ADEQUATE FOOD IN

↓ ← Preformed mTOR + IGF-1 (meat)

cellular ↓ AMPK enzyme

↓

mitochondria produce energy and stimulate IGF-1 and mTOR activation

↓

more cells / larger cells

some good → growth

some botched → misfolded proteins, DNA errors, zombie (dysfunctional) cells

↳ Parkinsons Dis
↳ cancer
↳ inflammation
↳ toxic by products
↳ immune supression ±

- By adulthood, new growth should slow down and maintain an equilibrium between new and retired cells

- But, by maintaing calonic xs of need + xs protein

↓

AMPK supressed + IGF-1 / mTOR ↑

INSUFFICIENT FOOD INTAKE

↓

↑ AMPK

↙ ↘

↓ IGF-1
↓ mTOR

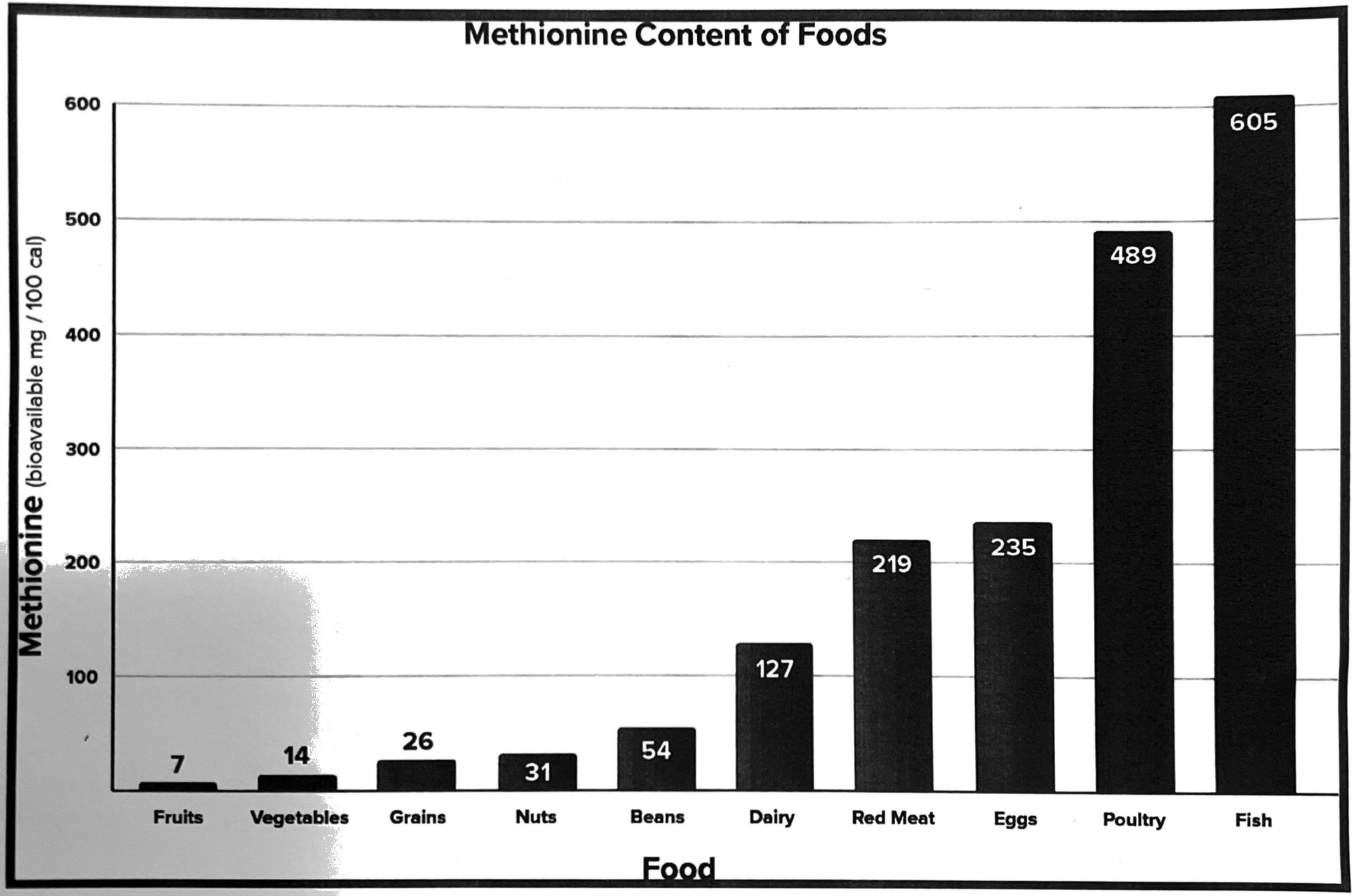
↑ AUTOPHAGY
↳ ↓ misfolded protein / defective DNA
↓ inflammation, etc

- Calorie reduction treatment is effective but problematic — sometimes lethal -

- protein ↓ works like calorie reduction (0.8 g / kg / day)
  - certain proteins are 1° responsible for suppression of IGF-1 and mTOR
  - amino acid xs intake is primary inducer of IGF-1 + TOR
    - Methionine
      - ↑ lifespan ~ 40% = avg age human 110 yrs
    - BCAA, (leucine, isoleucine, valine)
      ↳ v. potent mTOR activator (conc. in dairy) ? yogurt

Interventions to Regulate the Eleven Aging Pathways

	Exercise	Smoking Cessation	Caloric Restriction	Protein Restriction	Decrease in Certain Animal Foods	Decrease in Certain Processed Foods	Increase in Certain Plant Foods
AMPK	✓		✓	✓	✓	✓	✓
Autophagy	✓		✓	✓	✓	✓	✓
Cellular Senescence	✓	✓	✓	✓		✓	✓
Epigenetics	✓	✓	✓	✓	✓		✓
Glycation	✓	✓	✓	✓	✓	✓	✓
IGF-1				✓	✓		
Inflammation	✓	✓	✓	✓	✓	✓	✓
mTOR		✓	✓	✓	✓		✓
Oxidation	✓	✓	✓	✓	✓	✓	✓
Sirtuins	✓	✓	✓	✓	✓	✓	✓
Telomeres	✓	✓		✓	✓	✓	✓


Methionine Content of Foods
Methionine (bioavailable mg / 100 cal)
600
500
400
300
200
100
7
14
26
31
54
127
219
235
489
605
Fruits
Vegetables
Grains
Nuts
Beans
Dairy
Red Meat
Eggs
Poultry
Fish
Food

PROTEIN SOURCE	QUANTITY	TOTAL GRAMS PROTEIN
MUSHROOMS	100 g.	1
AVOCADO	1/2 Medium Size	2
MANGO	1 Medium size	2.7
SPINACH	1/2 Cup	2.7
SWEET POTATO	5 Oz	3.3
WALNUTS	1 Oz (10-12 halves)	4
PEANUT BUTTER	1 TBS	4
WHEAT GERM	2 TBS	4
OATMEAL	1 Cup	6
ALMONDS	25 COUNT	6
SOY MILK	1 Cup	7
BEANS	1/2 Cup	7
HUMMUS	1/2 Cup	8
YOGURT	6 Oz	8
LENTILS Cooked	1/2 Cup	9
TOFU	1/2 Cup	10
TEMPEH	1/2 Cup / 3 Oz	16