Is the future of the human diet green?

– a case of vegetarian diet in Croatia

motivation:

1,500,000,000

estimated number of vegetarians in the world

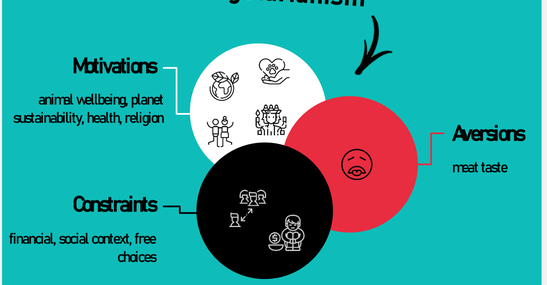
INTRODUCTION

Plant-based diets classification

flexi/semi	?	?	?	✓	✓	✓	✓	✓	✓
freegan	⊘	⊘	⊘	⊘	⊘	?	✓	✓	✓
before 18 h	🕒	🕒	🕒	✓	✓	✓	✓	✓	✓
pollo	×	✓	×	✓	✓	✓	✓	✓	✓
pesco	×	×	✓	✓	✓	✓	✓	✓	✓
lacto-ovo	×	×	×	✓	✓	✓	✓	✓	✓
lacto	×	×	×	×	✓	✓	✓	✓	✓
ovo	×	×	×	✓	×	✓	✓	✓	✓
vegan	×	×	×	×	×	?	✓	✓	✓
frutarian	×	×	×	×	×	×	×	✓	✓

In many studies, all these groups end up classified as VEGETARIAN

The concept of interplay that drives turning to vegetarianism



Confusing literature data on food-related health effects

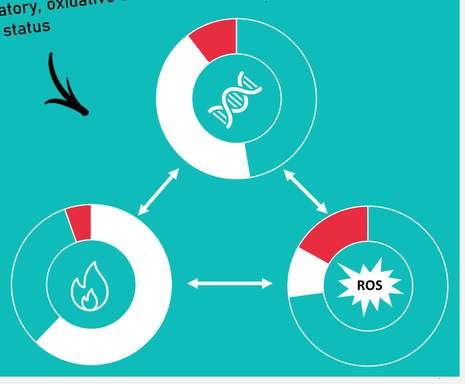
23% lower risk of total mortality for total fat consumers

33% less incidence from all colono-rectal cancer in fish eating population

8% less incidence from all types of cancer in vegetarians

25% less incidence or mortality from ischemic heart disease in vegetarians

The proportion of papers showing results in favor of vegetarian or omnivore inflammatory, oxidative stress and DNA damage status



OMNI

N=40 | age 32±8 | 60% female | 17.5% smokers
from Zagreb | BMI 23.3±3.3 | moderately active

\+ >80% consumed vegetables once per day

85% consumed fruit few times per week

VEGE

N=40 | age 32±7 | 60% female | 17.5% smokers
from Zagreb | BMI 22.4.±2.6 | moderately active

9±5 years practicing

– ~50% did not use supplements

CONCLUSION

~70% higher MN frequency in vegetarian group

We might say that the future of the human diet is green, but it is more easily to balance it with *a pinch of quality meat.*

~47% DNA strand breaks in vegetarian group

RESULTS

higher DNA damage

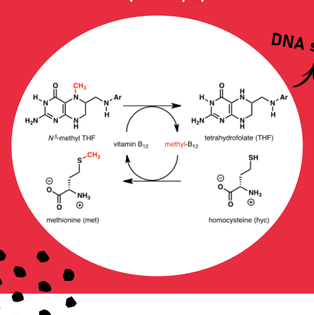
CBMN assay	Omniovres	Vegetarians
MNi	4.33±2.39	7.35±3.61*
NPBs	1.59±1.79	1.75±1.78
NBUDs	3.81±1.49	3.00±2.07
NDI	2.02±0.14	1.96±0.14

Comet assay	Omniovres	Vegetarians
TL (µm)	13.75±1.10	14.75±1.48*
TI (%)	1.51±0.65	2.22±0.92*

lower B12 in blood exams

	Omniovres	Vegetarians
Trombocytes (×10⁹/L)	267.50±51.90	244.70±140.50*
Homocystein (µmol/L)	10.70±2.60	12.30±3.80*
Vitamin B_{12} (pmol/L)	314.11±83.60	273.54±140.50*
Tot. cholesterol (mmol/L)	4.77±1.05	4.57±0.86

DNA synthesis



bone health

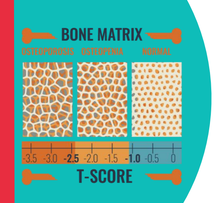
	Omniovres	Vegetarians
Vitamin D (µg/L)	43.99±15.05	38.66±12.86*
P-Ca (mg/L)	96.68±3.11	94.34±3.03*
QUI T-score	0.24±1.00	0.13±1.00

lower antioxidative defense

	Omniovres	Vegetarians
MDA (nmoL/mg protein)	0.13±0.06	0.12±0.08
GSH (µg/mg protein)	1.15±0.79	0.77±0.54*
P-Cu (µg/L)	1145.95±393.53	969.45±265.59*
P-Zn (µg/L)	885.00±112.66	820.85±119.64*
Urates (µmol/L)	249.10±80.58	225.98±62.51

less toxic metals but pesticides found

	Omniovres	Vegetarians
B-As (µg/L)	1.40 (0.62/9.55)	0.68 (0.54/6.58)*
B-Hg (µg/L)	1.65 (0.26/8.79)	0.10 (0.02-4.56)*
P-Se (µg/L)	95.68±13.54	90.67±20.00
Azinphos ethyl (mg/60 kg)	0.00±0.00	0.08±0.005*
Dieldrin (mg/60 kg)	0.00±0.00	0.04±0.001*



Se:Hg molar ratio in fish

3-10	11-30	31-70
Swordfish	Picarel	Chub mackarel
European hake	Atlantic horse mackarel	
Smooth-hound shark	European pilchard	
European anchovy	Blotched picarel	
Bogue		

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