

Nutrition and healthy ageing

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Life expectancy

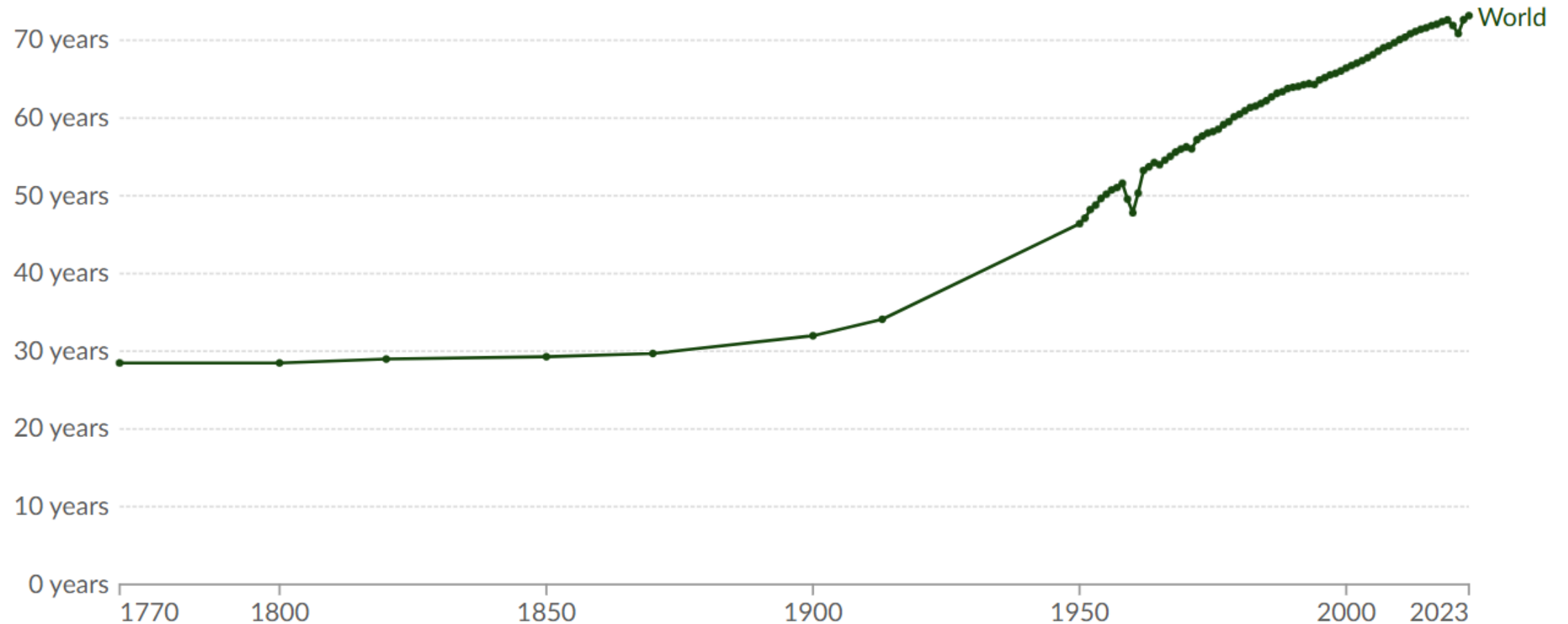
The period life expectancy at birth, in a given year.

Table

Map

Chart

Settings



1770



2023



**Changing life expectancy in
European countries**

Steel, Nicholas et al. 2025
The Lancet Public Health



**Changing life expectancy in
European countries**

Steel, Nicholas et al. 2025
The Lancet Public Health

Cardiovascular diseases

High systolic blood pressure

54.25

Dietary risks

27.74

High LDL cholesterol

23.02

Tobacco smoke

13.95

High BMI

12.80

Kidney dysfunction

11.74

High fasting plasma glucose

11.54

Non-optimal temperature

6.99

Air pollution

5.56

Other environmental risks

4.60

Low physical activity

2.34

Changing life expectancy in European countries

Steel, Nicholas et al. 2025

The Lancet Public Health ⁶

Neoplasms

Tobacco smoke	27·30
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Dietary risks	9·83
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Occupational risks	8·89
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High BMI	6·48
----------	------

High alcohol use	5·96
------------------	------

High fasting plasma glucose	4·88
-----------------------------	------

Low physical activity	1·78
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Other environmental risks	1·76
---------------------------	------

Air pollution	1·60
---------------	------

Unsafe sex	1·30
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Changing life expectancy in European countries

Steel, Nicholas et al. 2025

The Lancet Public Health ⁷



Education:

Life expectancy:

Healthy life expectancy :

High:

83.9

69.4

83%

Medium:

81.9

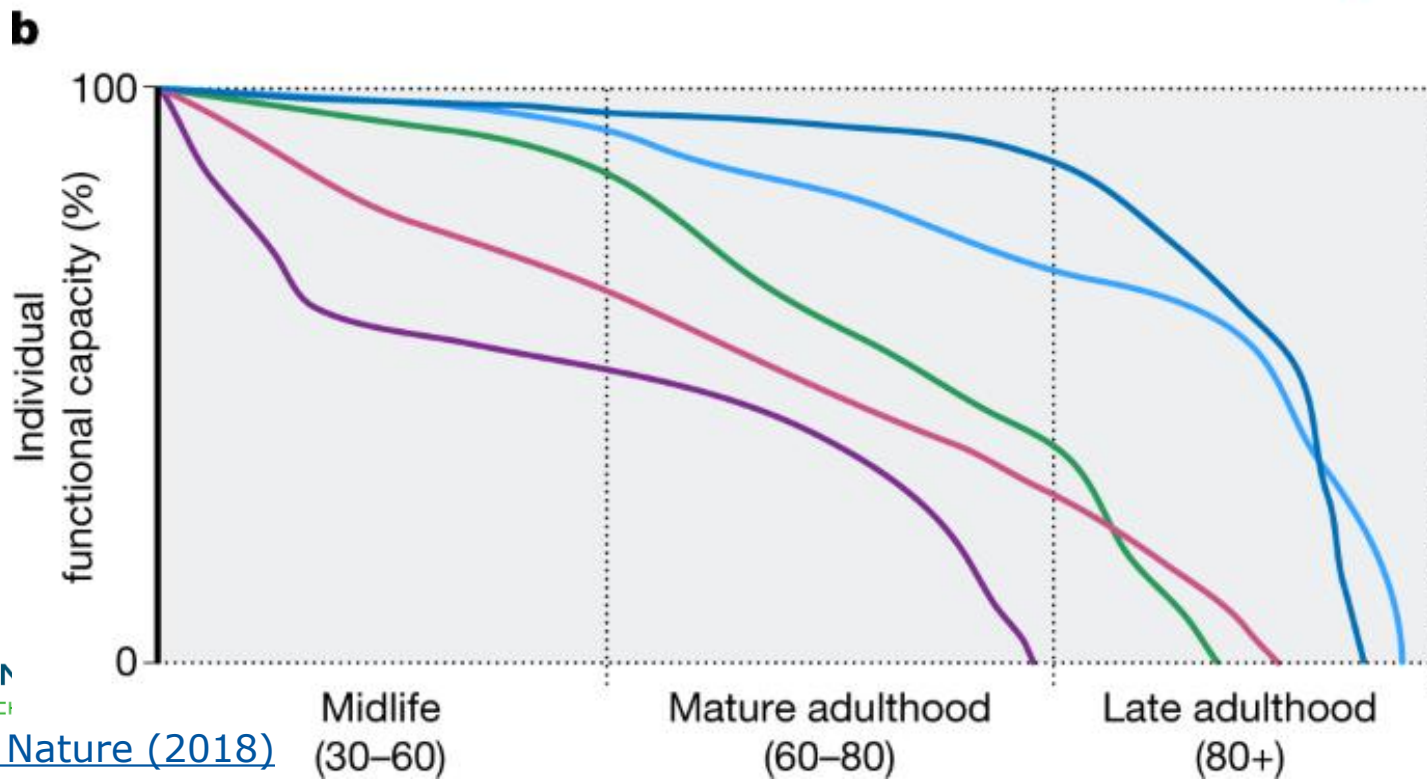
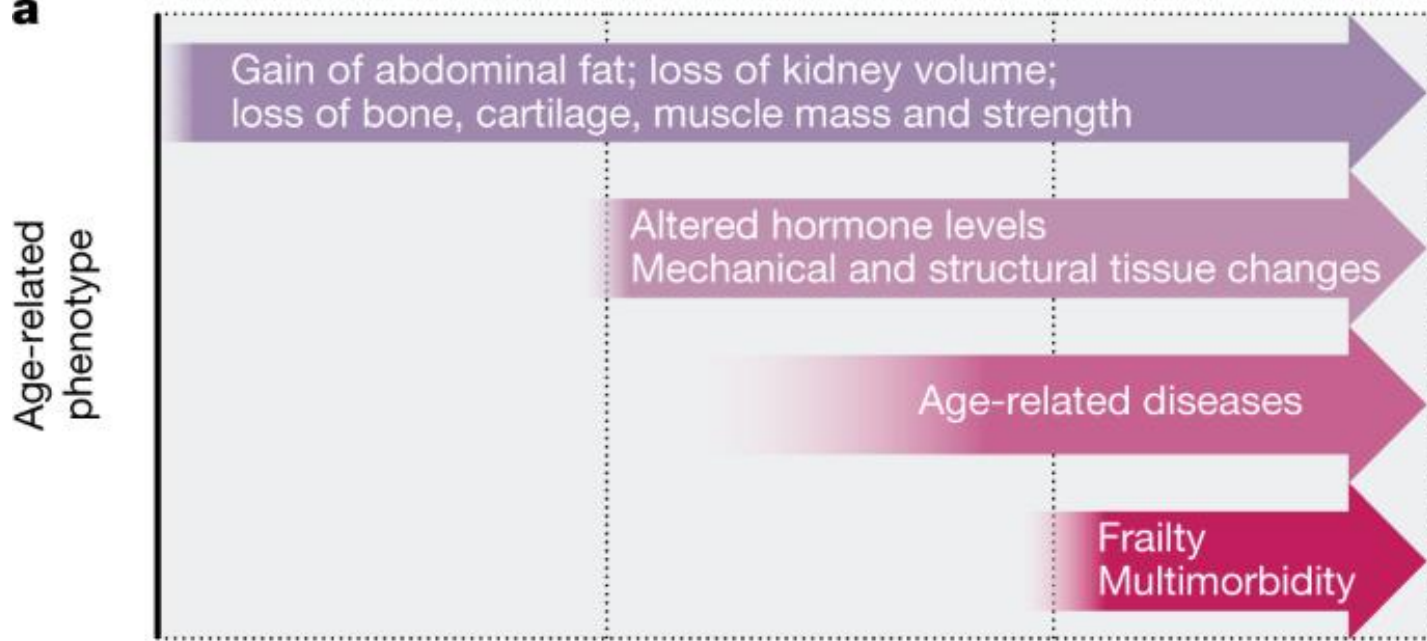
63.7

Low:

78.7 (5.2 years)

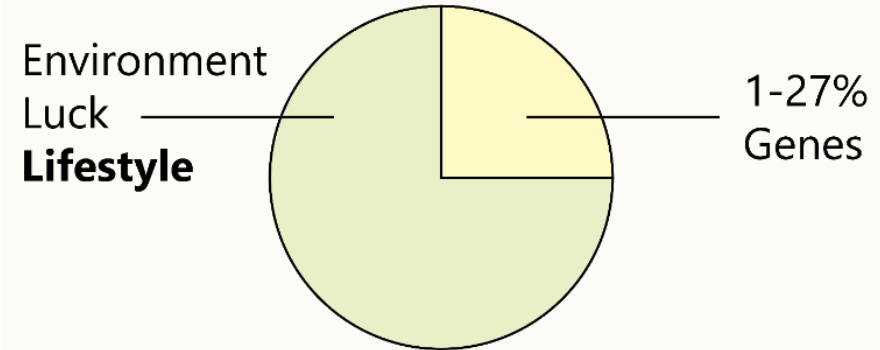
55.4 (14 years)

70%





Heterogeneity in Lifespan
is explained by



What causes it?

■ Accumulation of damage

Unavoidable:



- Metabolism
- DNA replication damage
- Certain genes

Avoidable:

- Air pollution
- UV radiation
- Alcohol
- Smoking
- Radioactivity





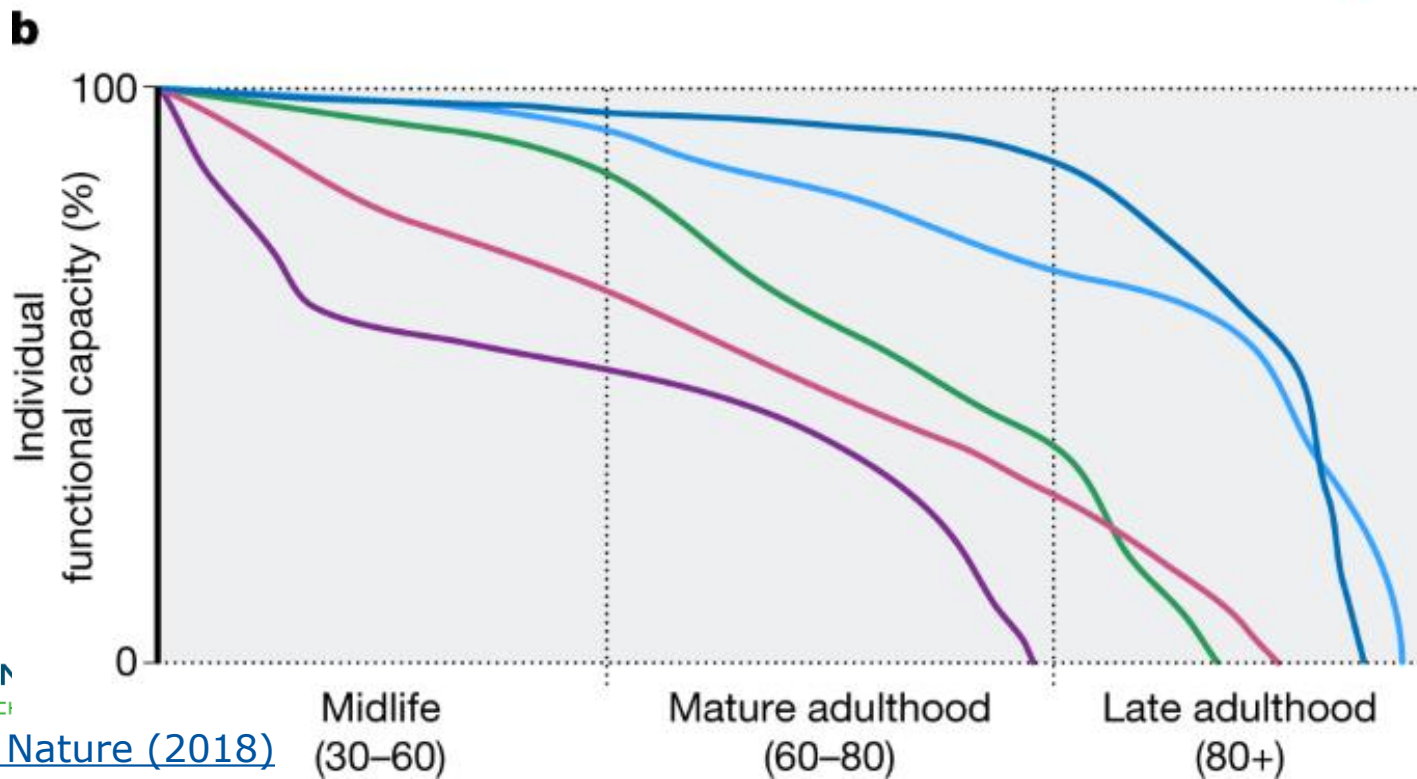
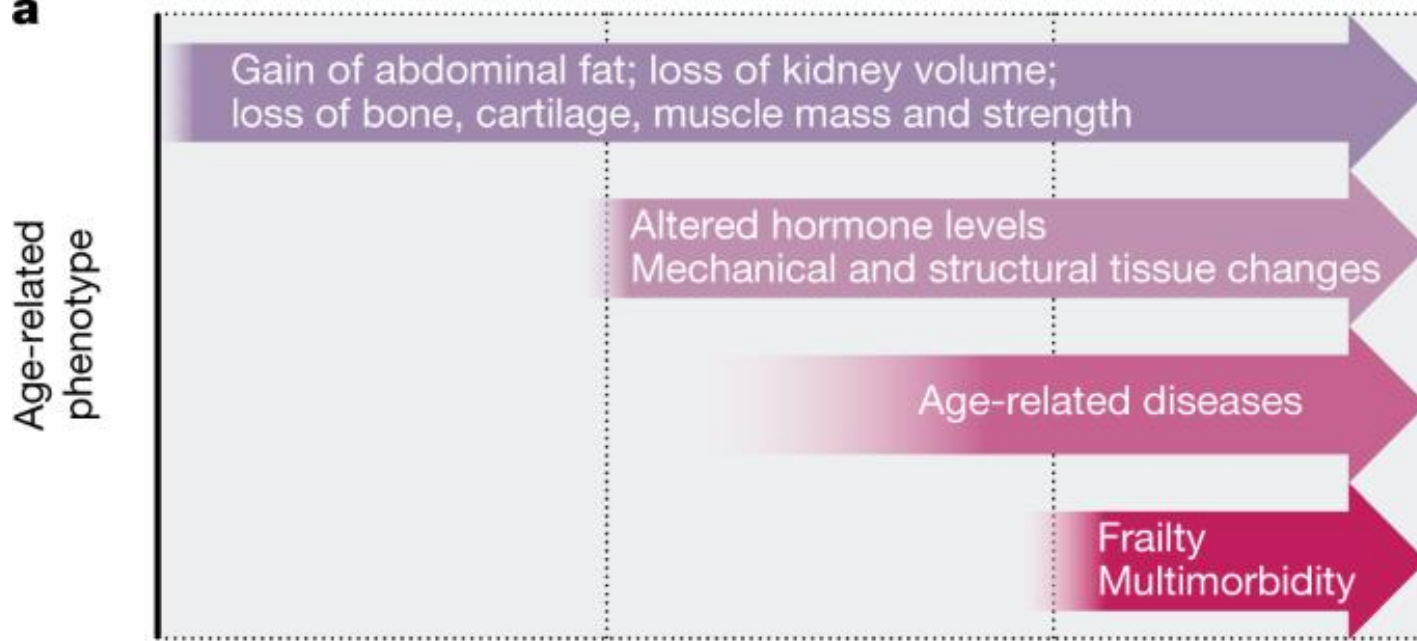


A NETFLIX DOCUMENTARY

DON'T DIE

THE MAN WHO WANTS TO LIVE FOREVER

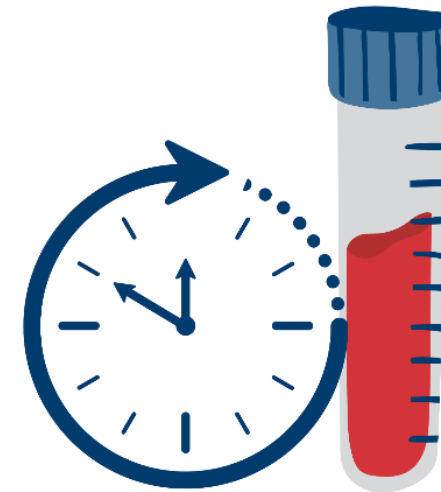
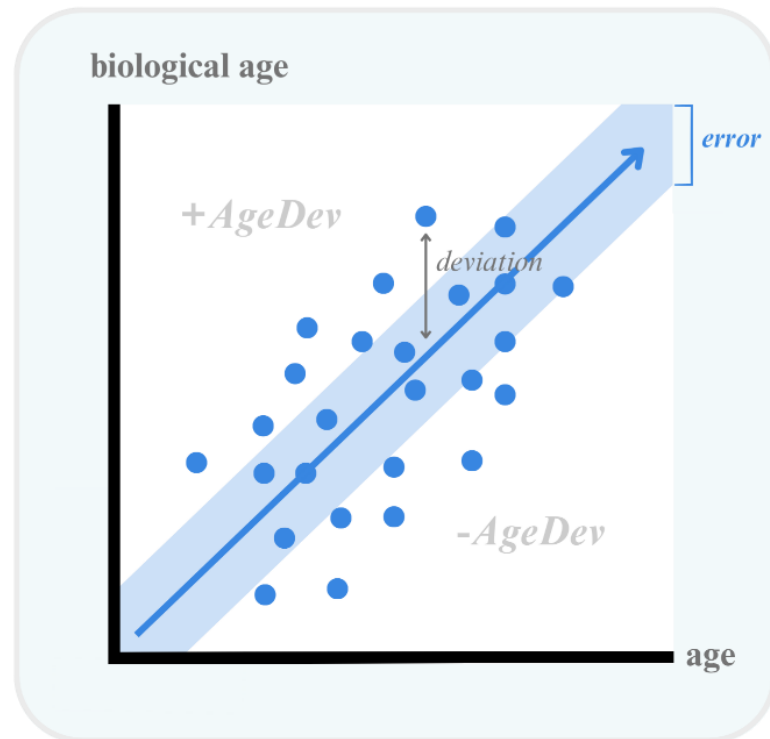
ONLY ON **NETFLIX** | JANUARY 1







Ageing clocks



How to lower our biological age

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Đ

Nuts & carotenoid-rich foods

Poultry, fish

Mediterranean diet

Vitamin D, Omega-3, caloric restriction

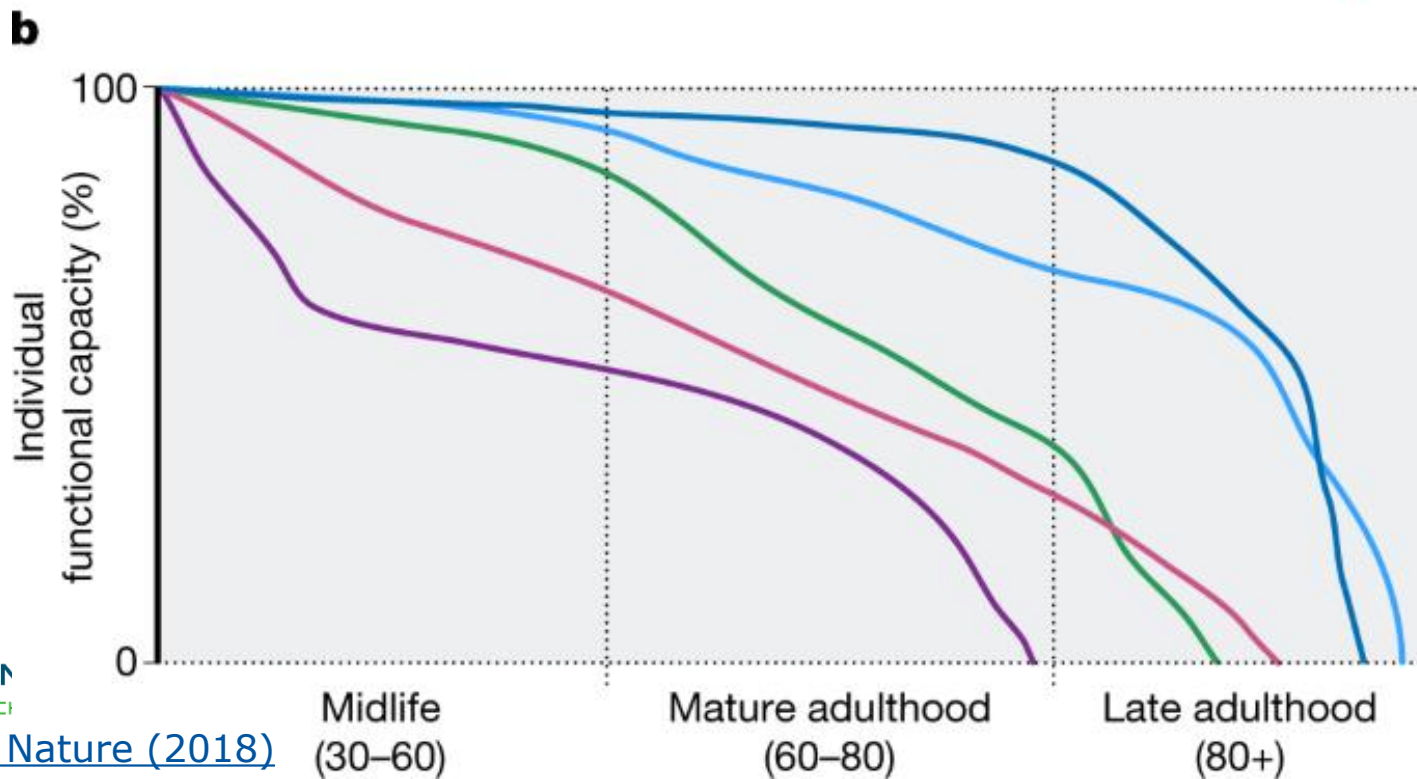
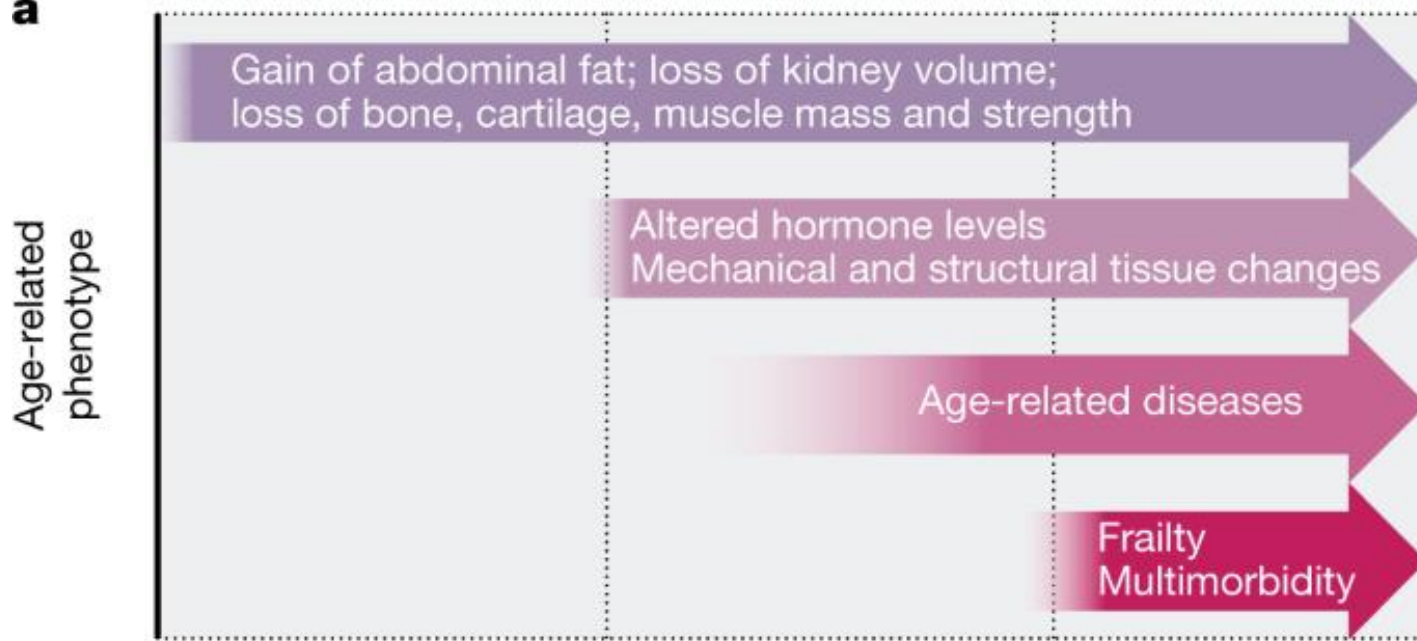
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Red & processed meat

Added sugar &
low-quality carbohydrates

Eggs, organ meat, sausages

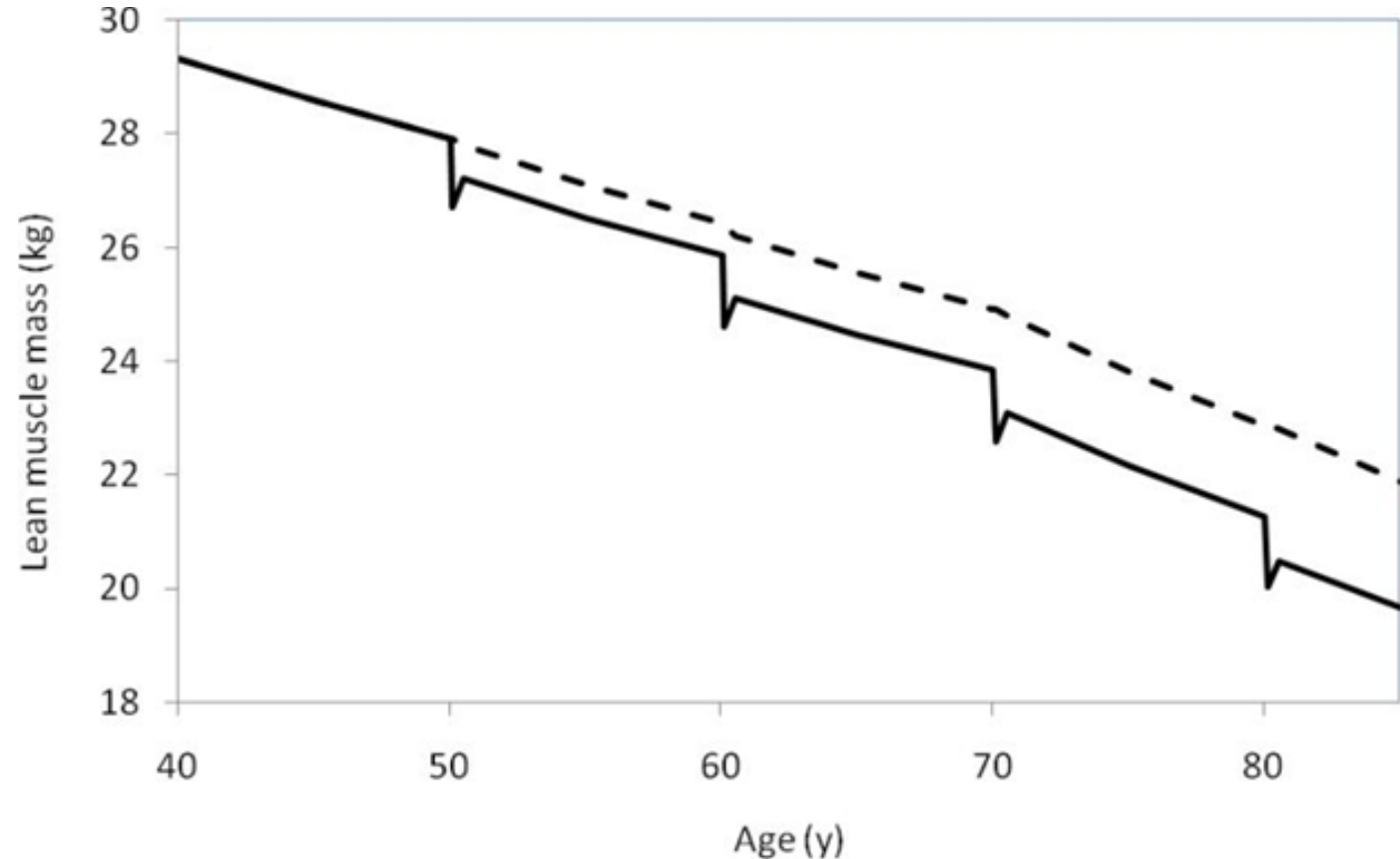
Inflammatory diet



Muscle mass decline with age

Estimated muscle mass loss, after age of 30:
3-8% every 10 years (Holloszy, 2000, Melton et al., 2000)

Age:	Muscle mass:
30	35
80	23 - 30



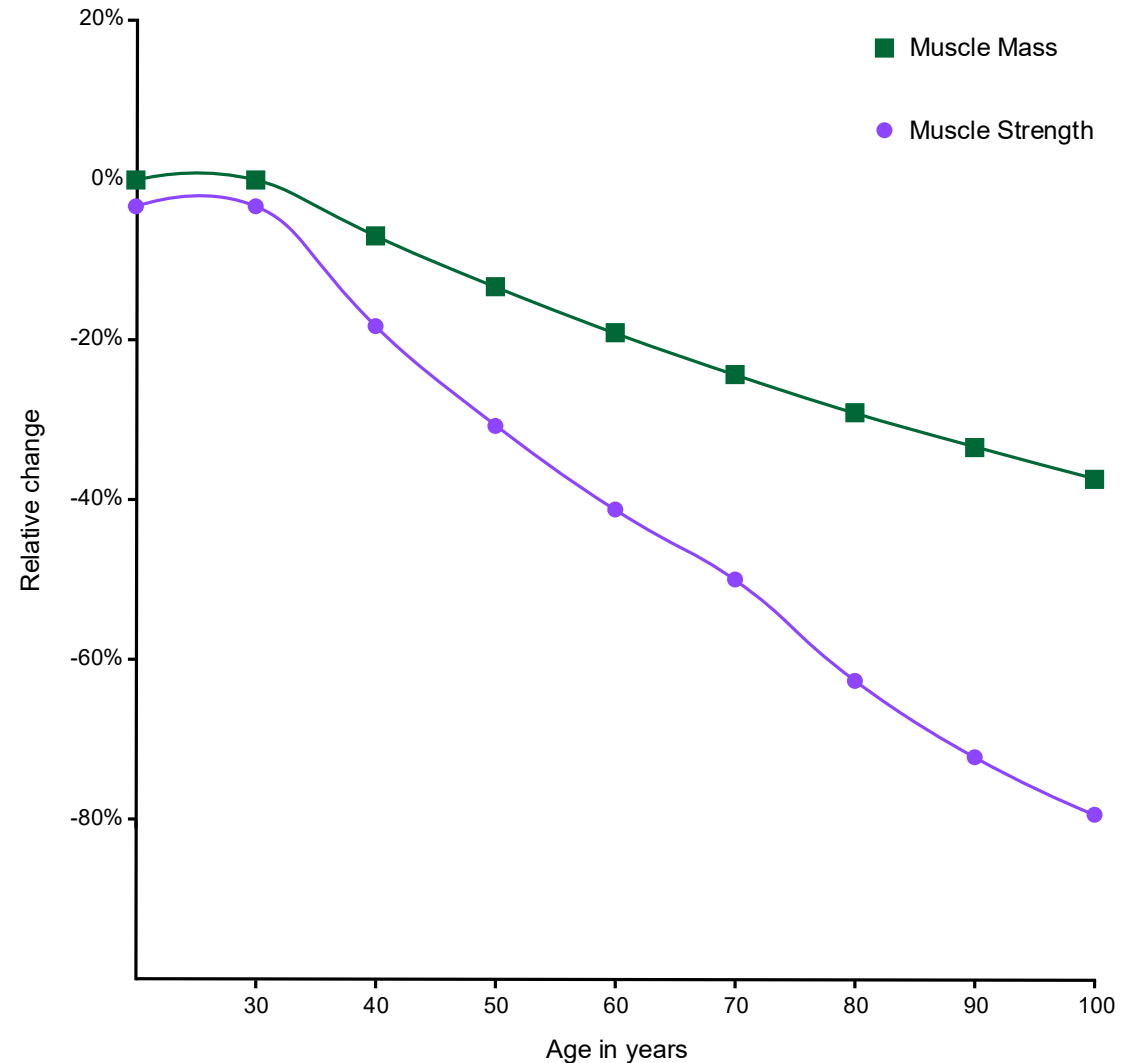
Source: English et al 2010

Strength decreases more

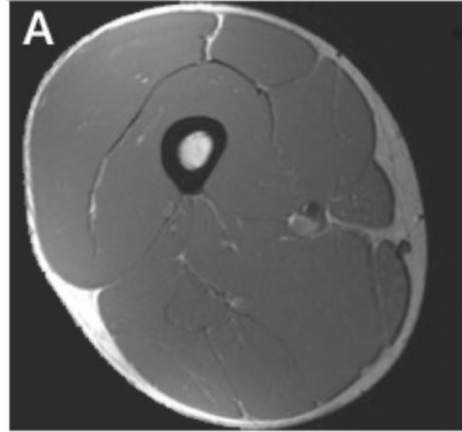
Increasing gap between muscle mass and muscle strength

Reason: decreased muscle quality

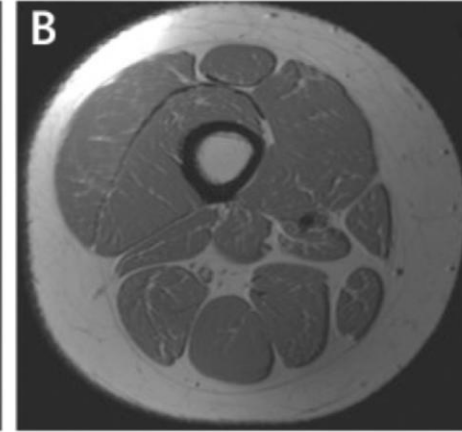
Muscle quality = function/mass



Loss of muscle quality is preventable

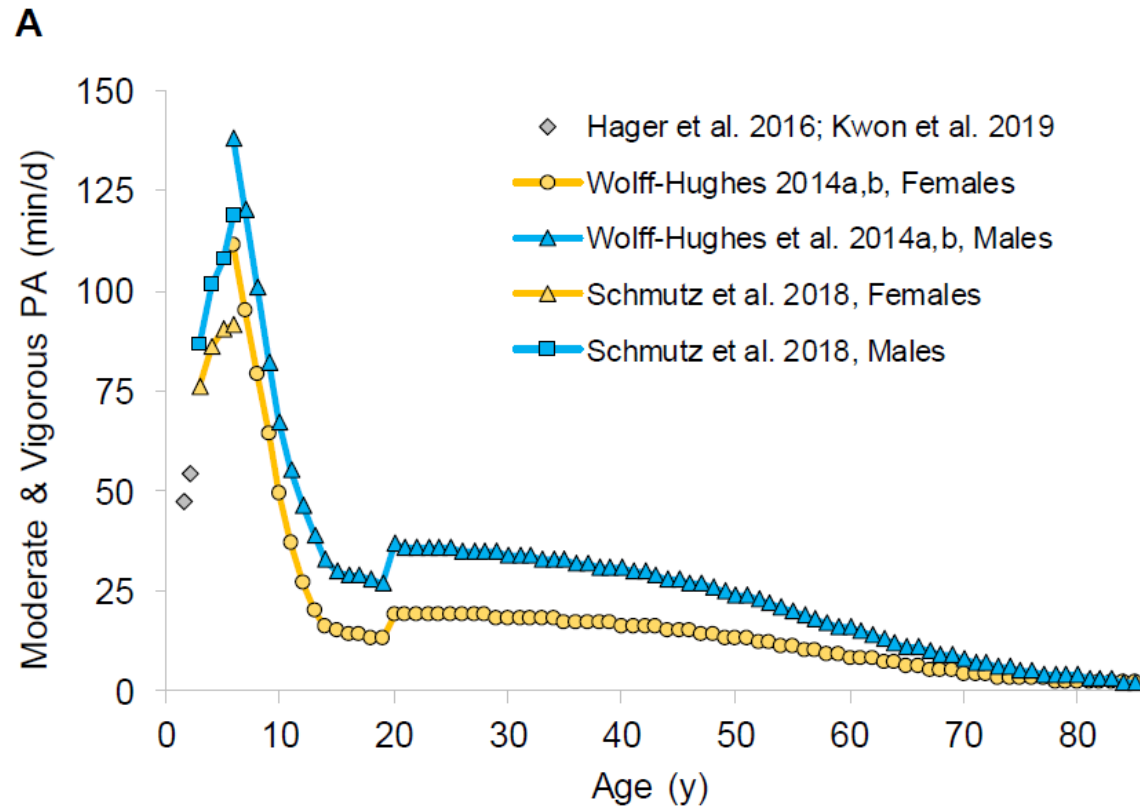


Male, 24 years old



Male, 66 years old
Average daily
steps: 3141

Physical activity decreases



How to maintain our muscle mass and strength

FACTORS ASSOCIATED WITH MUSCLE MAINTENANCE

FACTORS ASSOCIATED WITH MUSCLE MAINTENANCE

Resistance exercise, physical activity

Protein

Creatine, vitamin D, omega-3

FACTORS ASSOCIATED WITH MUSCLE LOSS

Inactivity

Inflammation &
Insulin Resistance

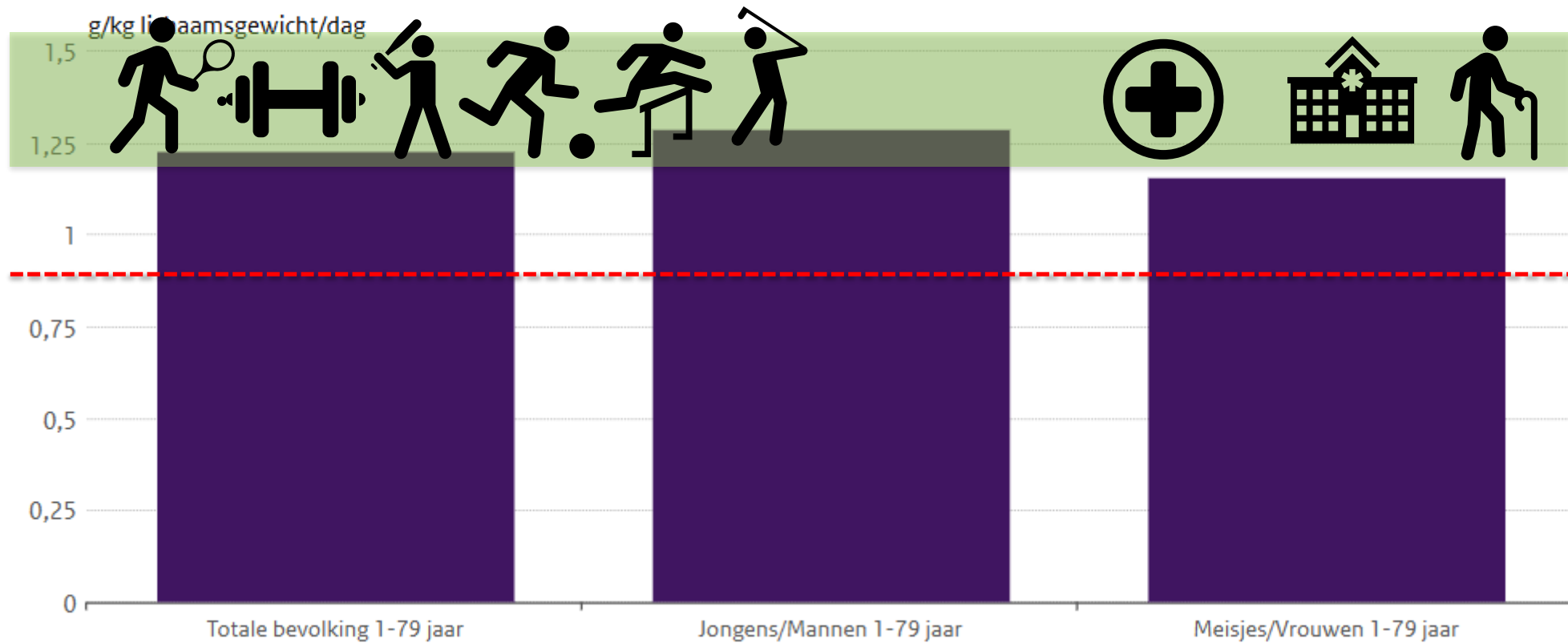
Low protein diet



Needed?

Inname van eiwitten naar geslacht

VCP 2019-2021





Per week:

300 g meat
 100 g red meat
 100 g fish
 140 g cheese

250 g legumes
 210 g nuts
 1750 g vegetables
 1400 g fruit



Steeds meer ziekenhuizen stappen over op plantaardige voeding



[OVER](#)

[MANIFEST](#)

[SLUIT JE AAN.](#)

[MEER](#) 

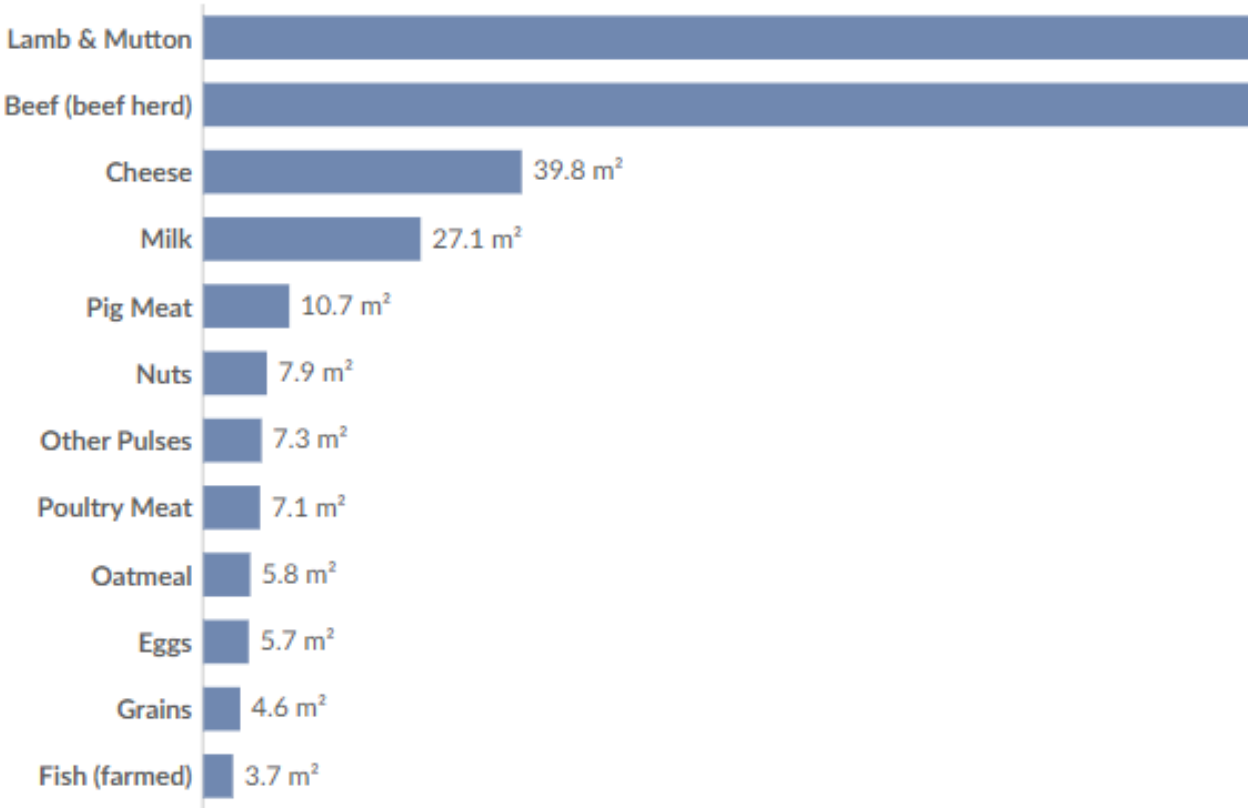


Een organisatie voor artsen en andere zorgprofessionals, voor een duurzame, plantaardige voedseltransitie.

Land use per 100 grams of protein

Land use is measured in meters squared (m²) per year to produce 100 grams of protein across various food products.

Table Chart



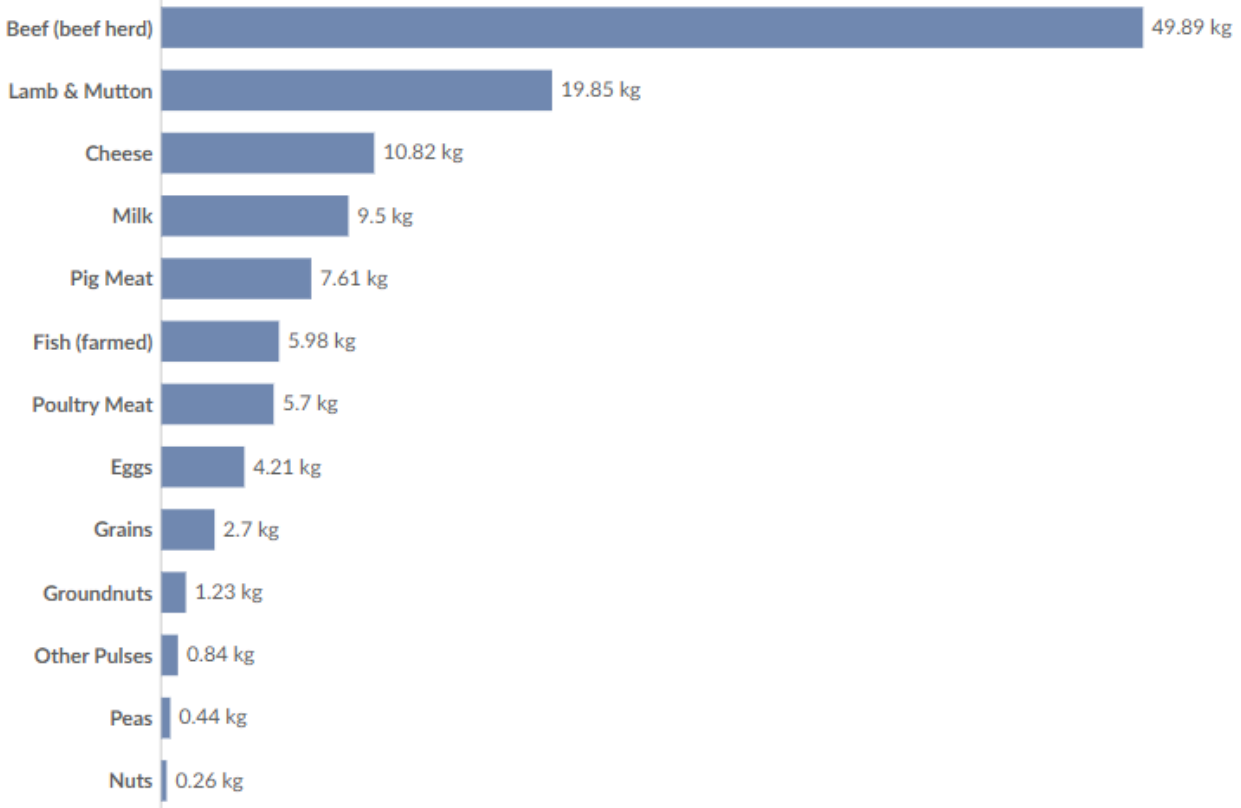
Data source: Joseph Poore and Thomas Nemecek (2018). Additional calculations by Our World in Data. [Learn more about this data](#)

OurWorldinData.org/environmental-impacts-of-food | CC BY

Greenhouse gas emissions per 100 grams of protein

Greenhouse gas emissions are measured in kilograms of carbon dioxide-equivalents.

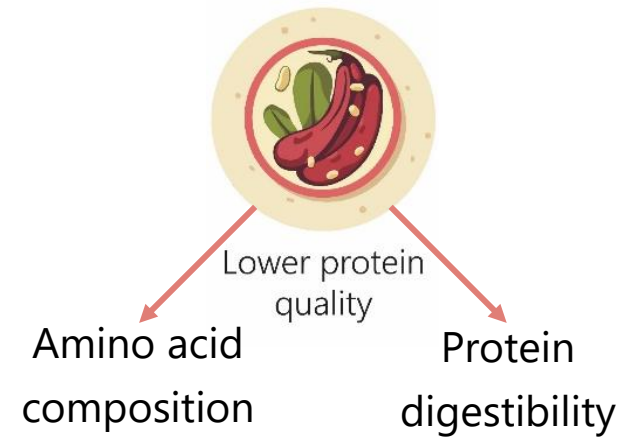
Table Chart



Data source: Poore and Nemecek (2018) - [Learn more about this data](#)
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Protein Quality



High protein quality

Many essential amino acids, similar to body protein
Highly digestible

Broadly:



Plant:	low protein quality
Animal:	high protein quality

Compensation for low quality:
Eat more
Combine protein sources






Original Research

Meal Protein Quality Score: A Novel Tool to Evaluate Protein Quantity and Quality of Meals


[Pol Grootswagers](#)¹  , [Sine Højlund Christensen](#)², [Marielle Timmer](#)³, [William Riley](#)³, [Lisette de Groot](#)¹, [Inge Tetens](#)²


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Meal Protein Quality Score

1. Grootswagers, et al. Curr Dev in Nutr. 2024

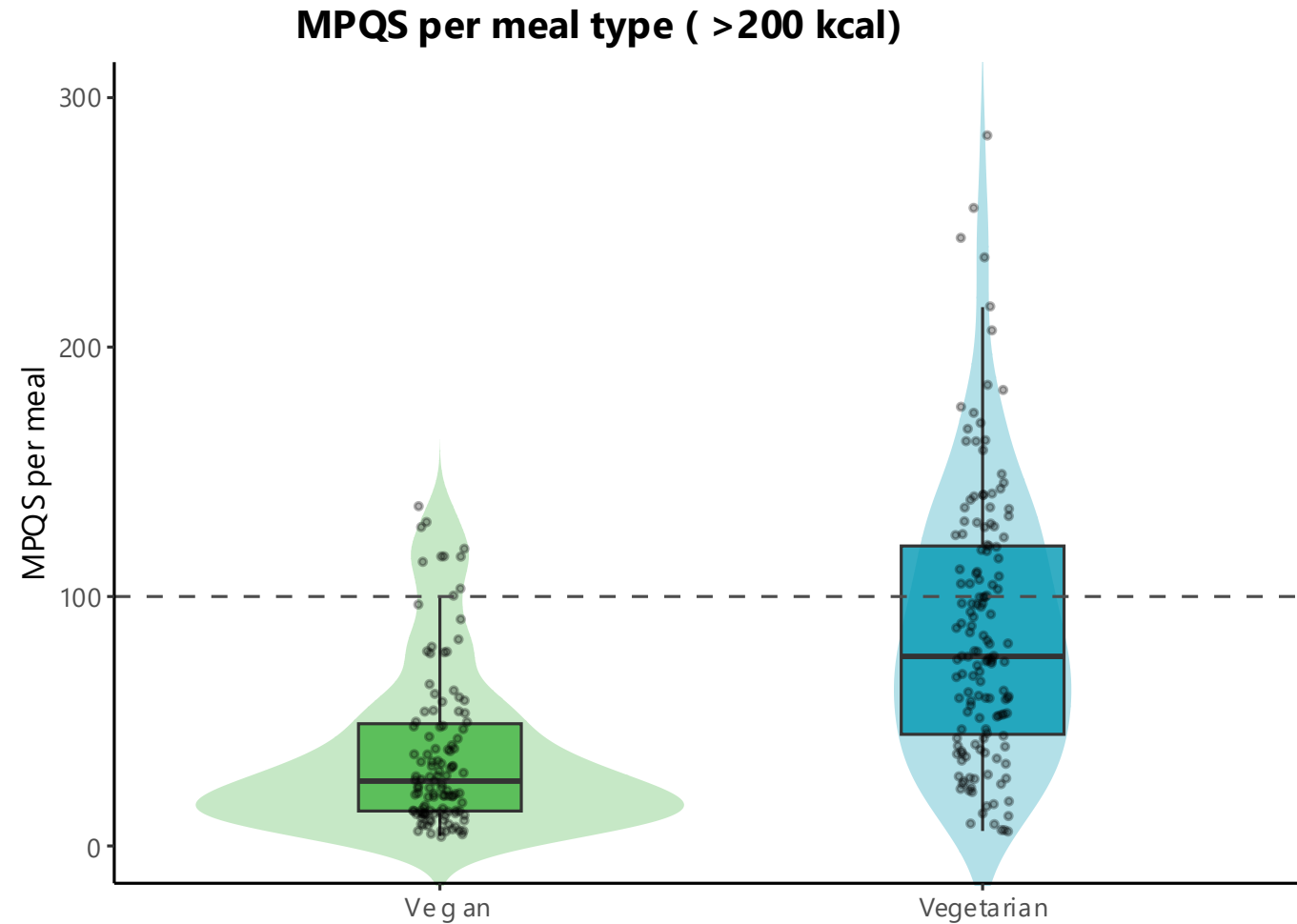
- Requirement of essential amino acids per meal:
 - Total protein: 0.3 g/kg BW¹⁻³
 - Multiply by FAO/WHO requirements⁴
 - Adjustment for digestibility
 - Lowest percentage relative to requirements = **MPQS**⁵

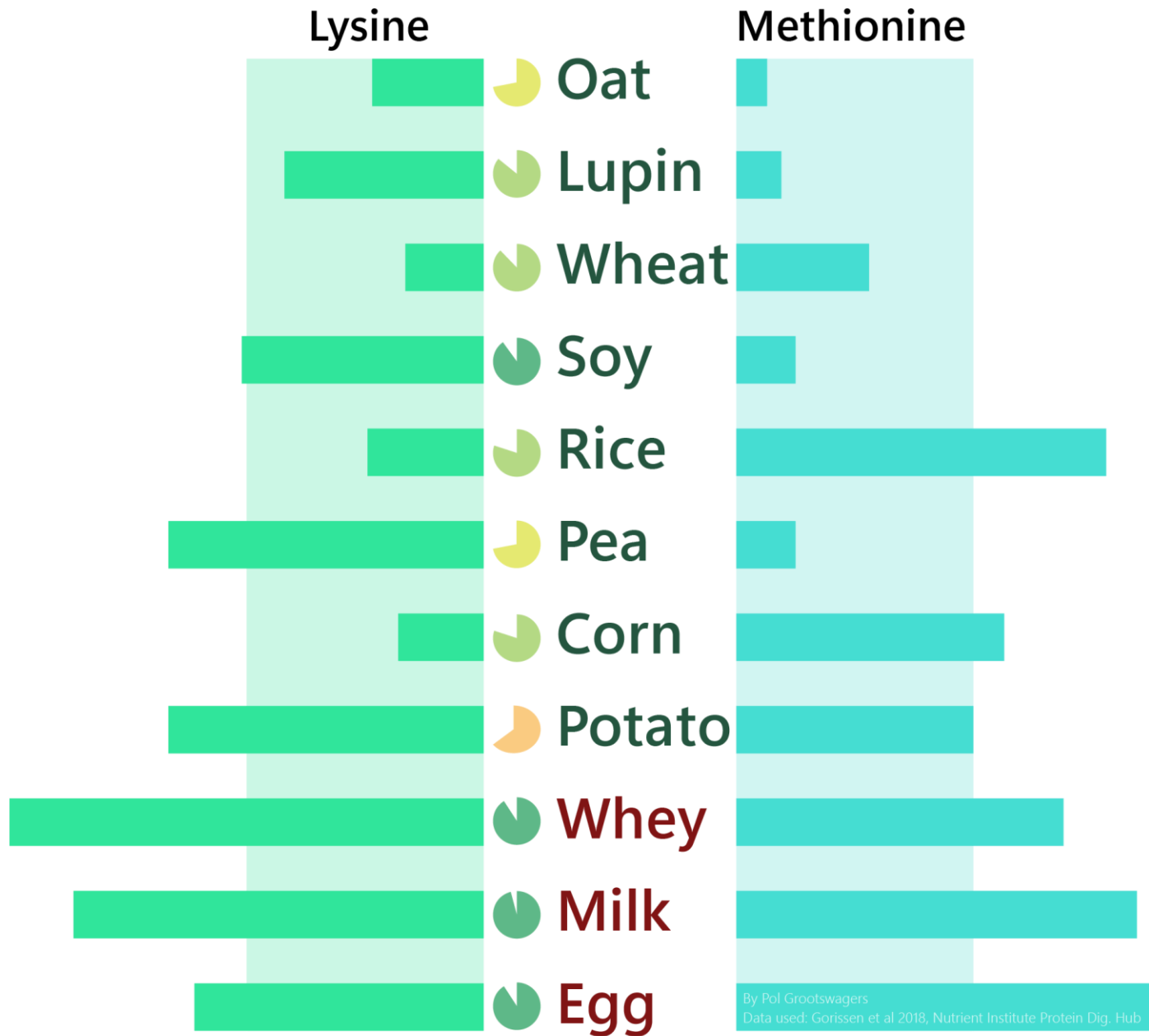


What do older vegans eat?



Vegetarian meals > vegan meals





NEVO-cod	Engelse na ProtInRecept	Isoleucine	Leucine	Lysine	Methionin	Cysteine	Phenylalar	Tyrosine	Threonine
189	Peaches in syrup tinned	34.81	54.07	44.44	8.89	2.22	37.78	16.3	31.85
190	Prunes	0	0	0	0	0	0	0	0
191	Plums in syrup tinned	0	0	0	0	0	70.93	32.89	60.14
192	Fruit mixec	2.8	72.15	121.08	104.56	18.14	3.03	79	137
193	Figs dried	0	100	137	129	26	0	0	0
194	Fruit in syrup tinned	0	0	0	0	0	0	0	0
195	Infant food fruit 8 months	0	0	0	0	0	87.91	352.84	175.82
196	Peas marrowfat canned	273.3	457.5	418.63	78.04	81.13	58.82	294.08	155.41
197	Beans white baked in tomato sau	241.86	430.99	372.68	81.13	81.13	290.7	1238.54	707.3
198	Almonds blanched unsalted	873.12	1617.26	681.71	191.41	381.1	392.45	1082.71	681.43
199	Cashew nuts unsalted	1001.95	1804.52	1123.1	213.18	259.85	707.42	460.3	485.76
200	Hazelnuts unsalted	550.45	1081.82	461.36	213.18	97.83	105.22	210.43	143.04
201	Chestnuts raw	165.65	270.87	150.43	97.83	75.08	73.23	181.54	99.69
202	Coconut meat	134.77	267.08	193.23	75.08	1080	416	666	416
203	Brazil nuts unsalted	582	1220	527	1080	372.42	1449.56	977.89	744.85
204	Peanuts unsalted	1071.56	1951.33	977.89	372.42	331.34	194.3	492.67	292.94
205	Mixed nut:	11	398	772.5	356.5	285.3	294.32	748.77	535.64
206	Walnuts unsalted	631.49	1195.32	475.87	875.72	356.67	352.81	1167.41	772.43
207	Nuts mixer	21.4	923.74	1686.97	875.72	186.75	195.75	437.25	253.5
208	Flour buckwheat	322.5	606.75	557.25	186.75	145.6	88.67	368.67	190.4
209	Breakfast cereal Cornflakes Kello	267.87	1110.67	53.2	145.6	145.6	88.67	368.67	190.4

```

19 template<const unsigned int len2>
20 unsigned int levenshtein(const string& s1, const string& s2) {
21     const size_t len1 = s1.size(), len2 = s2.size();
22     vector<unsigned int> col(len2+1), prevCol(len2+1);
23     for (unsigned int i = 0; i < prevCol.size(); i++)
24         prevCol[i] = i;
25     for (unsigned int i = 0; i < len1; i++) {
26         col[0] = i+1;
27         for (unsigned int j = 0; j < len2; j++)
28             col[j+1] = std::min(
29                 prevCol[j] + (s1[i]==s2[j] ? 0 : 1),
30                 col.swap(prevCol);
31     }
32     return prevCol[len2];
33 }

```





Meal name

Curry met kikkererwten

Product list

Lijst 1 NL

Recipe

No

Reference pattern

FAO 2011 Adult

Consumer

75

kg

Meal protein requirement ⓘ

0.3

g / kg bw

EAA Nutrients

Product

Quantity

Dig

his

ile

leu

lys

met

cys

p+t

thr

trp

val

Add product

Total intake

0 g

Meal requirement

Percentage of requirement filled

0	0	0	0	0	0	0	0	0	0	0	0	0
360	675	1373	1080	383	135	922	563	148	900			
0	0	0	0	0	0	0	0	0	0	0	0	0

Meal Protein Quality Score: 0
Limiting EAA: **Histidine**

Save

Export to PDF



Thank you!

Contact:

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