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Tips & Tricks To Keep Heart Healthy

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USE ♥ FOR ACTION

♥ YES

WORLD'S BIGGEST KILLER

- Cardiovascular disease (CVD) is the world's number one killer.

  Combined, conditions affecting the heart or blood vessels – such as heart attack, stroke and heart failure – kill 20.5 million every year.

  The majority of these deaths happen in low- and middle-income countries.

- 80% of premature deaths from CVD are preventable.

  By making small changes to our lifestyle – what we eat and drink, how much we exercise, and how we manage stress – we can better manage our heart health and beat CVD.

USE ♥ FOR ACTION

♥ YES

British Heart Foundation

Global Heart & Circulatory Disease Prevalence in 2021

USE ♥ FOR ACTION

YES

British Heart Foundation

Estimated Deaths from Heart & Circulatory Diseases (2021)

Highest & Lowest Cardiovascular Death Rates Worldwide

	HIGHEST	ASDR 2021
1	Nauru (Micronesia)	748.3
2	**Egypt**	612.1
3	**Afghanistan**	567.4
4	**North Macedonia**	560.3
5	**Turkmenistan**	552.3

	LOWEST	ASDR 2021
1	San Marino	66.9
2	Japan	72.5
3	Israel	75.2
4	Singapore	75.8
5	France	78.7

ASDR = Age-Standardised Death Rates for cardiovascular disease – heart and circulatory diseases - CVD (ICD-10 I00-99)

For comparative purposes, the UK ASDR in 2021 was 107 and the global ASDR was 235.

Please note that these are modelled estimates, based on national sources which may have different statistical and clinical definitions.

- The age-standardised death rate for heart and circulatory diseases (CVD) in Nauru in Micronesia is over ten times higher than that of Japan and San Marino.

USE ♥ FOR ACTION

♥ YES

Biggest Killers Worldwide (GBD 2021 Estimates)

	MEN		WOMEN		TOTAL	
1	Coronary heart disease	5.0 million	Coronary heart disease	4.0 million	Coronary heart disease	9.0 million
2	**COVID-19**	4.8 million	Stroke	3.5 million	COVID-19	7.9 million
3	**Stroke**	3.8 million	COVID-19	3.1 million	Stroke	7.3 million
4	**COPD**	2.1 million	COPD	1.6 million	COPD	3.7 million
5	**Lung cancer**	1.3 million	Alzheimer's and dementia	1.3 million	Lower respiratory disease	2.2 million

NB some figures do not add up due to rounding; COPD = chronic obstructive pulmonary disease

- Heart and circulatory diseases are the world's biggest killers – in every recent year, bar the pandemic years of 2020 and 2021, coronary heart disease was the single biggest killer globally, and stroke was the second biggest.

- Other common cardiovascular causes of death are hypertensive heart disease, atrial fibrillation and rheumatic heart disease.

USE ♥ FOR ACTION

♥ YES

Know Your Risk Factors

USE ♥ FOR ACTION

♥ YES

RISK FACTORS FOR CARDIOVASCULAR DISEASES

- Age
- Sex
- Ethnicity
- Family History

USE ♥ FOR ACTION

♥ YES

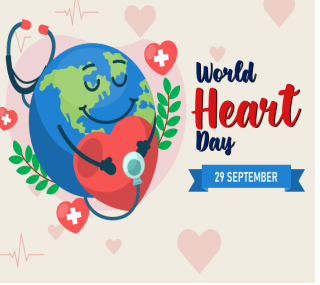
RISK FACTORS FOR CARDIOVASCULAR DISEASES

Behavioral factors	Metabolic factors	Environmental factors
-Insufficient physical activity -High sodium intake -High alcohol consumption -Tobacco smoking	-High blood pressure -High fasting plasma glucose -High body-mass index -High levels of low-density lipoprotein (LDL) cholesterol	-Air Pollution -Water Pollution -Sound Pollution

Physical Inactivity

Physical inactivity has a profound impact on the development and progression of heart disease.

- **Increased Risk of Atherosclerosis**
- **High Blood Pressure (Hypertension)**
- **Obesity and Metabolic Syndrome**
- **Insulin Resistance**
- **Reduced Collateral Circulation**

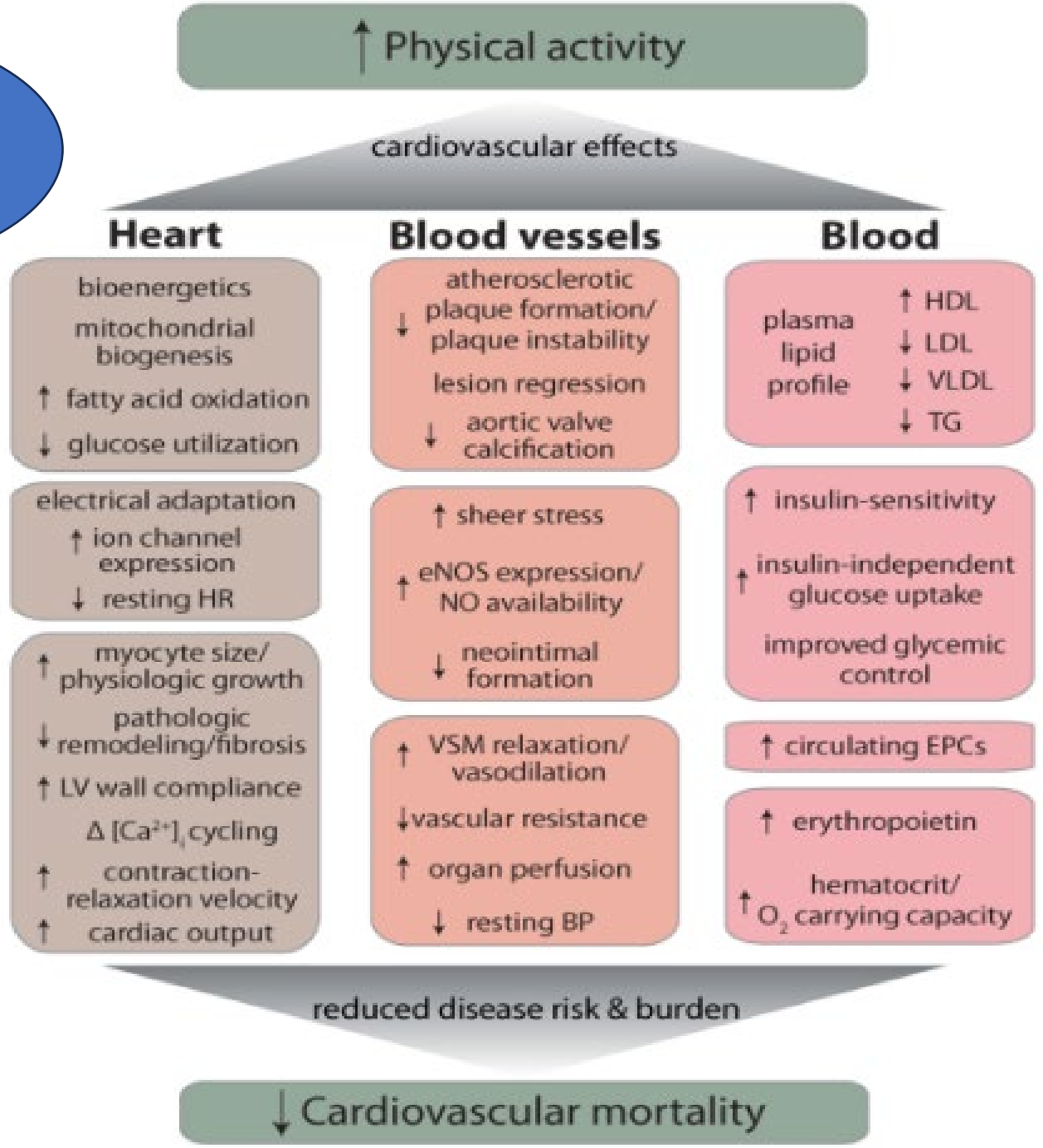


Physical activity

- Around 150 minutes of moderate physical activity per week reduces the risk of heart disease

Regular physical activity reduces the risk of coronary heart disease by up to 35%

- ***Examples*:** Brisk walking, running, swimming, cycling, playing tennis and jumping rope.



DIABETES (IDF)

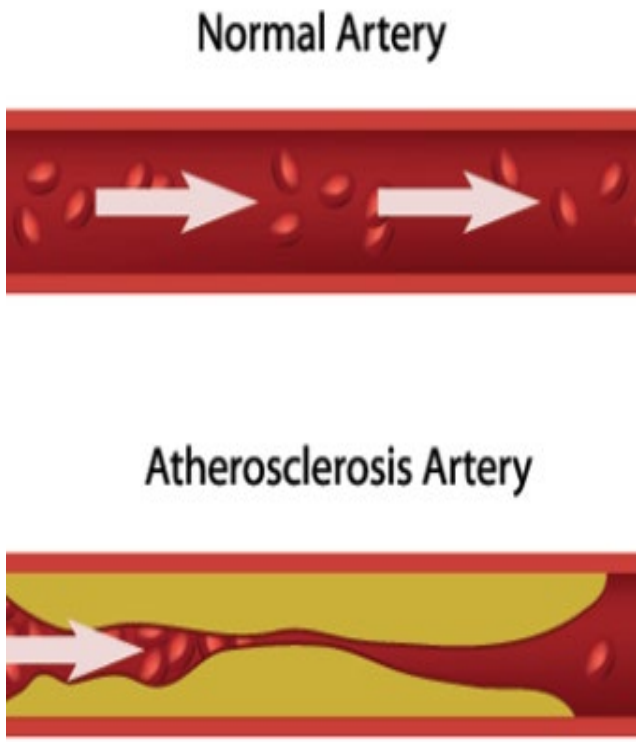
- Diabetes can damage your blood vessels and nerves.
- People living with diabetes are twice as likely to develop and die from cardiovascular disease.
- The longer you live with diabetes, the higher your risk of heart disease and stroke.
- For adults at age 60, having type 2 diabetes and cardiovascular disease shortens life expectancy by an average of 12 years.

USE ♥ FOR ACTION

♥ YES

CHOLESTEROL

- Raised cholesterol is estimated to cause 4.5% of total death and is implicated in heart diseases and stroke.
- Cholesterol is made up of two kinds: high-density lipoproteins (HDL) and low-density lipoproteins (LDL) and the ratio of good to bad is implicated in heart disease, diabetes and stroke.
- Too much can form into plaques that narrow arteries, block blood flow or even break apart and lead to a heart attack or stroke

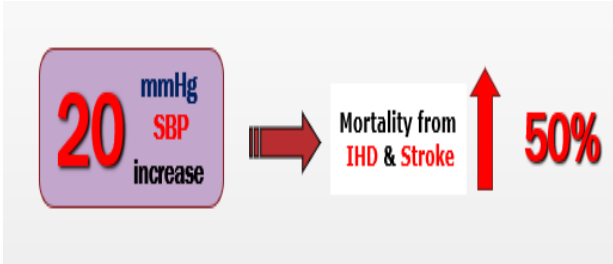


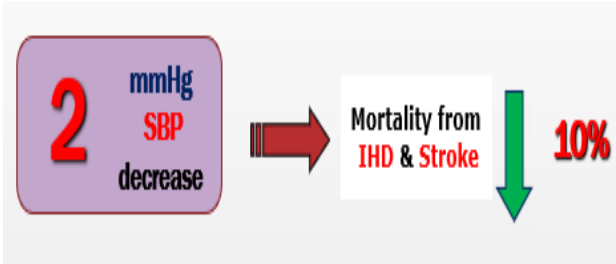
USE ♥ FOR ACTION

♥ YES

Hypertension

- Hypertension is a major cause of premature death worldwide.
- 47% of coronary artery disease worldwide is attributable to high BP
- 1.28 billion adults worldwide have hypertension, most (two-thirds) living in low- and middle-income countries
- 46% of adults with hypertension are unaware.
- 42% adults with hypertension are diagnosed and treated.
- 21% adults with hypertension have it under control.



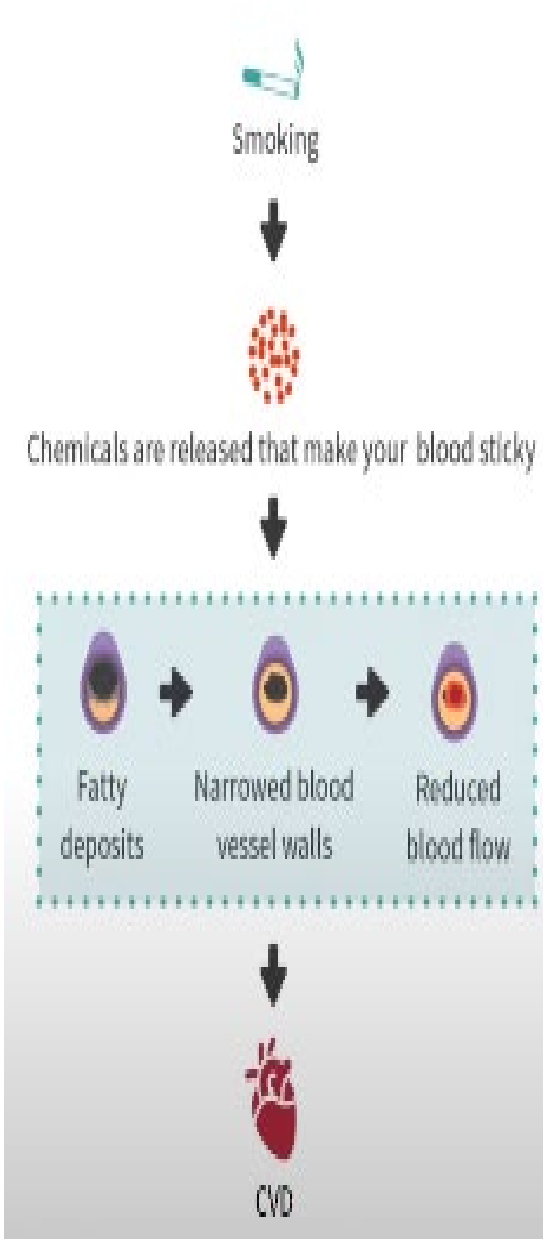


USE ♥ FOR ACTION

♥ YES

TOBACCO USE

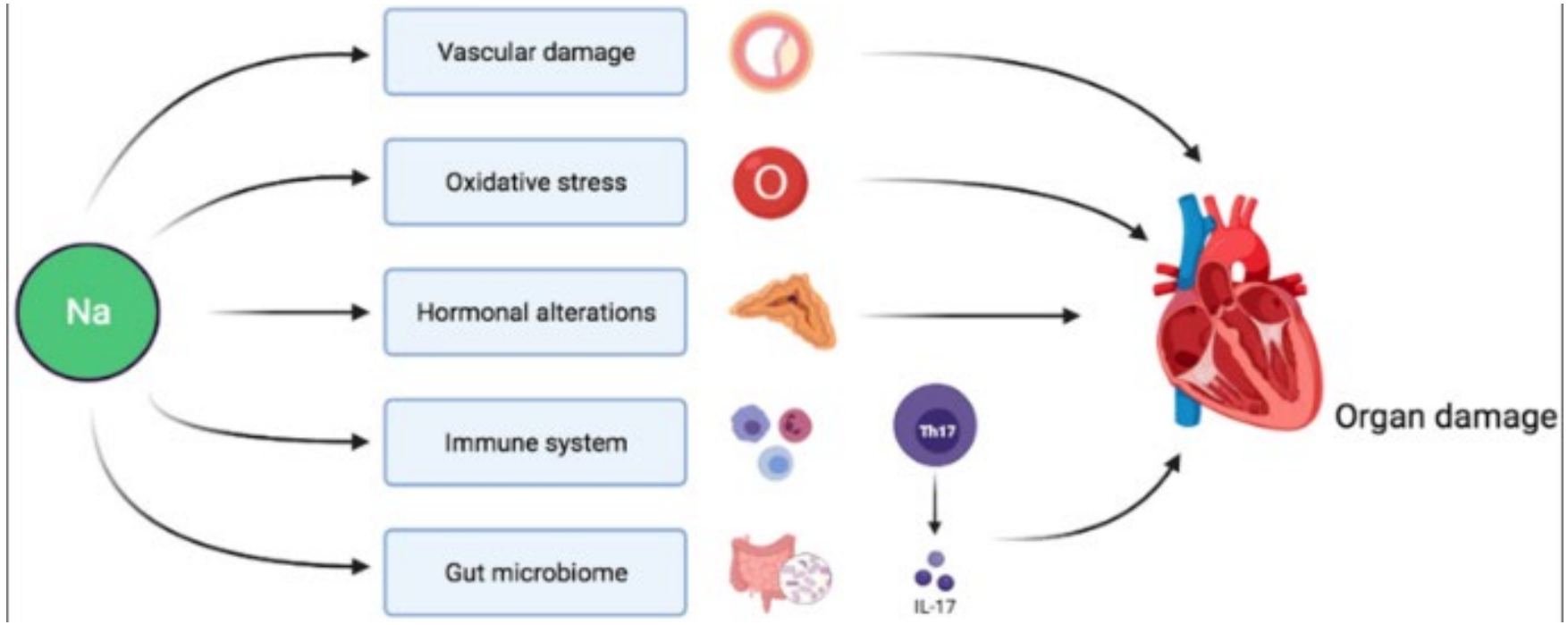
- Globally, tobacco causes 7 million deaths a year
- Major risk for developing heart disease.
- Over 80% tobacco users live in low- and middle-income countries.
- More than 80% of adult deaths caused by second-hand smoke are due to heart disease.
- Quitting smoking- at age 66 years, men gained up to two years of life, and women gained up to 3.7 years.



USE ♥ FOR ACTION

♥ YES

High Sodium Intake



USE ♥ FOR ACTION

♥ YES

Obesity

Obesity is a complex disease and there are many factors which can affect your weight

BMI is not an accurate tool to identify obesity related complications

KNOW YOUR NUMBER 💔?

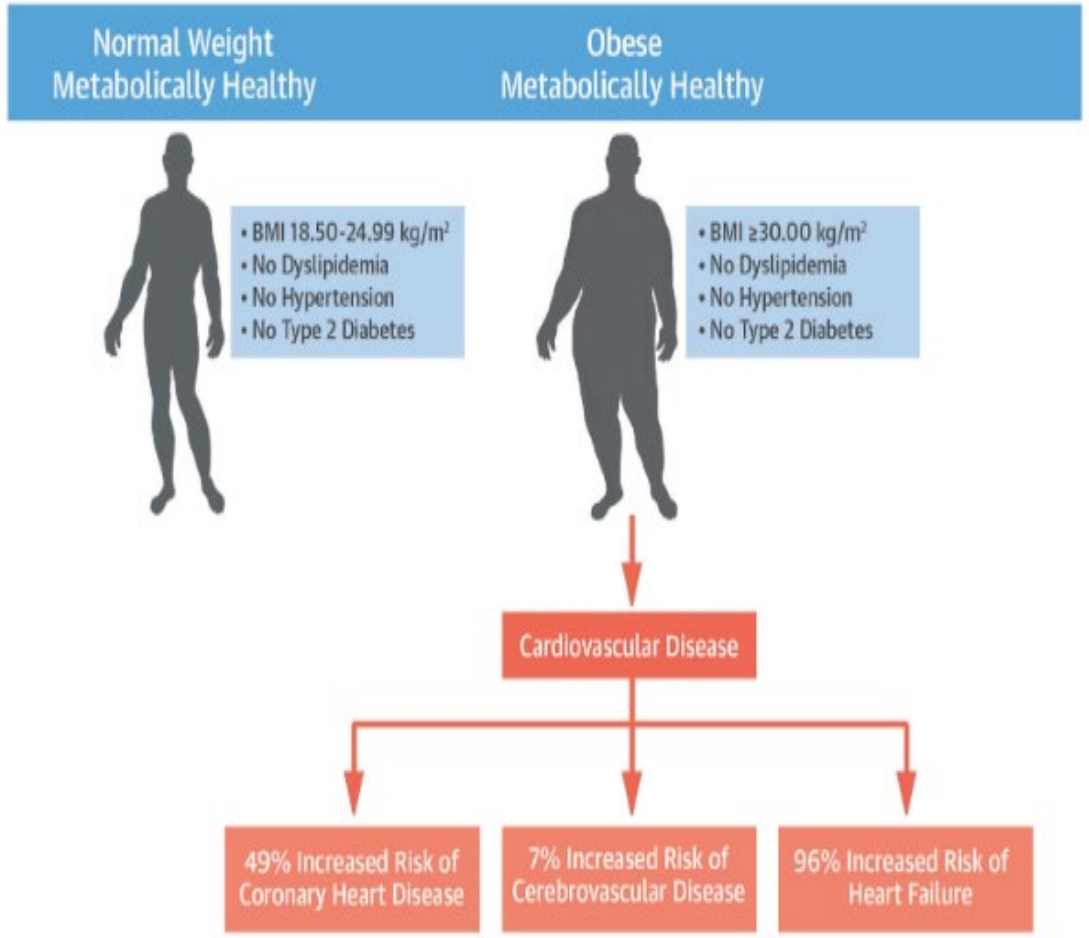
If your BMI is high, you are also at higher risk of heart disease and stroke.

USE ♥ FOR ACTION

♥ YES

WORLD HEART DAY 29 SEP | #UseHeart | #WorldHeartDay | WORLDHEARTDAY.ORG

CENTRAL ILLUSTRATION: Metabolically Healthy Obese and Incident Cardiovascular Disease



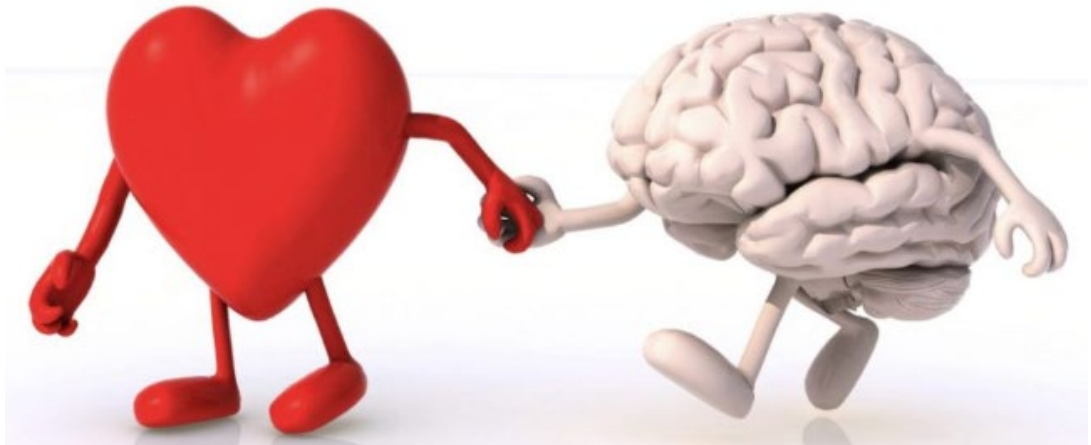
Caleyachetty, R. et al. J Am Coll Cardiol. 2017;70(12):1429-37.

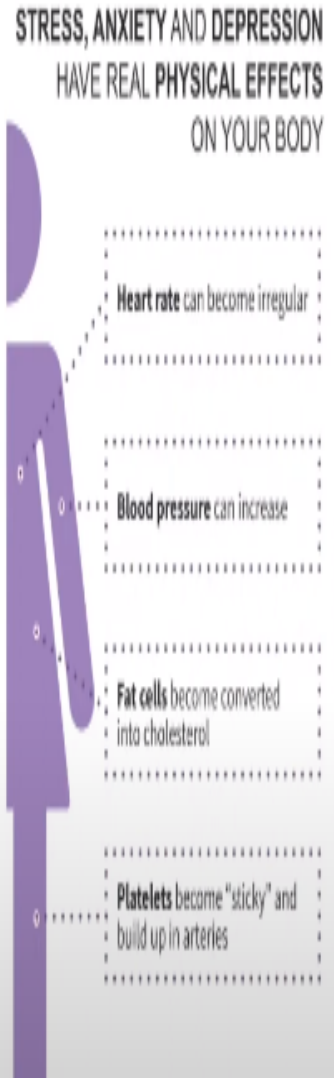
USE ♥ FOR ACTION

♥ YES

Mental Health

- Heart rate can become irregular.
- Blood pressure can increase.
- Fat cells become converted to bad cholesterol.
- Platelet dysfunction occurs.





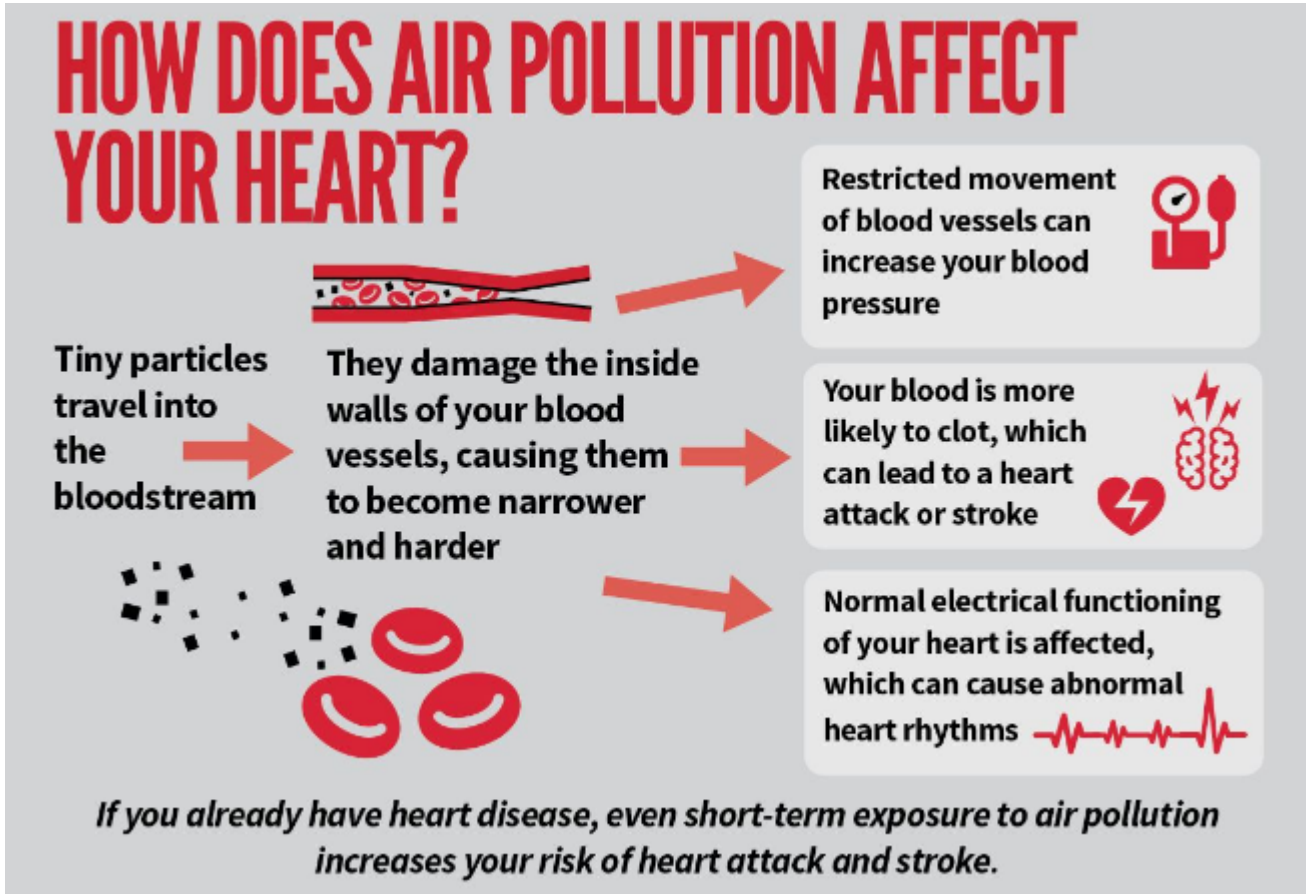
USE ♥ FOR ACTION

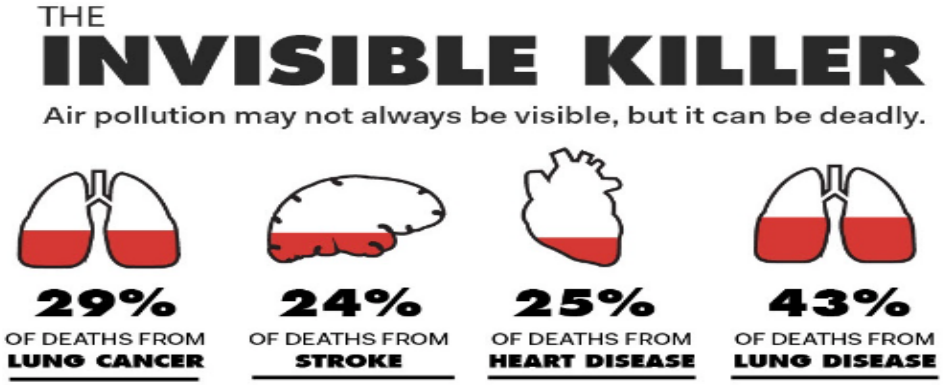
♥ YES

WORLD HEART FEDERATION

Air Pollution

The invisible killer





USE ♥ FOR ACTION

♥ YES

Sound pollution

Harvard Health Publishing
HARVARD MEDICAL SCHOOL

- 5-decibel increase in the average 24-hour noise level was associated with a 34% increase in heart attacks, strokes, and other serious heart-related problems.

USE ♥ FOR ACTION

♥ YES

Water pollution

- Water pollution can indirectly contribute to heart disease.
- Water pollution can introduce variou contaminants into drinking water sources, including heavy metals (e.g lead, arsenic), chemicals (e.g., pesticides, industrial pollutants), and microbial pathogens (e.g., bacteria, viruses).

USE ♥ FOR ACTION

♥ YES

Emerging new risk factors

- CORONARY ARTERY CALCIUM
- C-REACTIVE PROTEIN
- LIPOPROTEIN (a)
- CAROTID INTIMA-MEDIA THICKNESS
- HOMOCYSTEINE
- LIPOPROTEIN-ASSOCIATED PHOSPHOLIPASE A2
- RADIATION EXPOSURE
- RESTING HEART RATE
- COVID 19

Prevention

- ``**An ounce of prevention is worth a pound of cure**." - Benjamin Franklin.
- Knowledge empowers, Knowing what you can do today can prevent regrets tomorrow.
- This knowledge should start with knowing your numbers

USE ♥ FOR ACTION

♥ YES

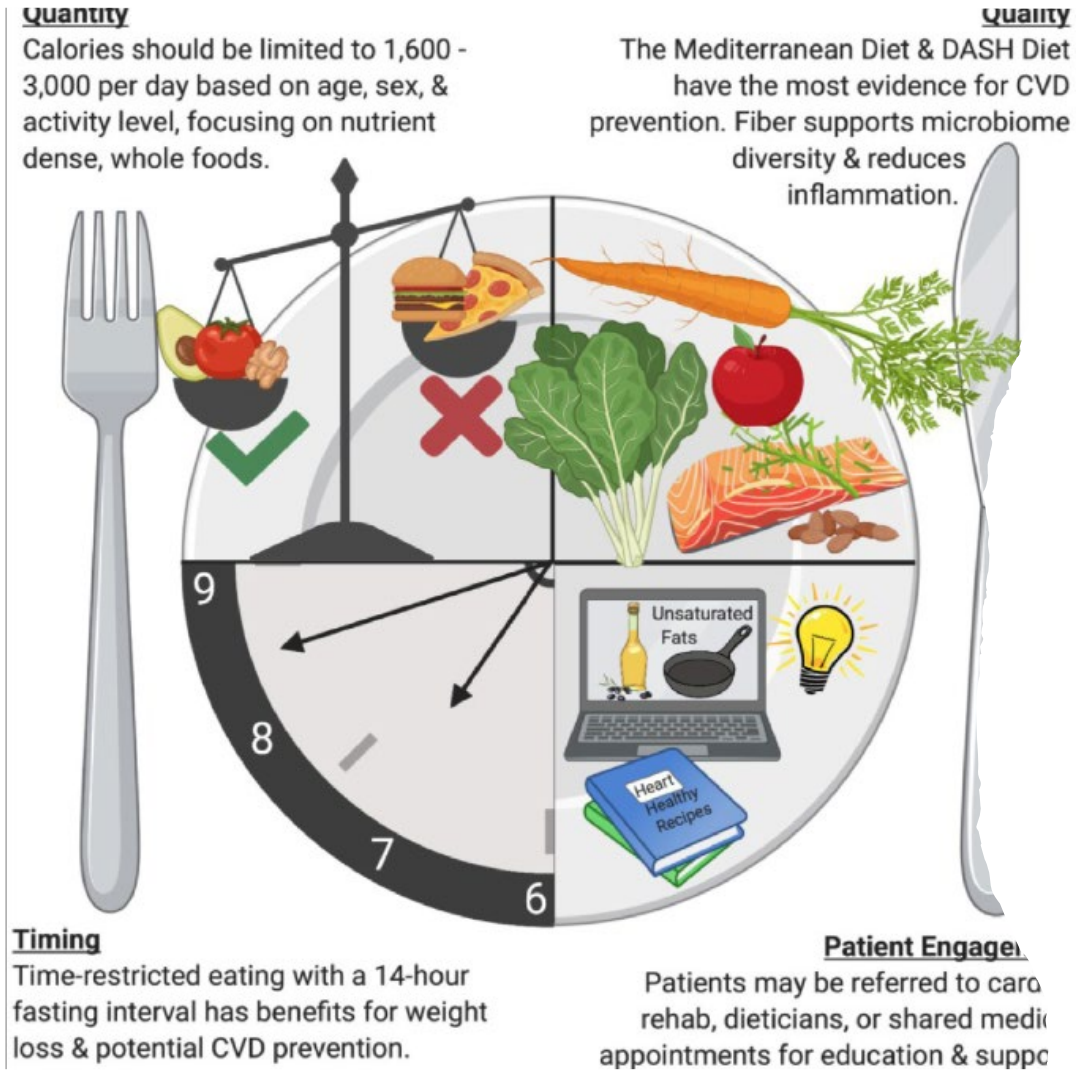
10 Simple steps towards a healthy heart

USE ♥ FOR ACTION

♥ YES

Step 1

Eat Well



- Cut down -sugary beverages and artificial juices
- Swap sweet, sugary treats for fresh fruit as a healthy alternative.
- Try to eat 5 portions of fruits and vegetables a day.
- Limit alcohol
- Limit processed food that are high in salt, sugar and fat.

USE ♥ FOR ACTION

♥ YES

Step 2

To get more Active

At least 30 minutes of moderate intensity physical activity 5 times a week.

Or at least 75 minutes spread throughout the week of vigorous-intensity activity.

Be more active every day- Take the stairs, walk or cycle instead of driving.

USE ♥ FOR ACTION

♥ YES

Step 3

TO SAY NO TO TOBACCO

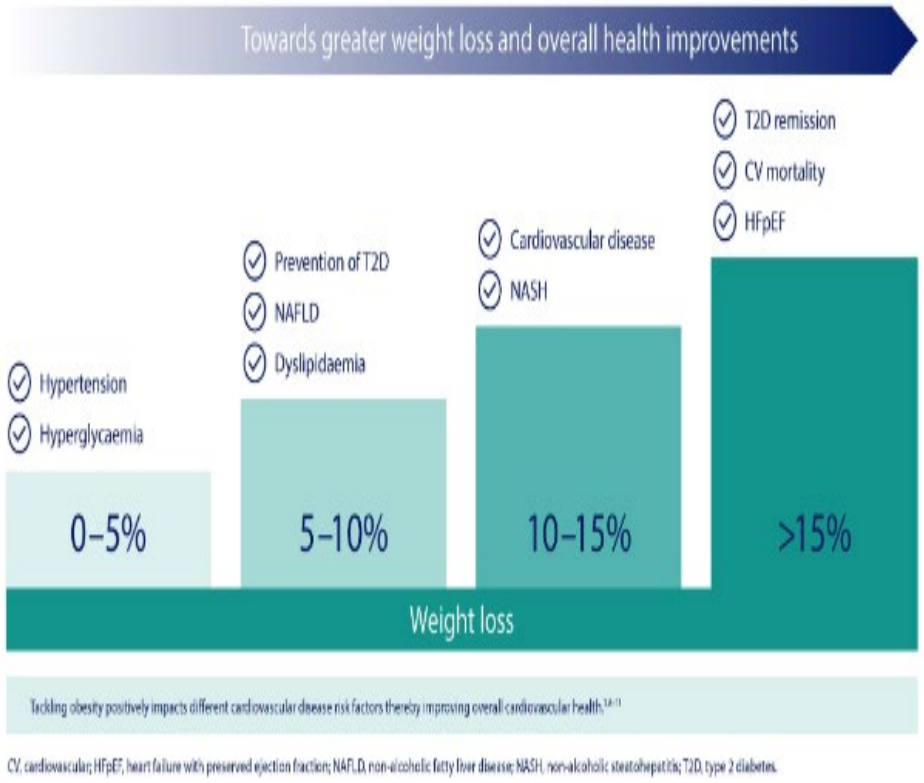
- It's the single best thing anyone can do to improve heart health.
- Within 2 years of quitting, the risk of coronary heart disease is substantially reduced.
- Within 15 years the risk of CVD returns to that of a non-smoker.
- Exposure to secondhand smoke is also a cause of heart disease in non-smokers.

USE ♥ FOR ACTION

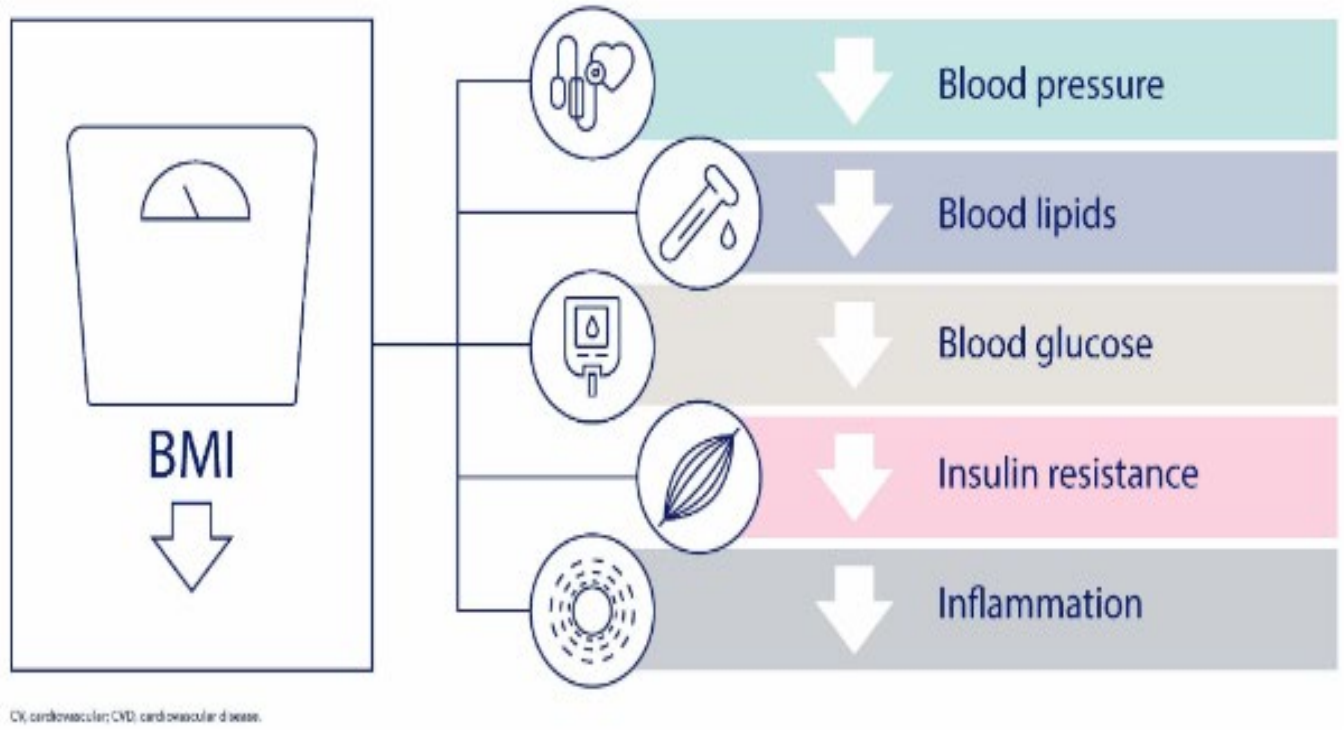
♥ YES

Step 4

Maintain a Healthy Weight



CV, cardiovascular; HFpEF, heart failure with preserved ejection fraction; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; T2D, type 2 diabetes.



CV, cardiovascular; CVD, cardiovascular disease.

USE ♥ FOR ACTION

♥ YES

Step 5

Reduce Stress

USE ♥ FOR ACTION

♥ YES

Step 6

Say No to Alcohol

USE ♥ FOR ACTION

♥ YES

American Heart Association.
Healthy for Good™

Life's Essential 8™

HOW TO CONTROL CHOLESTEROL

UNDERSTAND CHOLESTEROL

Cholesterol is a fat-like substance that comes from two sources: FOOD and your BODY.

It is found in foods from animal sources only. It travels in the body by lipoproteins (LDL and HDL).

HDL = GOOD

High-density lipoprotein is known as "good" cholesterol.

LDL = BAD

Low-density lipoprotein is known as "bad" cholesterol.

HDL helps keep LDL from sticking to artery walls and reduces plaque buildup. This process can lower the risk of heart disease and stroke.

heart.org/cholesterol

TRIGLYCERIDES
The most common type of fat in the body.

TOTAL CHOLESTEROL
HDL level + LDL level + 1/5th of triglyceride level = **total cholesterol level.**

TRACK LEVELS

A health care professional can measure your blood cholesterol and help you understand what the levels mean in context of your overall heart health..

Track your cholesterol levels over time and take steps to reduce high cholesterol.

Check your heart disease risk with the Check. Change. Control. Calculator.

Learn more at heart.org/lifes8

TIPS FOR SUCCESS

EAT SMART

Eat a healthy diet of vegetables, fruits, whole grains, beans, legumes, nuts, plant-based proteins, lean animal proteins like fish and seafood.

Limit sugary foods and drinks, red or processed meats, salty foods, refined carbohydrates and highly processed foods.

MOVE MORE

Physical activity helps improve cholesterol levels.

KNOW YOUR FATS

The fats you eat can affect your cholesterol levels. Replace saturated fats with unsaturated fats.

NO NICOTINE

Smoking lowers good HDL cholesterol. It also raises your risk of heart disease.

TAKE MEDICATION AS DIRECTED

Your health care professional may prescribe statins or other medications to control your cholesterol levels.

Step 7

Manage Cholesterol

USE ♥ FOR ACTION

♥ YES

Step 8

Manage Blood Pressure

USE ♥ FOR ACTION

YES

Step 9

American Heart Association.
Healthy for Good™

UNDERSTAND BLOOD GLUCOSE

The first step to managing your blood sugar is to understand what makes blood sugar levels rise

GLUCOSE
INSULIN

The carbohydrates and sugars in what you eat and drink turns into glucose (sugar) in the stomach and digestive system. Glucose can then enter the bloodstream.

Insulin is a hormone made in the pancreas that helps the body's cells take up glucose from blood and lower blood sugar levels.

In Type 2 diabetes, glucose builds up in the blood instead of going into cells because:

The body develops "insulin resistance" and can't use the insulin it makes efficiently.

The pancreas gradually loses its ability to produce insulin.

The result can be a high blood glucose level.

TRACK LEVELS

Health care professionals can take blood glucose readings and provide recommendations. If you're diagnosed with Type 2 diabetes, you will need to monitor your blood sugar level regularly.

Visit KnowDiabetesbyHeart.org to learn how to manage your risk for heart disease and stroke if you have diabetes.

Fasting Blood Glucose	Diagnosis	What It Means
Lower than 100 mg/dl	Normal	Healthy range
100 to 125 mg/dl	Prediabetes (impaired fasting glucose)	At increased risk of developing diabetes.
126 mg/dl or higher	Diabetes Mellitus (Type 2 diabetes)	At increased risk of heart disease or stroke.

Learn more at heart.org/lifes8

Manage Blood Sugar

USE ♥ FOR ACTION

YES

Step 10

Regular Health Check ups

Heart Foundation

What is a
HEART
HEALTH
CHECK?

What do your Heart Health Check results mean?

Your results will show you whether you are at low, moderate or high risk of having a heart attack or stroke within the next five years.

HIGH RISK

If your level of risk is over 15% you have at least a 1 in 7 chance of having a heart attack or stroke in the next five years if left unmanaged.

MODERATE RISK

If your level of risk is between 10–15% you have at least a 1 in 10 chance of having a heart attack or stroke in the next five years if left unmanaged.

LOW RISK

If your level of risk is under 10% you have a less than 1 in 10 chance of having a heart attack or stroke in the next five years if left unmanaged.

You will also need to have your level of risk monitored. Discuss with your doctor how often this needs to be done.


World
Heart
Day
29 SEPTEMBER

Summary


10 steps to
protect your
heart
See your GP for a Heart Health Check
Follow a heart healthy eating pattern
Move more
Be smoke-free
Maintain a healthy weight
Drink less alcohol
Reduce stress
Manage your cholesterol
Manage your blood pressure
Manage your blood sugar

CRP

The hs-CRP test can help show the risk of getting coronary artery disease.
In coronary artery disease, the arteries of the heart narrow.
Narrowed arteries can lead to a heart attack.

This is because the development of atherosclerosis (laying down of cholesterol inside the blood vessel walls) is associated with inflammation within the vessel walls. The result is higher levels of CRP in patients with atherosclerosis than in those without atherosclerosis.
more than 50 mg/dL

•Cholesterol-lowering medication such as a statin have been shown to lower CRP levels.

The value of knowing CRP levels depends on whether you fall into one of three cardiovascular risk groups:
•**Low risk** – because of low cholesterol levels and little history of risk factors; that is, no diabetes, high blood pressure, or smoking, and no family history of heart attacks at an early age. Even a higher level of CRP will probably not put you at a level of risk that requires than lifestyle changes.

•**Intermediate risk** – helpful to know CRP level, because it can provide missing piece of information for physician deciding next step in treatment

•**High risk** – not essential to know your CRP, because you should already be combining aggressive treatment with lifestyle changes to lower your risk

Lipid Management
Who needs treatment?

- Group1: Clinical ASCVD
  - ACS, history of MI, angina, stroke, TIA, PAD
- Group2: LDL >190
  - Rule out secondary causes
- Group 3: All Diabetics without clinical ASCVD
  - 40-75yr with LDL 70-189mg/dL
- Group 4: 10 year ASCVD risk >7.5%
  - with LDL 70-189mg/dL

LIPID

ATP III Classification	
LDL cholesterol	
<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	high
>190	Very high
Total cholestrol <200 200-239 >240 HDL cholestrol >40 >60	 Desirable Borderline high High Low high

2

Step 2

Identify presence of clinical atherosclerotic disease that confers high risk for coronary heart disease (CHD) events (CHD risk equivalent):

- Clinical CHD
- Symptomatic carotid artery disease
- Peripheral arterial disease
- Abdominal aortic aneurysm.

3

Step 3

Determine presence of major risk factors (other than LDL):

Major Risk Factors (Exclusive of LDL Cholesterol) That Modify LDL Goals
Cigarette smoking
Hypertension (BP ≥140/90 mmHg or on antihypertensive medication)
Low HDL cholesterol (<40 mg/dL)*
Family history of premature CHD (CHD in male first degree relative <55 years; CHD in female first degree relative <65 years)
Age (men ≥45 years; women ≥55 years)

** HDL cholesterol ≥60 mg/dL counts as a "negative" risk factor; its presence removes one risk factor from the total count.*

- Note: in ATP III, diabetes is regarded as a CHD risk equivalent.

Step 4

If 2+ risk factors (other than LDL) are present without CHD or CHD risk equivalent, 10-year (short-term) CHD risk (see Framingham tables).
Three levels of 10-year risk:

- >20% — CHD risk equivalent
- 10-20%
- <10%

Step 5

Determine risk category:

- Establish LDL goal of therapy
- Determine need for therapeutic lifestyle changes (TLC)
- Determine level for drug consideration

LDL Cholesterol Goals and Cutpoints for Therapeutic Lifestyle Changes (TLC) and Drug Therapy i
Risk Categories.

Risk Category	LDL Goal	LDL Level at Which to Initiate Therapeutic Lifestyle Changes (TLC)	LDL Level at Which t Consider Drug Thera
CHD or CHD Risk Equivalents (10-year risk >20%)	<100 mg/dL	≥100 mg/dL	≥130 mg/dL (100-129 mg/dL: drug
2+ Risk Factors (10-year risk ≤20%)	<130 mg/dL	≥130 mg/dL	10-year risk 10-20%: ≥130 mg/dL 10-year risk <10%: ≥160 mg/dL
0-1 Risk Factor†	<160 mg/dL	≥160 mg/dL	≥190 mg/dL (160-189 mg/dL: LDL-l drug optional)

* *Some authorities recommend use of LDL-lowering drugs in this category if an LDL cholesterol <100 mg/dL cannot be achie therapeutic lifestyle changes. Others prefer use of drugs that primarily modify triglycerides and HDL, e.g., nicotinic acid or f Clinical judgment also may call for deferring drug therapy in this subcategory.*

† *Almost all people with 0-1 risk factor have a 10-year risk <10%, thus 10-year risk assessment in people with 0-1 risk factor not necessary.*

Initiate therapeutic lifestyle changes (TLC) if LDL is above goal.

TLC Features

- TLC Diet:
  - Saturated fat <7% of calories, cholesterol <200 mg/day
  - Consider increased viscous (soluble) fiber (10-25 g/day) and plant stanols/sterols (2g/day) as therapeutic options to enhance LDL lowering
- Weight management
- Increased physical activity.

Consider adding drug therapy if LDL exceeds levels shown in Step 5 table:

- Consider drug simultaneously with TLC for CHD and CHD equivalents
- Consider adding drug to TLC after 3 months for other risk categories.

Drugs Affecting Lipoprotein Metabolism

Drug Class	Agents and Daily Doses	Lipid/Lipoprotein Effects		Side Effects	Contraindications
HMG CoA reductase inhibitors (statins)	Lovastatin (20-80 mg) Pravastatin (20-40 mg) Simvastatin (20-80 mg) Fluvastatin (20-80 mg) Atorvastatin (10-80 mg) Cerivastatin (0.4-0.8 mg)	LDL HDL TG	↓18-55% ↑5-15% ↓7-30%	Myopathy Increased liver enzymes	Absolute: • Active or chronic liver disease Relative: • Concomitant use of certain drugs*
Bile acid sequestrants	Cholestyramine (4-16 g) Colestipol (5-20 g) Colesevelam (2.6-3.8 g)	LDL HDL TG	↓15-30% ↑3-5% No change or increase	Gastrointestinal distress Constipation Decreased absorption of other drugs	Absolute: • dysbeta-lipoproteinemia • TG >400 mg/dL Relative: • TG >200 mg/dL
Nicotinic acid	Immediate release (crystalline) nicotinic acid (1.5-3 gm), extended release nicotinic acid (Niaspan®) (1-2 g), sustained release nicotinic acid (1-2 g)	LDL HDL TG	↓5-25% ↑15-35% ↓20-50%	Flushing Hyperglycemia Hyperuricemia (or gout) Upper GI distress Hepatotoxicity	Absolute: • Chronic liver disease • Severe gout Relative: • Diabetes • Hyperuricemia • Peptic ulcer disease
Fibric acids	Gemfibrozil (600 mg BID) Fenofibrate (200 mg) Clofibrate (1000 mg BID)	LDL *(may be increased in patients with high TG)* HDL TG	↓5-20% ↑10-20% ↓20-50%	Dyspepsia Gallstones Myopathy	Absolute: • Severe renal disease • Severe hepatic disease

* *Cyclosporine, macrolide antibiotics, various anti-fungal agents, and cytochrome P-450 inhibitors (fibrates and niacin should be used with appropriate caution).*

9

Treat elevated triglycerides.

ATP III Classification of Serum Triglycerides (mg/dL)

<150	Normal
150-199	Borderline high
200-499	High
≥500	Very high

Treatment of elevated triglycerides (≥150 mg/dL)

- Primary aim of therapy is to reach LDL goal
- Intensify weight management
- Increase physical activity
- If triglycerides are ≥200 mg/dL after LDL goal is reached, set secondary goal for non-HDL cholesterol (total – HDL) 30 mg/dL higher than LDL goal.

Comparison of LDL Cholesterol and Non-HDL Cholesterol Goals for Three Risk Categories

Risk Category	LDL Goal (mg/dL)	Non-HDL Goal (mg/dL)
CHD and CHD Risk Equivalent (10-year risk for CHD >20%)	<100	<130
Multiple (2+) Risk Factors and 10-year risk ≤20%	<130	<160
0-1 Risk Factor	<160	<190

If triglycerides 200-499 mg/dL after LDL goal is reached, consider adding drug if needed to reach non-HDL goal:

- intensify therapy with LDL-lowering drug, or
- add nicotinic acid or fibrate to further lower VLDL.

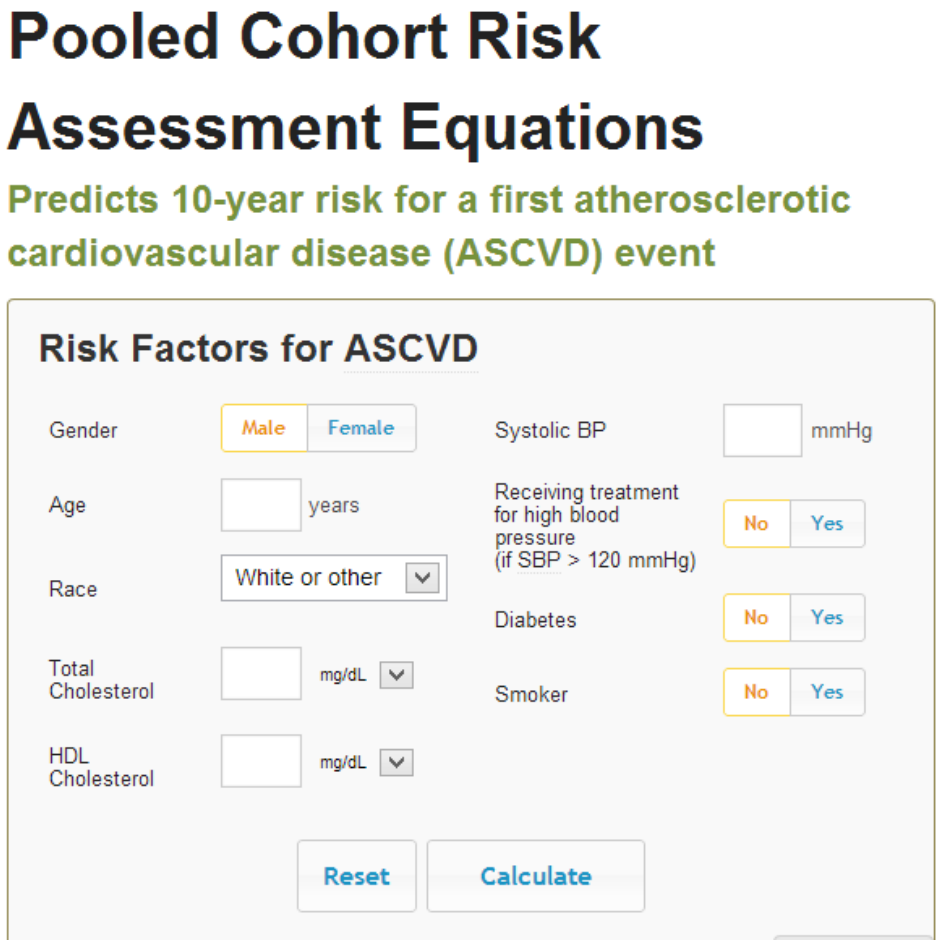
If triglycerides ≥500 mg/dL, first lower triglycerides to prevent pancreatitis:

- very low-fat diet (≤15% of calories from fat)
- weight management and physical activity
- fibrate or nicotinic acid
- when triglycerides <500 mg/dL, turn to LDL-lowering therapy.

Treatment of low HDL cholesterol (<40 mg/dL)

- First reach LDL goal, then:
- Intensify weight management and increase physical activity
- If triglycerides 200-499 mg/dL, achieve non-HDL goal
- If triglycerides <200 mg/dL (isolated low HDL) in CHD or CHD equivalent consider nicotinic acid or fibrate.

Risk Calculator



ASCVD risk <5% = LOW RISK

ASCVD 5- 7.5% = INTERMEDIATE

ASCVD >7.5% = HIGH RISK

http://clincalc.com/Cardiology/ASCVD/PooledCohort.aspx

CIMT (**N Engl J Med**)

- Increases in the thickness of the intima and media of the carotid artery, as measured noninvasively by ultrasonography, are directly associated with an increased risk of myocardial infarction and stroke in older adults without a history of cardiovascular disease.

- Plant diet containing anti oxident

- Radiation-induced coronary artery disease (RICAD) is one of the most common causes of morbidity and mortality in patients treated with chest radiation therapy (RT) for cancer.
- Coronary artery disease. Enlarged heart (cardiomyopathy). Heart rhythm changes (arrhythmia). Thickening of the pericardium (constrictive pericarditis).
- Unrecognized pathology

Covid 19

- Although primarily a respiratory disease, COVID-19 has been associated with many cardiac complications. Cardiac injury is recognized as one of the most frequent complications of the disease. Long-term cardiac complications following COVID-19 include ischemic heart disease, heart failure, arrhythmias, and myocarditis.

DASH diet

- The DASH diet is low in salt and rich in fruits, vegetables, whole grains, low-fat dairy, and lean protein.


Thank you