



**Department of Physical and Rehabilitation Medicine with the postgraduation
course**

**Risk factors. Classic risk factors for
chronic non-communicable diseases.
Hypodynamia as a risk factor for
diseases. The impact of low physical
activity, smoking and alcohol abuse on
health**

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Year 2022

Lecture plan

- Risk factors.
- Classic risk factors for chronic non-communicable diseases.
- Hypodynamia as a risk factor for diseases.
- The impact of low physical activity, smoking and alcohol abuse on health

Aim of the lecture

to learn about CNID risk factors and prevention as a necessary condition for active and normal human life

Objectives of the lecture:

- form personal responsibility for maintaining and strengthening of students' own health
- understand the prevalence and prognostic significance of various risk factors in the population
- receive knowledge and skills in diagnostics and correction of CNID risk factors

Health risk factors

- factors that create a favorable background for the development of the disease, contribute to the emergence and development of the disease, but are not the direct cause of their development. The disease itself is caused by a specific factor

- **primary** - initial factors that contribute to the emergence of health disorders;
- **secondary** - factors that provoke the development of diseases;
- **tertiary**, etc .

What's your risk?

Can you avoid
a heart attack
or stroke?
Possibly.

Below are some areas
you can— and can't—control.
Talk with your doctor about
your specific health concerns.

RISK FACTORS YOU CAN CONTROL



Smoking



High blood
pressure



High
cholesterol



Diabetes



Being
overweight



Lack of exercise



Stress



Metabolic
syndrome

RISK FACTORS YOU CANNOT CONTROL



Age



Family history



Gender

Learn more
about heart health at
peacehealth.org/heart.

Classifications

Risk factors of CVD

Behavioural risk factors that can be modified include:



- smoking
- high cholesterol
- high blood pressure

- poor diet
- harmful drinking
- physical inactivity



Environmental and social factors include:



- family history
- financial inequalities
- employment



- housing
- air pollution



WHO experts name **the following major primary risk factors:**



**World Health
Organization**

- smoking;
- alcohol abuse;
- poor nutrition;
- physical inactivity;
- psychoemotional stress.

History

Main events:

- Framingham, 1948 - 1994

The Framingham Risk Score

- The prior version was published in 2002.
- The original Framingham Risk Score had been published in 1998.

Framingham Risk Score Calculator for Coronary Heart Disease

This Framingham risk score calculator estimates the 10-year coronary heart disease risk of any person based on certain criteria like gender, age, cholesterol and systolic pressure. You can discover more about this heart disease scoring system and about all the cardiovascular risk factors involved below the form.

Gender:*	<input type="text" value="Select"/>
Age:*	<input type="text" value="years"/>
Total cholesterol (mg/dL):*	<input type="text" value="mg/dL"/>
HDL cholesterol (mg/dL):*	<input type="text" value="mg/dL"/>
Under hypertension treatment?	<input type="text" value="Select"/>
Systolic blood pressure (mmHg):*	<input type="text" value="mmHg"/>
Smoker?	<input type="text" value="Select"/>

Calculate

Reset

Statistics

Cardiovascular disease is the leading cause of death worldwide



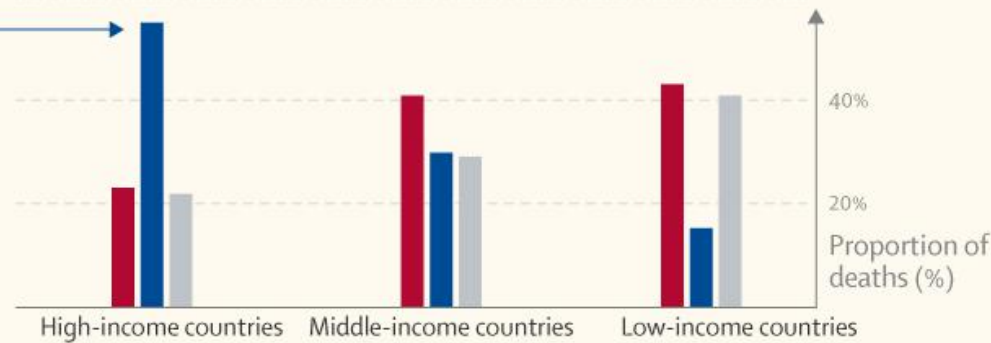
17.7 million deaths

Cancer

All other causes

100% of deaths globally

But in high-income countries, **cancer** causes twice as many deaths as **cardiovascular disease**



For more, visit www.thelancet.com

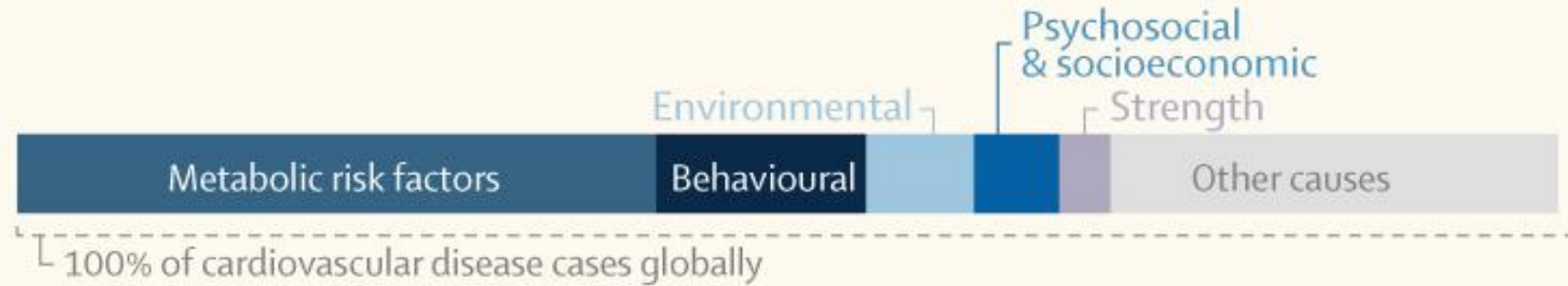
- Modifiable risk factors, cardiovascular disease, and mortality in 155 722 individuals from 21 high-income, middle-income, and low-income countries (PURE)
- Variations in common diseases, hospital admissions, and deaths in middle-aged adults in 21 countries from five continents (PURE): a prospective cohort study

THE LANCET

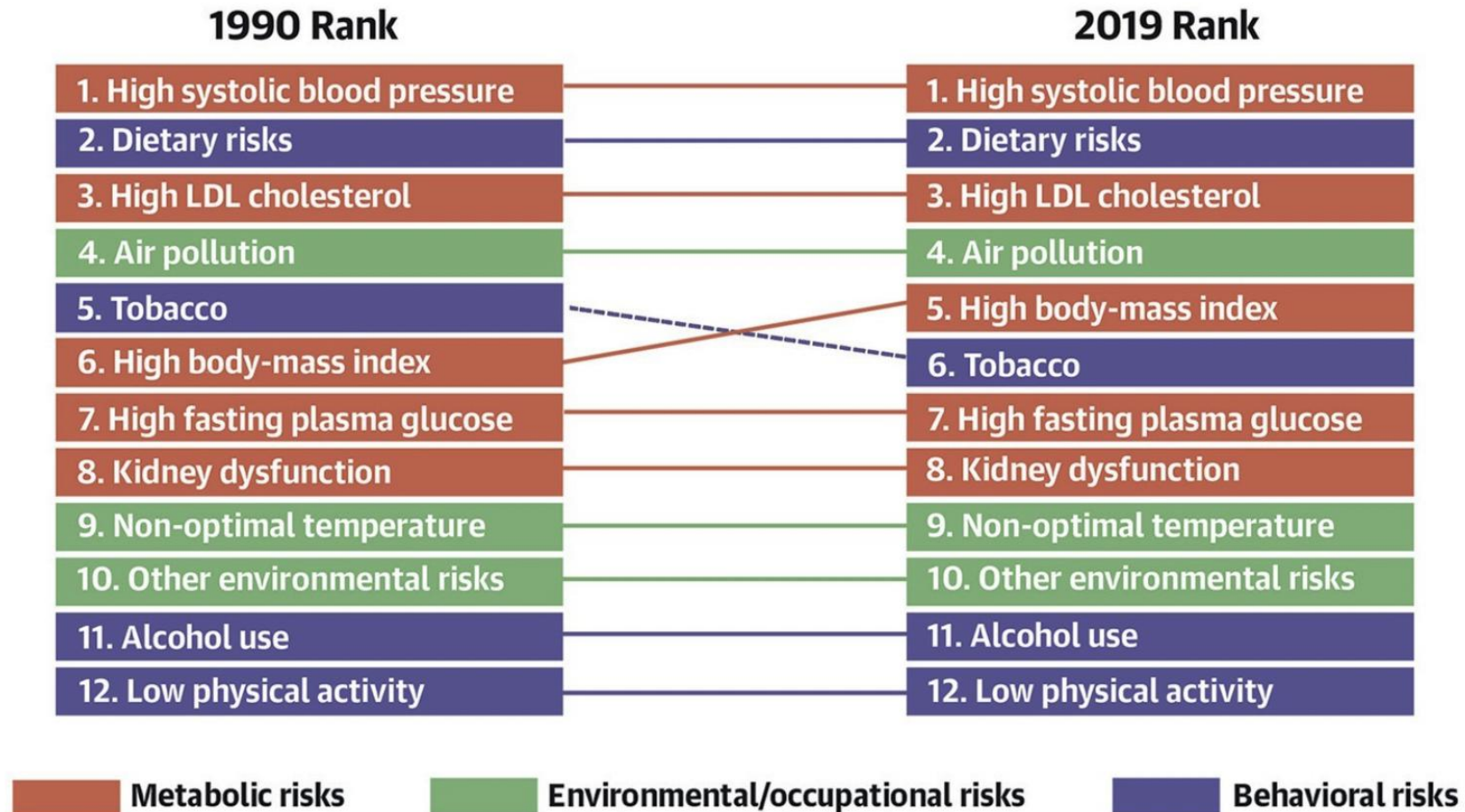
The best science for better lives



Over 70% of cardiovascular disease worldwide is caused by modifiable risk factors



CVD Burden Attributable to Modifiable Risk Factors



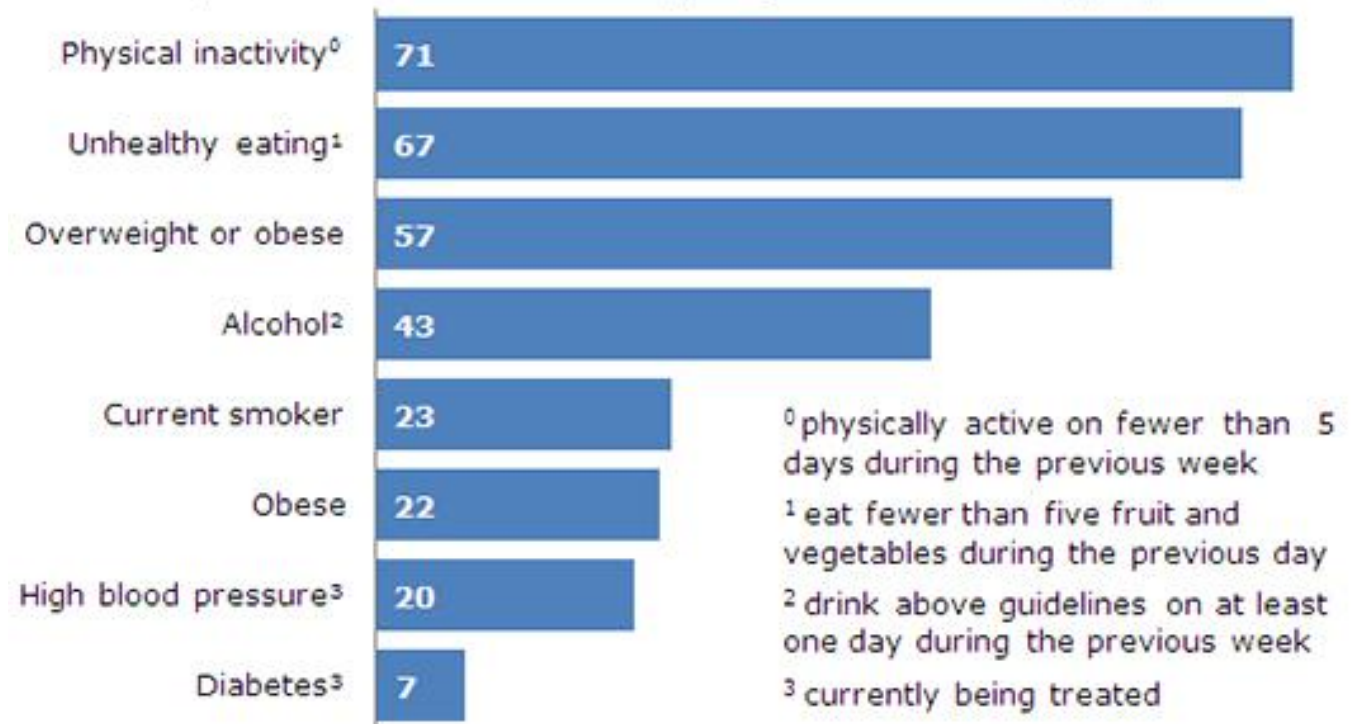
Global Burden of Cardiovascular Diseases and Risk Factors, 1990–2019: Update
From the GBD 2019 Study. Journal of the American College of Cardiology, Volume
76, Issue 25, 2020, Pages 2982–3021,
ISSN 0735-1097,
<https://doi.org/10.1016/j.jacc.2020.11.010>.

Explore flexible risk factors (behavioural)

- The problem of healthy lifestyle is trying to change every risk factor INDEPENDENT.

Reported risk factors for cardiovascular disease, age-standardised percentage, persons, age 16 and over, Wales, 2011

Produced by Public Health Wales Observatory, using Welsh Health Survey (WG)



Physical activity

- is a total of different models of human behavior;
- body movement with the help of muscle strength, accompanied by energy consumption;
- is measured by the degree of excess of energy consumption over the basal metabolic rate.

Physical performance is the ability of a person to use mental and physical energy for various types of physical activity. The higher the physical performance, the greater the reserve of health.

Low physical activity increases (15-20%) the risk of :

- Coronary heart disease
- Type II diabetes
- Colon cancer
- Breast cancer
- Hip fractures in the elderly

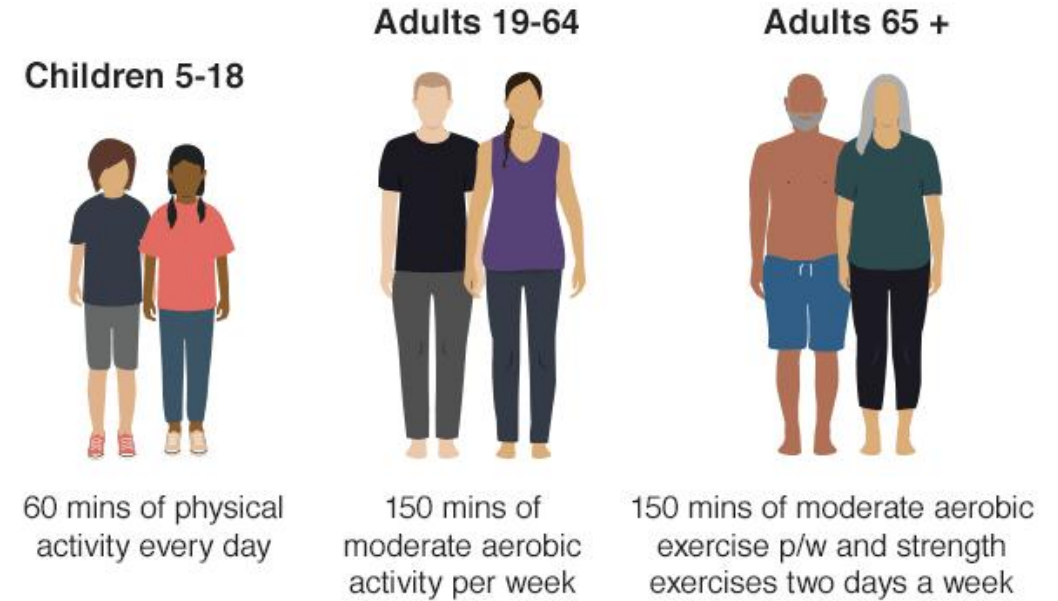
Moderate physical activity for 150 minutes (2 hours 30 minutes) per week reduces the risk of:

- Premature death
- Coronary heart disease and stroke
- Arterial hypertension
- Type II diabetes
- Depression
- Osteoporosis

Classes from 150 to 300 minutes per week (5 hours) reduce the risk of:

- Colon cancer
- Breast cancer
- Excessive body mass

Physical activity guidelines



Source: Public Health England

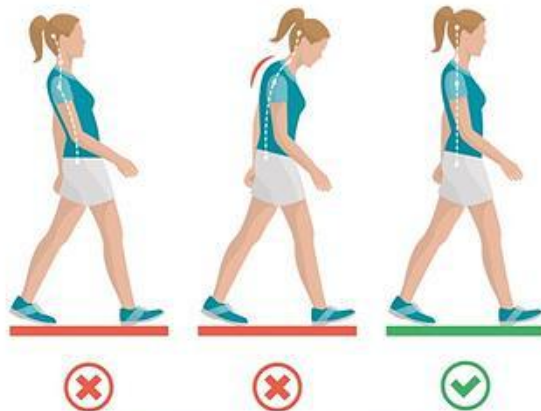
What are the risks of being physically active?

Based on what we know about the benefits of physical activity, there must be a special permission from a doctor.

*Per-Olof Astrand, 1986 Karolinska
stitutue Stockholm, Sweden*



PHYSICAL ACTIVITY

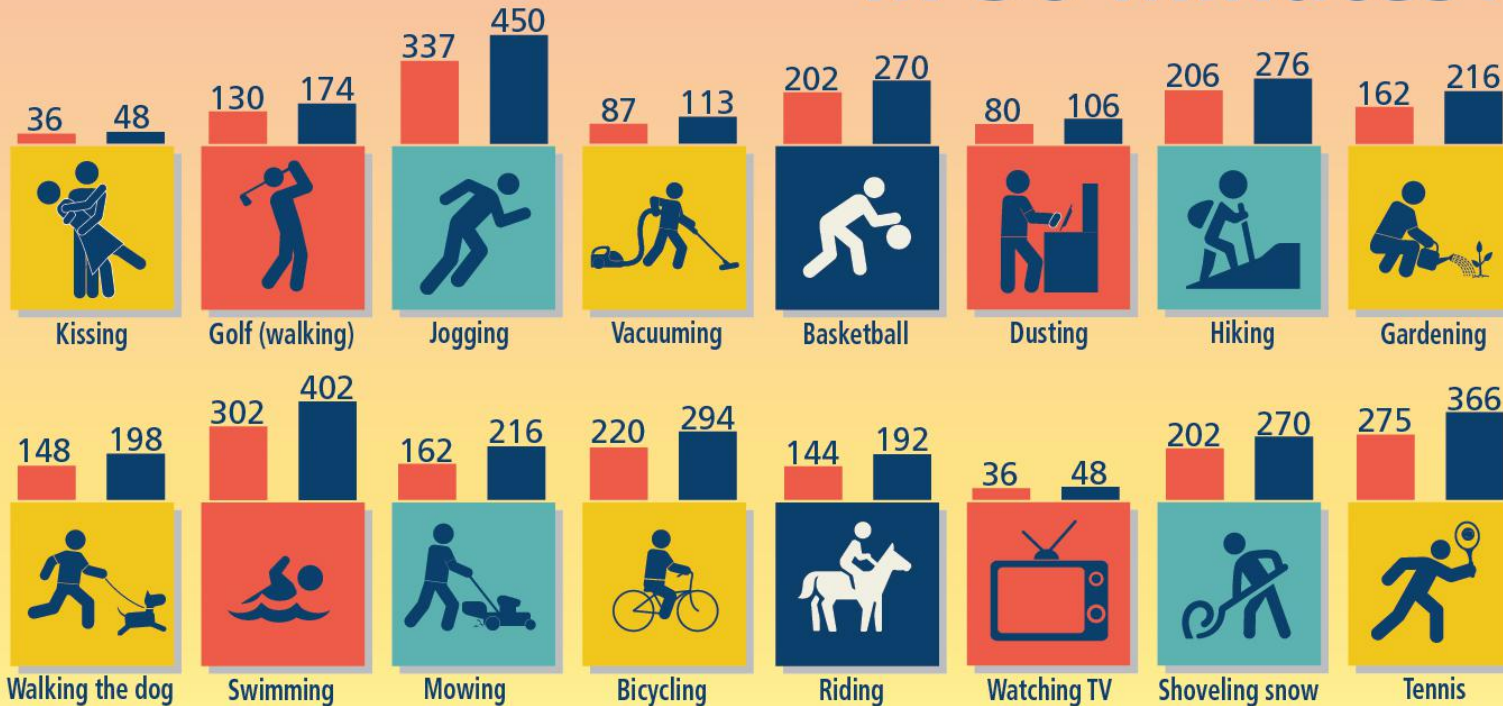


WRONG AND CORRECT WALKING POSTURE



WRONG AND CORRECT RUNNING POSTURE

How much can you burn in 30 minutes?



Source: Calorie Control Council

You should always check with your doctor before beginning an exercise routine. But for almost everyone, even a little physical activity can have big benefits to your health. See how many calories you could burn in 30 minutes of these activities, based on your weight.

■ Calories burned if you weigh 150 lbs. ■ Calories burned if you weigh 200 lbs.

150 lbs = 68 kg

200 lbs = 90 kg

Smoking

Current Tobacco Smoking in Europe

No room for complacency

WHO Region	Male prevalence	Female prevalence	Both sexes
Europe	38%	19%	28%
Western Pacific	48%	3%	26%
Eastern Mediterranean	37%	3%	20%
America	22%	13%	17%
South-East Asia	32%	2%	17%
Africa	25%	2%	13%
Global	36%	7%	21%

Source: WHO report on the global tobacco epidemic, 2015: Raising taxes on tobacco.

<1 CIGARETTE/DAY SMOKERS

HAVE A

64%↑

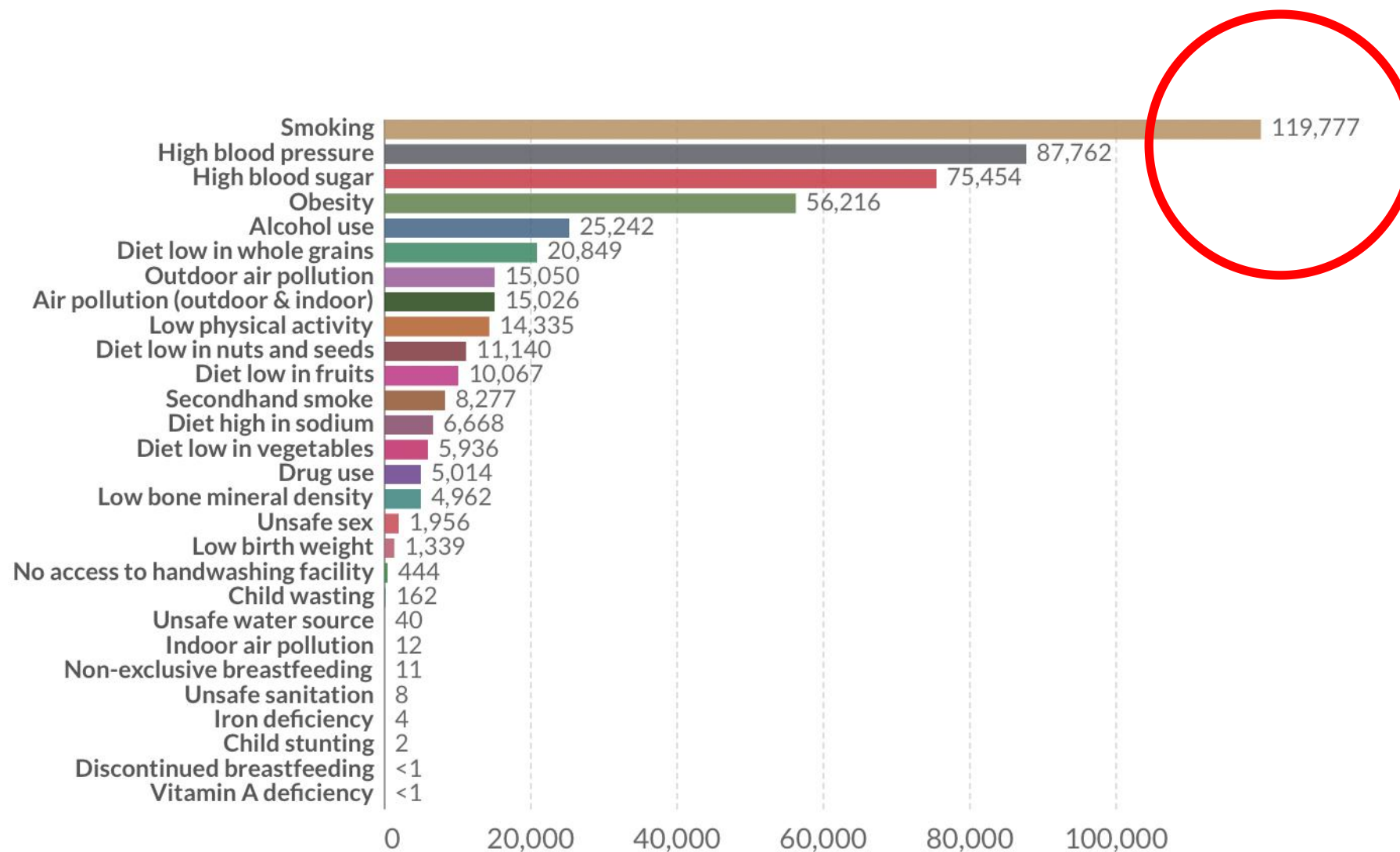
HIGHER RISK
OF EARLIER DEATH
THAN NEVER SMOKERS

- Tobacco product use is started and established primarily during adolescence.
- Nearly 9 out of 10 adults who smoke cigarettes daily first try smoking by age 18, and 99% first try smoking by age 26.
- Each day in the U.S., about 1,600 youth smoke their first cigarette and nearly 200 youth start smoking every day.
- Flavorings in tobacco products can make them more appealing to youth.
- In 2020, 85% of high school students and 74% of middle school students who used tobacco products in the past 30 days reported using a flavored tobacco product during that time.



UK

<https://ourworldindata.org/smoking>

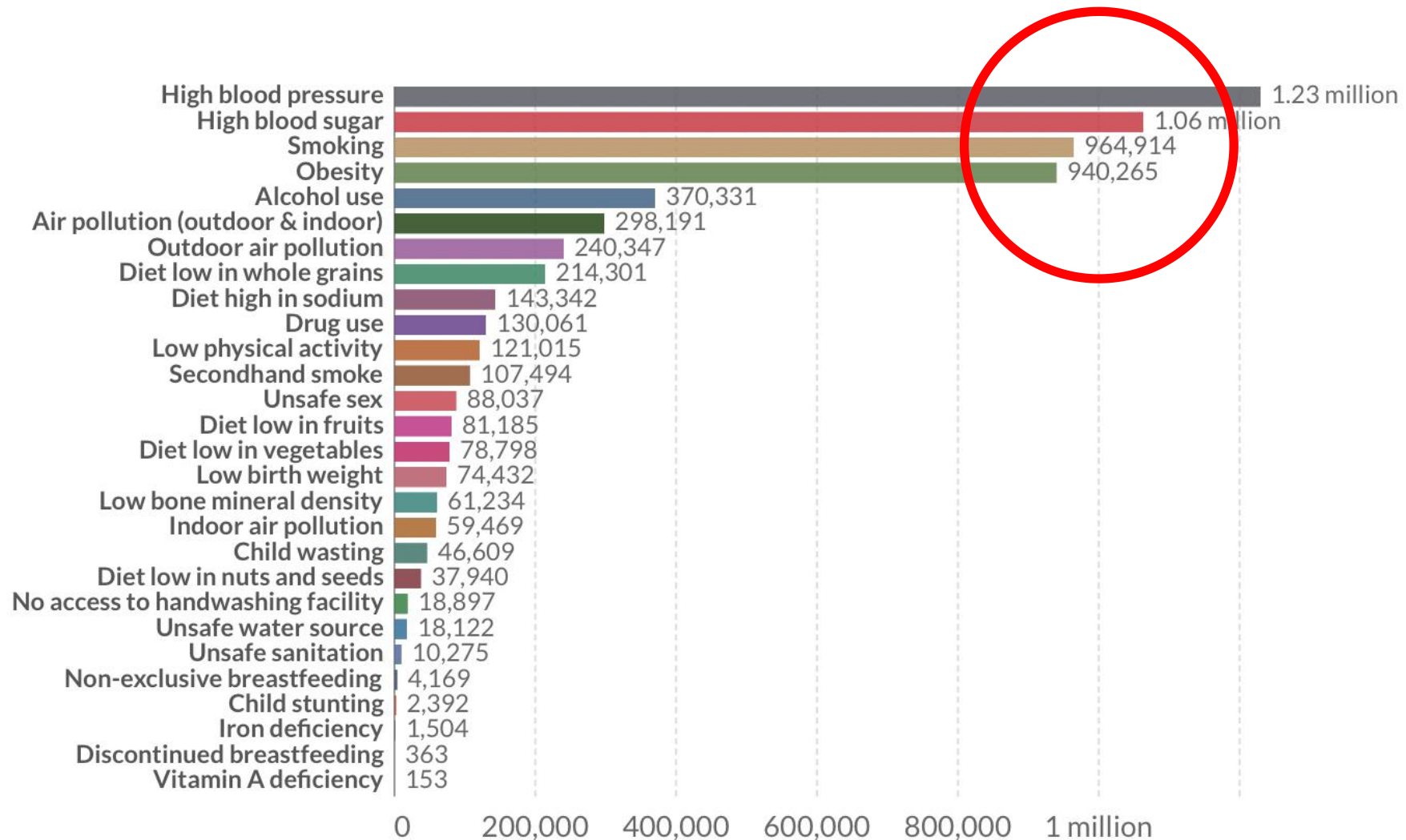


Source: IHME, Global Burden of Disease (GBD)

OurWorldInData.org/causes-of-death • CC BY

USA

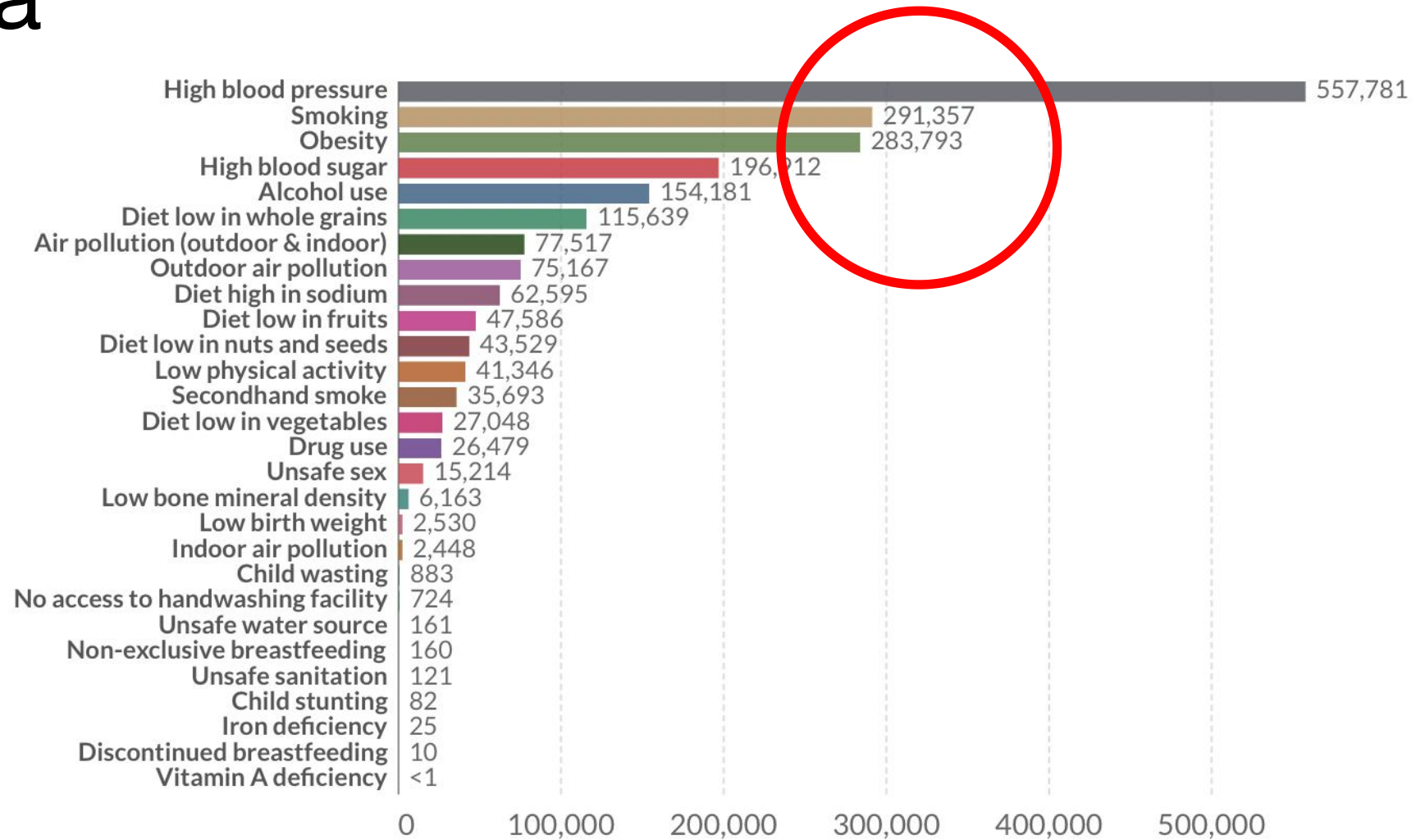
<https://ourworldindata.org/smoking>



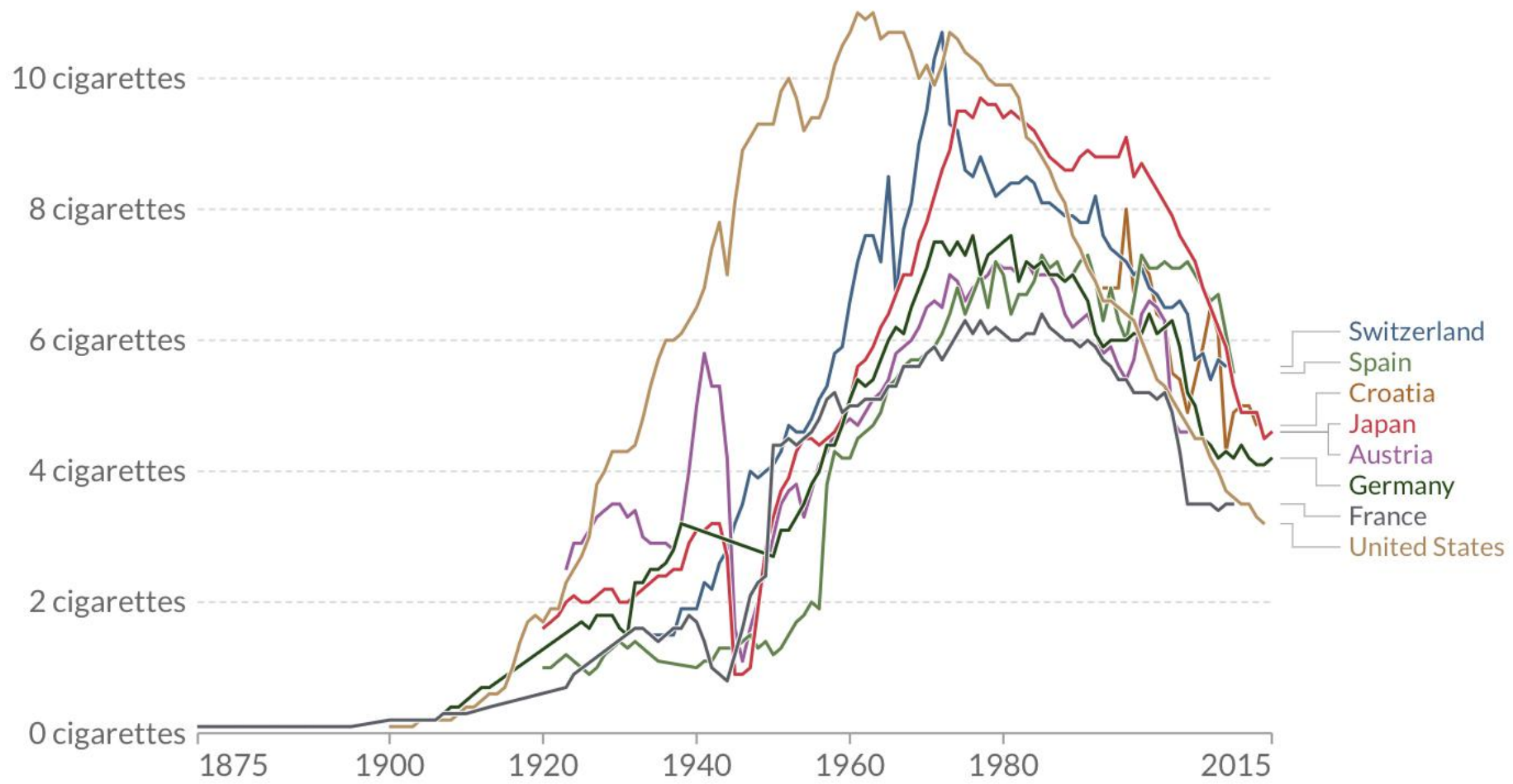
Source: IHME, Global Burden of Disease (GBD)

OurWorldInData.org/causes-of-death • CC BY

Russia



How many cigarettes people smoke a day



Source: International Smoking Statistics (2017)

OurWorldInData.org/smoking • CC BY



1 in 8 cancer cases are caused by smoking



1 in 5 cancer deaths are caused by smoking

Smoking can cause 16 types of cancer



4

Facts about Heart Disease and Tobacco Use



2-4X 

Smokers are 2 to 4 times more likely to get heart disease than nonsmokers.

2X 

Smoking doubles a person's risk for stroke.

Vaping and smoking can cause a similar level of damage to the arteries.



Long-term use of smokeless tobacco can increase risk of dying of heart disease and stroke.



Genetic Link Between Cigarette Smoking and Cardiovascular Disease Risk Identified

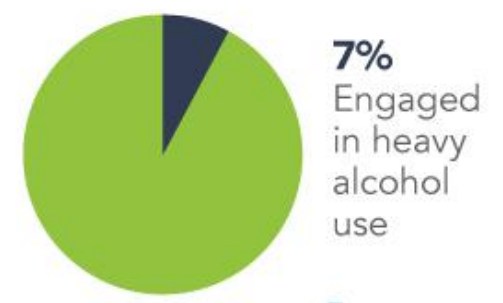
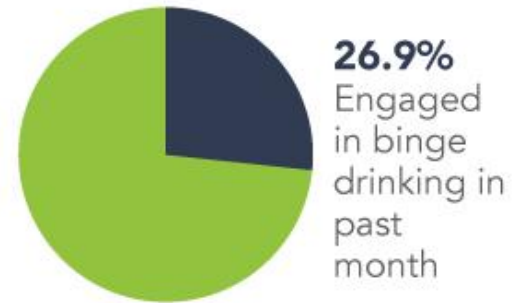
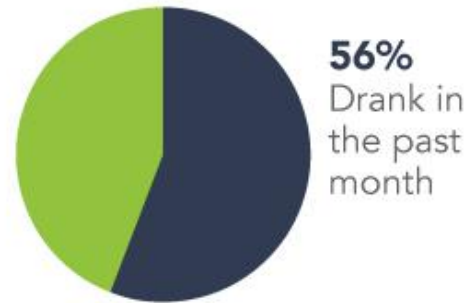
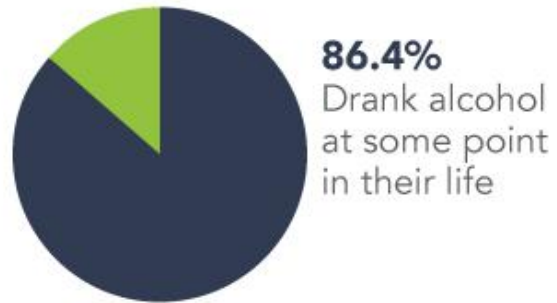
- ♥ A gene variation is found to lower ADAMTS7 enzyme levels that protect against cardiovascular disease
- ♥ Smokers with this gene variant have only a 5% lower risk of cardiovascular disease compared to 12% lower risk in non-smokers



Alcohol abuse

How Common is Alcohol Use?

NIH - NIAAA "Alcohol Facts & Statistics" - Reported among 18+ year olds



Alcohol Use in the United States



85.6 percent
of people ages 18 and
older reported that they
drank alcohol at some
point in their lifetime.

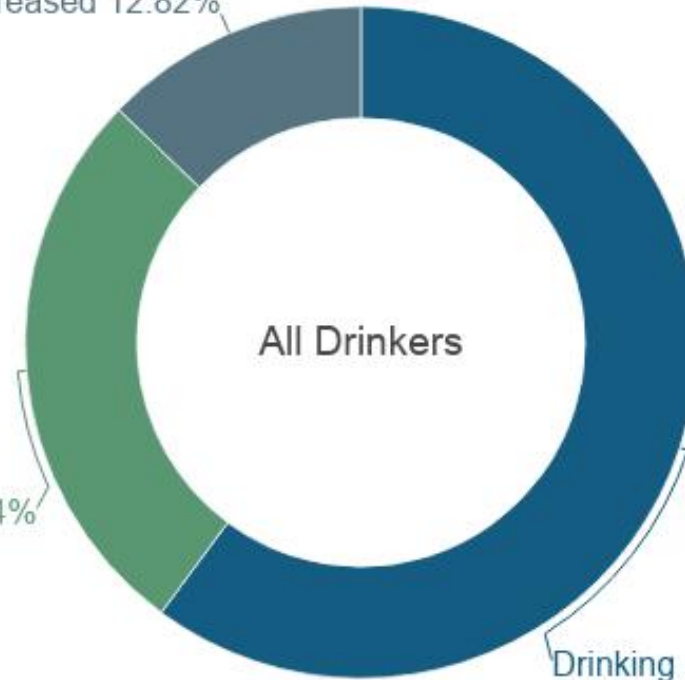
Source: 2019 NSDUH

Learn more at
[RethinkingDrinking.niaaa.nih.gov](https://www.rethinkingdrinking.niaaa.nih.gov)



COVID Effect on Alcohol Consumption

Drinking Decreased 12.82%



No Change 27.04%

Drinking Increased 60.14%

Alcohol Use Disorder (AUD) in the United States

14.5 million

people ages 12 and older had AUD in 2019.



Source: 2019 NSDUH

Learn more at
[RethinkingDrinking.niaaa.nih.gov](https://www.rethinkingdrinking.niaaa.nih.gov)



Alcohol-Related Deaths in the United States

95,000

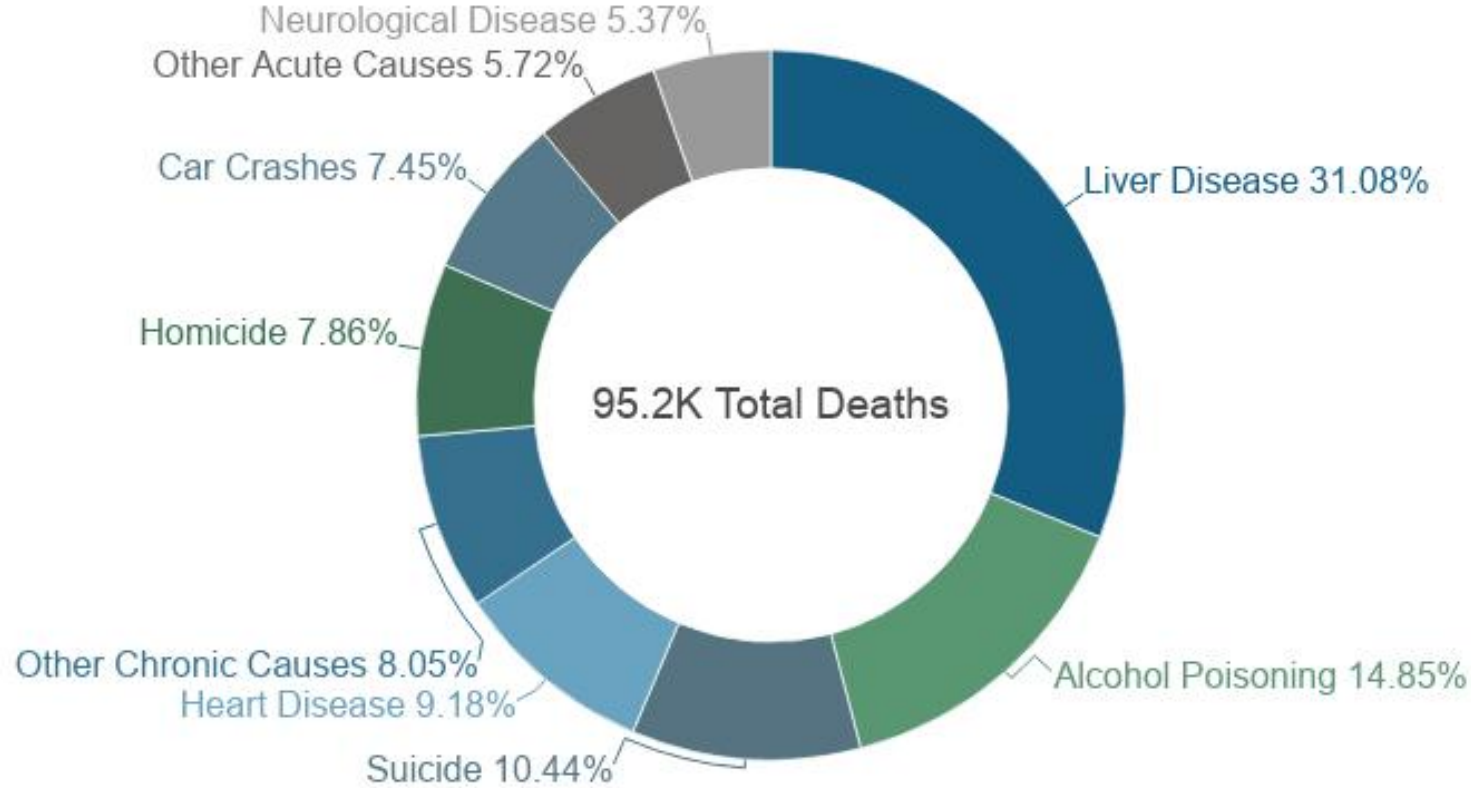
people die from alcohol-related
causes annually.

Source: CDC

Learn more at
[RethinkingDrinking.niaaa.nih.gov](https://www.rethinkingdrinking.niaaa.nih.gov)



Causes of Alcohol-Related Deaths



<https://drugabusestatistics.org/alcohol-abuse-statistics/>

Nearly 100,000 annual deaths are attributable to alcohol abuse. More than half of them are due to long-term use.

- Alcoholic liver disease is the leading killer, causing 19.1% of all alcohol-related deaths.
- 53.7% of alcohol-related deaths are due to chronic misuse.
- 52.4% of chronic misuse deaths are attributable to alcohol alone; 47.6% include additional factors, such as other chronic health issues or drug abuse.
- Alcohol poisoning another leading killer, causing 32% of acute alcohol-related deaths.
- 22.5% of acute-alcohol related deaths are due to suicide.
- Suicides involving alcohol kill more people than car accidents involving alcohol, which account for 16.1% of acute-alcohol related deaths.

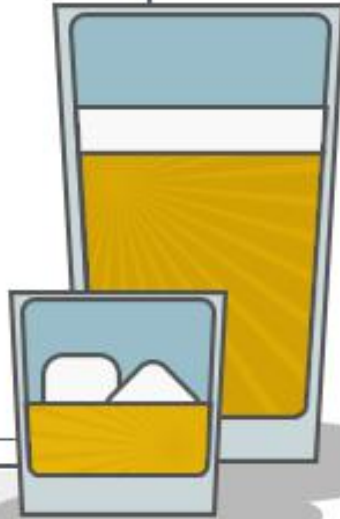
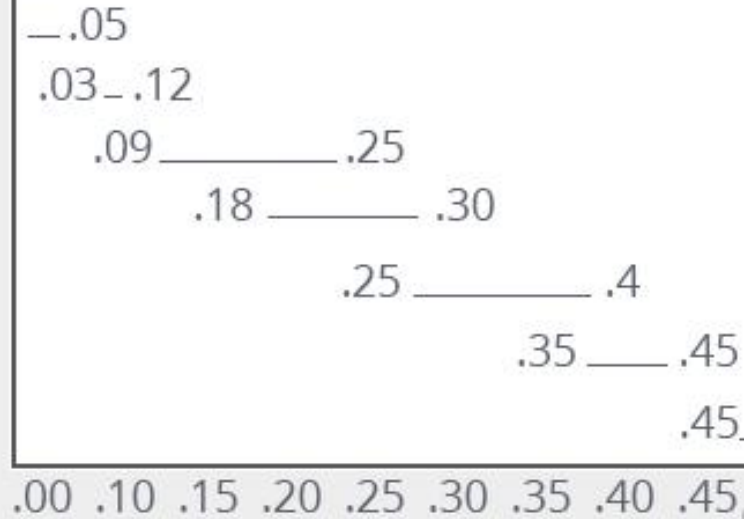
Analysis: Emerging Trends in Alcohol Abuse

- The National Institute on Alcohol Abuse and Alcoholism (NIAAA) has identified an emerging trend that it has labeled “High-Intensity Drinking.” The definition of High-Intensity Drinking (HID) includes the consumption of “alcohol at levels that are two or more times the gender-specific binge drinking thresholds”.
- Due to its status as an emerging trend, there are few peer-reviewed studies. Available data indicate HID is common among binge drinkers and that it is typically associated with special occasions “including holidays, sporting events, and, notably, 21st birthdays.”
- HID behavior peaks at age 21.
- Between 80% and 90% of 21st birthday celebrants consume alcohol.
- Males are consistently twice as likely to report excessive alcohol use than females.
- HID is associated with negative consequences, such as injury and aggression.
- 12.4% of young adults aged 25 and 26 report at least one instance of HID in within the previous 14 days.
- Each year, 97,000 sexual assaults among American college students involve alcohol.

The Stages of Alcohol Intoxication Based on Blood Alcohol Content

(BAC)

Sobriety
Euphoria
Excitement
Confusion
Stupor
Coma
Death



ALCOHOLISM

What are the Stages of Alcoholism?

KNOW THE DIFFERENT STAGES OF ALCOHOLISM

01

Stage 1 -
The Pre-
Alcoholic

02

Stage 2 -
Early
Alcoholic

03

Stage 3 -
Middle
Alcoholic

04

Step 4 -
Late
Alcoholic

Thank you for attention



ЛИТЕРАТУРА

Основная

1. Здоровый образ жизни и профилактика заболеваний : учеб. Пособие / М. А. Морозов. - СПб. : Спец. лит., 2013.

Дополнительная

2. Параметры здоровья человека [электронный ресурс]: видеолекция /Ю.И.Савченко. – Красноярск: КрасГМУ, 2014.
3. Философия здоровья: от лечения к профилактике и здоровому образу жизни [Электронный ресурс] : рук. для врачей, специалистов по реабилитации и студентов / Е. Ключкова, Е. Андреева, Е. Калинина [и др.] ; ред. Е. В. Ключкова. - М. : Теревинф, 2015.
4. Морозов, В. О. Физическая культура и здоровый образ жизни [Электронный ресурс] : учеб. пособие / В. О. Морозов, О. В. Морозов. - 3-е изд., стер. - М. : Флинта , 2015.

Электронные ресурсы

5. ИБС КрасГМУ БД МедАрт БД Медицина БД Ebsco Международное общественное движение Здоровая планета (<http://www.zdorovajaplaneta.ru/zdorovyj-obraz-zhizni-zozh/>)
6. Здоровая Россия (<http://www.takzdorovo.ru/>)

Pre-alcoholism stage

- During the pre-alcoholic stage, people transition from occasional casual drinking to drinking more frequently. This may mean that a person who once only drank at social functions now drinks at home every night. They also may start using alcohol to help them fall asleep or even feel like they need to have it at parties to unwind.
- This stage is particularly difficult to identify because it is considered normal to drink alcohol at social gatherings. It becomes problematic when a person feels like they cannot go to a party without drinking. The person in the pre-alcoholic stage is someone who feels the need to drink alcohol before social interactions and finds the thought of going without it unbearable. This means they are using alcohol as a coping mechanism and is a sign they may be developing an AUD.

Early-alcoholism stage

- In early-stage alcoholism, people begin to engage in heavy drinking. This includes binge drinking that could result in “blackouts”. Black-outs are periods of time that a person cannot remember while they were binge drinking.
- Binge drinking is somewhat normalized in today’s society, especially among younger, college-aged adults. It is seen as partying or just blowing off steam. However, this pattern of drinking excessively on a regular basis starts to build a tolerance to alcohol in the body. This means that people become used to having alcohol and may start to experience some withdrawal symptoms after a night of heavy drinking.
- The mild withdrawal symptoms that occur during early-stage alcoholism are better known as a hangover. It includes nausea, vomiting, and headaches that are improved with the intake of more alcohol.

Middle alcoholic stage

- The middle alcoholic phase is when the alcoholism becomes much more apparent. Other people may start to notice changed behaviors in the person struggling with AUD. Someone who is suffering from alcoholism during the middle phase will begin to experience the consequences of their alcohol abuse.
- Some of the consequences they might encounter would be having difficulty at work or school. This is because they are either too hungover to function or are drinking at the start of their day. Family and friends may also start to openly express concern about their drinking. Despite it affecting daily life, they will prioritize alcohol and continue to drink.
- They also have a dependence at this point meaning they experience withdrawal and crave alcohol when they try to not drink.[3] This is the ideal stage for treatment as the consequences have not become so dire yet. People still have the ability to function and most likely still have a job and family support.

End alcoholic stage

- End-stage alcoholism is when alcohol abuse and dependence are impossible to deny. The health consequences of prolonged, chronic drinking begin to manifest. This includes a weakened immune system, high blood pressure, certain types of cancer, memory issues or dementia, and liver disease.
- It is not uncommon for people in this stage of alcoholism to have tried and failed to stop drinking on multiple occasions. At this point, people who were once considered functioning alcoholics become non-functioning. They find it increasingly difficult to manage their day-to-day lives. At this stage of alcoholism, it is crucial to seek treatment in the form of alcohol detox and rehabilitation.