

Mutations alimentaires et maladies chroniques:

liberté ou contrainte



2'000'000 : chasseur -
cueilleur

10'000 : cultivateur



150 : consommateur

abondance
disette

pléthore

Alimentation Paléolithique

Eaton SB. *N Engl J Med* 1985; 312: 283-290

			RDA	Europe
Energie	kcal/j	3'000	2'000	2'800
Protéine	g/j	251	60	85
animal		191		
végétal		60		
Sucre		334	250	300
Graisse		71	70	130
Fibre		46	25	21
Sel	mg	689	5'000	9'000

How culture shaped the human genome: bringing genetics and the human sciences together

Laland KN et al. *Nat Rev Genet* 2010, 11(2): 137-148

Variations of the human genome

< 0.3 % par 1'000'000 yrs

→ 10'000 yrs Human evolution : 0.003%

GENETIQUE



Abondance & Jeûne

Sels et graisses rares

Activité physique intense

Environnement hostile



Inadaptation à opulence et confort !

Traditions:

Ultime

adaptation

?



Gênes - 1614

Famille princière Spinola

53% céréales,

Les « pauvres »

81% céréales.

Equateur



Mali

Australie



Food processing and cancer risk in Europe: results from the prospective EPIC cohort study

Kliemann N et al. Lancet Planet Health 2023; 7: e219-32

The substitution of 10% of **ultra-processed** foods with 10% of **minimally processed** foods was associated with a reduced risk of head and neck cancers (0.80, 0.74-0.88), colon cancer (0.93, 0.89-0.97), hepatocellular carcinoma (0.73, 0.62-0.86).

Associations remained significant when adjusted for BMI, alcohol and dietary intake, and quality.

Repas pris à l'extérieur

71% personnes
interrogées mangent à l'extérieur
à midi

Genève



La meilleure méthode pour
manger des fibres au
restaurant est de manger
la carte ...

Van Soest 1973. Proc Nutr Soc 32: 129

MUTATIONS ALIMENTAIRES

~1850



Omniprésence
des aliments,

↓ fibres

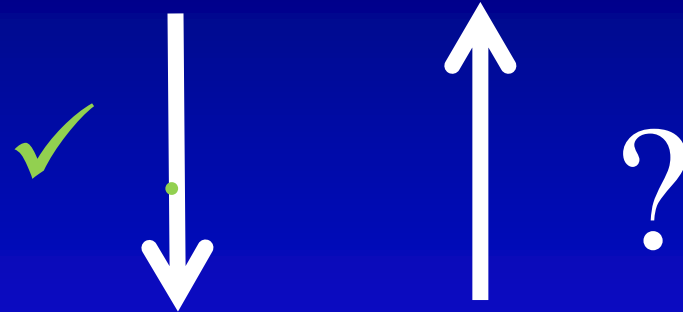
↑ densité
complexité

MUTATIONS ALIMENTAIRES



Diabète, dyslipémie, ostéoporose, cancer
pathologies inflammatoires,
immunodéficience (OMS, 2017)

Mutations alimentaires



Maladies chroniques



« C'est de la folie »

→ réaction:
« Bien manger
en urgence »

"Manger local"
Sans gluten, sans...
Véganisme

...



« Corrections »

un excès

en remplace

un autre

:

«Véganisme et Ferinject »



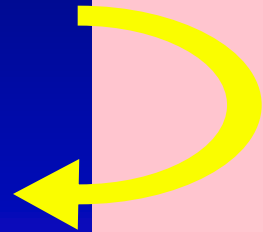
Nutrition

Médico-technique

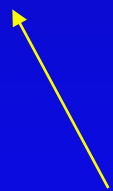
Santé

Maladie

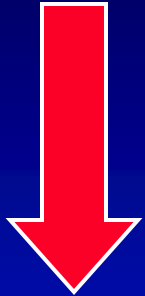
Santé



ALICAMENTS



« NOUVEAUX » BESOINS ALIMENTAIRES



énergie, graisses saturées
sucre, sodium
micropolluants



calcium
oméga-3
fibres
vitamines, oligo-éléments

+

Lait
Oeuf
Tomate

vitamines
oméga 3
lycopène

Glace

graisse
cholestérol

sucres, graisse

Boissons

AG oméga 3
fibres,
graisses trans
vitamines
F, I,...

sucres

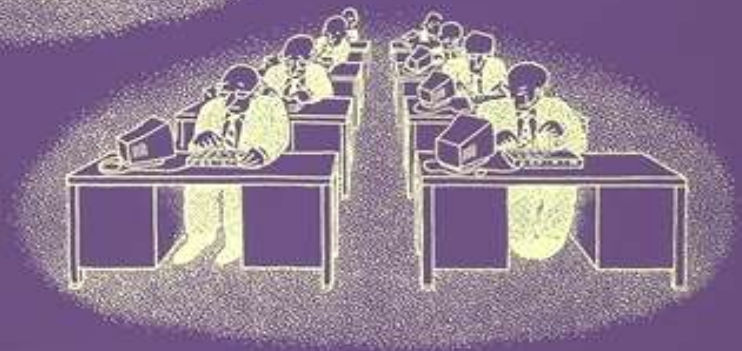
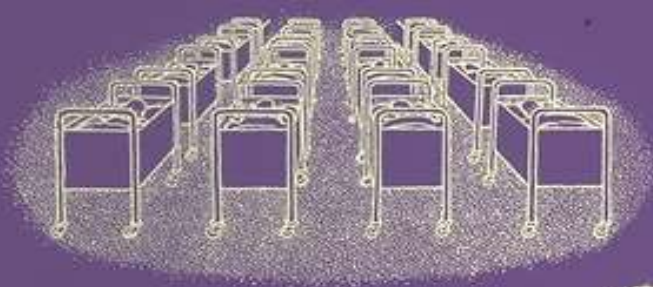
tanins



Weightlessness as an accelerated model of nutritional disturbances



Maillet A, Pichard C et al.
Curr Opin Clin Nutr 2001,
4: 301-306



Aliments

- Sains
- Sûrs
- Standardisés

... mal vécus

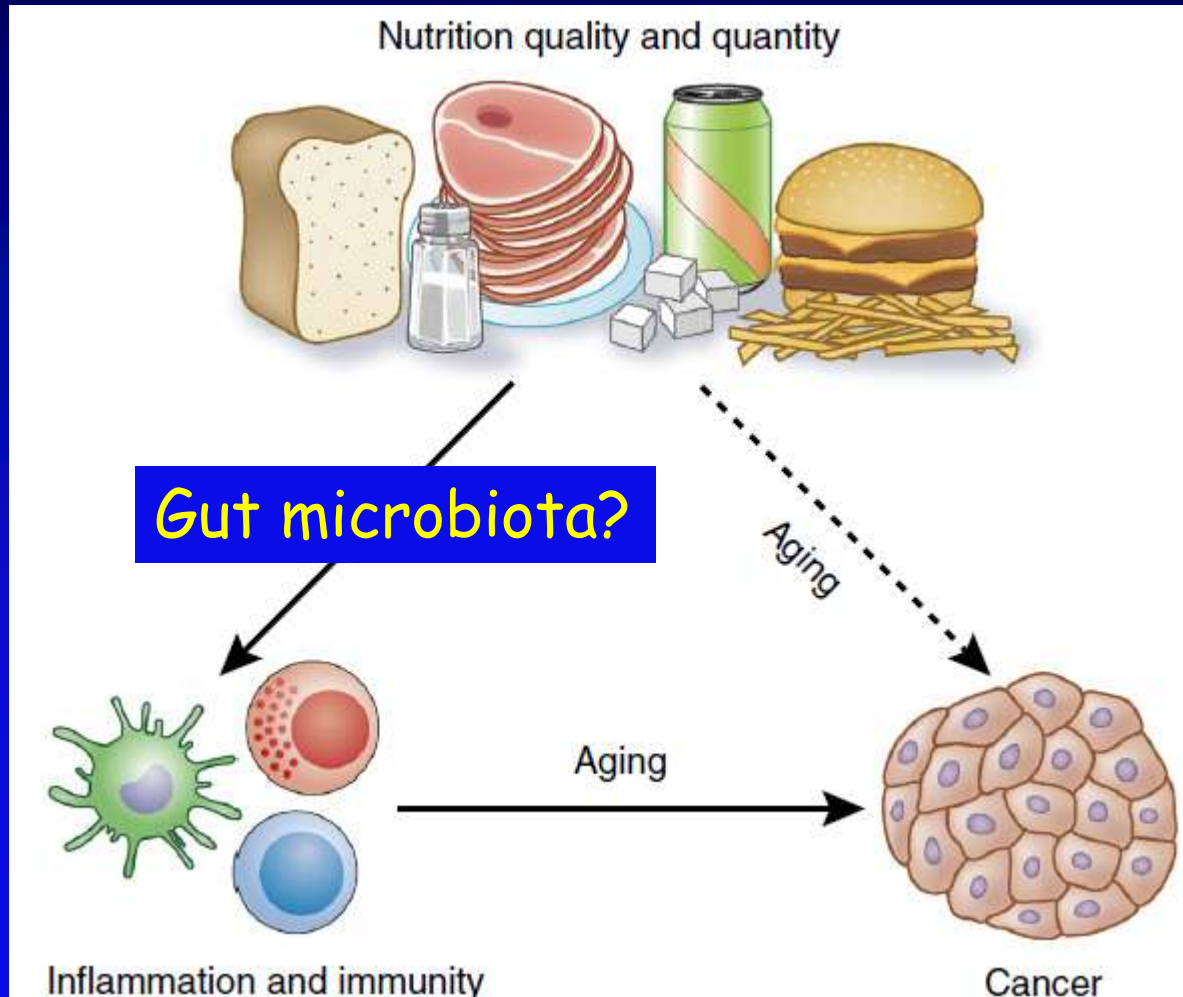


Dre Simona Mateiciuc Leutke - Présidente Quadrimed 2025

En Valais, manger des «pillules»,
c'est pas possible !

Nutrition, inflammation and cancer

Zitvogel L. Nature Immunol 2017, 18, 843-850



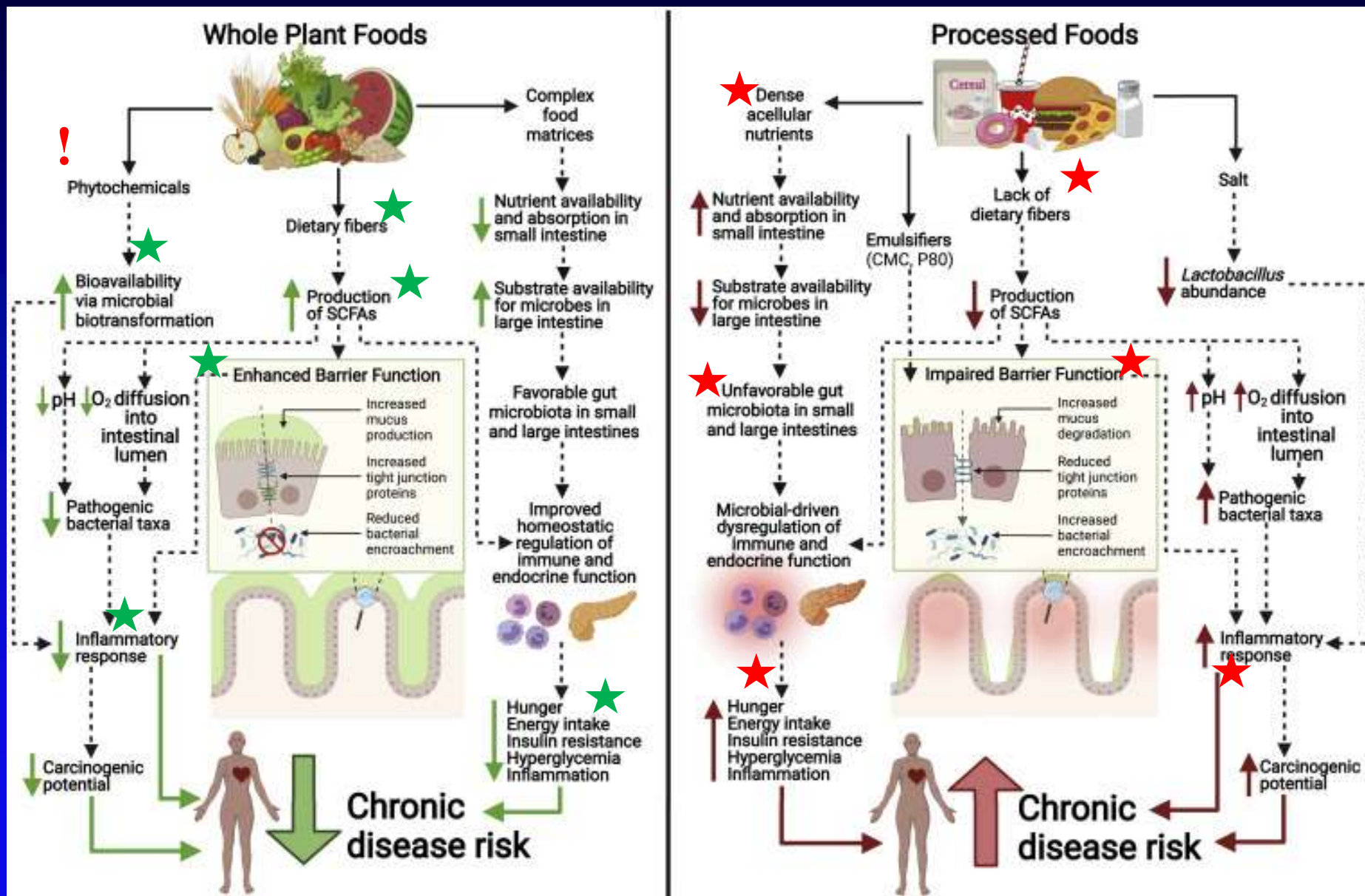
Nutrition has a profound effect on leukocytes

→ affects proinflammatory carcinogenic effects or anticancer immune responses,

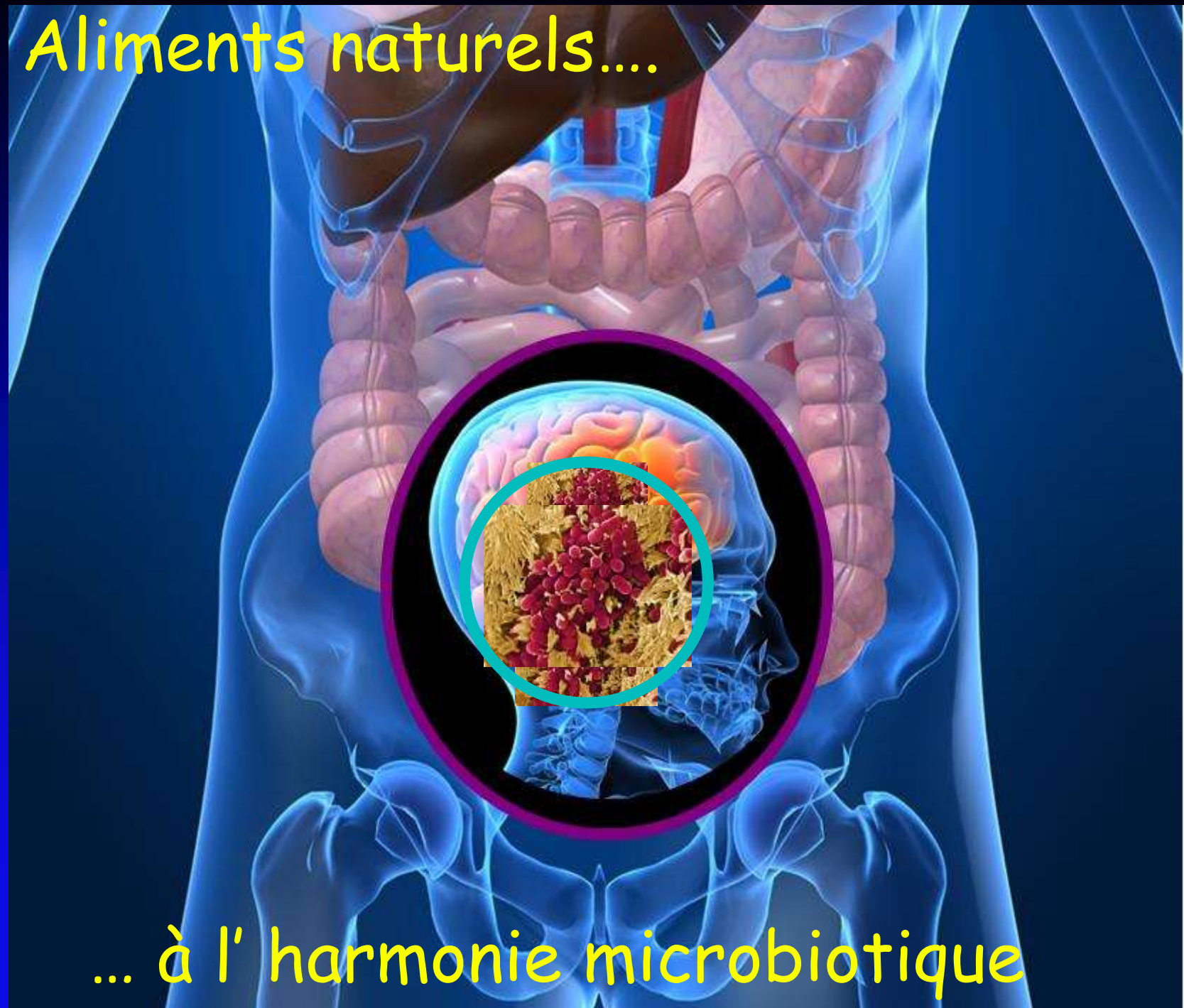
both in humans and in animal model

Rethinking healthy eating in light of the gut microbiome

Armet AM et al. Cell Host Microbe 2022, 30(6):764-785



Aliments naturels...



... à l'harmonie microbienne

Fresh Fruit Consumption and Major Cardiovascular Disease

Du H et al. N Engl J Med 2016, 374: 1332-1343

512'891 adults, 30 - 79 yrs, 18.0% reported consuming fresh fruit daily
lower systolic blood pressure (4.0 mm Hg) & glycemia (0.5 mmol/l) $P < 0.001$

Adjusted HR for daily consumption vs. non-consumption :

- 0.54 to 0.67 cardiovascular death
- 0.66 (95% CI, 0.58 to 0.75) major coronary events
- 0.75 (95% CI, 0.72 to 0.79) ischemic stroke
- 0.64 (95% CI, 0.56 to 0.74) hemorrhagic stroke

- 30%

Optimal dietary patterns for prevention of chronic disease

Wang P *et al. Nature Med* 2023, 29, 719-728

205'776 healthcare professionals

followed up: 32 years

six diets based on dietary recommendations

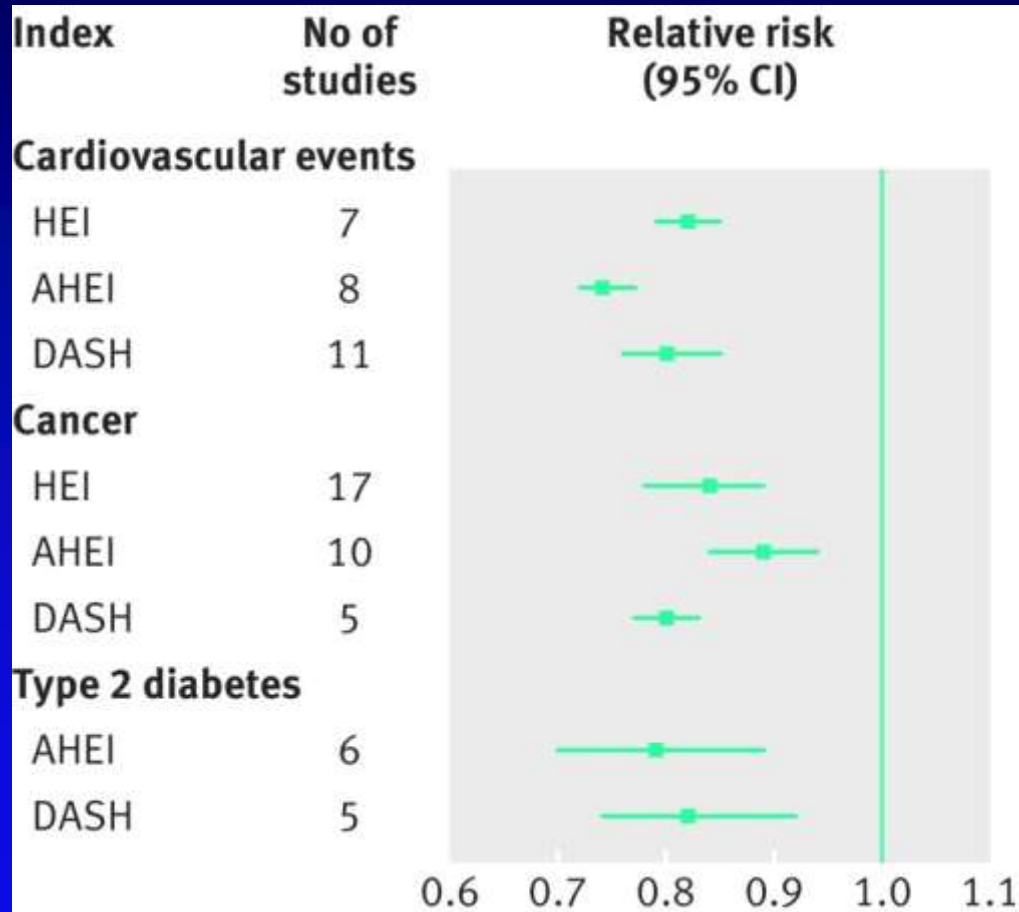
Outcome:

- major cardiovascular disease (HR = 0.68, 95% (CI) = 0.67, 0.70)
- low inflammatory status (HR = 0.70, 95% CI = 0.69, 0.72)
- cancer (HR = 0.77, 95% CI = 0.75, 0.79)

Similar findings across gender and ethnic groups.

Food based dietary patterns and chronic disease prevention

Schulze MB et al, BMJ 2018,361:k2396



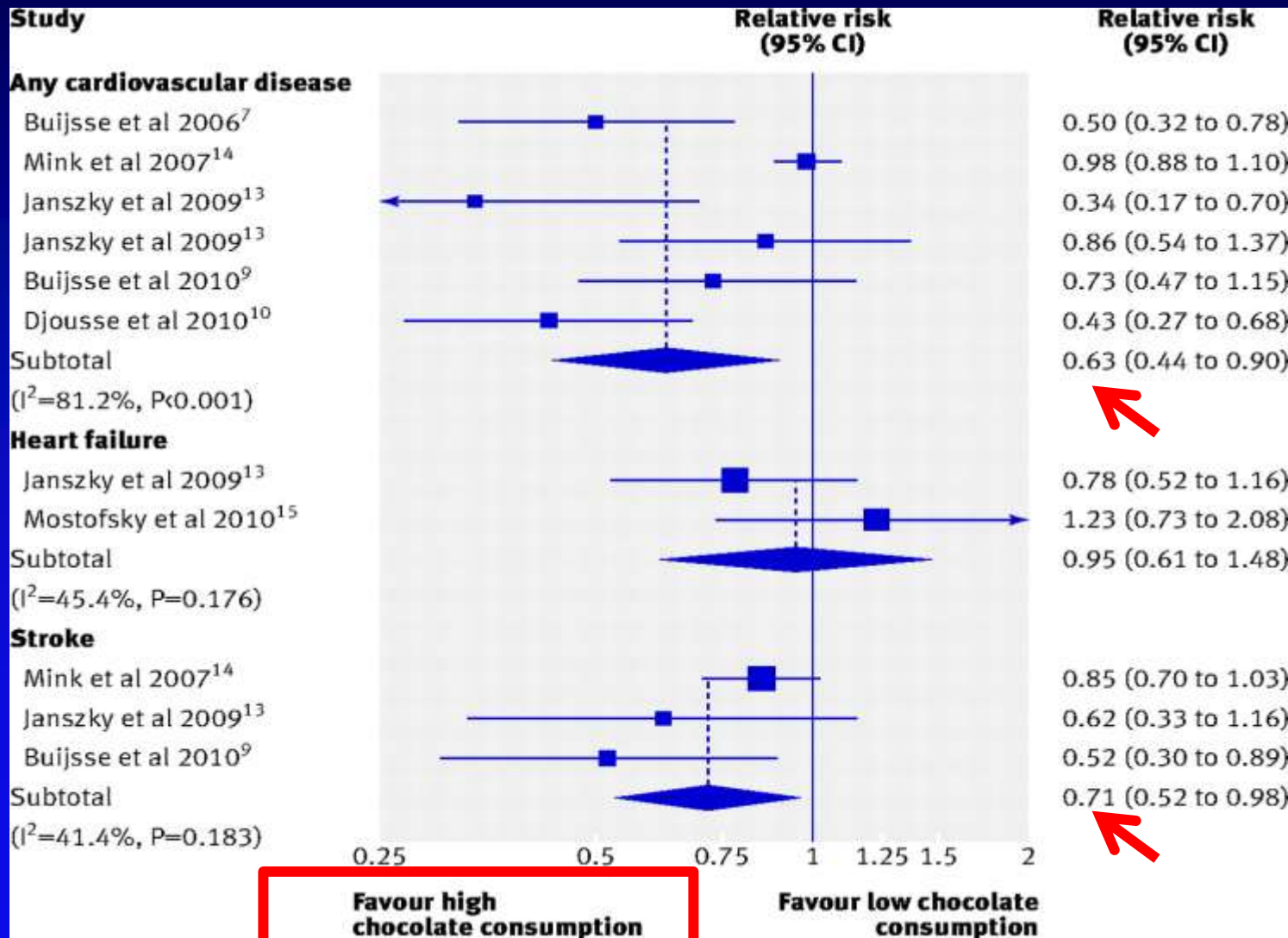
Food based prevention of chronic disease risk should prioritise

- fruits, vegetables, whole grains, fish

- lower consumption of red and processed meats, sugar sweetened drinks

Relative risks for cardiovascular disease, heart failure, stroke in adults with higher levels of chocolate consumption

Buitrago-Lopez A et al. BMJ 2011, 343: 4488 n = 114'900



- 30%

ALIMENTS = Prévention

Résultats
inaccessibles
par des
médicaments



Healthy Diets and Sustainable Food Systems

McCarthy WJ et al. Lancet 2019;394(10194):214

Agriculture : 40 % sols planétaires
le plus grand écosystème
30 % gaz à effet de serre
70 % eau potable

2050: 10 MIA humains



100 % consommation : fruits, légumes, noix, légumineuses



50 % viande et sucre

→ Avantages pour santé et environnement

EAT - Lancet Commission, 2019→ 2024: 101 publications

The EAT-Lancet Diet Index, Plasma Proteins, and Risk of **Heart Failure** in a Population-Based Cohort. Zhang S, Marken I, Stubbendorff A, Ericson U, Qi L, Sonestedt E, Borné Y. JACC Heart Fail. 2024 ;12(7):1197-1208

Adherence to the EAT-Lancet diet and incident **depression and anxiety**. Lu X, Wu L, Shao L, Fan Y, Pei Y, Lu X, Borné Y, Ke C. Nat Commun. 2024;15(1):5599

EAT-Lancet Diet Pattern, Genetic Predisposition, Inflammatory Biomarkers, and Risk of **Lung Cancer** Incidence and Mortality. Liu F, et al. Mol Nutr Food Res. 2024 Oct;68(19):e2400448

Associations of the EAT-Lancet reference diet with metabolic dysfunction-associated steatotic **liver disease** and its severity: A multicohort study. Zhang S, et al . Hepatology. 2024 Aug 2

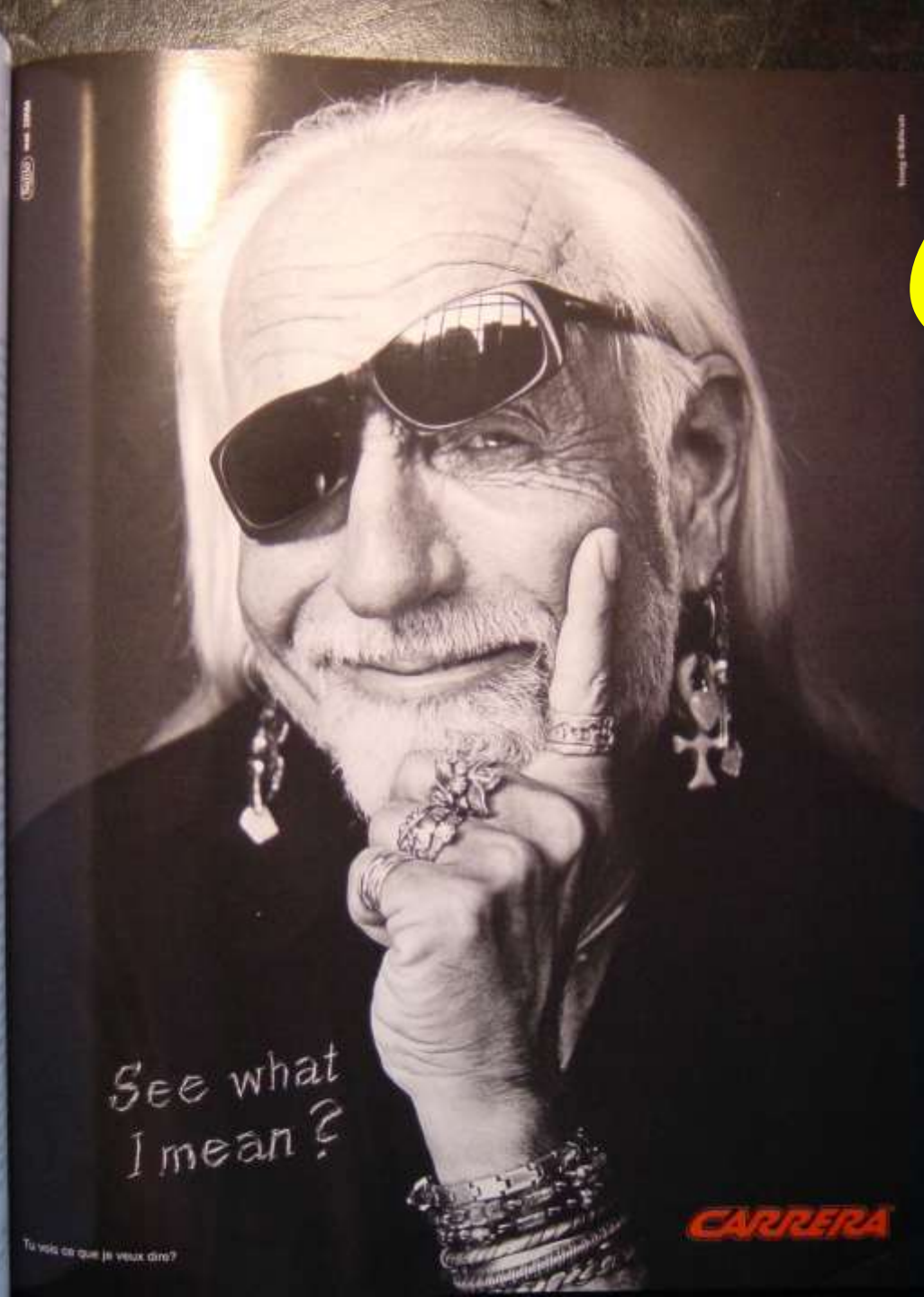
The association between adherence to the EAT-Lancet diet and **cognitive ageing**. van Soest APM, van de Rest O, Witkamp RF, de Groot LCPGM. Age Ageing. 2024 May 11;53(Suppl 2):ii39-ii46

A systematic evaluation of seven different scores representing the EAT-Lancet reference diet and **mortality, stroke**, and greenhouse gas emissions in three cohorts. Stubbendorff A, et al. Lancet Planet Health. 2024 Jun;8(6):e391-e401.

Dietary quality and dietary greenhouse gas emissions in the USA: a comparison of the planetary health diet index, healthy eating index-2015, and dietary approaches to stop **hypertension**. Frank SM, et al Int J Behav Nutr Phys Act. 2024 Apr 2;21(1):36.

Planetary health diet and **cardiovascular disease**: results from three large prospective cohort studies in the USA. Sawicki CM, et al. Lancet Planet Health. 2024 Sep;8(9):e666-e674.

Association Between the EAT-Lancet Reference Diet and **Gestational Diabetes** Mellitus: A Mini-Review. Sun N, et al . Nutrients. 2024 Nov 27;16(23):4073.



Conclusion

See what
I mean ?

CARRERA

Tu vois ce que je veux dire ?



Manger pour vivre :
programme sain

Vivre pour manger :
†

Vivre & manger :
de l'équilibre et du choix

Prévention par les aliments Et l'activité physique

Cancer

Inflammation

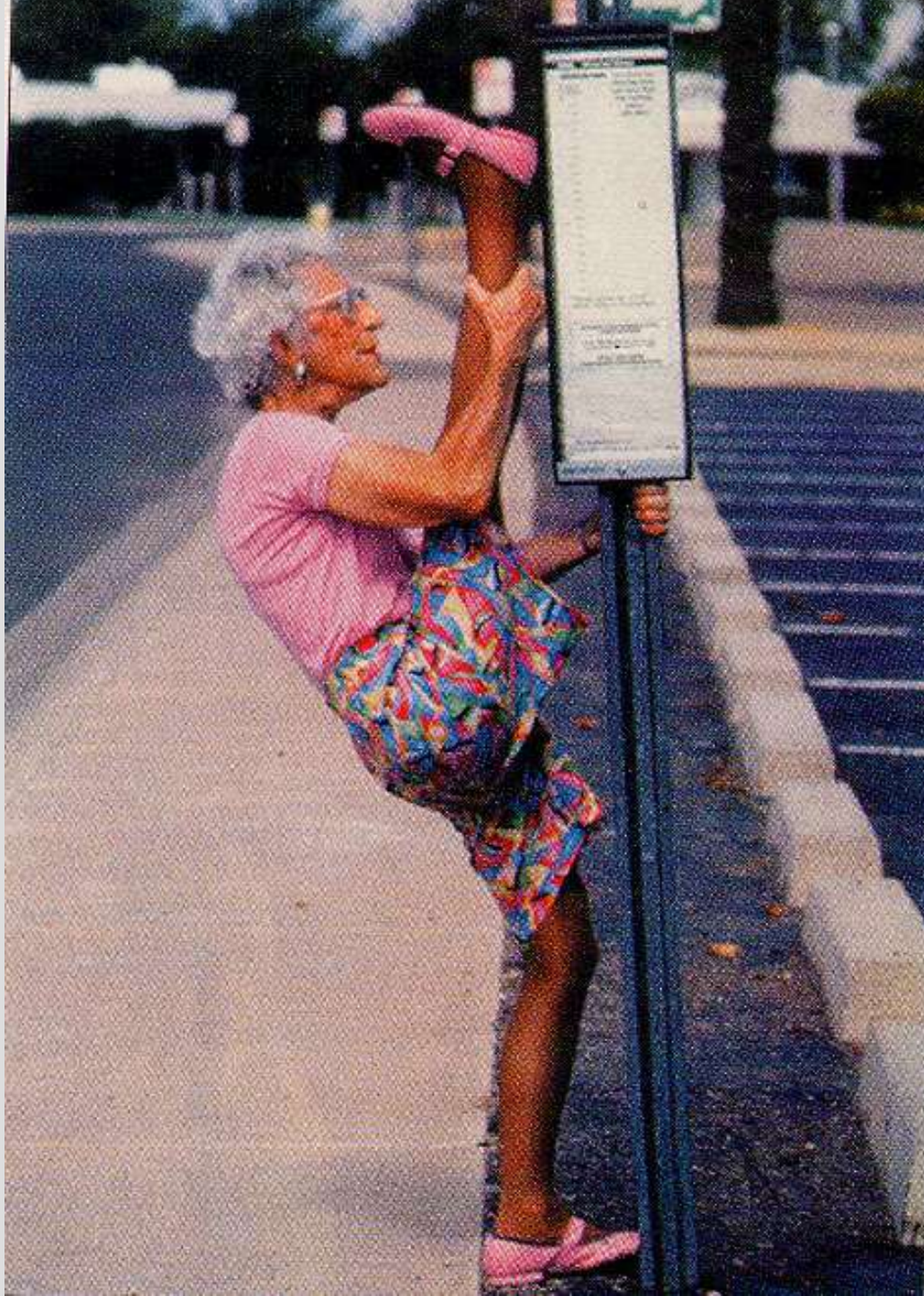
Maladie neurodégénératives

Santé cardiovasculaire, métabolique, digestive

...

→ aliments naturels, fruits et légumes ++, tanins (ex. cacao)

→ oméga 3, vitamine D



Exercise

Merçi



Healthy Diets and Sustainable Food Systems

Mc Carthy WJ et al. Lancet 2019;394(10194):214

Cinq stratégies pour une
transformation alimentaire
majeure

EAT - Lancet Commission January 16, 2019

EAT = Healthy Diets From Sustainable Food Systems

Intensifier la production

alimentaire durable pour augmenter

la production de haute qualité

EAT - Lancet Commission January 16, 2019

EAT = Healthy Diets From Sustainable Food Systems

Un engagement international et
national pour une transition vers
une alimentation saine

EAT - Lancet Commission January 16, 2019
EAT = Healthy Diets From Sustainable Food Systems

Gouvernance

stricte et coordonnée

des terres et des océans

EAT - Lancet Commission January 16, 2019

EAT = Healthy Diets From Sustainable Food Systems

Réorienter les priorités agricoles

d'une production de quantité

à une production de qualité

EAT - Lancet Commission January 16, 2019

EAT = Healthy Diets From Sustainable Food Systems

Réduire au moins de moitié les *pertes* et
les *déchets* alimentaires, conformément
aux objectifs de développement durable
des Nations Unies

World Cancer Research Foundation 2016: recommendations

RECOMMENDATION 1

BODY FATNESS

Be as lean as possible within the normal range¹ of body weight

RECOMMENDATION 2

PHYSICAL ACTIVITY

Be physically active as part of everyday life

RECOMMENDATION 4

PLANT FOODS

Eat mostly foods of plant origin

RECOMMENDATION 5

ANIMAL FOODS

Limit intake of red meat¹ and avoid processed meat²

RECOMMENDATION 7

PRESERVATION, PROCESSING, PREPARATION

Limit consumption of salt¹
Avoid mouldy cereals (grains) or pulses (legumes)

RECOMMENDATION 8

DIETARY SUPPLEMENTS

Aim to meet nutritional needs through diet alone¹

SPECIAL RECOMMENDATION 1

BREASTFEEDING

Mothers to breastfeed; children to be breastfed¹

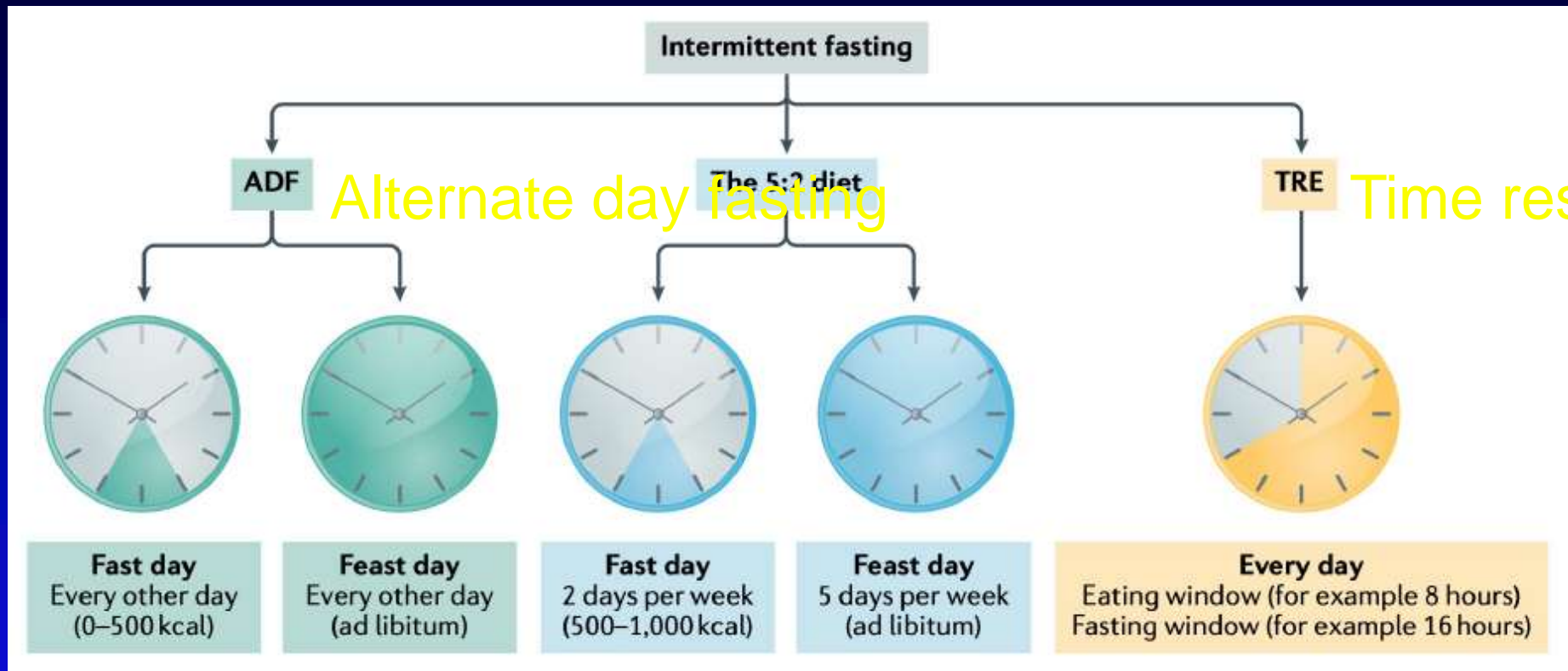
SPECIAL RECOMMENDATION 2

CANCER SURVIVORS¹

Follow the recommendations for cancer prevention²

Suppléments:
Viser la
couverture des
besoins
SEULEMENT
avec les
aliments

Further
Implementation
With
Normalized
Vitamin D status?



Varady K.A. et al. Nat Rev Endocrinol 20

Is TRE superior to standard weight loss counseling?

116 adults, 60% men, mean age 46.5 y, BMI 27 to 43 kg/m²

Randomized for 12 weeks to

- 8h late TRE (noon – 8pm)
- 3 meals per day (CMT)

Self-reported adherence to the intervention ↓ with TRE

Bluetooth connected scales

Weight loss

- TRE: -0.94 kg (95%CI -1.68; -0.20)
- CMT: -0.68 kg (95%CI -1.41; +0.05)
- Non-significant difference

B Daily weight measurements

