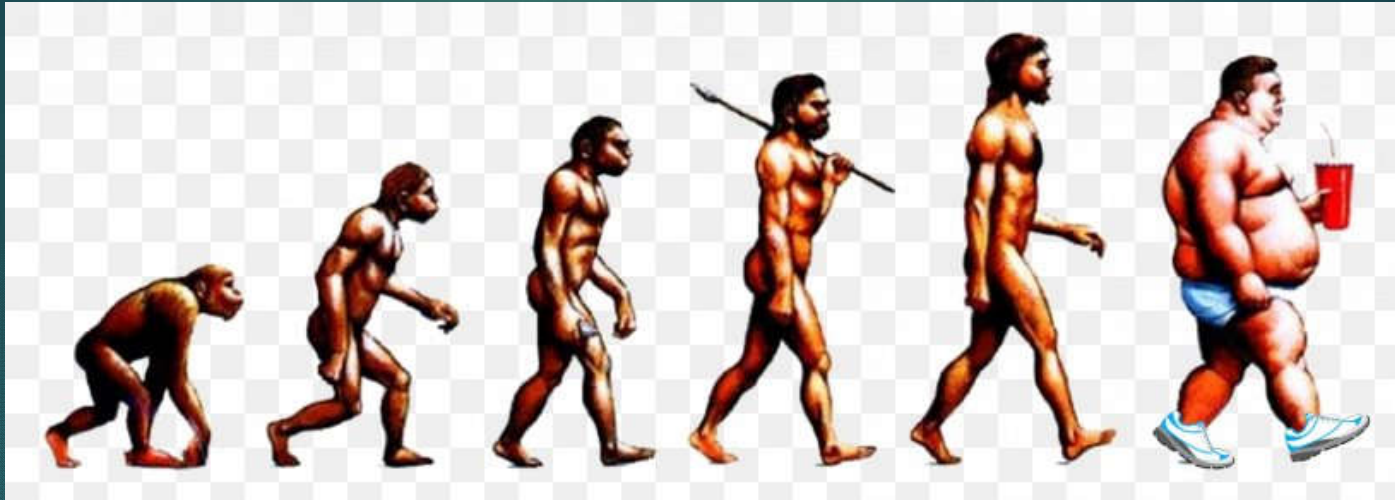




Exercise & Fasting



SEYED ALIREZA HOSSEINI KAKHK (PHD)

ASSOCIATE PROFESSOR OF EXERCISE PHYSIOLOGY

FERDOWSI UNIVERSITY OF MASHHAD

hosseinik@um.ac.ir

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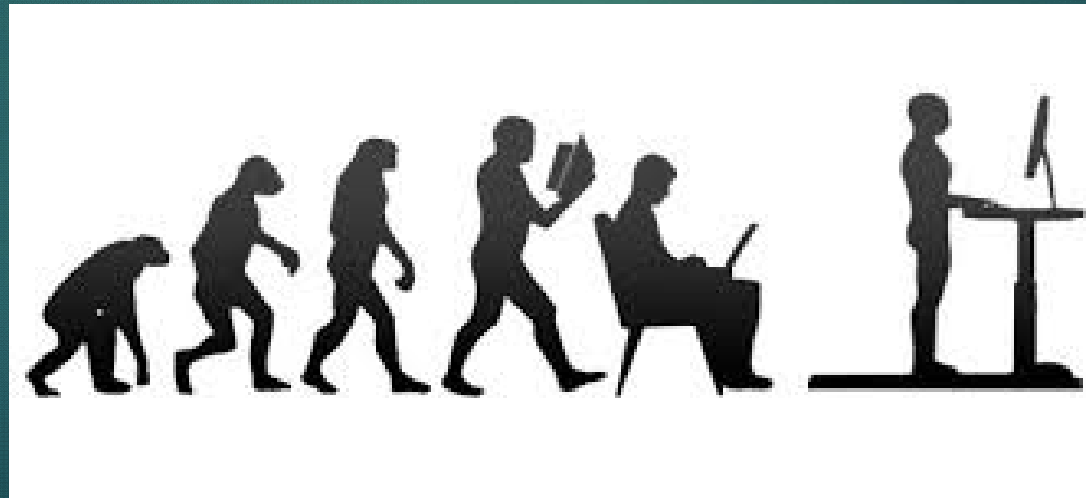
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Who were we?



Who were we?

Population	Year	Steps per day		References
Paleolithic	(~20,000 BC)	~13,200-21,120 (men)	~10,560 (women)	(385)

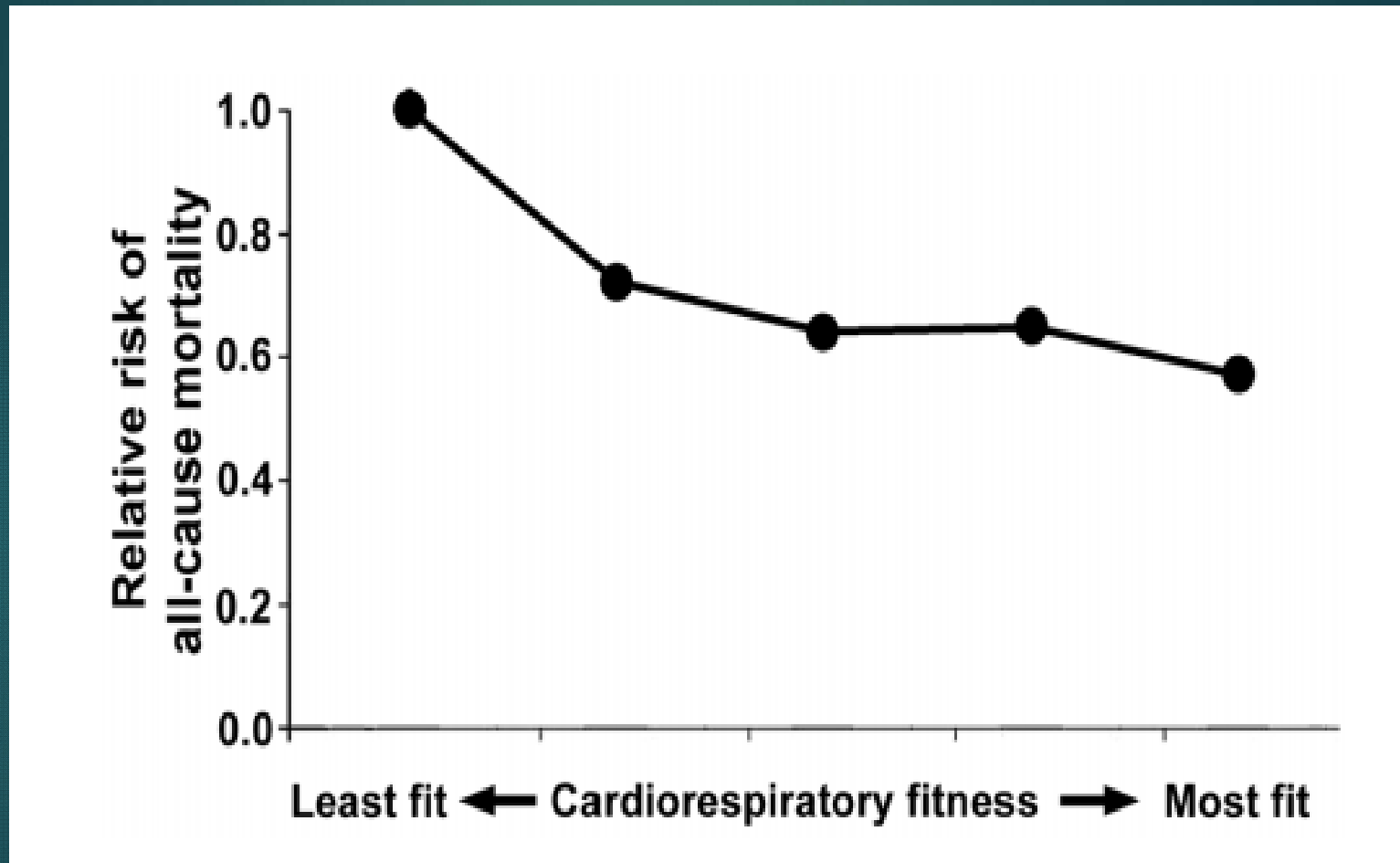


US adults	(2010)	5,340 (men)	4,912 (women)	(26)
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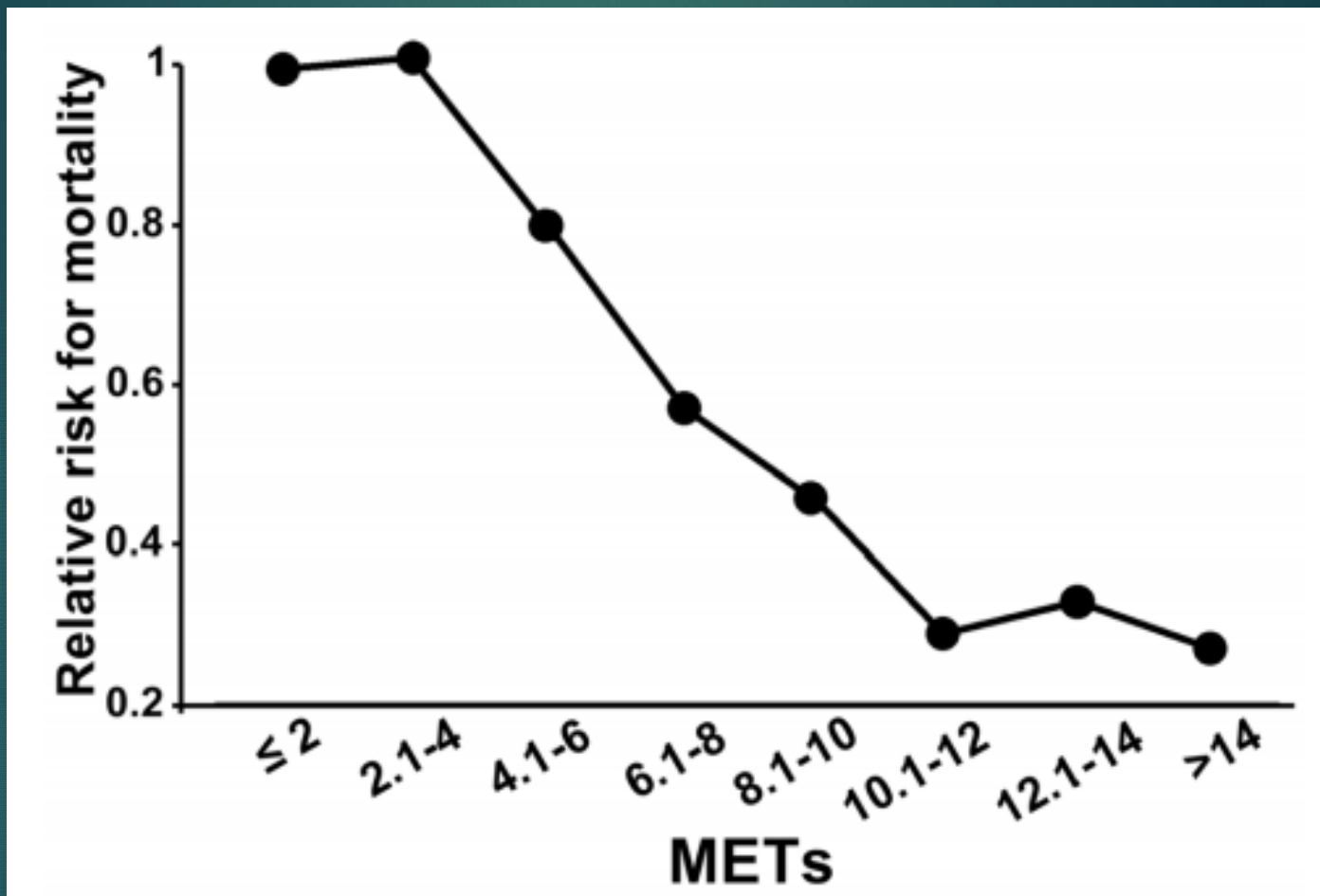
ancestral pattern : daily bouts of prolonged, low-intensity, aerobic-based activities interspersed with periodic, short-duration, high-intensity bursts of activity

Nutrition: plenty of water, vegetables, meat, fat and complex carb

Relation between Ph. Act, Fitness and mortality



Relation between Ph. Act, Fitness and mortality

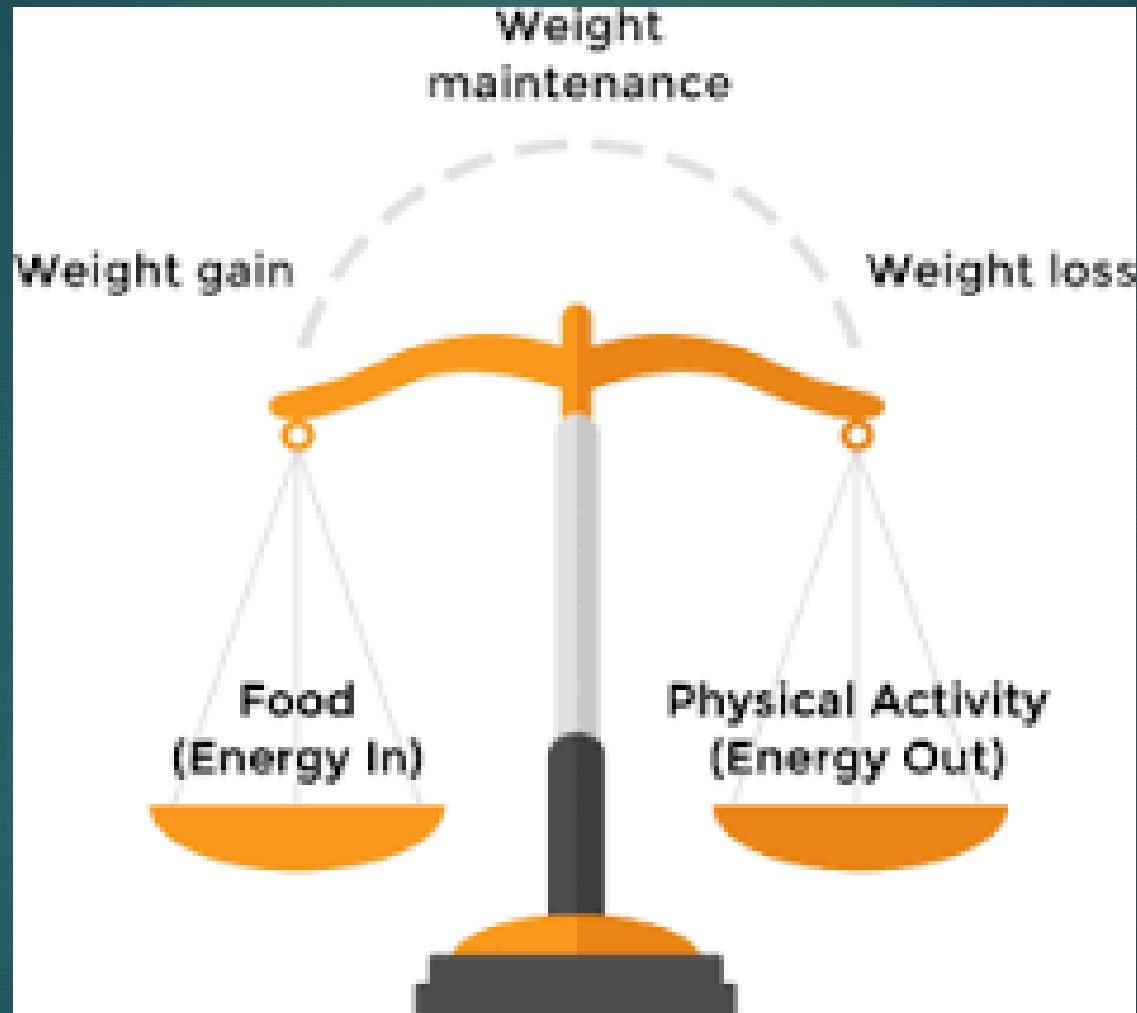


Diet pattern in the past

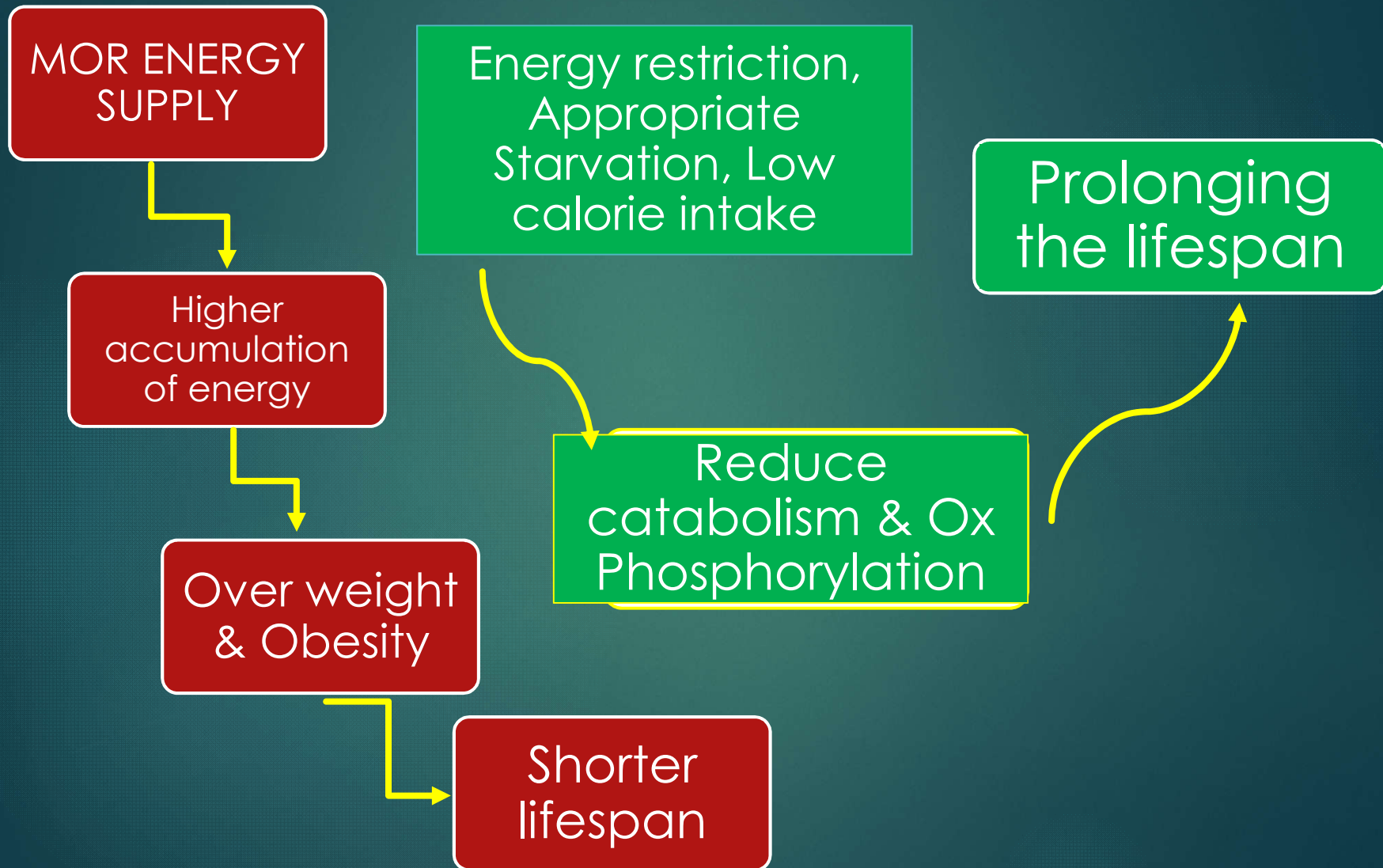
The human body can handle intermittent fasting easily; it mimics the eating pattern of our ancestors that did **NOT** have easy access to food.



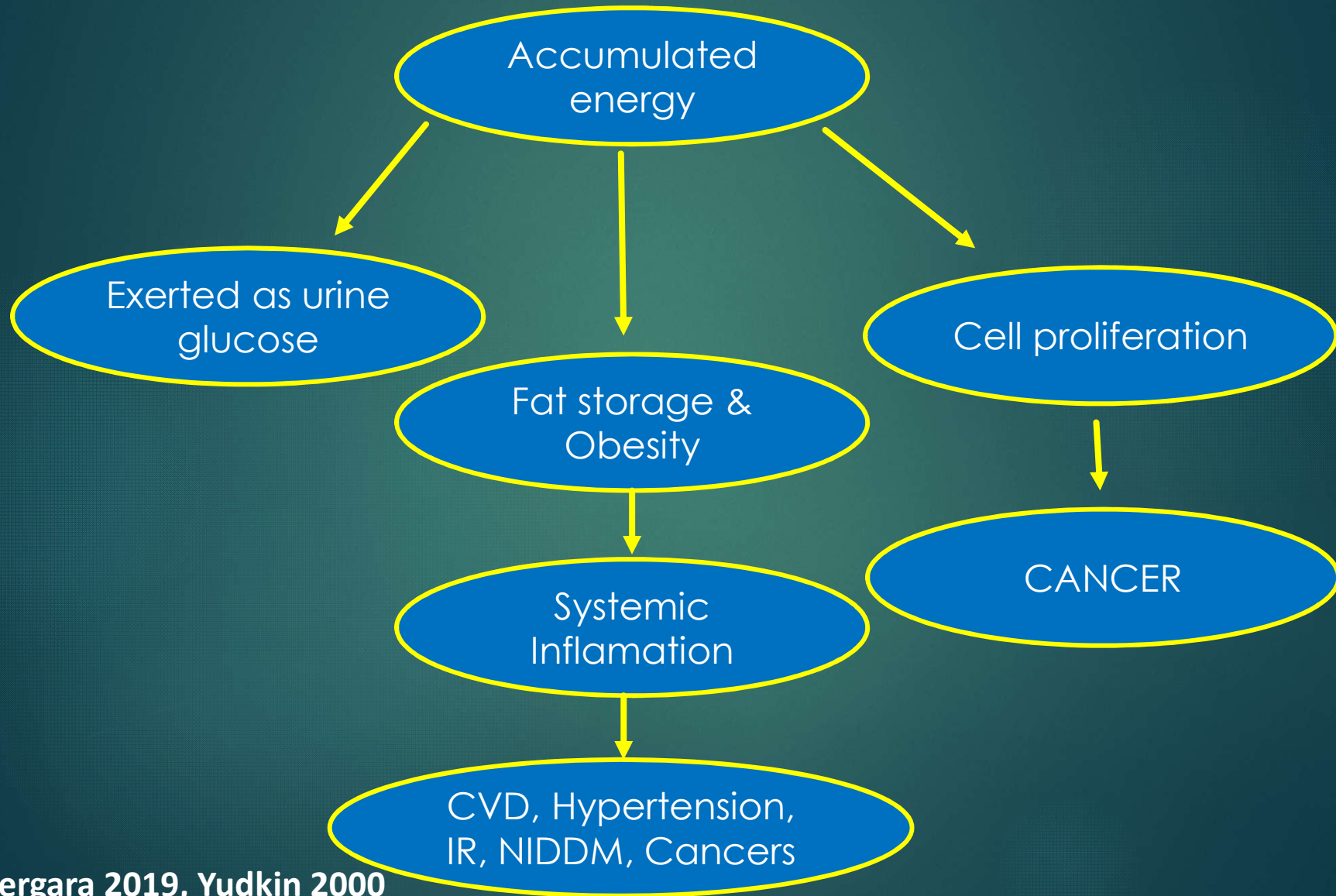
Energy Homeostasis



Energy Homeostasis

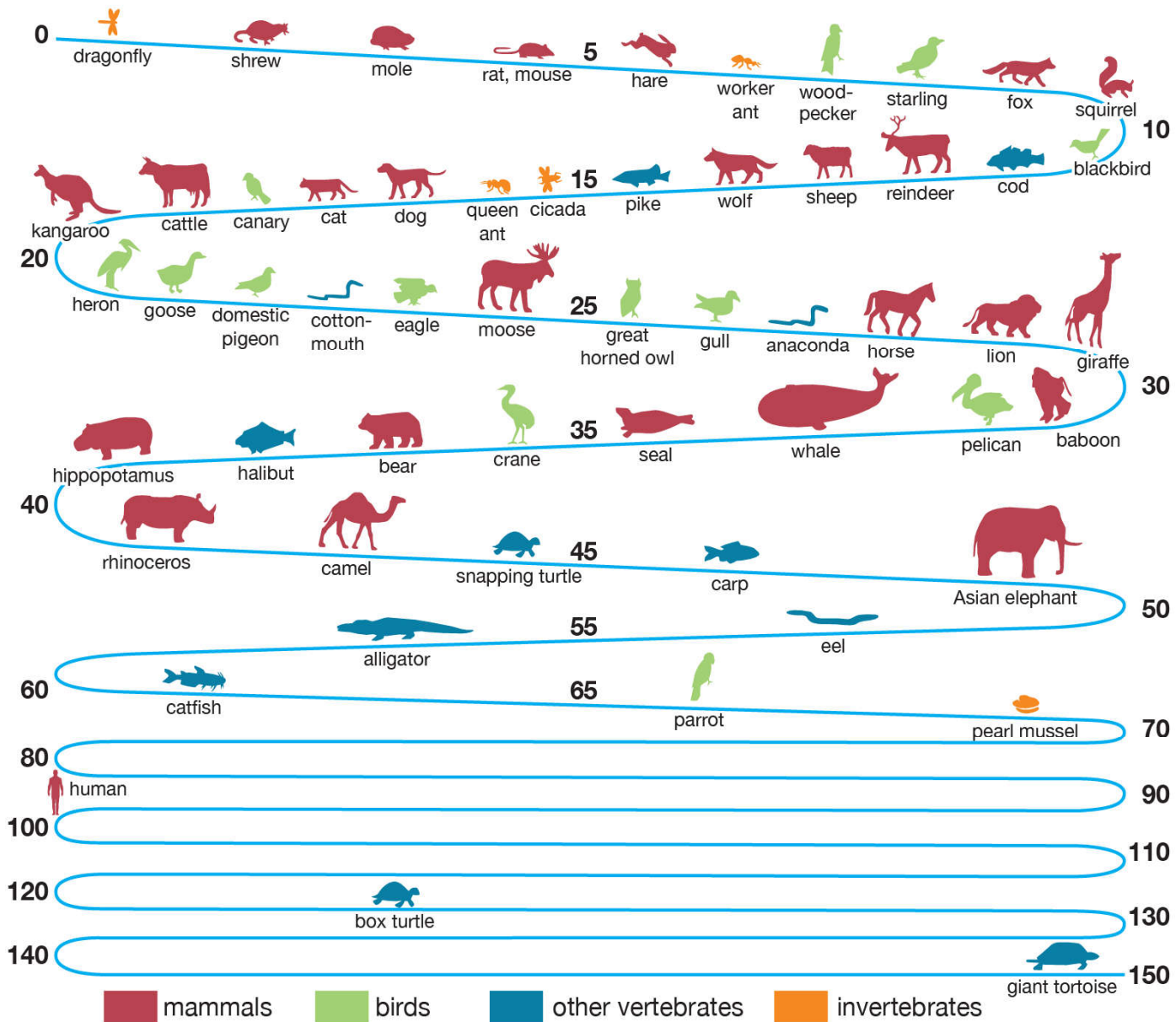


Energy Homeostasis





How long animals live



Maximum ages, in years, that certain animals may be expected to reach, based on reports of zoos and estimates of biologists. (Data from S.S. Flower, "The Duration of Life in Animals," in *Proceedings of the London Zoological Society*.)

Effect of fasting on health & longevity

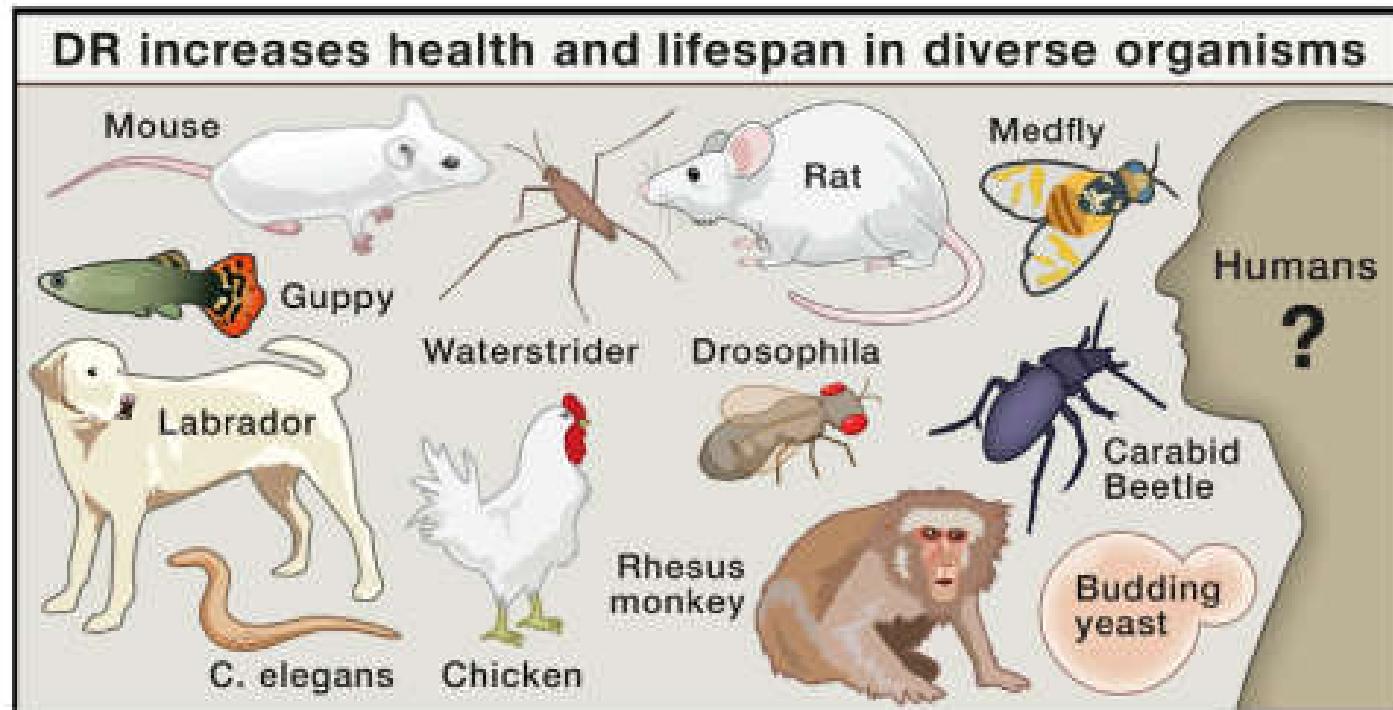
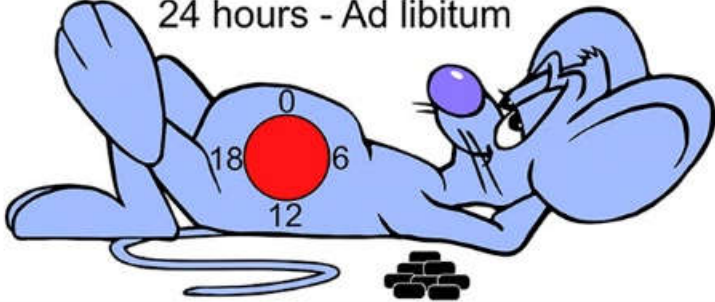
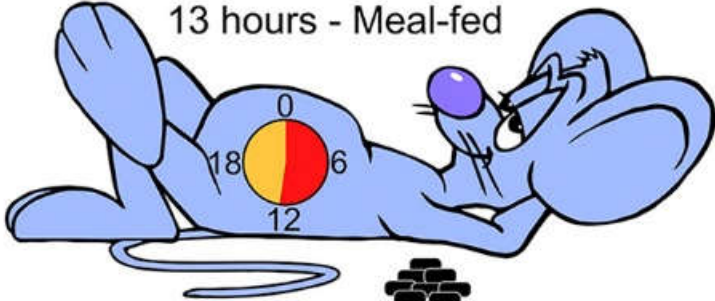
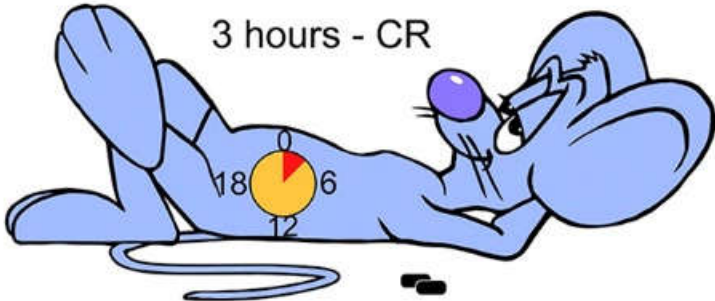


Figure 1. Dietary Restriction Increases Healthy Lifespan in Diverse Single-Celled, Invertebrate, and Vertebrate Animals

Effect of fasting on health & longevity

Eating time	Feeding regimen	Delayed disease onset	Lifespan extension
24 hours - Ad libitum		-	-
13 hours - Meal-fed		+	+
3 hours - CR		+++	+++

Some pattern of fasting

Long-term calorie restriction and long-term fasting can harmful

Periodic Fasting (PF)

e.g., a 5 day diet providing 750–1000 kcal

Time-Restricted Feeding (TRF); limiting the daily period of food intake to 8 h or less

Fasting Mimicking Diets (FMD): low in calories, sugars, and protein but high in unsaturated fats, typically lasted 5 days, Calories are kept at around 40% of normal intake

Intermittent Fasting (IF)

e.g of IF : 2 days per week or every other day

In rodents: both fasting for 24 hr every other day or twice weekly extends lifespan up to 30%,

INTERMITTENT FASTING

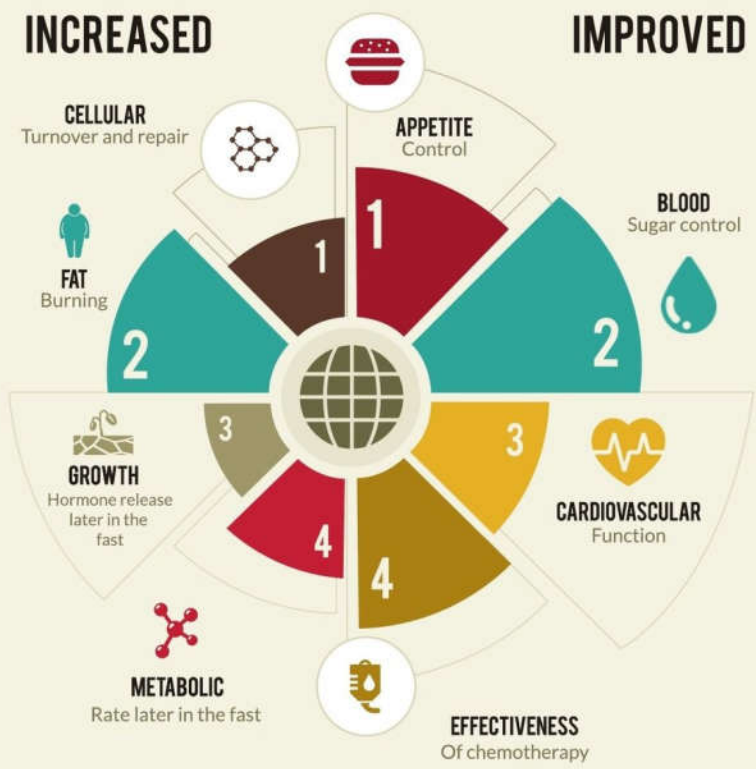
NOT AS SUCKY AS IT SOUNDS



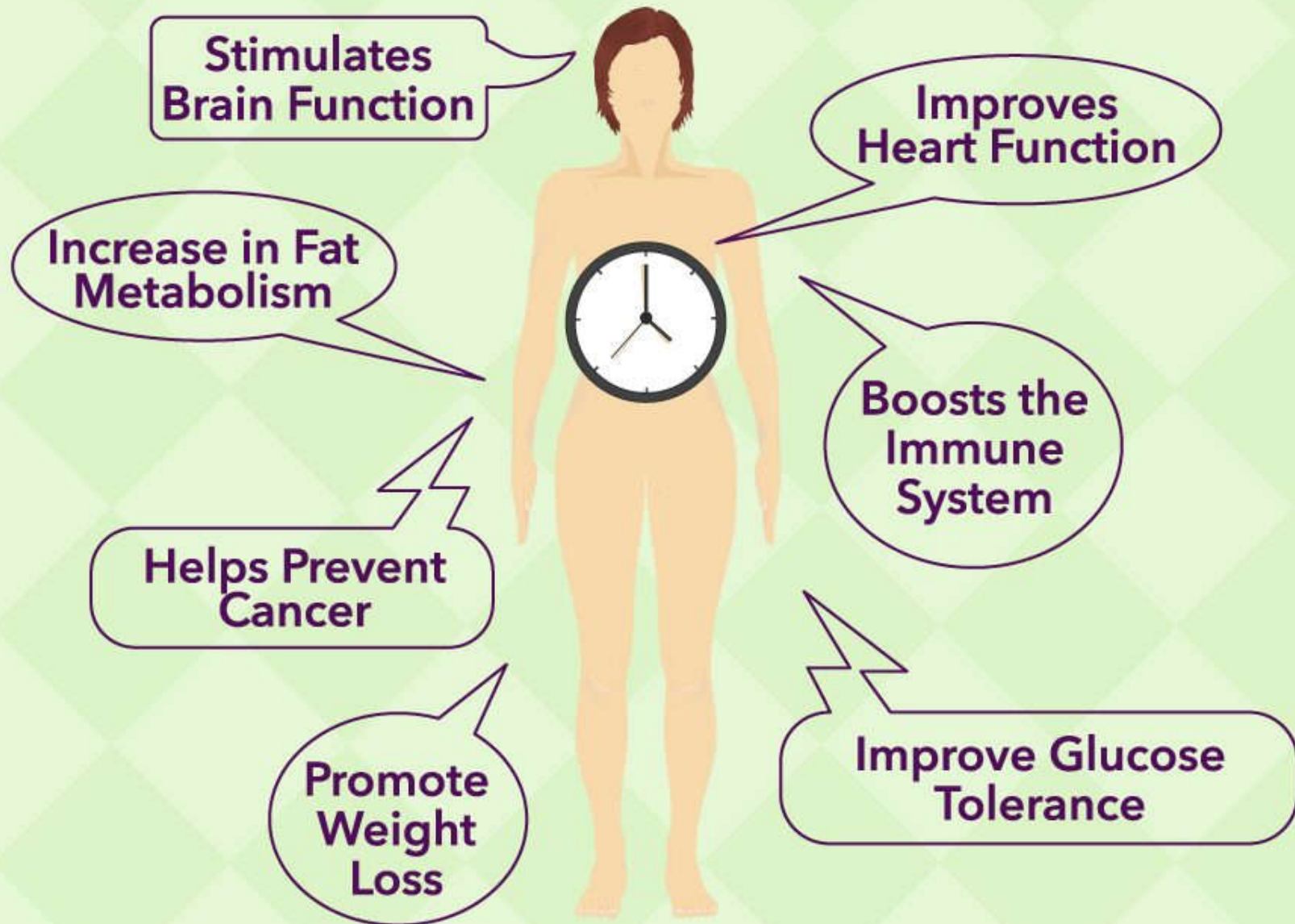
Helps combat many health challenges of modern life, such as obesity, diabetes, heart disease, cancer and Alzheimer's

“FASTING ALONE IS MORE POWERFUL IN PREVENTING AND REVERSING SOME DISEASES THAN DRUGS”

Satchidananda Panda, associate professor of regulatory biology at the Salk Institute for Biological Studies in San Diego, California.



The Benefits of Intermittent Fasting



Exercise training in fasting state and Ramadan

The available evidence indicates that high-level athletes can maintain performance during Ramadan if

- 1- Physical training
- 2- Fluid balance
- 3- Sleep are well controlled

Recommendation

Adjusting load of training to fasting state

Avoiding high intensity training before sleep

Afternoon nap strongly recommended

Suhour should be eaten as close as possible to sunrise

Athletes should eat immediately after exercise



Hydration Strategies

Athletes should minimize unnecessary water losses by avoiding or limiting heat exposure and unnecessary exercise

Fluid intake should be spread over the waking hours after sunset with frequent small drinks rather than few large drinks



Thank you for your attention

