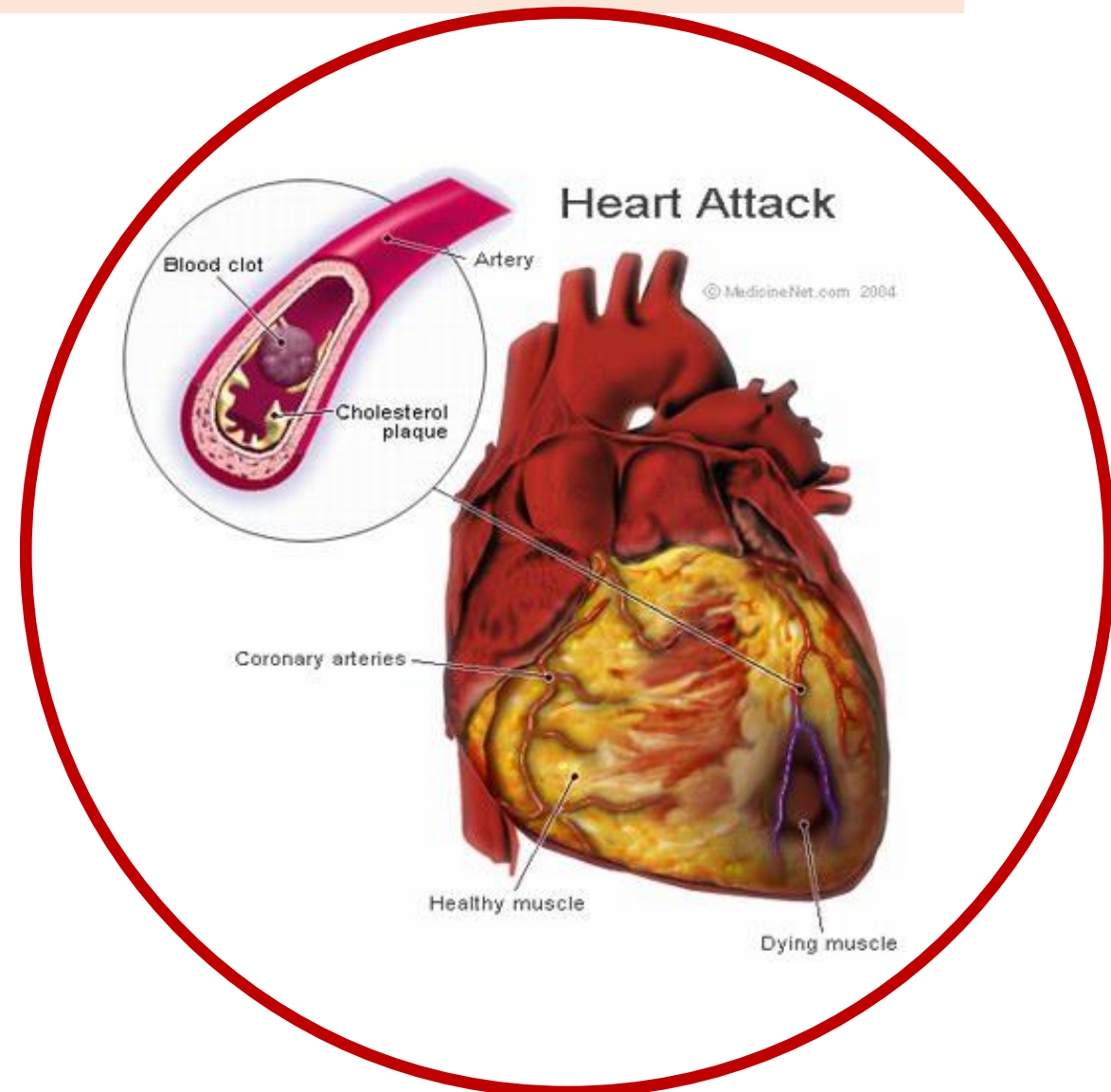
Secondary prevention includes simple drugs and rehabilitation

Yoga can play a major role in cardiac rehabilitation

Edouard Vuillard, The Doctor Henri Vaquez, Cardiologist (1924)

Our work so far in Yoga

- **Creation of a heart friendly Yoga package**
- **Demonstration of benefits of Yoga in Cardiac rehabilitation after AMI**
- **Yoga in diabetes**
- **Yoga in cessation of tobacco use**
- **Yoga in reversal of atherosclerosis**



What is Yoga to me ?

A complete lifestyle package

- Niyama
- Asana
- Pranayama
- Pratyahara
- Dharana

- Right diet
- Avoidance of tobacco
- Avoidance of alcohol

- Stress Relief
- Meditation
- Mindfulness

- Various Physical Postures
- Physical Activity

- Pranayama/
breathing exercises

Yoga in Cardiac rehabilitation : what did we show?

Demonstration of benefits of Yoga in Cardiac rehabilitation after AMI :

- Improved quality of life
- Early return to pre infarct activity
- Potential mortality and MACE benefit (being assessed in long term follow up

Largest Yoga trial in the world

My Concluding messages for living longer and keeping your heart healthy

- **Eat in moderation**
- **Eat whole grain cereals and plenty of fruits and vegetables**
- **Cook your food the right way**
- **Reduce deep fried foods and other fatty foods**
- **Reduce salt**
- **Add color to your diet**
- **Overcome your destiny by eating right**
- **Others: Avoid tobacco in all forms and alcohol as much as possible, moderate exercise and Yoga**

JB; male – Aged 101

- Do not smoke – even for the fun of it
- Eat plain food – lots of beans and vegetables
- Do not drink – except for a little wine
- Walk a lot – work hard physically
- Do not be concerned over politics
- Avoid courts and ... doctors
- Do not read newspapers (*and don't watch TV news*) – remain illiterate
- Sleep plenty
- Sex! Do your best

Acknowledgement: Prof Neil Poulter, Imperial College, London

HUFFPOST

REAL LIFE. REAL NEWS. REAL VOICES.

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A 109-year-old woman in Scotland said in January that the secret to her longevity is this: Eat your porridge and avoid men. Centenarian Jessie Gallan, who never married, was born in a tiny two-room farm cottage where she slept “top-to-tail” with her five sisters and a brother on a straw mattress, reported [The Daily Mail](#).

Gallan told the newspaper that her “secret to a long life has been staying away from men. They’re just more trouble than they’re worth.” She noted that she also “made sure that I got plenty of exercise, eat a nice warm bowl of porridge every morning and have never gotten married.”



To know how to grow old is masterwork of wisdom, and one of the most difficult chapters in the great art of living

Henri Fredric Amiel, 1821-81, Swiss writer