

Are those fringe eaters leading a healthy life or merely crazy ascetics?

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Population Map

Bread is the stall of life

¹A 2008 Harris Interactive study of 5,050 respondents

²http://www.vegetariantimes.com/features/archive_of_editorial/667

Population Map

Bread is the stall of life

- FOOD IS IMPORTANT!!

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Population Map

Bread is the stall of life

- FOOD IS IMPORTANT!!
- Vegetarian diets become popular¹²
 - ▶ 10% say they largely follow a vegetarian-inclined diet
 - ▶ 3.2% follow a vegetarian-based diet
 - ▶ 0.5% are vegans

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Definition

Three main kinds of modern diets

- Omnivoroues: eat everything that is edible
- Vegetarian:
 - ▶ Lactoovovegetarian: edible plant-derived material, eggs, dairy, honey; no meat or fish
 - ▶ Vegan: edible plant-derived material

Why why why?

Is it fasion?

Reasons for being vegetarian (2002 poll of American adults) ³:

Most important reason for becoming a vegetarian

Health	32%
Because of chemicals and hormones in meat products	15%
Don't like the taste of meat	13%
Love of animals	11%
Animal rights	10%
Religious reasons	6%
Concern for the planet	4%
To lose weight	3%
To reduce hunger and famine worldwide	1%

³"TIME Magazine: Veggie Tales". Time. 2002-07-07. Retrieved 2010-05-14

Healthy or Crazy?

Crazy—— Chinese Culture

- According to Chinese culture.....
 - ▶ Vegetarians eventually become qi and blood deficient

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If PHD = Permanent Head Damage,

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then Vegan + PHD = Permanent Head Destroyed

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===== > Suicide Mode

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Crazy—— Some nutrition results

- Bone Mineral Density (BMD) significantly lower in long-term vegans⁴
- Risk of bone fractures (EPIC-Oxford Study)
- Vitamin D
- Fall short of Calcium

⁴Reference 41 and 42 in Winston2009

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 - ▶ lead to risk of bone fracture
 - ▶ fracture rates: vegans with > 525 mg calcium/d = omnivores

⁴Reference 41 and 42 in Winston2009

Healthy or Crazy?

Crazy—— Some nutrition results (cont)

- n-3 Polyunsaturated fat⁵
 - ▶ long-chain n-3 fatty acids,
 - ▶ EPA, 20:5 n-3
 - ▶ DHA; 22:6n-3
- Higher concentrations of plasma homocysteine.
 - ▶ risk factor for CVD and osteoporotic bone fracture

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- ▶ eicosapentaenoic acid ; docosahexaenoic acid

Healthy or Crazy?

B12—A headache

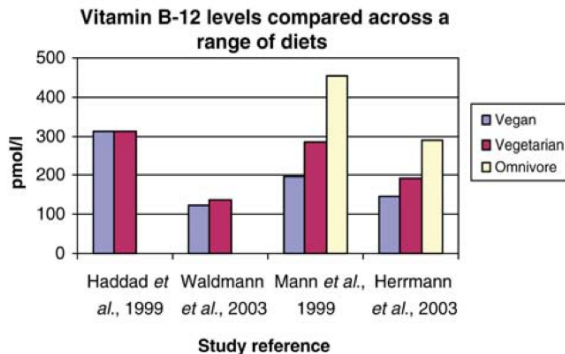
- B12 deficiency

- ▶ megaloblastic anaemia
- ▶ abnormal neurologic and psychiatric symptoms

(ataxia, psychoses , paresthesia, disorientation, dementia, mood and motor disturbance, difficulty with concentration)

Healthy or Crazy?

Figure: Pooled results of studies providing data of plasma B12 concentrations for trial participants (male and female) across the vegan-vegetarian-omnivore diet range



Haddad *et al.*, 1999⁽¹⁾
Vegan ($n=25$) (312 ± 125)
Vegetarian ($n=20$) (313 ± 99)

Waldmann *et al.*, 2003⁽⁷⁾
Vegan ($n=86$) ($185; 97.6, 689$)
Vegetarian ($n=45$) ($122; 71.2, 276$)

Mann *et al.*, 1999⁽⁸⁾
Vegan ($n=18$) (196 ± 92)
Vegetarian ($n=43$) (285 ± 132)
Omnivore*** ($n=60$) (452 ± 134)

Herrmann *et al.*, 2003⁽¹⁶⁾
Vegan ($n=29$) ($148; 99, 314$)
Vegetarian ($n=66$) ($127; 450$)
Omnivore ($n=79$) ($287; 190, 471$)

*** Moderate meat eaters (high meat eaters = 544 ± 228)

Healthy or Crazy?

Healthy? Kind of.....

- High
 - ▶ Fiber, folic acid, vitamins C and E, potassium, magnesium, phytochemicals
- Low
 - ▶ Calories, saturated fat, cholesterol, fat content that is more unsaturated

Healthy or Crazy?

Vegan and cancer

- Thin v.s. Obesity
- Adventist Health Study: colorectal and prostate cancer⁶
- Cancer-protective factors
 - ▶ legumes: stomach and prostate cancer
 - ▶ fiber, vitamin C, carotenoids, flavonoids and other phytochemicals: protect against various cancers
 - ▶ garlic: colorectal cancer
 - ▶ lycopene (tomatoes): protect against prostate cancer

⁶Reference 23,24, and 25 in Winston2009

Healthy or Crazy?

Some other benefits (may or may not)

- Healthy skin: Nuts, vitamin A and E play a role
- Longer life
- Body odor: smell better??
- Hormone consumption
- Eating out: a lot less of the bad things in the food you choose

Suggestions

Happy vegan :)

- B-12 fortified food (soy, rice, beverages, cereals)/ supplement
- Ca
 - ▶ Traditional sources: green leaf vegetable, tofu, tahini
 - ▶ Ca fortified: a lot
- Vitamin D
 - ▶ when fortified foods not available, a daily supplement of 5-10 μg
 - ▶ supplement is desirable for elderly vegan

Suggestions

Fatty acids

- n-3 fatty acid ALA: ground flaxseed, walnuts, canola oil, soy products
- long-chain n-3 fatty acid DHA: soy milks, cereal bars
- For pregnant and lactating women: extra supplement

Futhure Work

- Effects of vegan for type 2 diabetes
- involve only small number of subjects
- long-term vegan ($>5y$)
- age at which a vegan diet is adopted

My questions

- Dietary Records: how much do they tell you the truth?
- P-value: long term debate
- Other combined life style: moderate, non-smoking, even-tempered
- Effects on offspring

Life is beautiful

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Thank you!