

How do I live longer, healthier?

**What dietary changes
can I make? And what is
the evidence?**

By Specialist Gastroenterology Dietitian,
Marianne Williams BSc Hons, RD, MSc



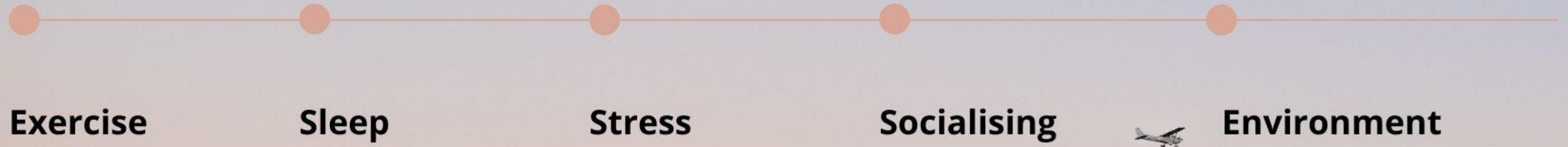
Reminder

Longevity is not just about diet

Okay



Longevity beyond nutrition



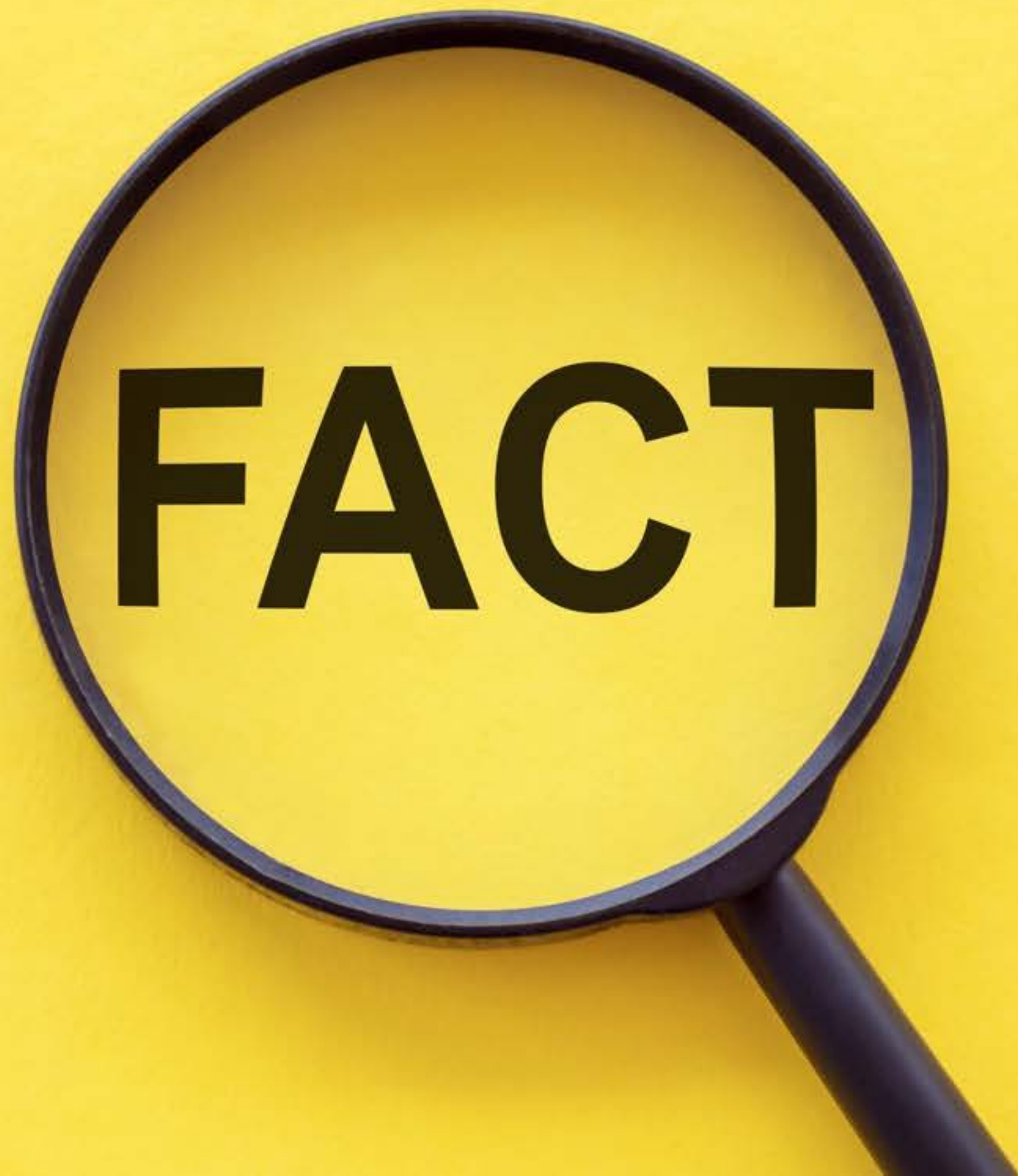
WHAT YOU NEED TO KNOW ABOUT DIET AND LONGEVITY





WHAT I WILL COVER TODAY...

- What is the largest **diet-related danger** to longevity?
- What **diet** does research show is best for longevity?
- Are **probiotics** and **fermented foods** good for you?
- The truth about **ultra processed foods**
- Is intermittent **fasting** helpful?
- Should we worry about '**Zombie Cells**'?



FACT

“High blood pressure, smoking & high fasting blood sugar are the 3 leading risk factors for early death and poor health worldwide in 2021”

GLOBAL BURDEN OF DISEASE
204 COUNTRIES, COLLABORATION WITH
12,000 RESEARCHERS



REXFORD S. AHIMA
EDITOR

Metabolic Syndrome

A Comprehensive Textbook

 Springer Reference

“Between 1990 & 2021 the number of people experiencing poor health & early death caused by **metabolism-related risk factors** such as **high blood pressure, high blood sugar & high body mass index** has increased by 50%”

GLOBAL BURDEN OF DISEASE



What are the criteria for metabolic syndrome?



Low levels of HDL cholesterol.



Elevated blood sugar levels.



High blood pressure.



Excess weight in abdomen.



Hypertriglyceridemia.

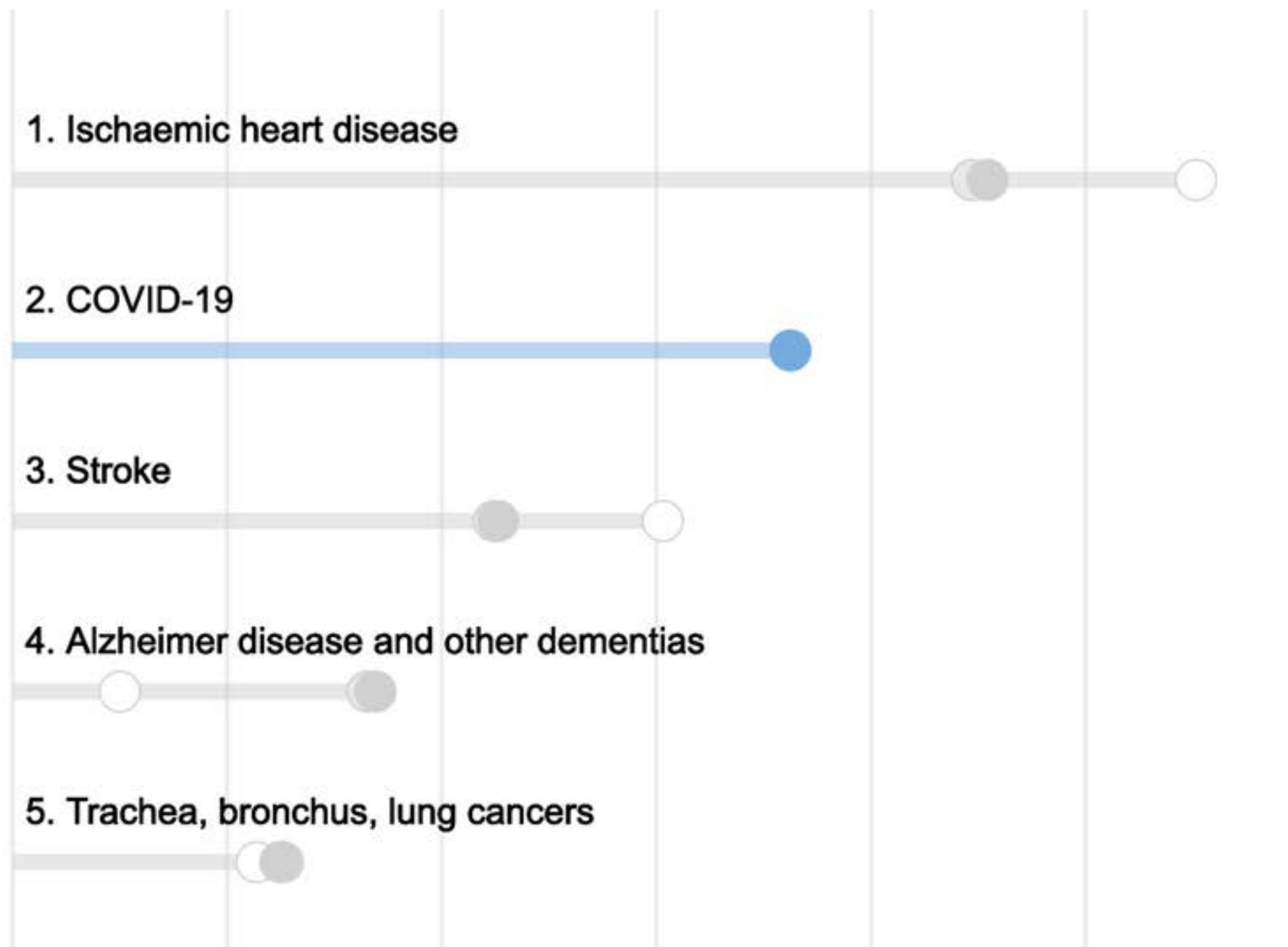
Metabolic Syndrome = Cluster of conditions which occur together increasing your risk of heart disease, stroke and type 2 diabetes

“Heart disease, cancer and dementia are
pillars all resting on the foundations of
metabolic disease”

PETER ATTIA
PETER ATTIA, MD, SURGICAL ONCOLOGY
FELLOW AT THE NATIONAL CANCER
INSTITUTE
AUTHOR OF 'OUTLIVE'

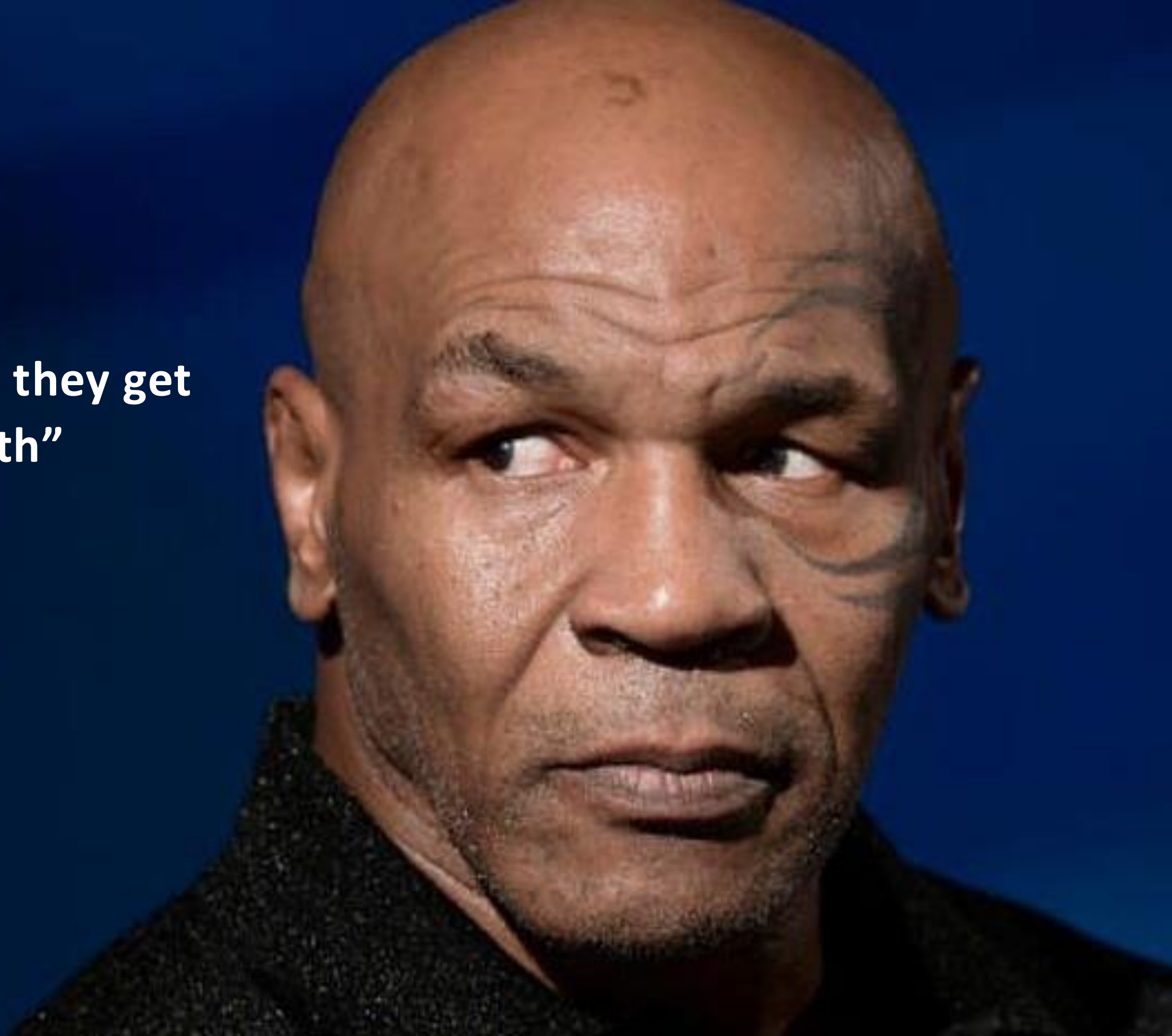


Leading causes of death in 2021 in high-income countries



**“Everyone has a plan until they get
punched in the mouth”**

MIKE TYSON



Low levels of HDL cholesterol.

Elevated blood sugar levels.

High blood pressure.

Excess weight in abdomen.

Hypertriglyceridemia.

Cleveland Clinic

The domino effect





Its about stopping the domino affect so that you can live longer, healthier lives



**So how can you
stop the domino
effect with diet?**

**Living longer without disease,
not with disease**





**Information
overload**

How misinformation
is making us fear our
food



**We're even
being made to
feel guilty about
how we feed
our pets...**

**Should I feed my
dog a raw diet?**



Answer in the caption





FAKE

R E S E A R C H

1

What is the best diet?

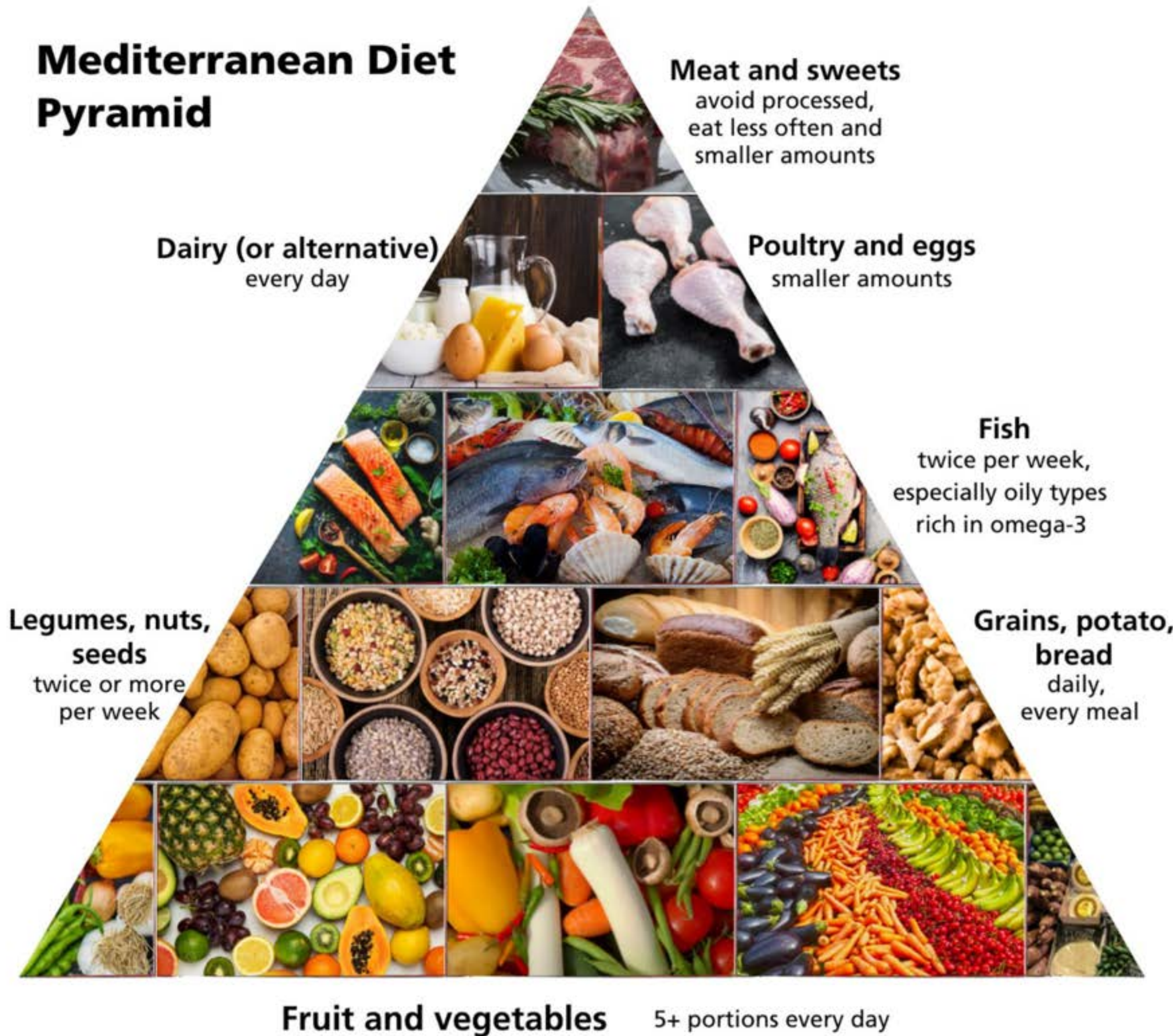
The evidence





Mediterranean Diet

Mediterranean Diet Pyramid





- Daily consumption of **non-refined cereals** and other products (e.g., whole grain bread, whole grain pasta, and brown rice), fresh fruits, vegetables, nuts, and low-fat dairy products
- **Olive oil** as the principal source of fat - use 2.5 to 4.5 tablespoons per day for cooking and salads

Ref: The Mediterranean Diet: An Update of the Clinical Trials:
Finelli M. et al. Nutrients, 2022



- Light to moderate intake of wine, preferably red wine, with meals
- Moderate consumption of fish, poultry, potatoes, eggs
- Monthly consumption of red meat and sweets
- Regular physical activity

Ref: The Mediterranean Diet: An Update of the Clinical Trials:
Finocchi M. et al. Nutrients, 2022



The diet and 15-year death rate in the seven countries study, 11,579 men aged 40-59yrs

They found that those who ate more **olive oil** and had **wine** with their meals had **lower death rates**, especially from heart disease.

On the other hand, those who consumed more milk, meat fats, and alcoholic beverages (like beer and liquor) had higher death rates.



Interestingly, the beneficial effect of the MedDiet seems to come from the **polyphenols** found in foods such as extra virgin *olive oil, red wine, fresh fruit and nuts*

Ref: Metabolic syndrome, Mediterranean diet, and polyphenols: Evidence and perspectives. Vinicellie M et al. J. Cell. Physiol. 2019, 234, 5807–5826.



- Red wine is routinely consumed as part of MedDiet meals
- Resveratrol is the most abundant polyphenol in red wine
- Evidence supports its role in protecting against the development of some Metabolic Syndrome features
- Consumed in the 'traditional' way i.e. **light to moderate** regular consumption **with meals**

Ref: Wine, Polyphenols, and Mediterranean Diets: Santos-Buelga et al.; Molecules 2021

Ref: The Mediterranean Diet: An Update of the Clinical Trials: Finocelli M. et al. Nutrients, 2022



What is 'light to moderate'?

Wine, particularly red wine, consumed with meals:

- 1-2 glasses per day for men (about 150-300 ml)
- 1 glass per day for women (about 150 ml)

Ref: Wine, Polyphenols, and Mediterranean Diets: Santos-Buelga et al.; Molecules 2021

Ref: The Mediterranean Diet: An Update of the Clinical Trials: Finicelli M. et al. Nutrients, 2022



Benefits of the MedDiet

Reduces risk of **metabolic disease** especially if enriched with high quality extra virgin olive oil - *see handout*



Ref: The Mediterranean Diet: An Update of the Clinical Trials: Finocelli M. et al. Nutrients, 2022



Why?

01

Reduces risk of inflammation & oxidative stress which can cause **metabolic problems**

02

Reduces risk of damage to the lining of your blood vessels = reducing risk of **heart disease**

03

Long term the diet helps to regulate **insulin sensitivity** and **cholesterol** levels

And

May reduce risk of **cancer**

Ref: The Mediterranean Diet: An Update of the Clinical Trials: Finocelli M. et al. Nutrients, 2022

MedDiet is **not** only about the food we eat but also encompasses a healthy lifestyle.



2

Probiotics & fermented foods

The evidence



**During fermentation,
fermented products produce bioactive
compounds and metabolites
derived from bacteria.**



Sourdough Bread

Fermented vegetables



Kombucha





Matured cheese

Fermented Dairy Products, Probiotic Supplementation, and Cardiometabolic Diseases: A Systematic Review and Meta-analysis

Judit Companys,^{1,2} Laura Pla-Pagà,^{1,2} Lorena Calderón-Pérez,^{1,2,3} Elisabet Llauradó,^{1,2} Rosa Solà,^{1,2,4} Anna Pedret,^{1,2} and Rosa M Valls^{1,2}

resulted in a significant reduction in anthropometric parameters in obese subjects. In summary, fermented milk consumption is associated with reduced cardiovascular risk, while yogurt intake is associated with a reduced risk of T2D and metabolic syndrome development in the general population. Furthermore, probiotic supplementation added into dairy matrices could be considered beneficial for lowering lipid concentrations and reducing anthropometric parameters. Additionally, probiotic capsule/powder supplementation could contribute to T2D management and reduce anthropometric parameters. However, these results should be interpreted with caution due to the heterogeneity of the studies and the different probiotic strains used in the studies. This trial is registered with PROSPERO (CRD42018091791) and the protocol can be accessed at

Summary

- 01** Fermented milk products may be associated with reduced heart disease
- 02** Yogurt may be associated with reduced risk of diabetes & **metabolic syndrome**
- 03** Probiotics added to dairy may help to lower fat levels and reduce weight
- 04** Probiotic tablets may help control diabetes and reduce weight
- 05** However, more research is needed



Fermented foods, their microbiome and its potential in boosting human health

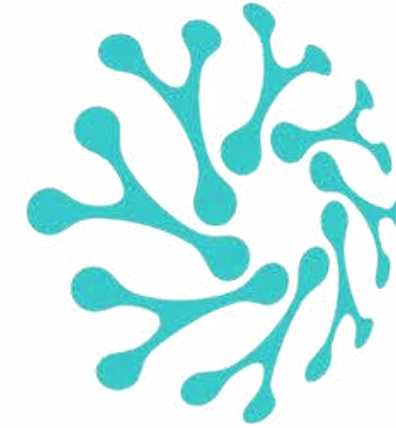
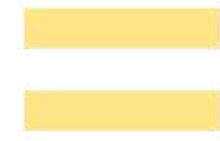
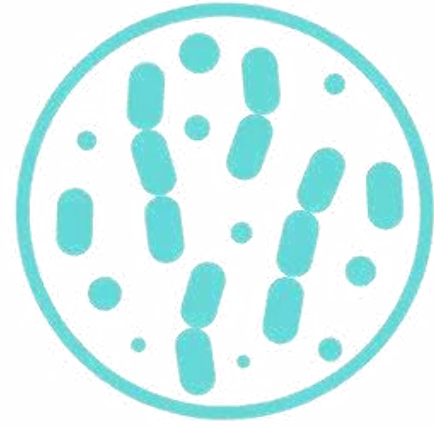
Vincenzo Valentino, Raffaele Magliulo, Dominic Farsi, Paul D. Cotter, Orla O'Sullivan, Danilo Ercolini, Francesca De Filippis ✉

First published: 23 February 2024 | <https://doi.org/10.1111/1751-7915.14428>

Even though there have been relatively few human dietary intervention studies involving FFs, most of the evidence points to the positive effects of eating FFs on human health, **particularly in the treatment of metabolic diseases**, the management of weight, mood and mental health, and the reduction of overall mortality

Ref: Hill et al., 2023; Marco et al., 2017





PROBIOTIC
Healthy Bacteria

PREBIOTIC
Healthy Fibre

SYNBIOTIC
Synergism



Meta-analyses

Effects of probiotic supplementation on anthropometric and metabolic characteristics in adults with metabolic syndrome: A systematic review and meta-analysis of randomized clinical trials

- 01** May help to reduce total cholesterol
- 02** But **not** effective for other metabolic outcomes or weight control

Conclusions

Pro-/synbiotic consumption may be beneficial in reducing TC levels in adults with MetS. However, our observations do not support the effectiveness of pro-/synbiotics consumption on other anthropometric or metabolic outcomes of MetS. Further investigations with larger sample sizes are required to confirm these findings.

3

Ultra processed food

The evidence



Inside the Fauci Wuhan Controversy

12.17.2021

Newsweek


TOXIC



FOOD

YOUR MEAL SHOULD COME WITH A WARNING LABEL. **HERE'S WHY.**

2021



“Most UPF food is not food. It’s an industrially produced edible substance”

Brazilian scientist, Dr Fernanda Rauber



“

ULTRA PROCESSED FOOD IS ANYTHING WITH AN INGREDIENT THAT ISN'T IN THE AVERAGE KITCHEN CUPBOARD

Ref: Ultra-Processed People, Chris van Tulleken



60% of our calories come from UPFs – 1 in 5 people get 80% of calories from UPFs particularly in underprivileged communities. Energy, skills, equipment, freezer etc means real food is very expensive

Ref: Ultra-Processed People, Chris van Tulleken



RESEARCH

105,159 participants aged at least 18 years

**Ultra-processed food intake and risk of cardiovascular disease:
prospective cohort study (NutriNet-Santé)**

CONCLUSIONS

In this large observational prospective study, higher consumption of ultra-processed foods was associated with higher risks of cardiovascular, coronary heart, and cerebrovascular diseases.

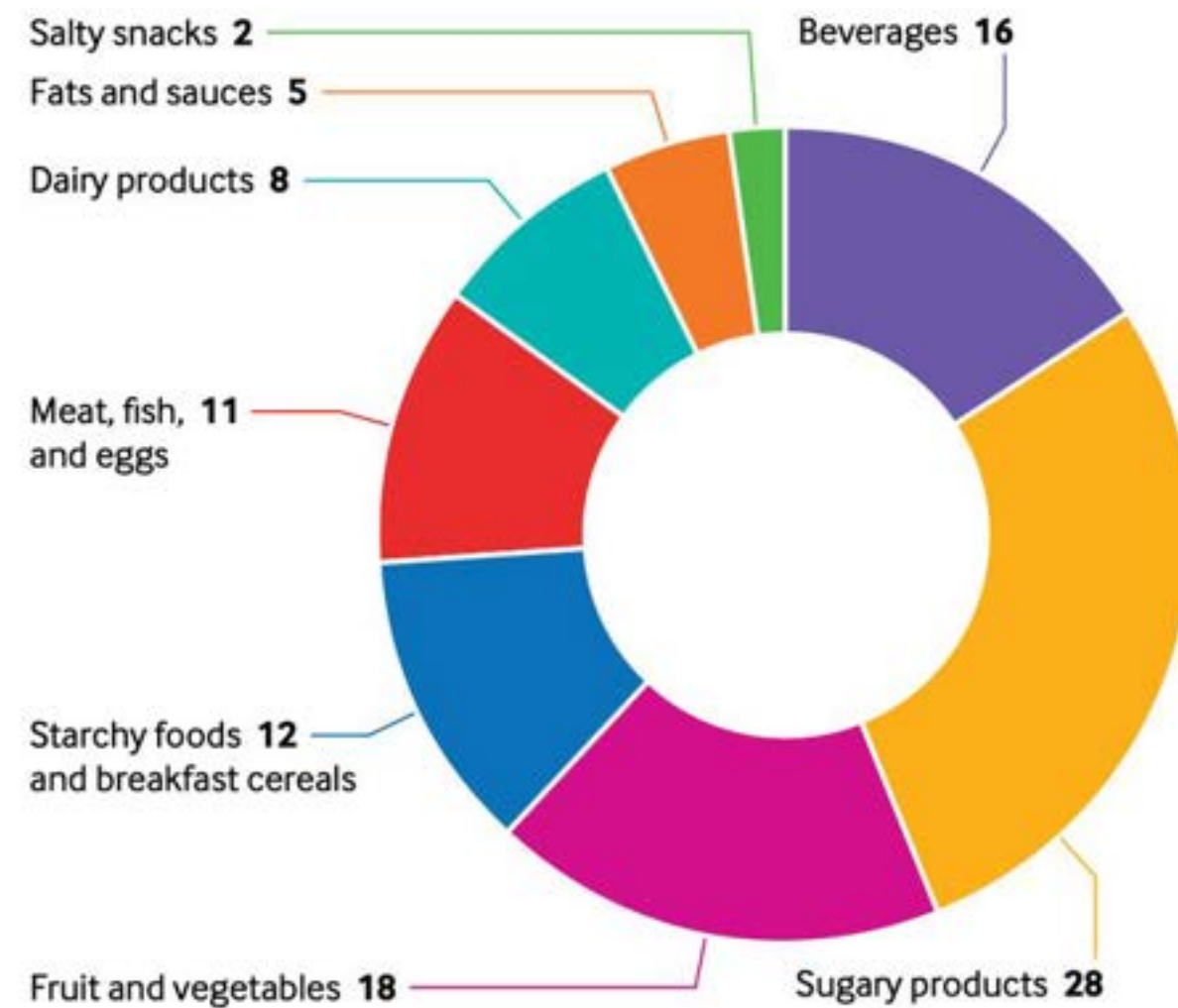


Fig 2 | Relative contribution (%) of each food group to consumption of ultra-processed food in diet

- **Sugary Products (28%):** Includes confectioneries, ice cream, pastries, and sweetened dairy desserts.
- **Ultra-Processed Fruit and Vegetables (18%):** Includes instant soups, vegetable nuggets, fake meat products, and fruit-based sweetened desserts.
- **Beverages (16%):** Includes sodas and sugary or artificially sweetened non-carbonated drinks.
- **Starchy Foods and Breakfast Cereals (12%):** Includes pre-packaged bread, industrial dough, ready-to-eat pasta or potato dishes, and breakfast cereals.
- **Processed Meat and Fish (11%):** Includes nuggets, fish fingers, sausages, and processed ham.



Research

Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses

BMJ 2024 ; 384 doi: <https://doi.org/10.1136/bmj-2023-077310> (Published 28 February 2024)

Cite this as: *BMJ* 2024;384:e077310

Conclusions Greater exposure to ultra-processed food was associated with a higher risk of adverse health outcomes, especially cardiometabolic, common mental disorder, and mortality outcomes. These findings provide a rationale to develop and evaluate the effectiveness of using population based and public health measures to target and reduce dietary exposure to ultra-processed foods for improved human health. They also inform and provide support for urgent mechanistic research.

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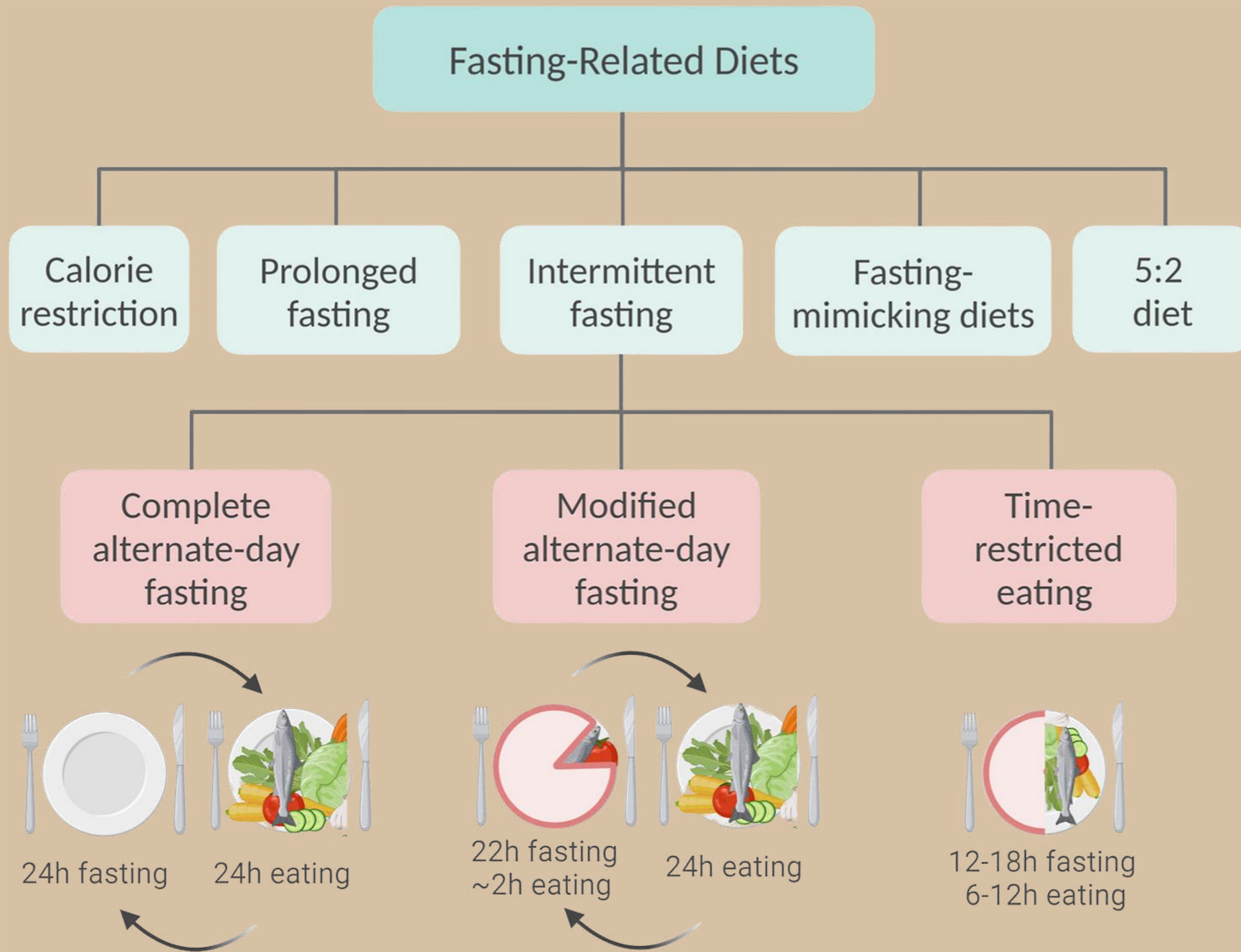
Intermittent fasting

The evidence



Intermittent fasting or **time-restricted feeding** are being studied as a way to manage **Metabolic Syndrome** by improving gut health, blood sugar, insulin control, body weight, and cholesterol levels.





Ref: Risks and Benefits of Intermittent Fasting for the Aging Cardiovascular System: Canadian Journal of Cardiology: February 12, 2024

Time-restricted eating where you have a 6 to 12 hour eating window **without** consciously reducing calorie intake

i.e. eating window between 8am and 8pm with 12 hours of fasting over night



Meal Frequency During Intermittent Fasting:

- Intermittent fasting typically emphasises the time period of eating rather than the number of meals.
- During the eating window, some people might have two larger meals, while others might prefer three to four smaller meals.



Benefits

Reduction in number of hours of eating can lead to **lower overall calorie intake** and reduced risk of obesity

During fasting there is a **metabolic shift** from using glucose for energy (during eating periods) to using ketones and fatty acids (during fasting periods). Regular metabolic shifts are thought to enhance the body's ability to adapt its metabolism, improving energy efficiency.

Thought to stimulate '**autophagy**' where body cleans out damaged cells helping to maintain a healthy body and heart

May help to **control hunger** by affecting the hormones that regulate appetite



Evidence

Animal studies show that intermittent fasting has many benefits, but **human studies have mixed results**

While weight loss is common, effects on blood sugar, cholesterol, blood pressure, gut bacteria and cognitive function vary

While short-term fasting can beneficially boost 'autophagy', too much calorie restriction can be harmful leading to excessive autophagy and cell death

More **large-scale human studies are needed** to understand effectiveness for people with Metabolic Syndrome.

Ref: The Beneficial and Adverse Effects of Autophagic Response to Caloric Restriction and Fasting, 2022

Ref: Can Fasting Curb the Metabolic Syndrome Epidemic? Nutrients 2022



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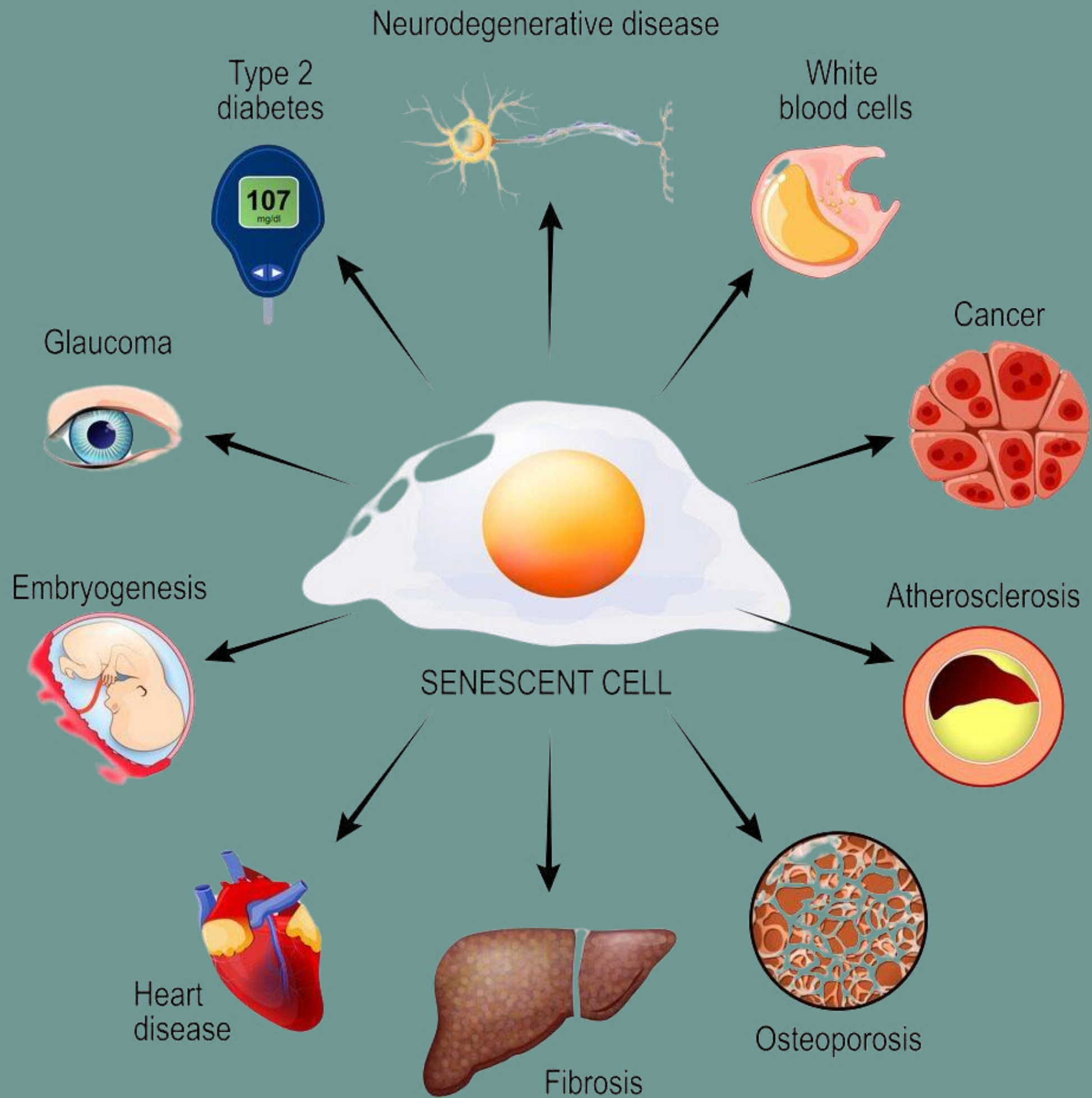
Zombie cells

The evidence





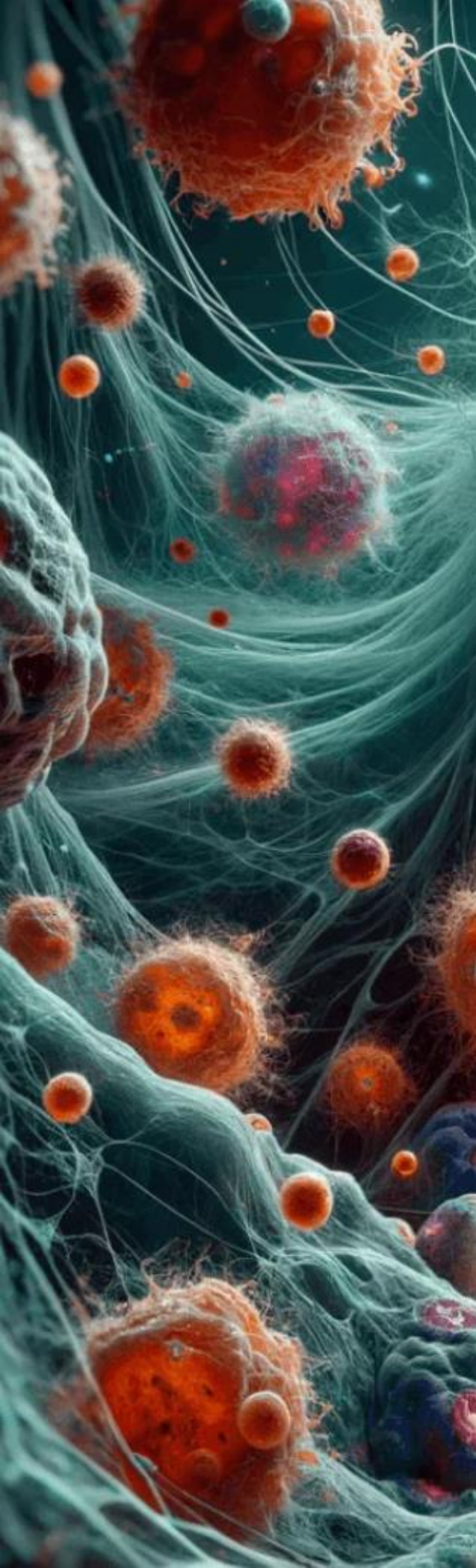
Zombie cells, also know as **'senescent cells'**, are damaged cells that have stopped dividing but do not die off as they should. Instead, they accumulate and secrete harmful substances that can cause inflammation and damage to surrounding healthy cells. These cells contribute to aging and age-related diseases.



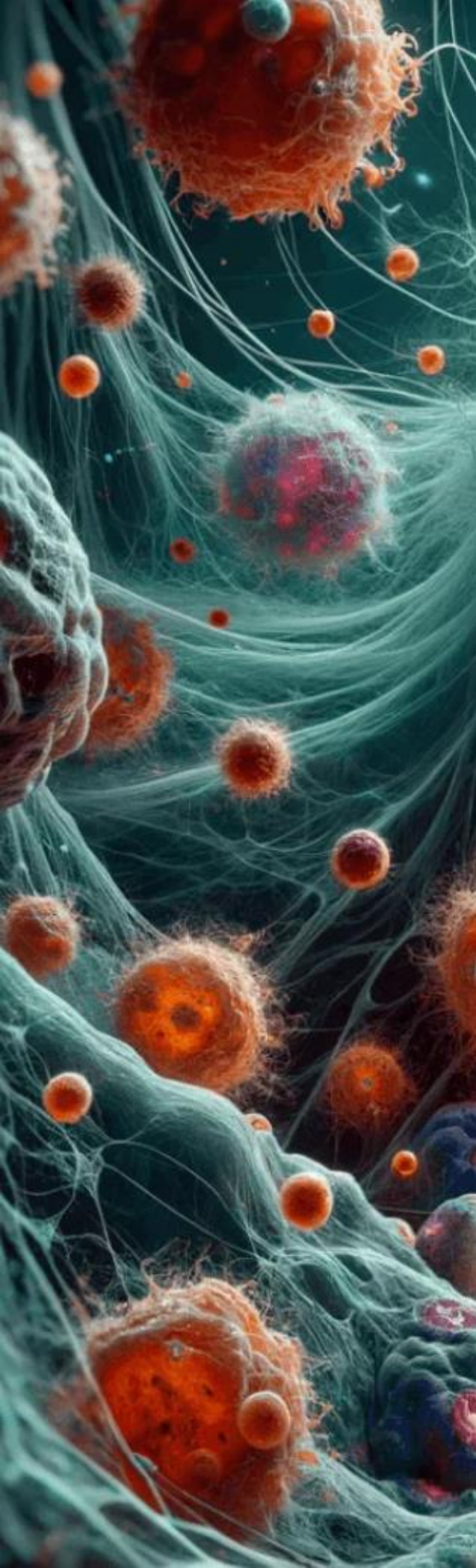


“Our findings show that senescent cells are a cause of obesity-related inflammation and **metabolic dysfunction**”

Professor James Kirkland, Mayo Clinic



Medications are under extensive research to help reduce the numbers of these cells and prevent the damage they cause in a number of age-related illnesses



How can we reduce the build up of these cells in our body?

- **Diets rich in antioxidants & phytochemicals** e.g. MedDiet
- Controlling **calorie** intake e.g. not over-eating
- **Probiotics and fermented foods**
- Avoiding chronic **stress**
- Avoiding exposure to **environmental toxins**
- Regular **exercise** to stimulate cell repair & autophagy (= removes ZC)
- Adequate **sleep** to encourage cell repair & autophagy (= removes ZC)

Summary

Dietary changes to minimise your risk of developing metabolic syndrome and maximise healthy longevity



Key Take Home Messages

- 01** Use the principles of the **Mediterranean Diet** including plenty of **extra virgin olive oil** and a controlled intake of **red wine** (if you wish)
- 02** Include **fermented foods** in your daily diet as a source of natural probiotics e.g. matured cheese, natural yogurt, kefir, fermented vegetables, sourdough breads (with long fermentation process)
- 03** **Avoid ultra processed foods** - all ingredients should be those you could find in any domestic kitchen
- 04** The jury is still out on **intermittent fasting** - making the changes above may be a tastier and more sustainable way of improving your health than fasting



IT'S NEVER

TOO LATE

THE LANCET

Healthy Longevity

Healthy lifestyle in late-life, longevity genes, and life expectancy among older adults: a 20-year, population-based, prospective cohort study

[Jun Wang, PhD](#) • [Chen Chen, MMed](#) • [Jinhui Zhou, PhD](#) • [Lihong Ye, MMed](#) • [Yang Li, MMed](#) • [Lanjing Xu, MBBS](#) • et al.

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Open Access • Published: October, 2023 • DOI: [https://doi.org/10.1016/S2666-7568\(23\)00140-X](https://doi.org/10.1016/S2666-7568(23)00140-X) •

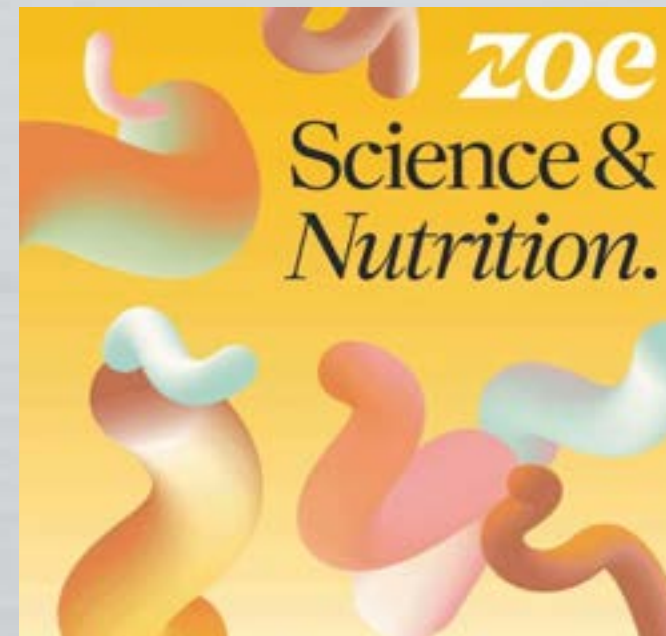
Between Jan 13, 1998, and Dec 31, 2018, 36 164 adults aged 65 years and older were recruited

Conclusion: Lifestyle modification and promotion of a healthy lifestyle in late-life can contribute to reduction of the mortality burden, prevention of early mortality, and promotion of healthy ageing.

Useful resources:

Zoe Science & Nutrition Podcast

by King's College London with
Tim Spector & Team




The Proof with Simon Hill

Episode 2nd Sep on Metabolic Health
*Very technical and medical but very
interesting if you are happy to listen
to medical jargon*



2 September · 3 hrs 1 min left

**Everything you need to know
about metabolic health |
Metabolic Health Masterclass**

 The Proof with Simon Hill >

Marianne Williams

BSc Hons, MSc Allergy, RD



THANK YOU

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