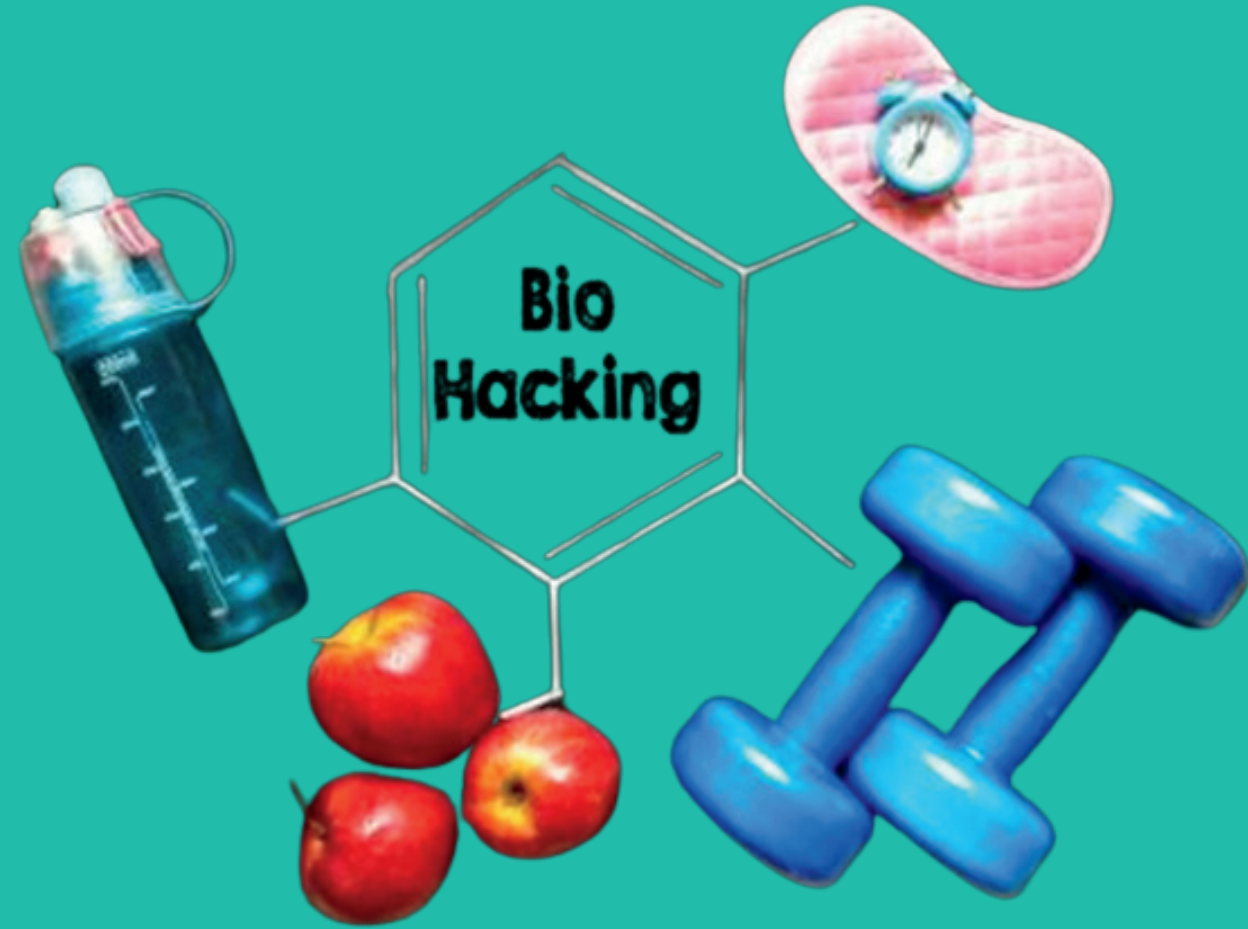




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Lifestyle Hacking for Longevity and Healthspan

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Lifespan [2024]

Males ____ yrs

Females ____ yrs

Healthspan = period of your life that you spend healthy, capable, and minimally limited



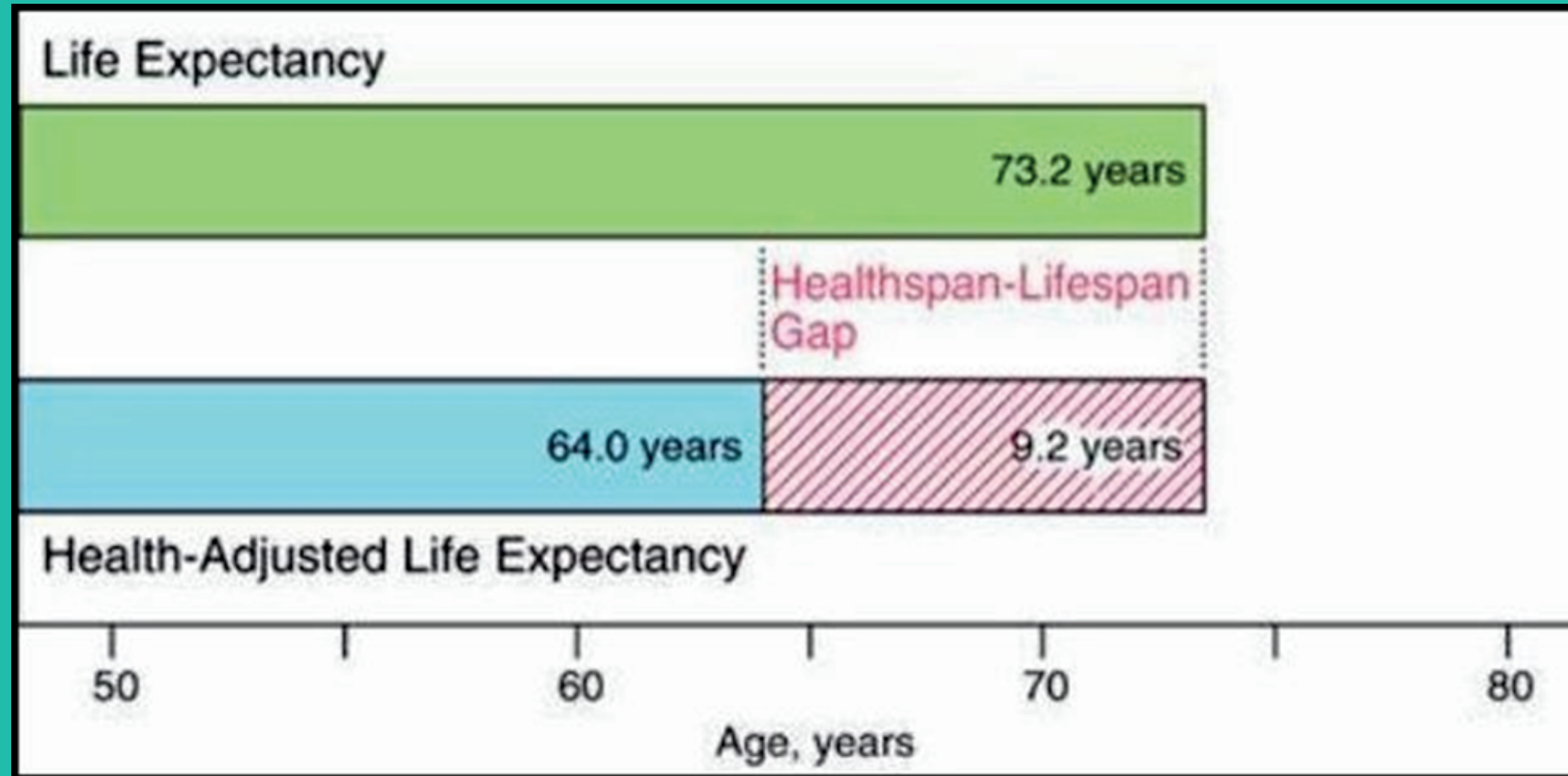
Lifespan [2024]

Males 74.8 yrs

Females 80.2 yrs

Healthspan = period of your life that you spend healthy, capable, and minimally limited

Lifespan vs Healthspan GAP



Cognitive
Physical
Emotional

Is that the ideal situation?

Factors that influence LONGEVITY

Lifestyle - Diet, exercise, alcohol, sleep

Health - DM, HTN, CVD, liver/renal dz

Environment - Socioeconomics, exposures, air/water, community

Genetics - 1/3rd of your risk/reward

* FOXO3 and APOE Genes stimulated by natural compounds such as resveratrol, curcumin, astaxanthin

8 Major Modifiable Factors

1. CV and Resistance training
2. Diet
3. Sleep
4. Stress
5. Alcohol
6. Smoking
7. Opioids
8. Social relationships





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Married/Single/Widowed
Pets

Mental wellbeing

Study of 700K veterans
24yrs difference if you control for
optimizing the 8 Major Factors

Exercise as the linchpin?

Cardiovascular training
Resistance training



In general exercise protects against Dementia, insulin insensitivity, CV disease, frailty and is associated with longevity and healthspan

Cardiovascular (CV) training

Zone 2 vs VO2 max



You need them both!

CARDIO and STRENGTH

Cardiovascular health needs to be split into long/steady endurance

Zone 2

and VO2 max maximal aerobic effort

Strength + Power

and Stability as the foundation that keeps us safe from injury

The Wonders of Zone 2

"Light intensity"; still able to talk , no burn

Slow twitch muscle fibers

Endurance muscle

No lactate accumulation

Rejuvenates mitochondria

*cycling/rowing/swim/TM

every other day 30-60min

Heart Rate Training Zones			
Effort			Purpose
Maximum Intensity	90-100%		Competition And Maximal Testing.
Vigorous Intensity	80-90%		Improves Anaerobic And Aerobic Fitness, Interval Training And Tempo Training.
Moderate Intensity	70-80%		Improves Aerobic Fitness, Continuous, And Steady State Training.
Light Intensity	60-70%		Builds Endurance And Long Slow Distance (LSD) Training.
Very Light Intensity	50-60%		Recovery, Warming Up And Cooling Down.

But why VO2 max ?

Powerful correlation with
longevity and disability!



VO2 max declines rapidly after 30
10%/decade, 15% after 50

What once was easy becomes
difficult or impossible

VO2 Max

www.omnicalculator.com/sports/vo2-max

**"Any increase, at any age,
will improve how long you live and
how well you live"**

* training can increase VO2 by up to 10-15%/yr
Equivalent to gaining 6 years of fitness age

VO2 Max training

Start with Zone 2 and
strength training x 6 months

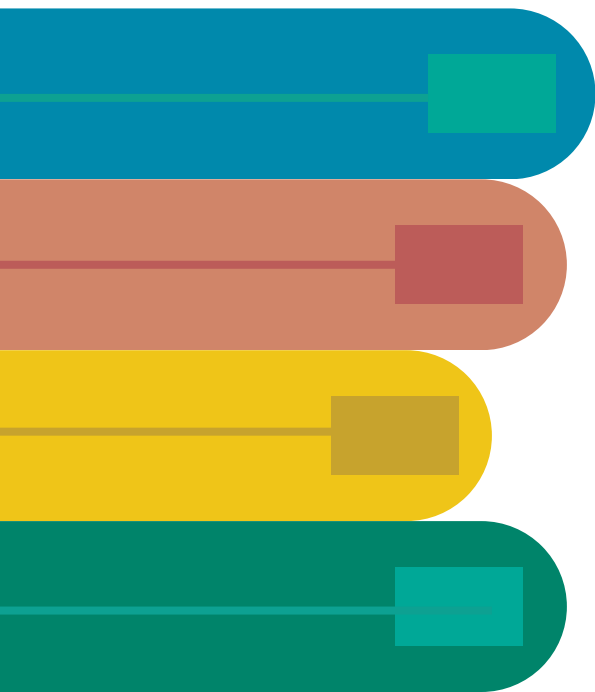
Then ADD bursts of HARD INTENSITY
2-4 min intervals

Recover to your Zone 2 heart rate and repeat
Do 2 sessions a week

Only the strong survive! Strength and Longevity



Muscle mass declines from age 30
by 50% of our mass over next 50 yrs.
We lose strength 2x faster than mass.
We lose power [strength x speed]
2x faster than strength



Sarcopenia

Sarcopenia is muscle loss that occurs with aging affecting quality of life

Immobility

Physical inactivity/Sedentary

Obesity

Chronic diseases: COPD, kidney disease, insulin resistance/diabetes, cancer

Rheumatoid arthritis

Malnutrition or inadequate protein (2gm/kg)

FRAILTY

Unintended weight loss
Exhaustion or low energy
Low daily physical activity
difficulty with 10 stairs?

Slowness of walking/poor balance
history of falls?

Weakness of grip



Strength building for longevity

GRIP - almost all ADL's require gripping

Squat - especially the eccentrics [chair squats]

PUSH/PULL - rowing, wall press

Hip Hinge movements - step ups, kettle bell swings, deadlift

Rucking - walking with weighted vest or backpack

Carrying loads - Farmers carry

Coordination sports - On average, tennis players lived 9.7 years longer, badminton players 6.2 , soccer players 4.7, cyclers 3.7 , swimmers 3.4 , joggers 3.2 years

GRIP as predictor and Key Indicator

Grip-strength of <57 pounds for men and <35 pounds for women was associated with “higher overall risk of death and higher risk for chronic illnesses”

For each 11-pound decrease in grip strength, there is a 16 percent higher risk of death from any cause

Frailty

Hospitalizations

ACM

Loss independence

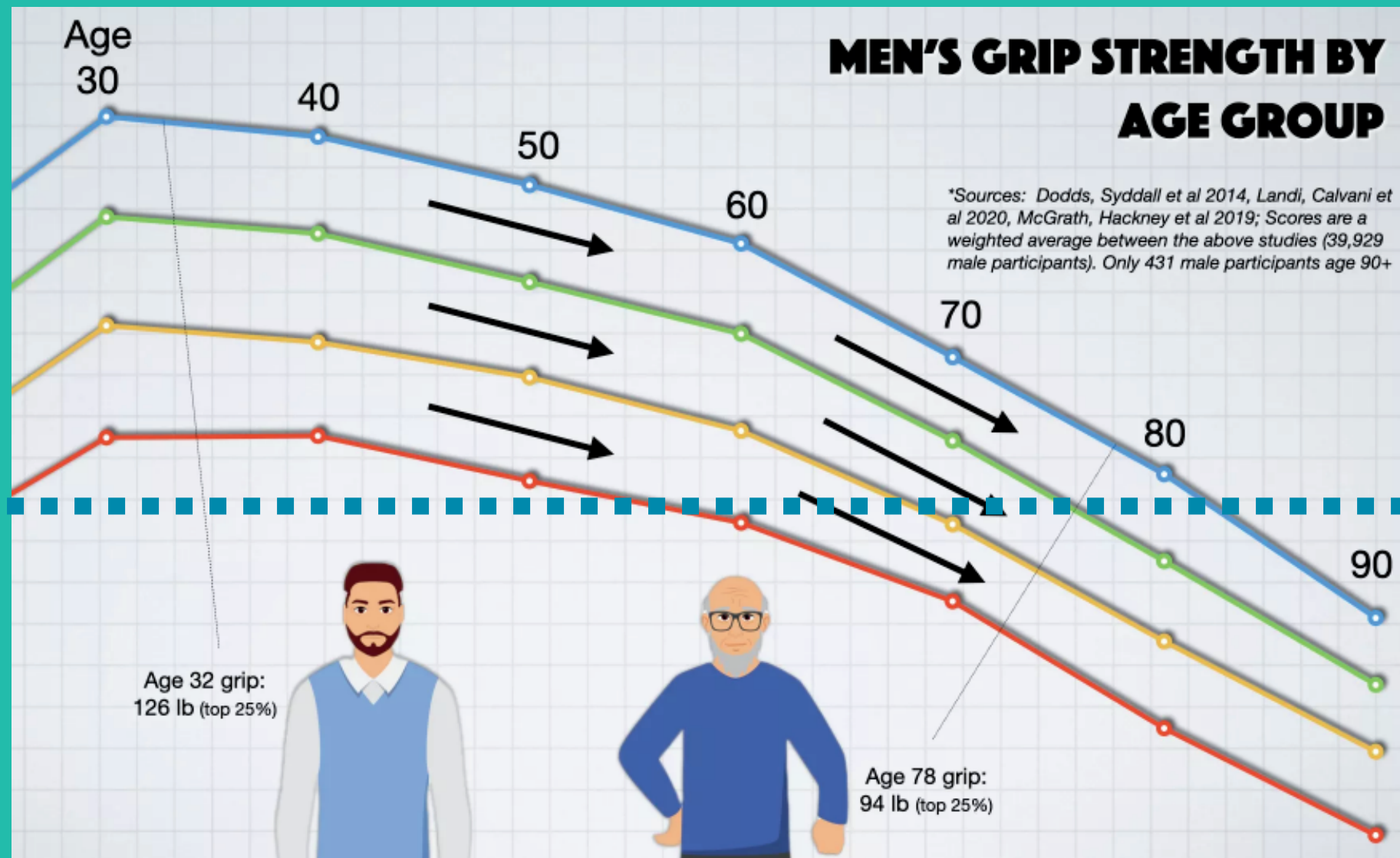
CV disease

... overall strength, upper limb function, bone mineral density, fractures, falls, malnutrition, cognitive impairment, depression, sleep problems, diabetes, and quality of life.





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GRIP STRENGTH FOR MEN (LB)

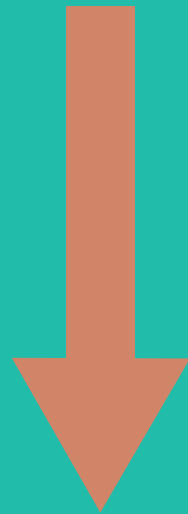
Age	Top 10%	Top 25%	Good (50-74%)	Fair (25-49%)	Lowest 25%
20	>118.2	104.9 → 118.1	91.9 → 104.8	80.0 → 91.8	< 79.9
30	>138.9	125.7 → 138.8	111.3 → 125.6	96.5 → 111.2	< 96.4
40	>136.4	123.5 → 136.3	109.3 → 123.4	96.8 → 109.2	< 96.7
50	>129.8	117.2 → 129.7	104.5 → 117.1	90.8 → 104.4	< 90.7
60	>122.1	110.3 → 122.0	97.4 → 110.2	85.2 → 97.3	< 85.1
70	>107.2	96.2 → 107.1	85.0 → 96.1	74.9 → 84.9	< 74.8
80	>91.6	80.3 → 91.5	69.6 → 80.2	58.2 → 69.5	< 58.1
90	>72.8	63.9 → 72.7	55.1 → 63.8	44.1 → 55.0	< 44.0

GRIP STRENGTH FOR WOMEN (LB)

Age	Top 10%	Top 25%	Good (50-74%)	Fair (25-49%)	Lowest 25%
20	> 80.0	71.3 → 79.9	62.3 → 71.2	53.7 → 62.2	< 53.6
30	> 85.3	75.7 → 85.2	67.4 → 75.6	58.9 → 67.3	< 58.8
40	> 85.0	76.0 → 84.9	67.7 → 75.9	59.2 → 67.6	< 59.1
50	> 80.5	71.8 → 80.4	63.2 → 71.7	55.1 → 63.1	< 55.0
60	> 73.8	67.0 → 73.7	58.4 → 66.9	49.1 → 58.3	< 49.0
70	> 66.9	58.6 → 66.8	51.9 → 58.5	43.6 → 51.8	< 43.5
80	> 56.6	49.6 → 56.5	40.8 → 49.5	34.3 → 40.7	< 34.2
90	> 44.1	37.5 → 44.0	30.9 → 37.4	24.3 → 30.8	< 24.2

DIET

**2022 Norwegian study
10 yr increase in lifespan
with ideal diet modifications**



Red Meat
Processed Foods
Sugar
Refined Grains
Eggs

Legumes/ Greens
Nuts
fish
Fruit
Vegetables



BLUE ZONES

Family connections

Low smoking incidence

SEMI (90%) vegetarian diet

Legumes

'Constant' activity

Strong social networks



Supplements

Omega 3 - inflammation and heart health

Seafood/Seaweed/Chia/Flax

Curcumin - lowers CRP, improved DM @ 1000mg/day

Resveratrol - improved BS control

grapes/blueberries/dark chocolate

Green tea - EGCG, reduced all cause mortality

Sulforaphanes - Reduce inflammation/ DM/ Cancer

Brussels/ Broccoli/Kale/ raw veggies

Folate - improves chromosomal stability

Spinach/artichoke/asparagus

Glutathione - reduced cellular stress "Master Antioxidant"

Mushrooms/ Asparagus/Okra/Fish

Live well.... and prosper



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