Creating a Menu of Change
Healthy Food in Health Care

By

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Summary

1. **Planet Earth**: Climate change, extreme weather, sustainability, biodiversity, food security
2. **Health**: Chronic diseases prevention, health promotion
3. **Hospital**: Physical, spiritual and mental health, health education
Planet Earth
Is sick,
Running a temperature
Hottest day on record
Australia record 54°C, can be seen from satellite.
Brush fire in California, July, 2015
智利: 瓦巴萊索港口發生森林大火，已燒毀500棟民宅。
Freeway Fire

Multiple cars caught fire after a brush fire started on the I-15 near San Bernardino July 17, 2015
Trucks caught fire
Several cars caught on fire
IPCC - Intergovernmental Panel on Climate Change

The opening session of IPCC meeting in Yokohama, March, 2014
HEALTH THREATS

Climate Change and Health

"Climate Change is the biggest global health threat of the 21st century"¹
INCREASING MAGNITUDES OF WARMING INCREASE THE LIKELIHOOD OF SEVERE AND PERVERSIVE IMPACTS
Extreme Weather
中國："北極渦漩"影響，[內蒙古]零下46度"極寒天氣"，"冰霧瀰漫"能見度低
挪威小島[羅文德] 海岸邊-有'魚群'被急凍在冰層中
Swarms of locusts invade southern Russia - CNN
They eat everything in sight
北京地下水枯竭。
北京地陷造成的境洞。
CO₂ concentration, temperature, and sea level continue to rise long after emissions are reduced

Magnitude of response

CO₂ emissions peak 0 to 100 years

Time taken to reach equilibrium

Sea-level rise due to ice melting: several millennia
Sea-level rise due to thermal expansion: centuries to millennia
Temperature stabilization: a few centuries
CO₂ stabilization: 100 to 300 years

Today 100 years 1,000 years

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
Climate Change

If we don’t do anything about it!
Global Temperatures

- **Annual Average**
- **Five Year Average**

Temperature Anomaly (°C)

Year (AD)

1860 1880 1900 1920 1940 1960 1980 2000

-0.6 -0.4 -0.2 0 0.2 0.4 0.6
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

Released Thursday, August 2, 2012
Author: Mark Svoboda, National Drought Mitigation Center
A bull grazes on dry wheat husks in Logan, Kansas, hit by the record drought.
Drought - more frequent and severe
Both East and the Horn of Africa have been hit by the worst drought in 60 years,
Hawaii's Kilauea volcano erupts with greater fury
1. Hospital uses a lot of natural resources
2. The Hospital produces lots of potentially dangerous waste
3. Large number of people pass through

Why should hospitals participate?
Definition of Health

The World Health Organization defined health as:

A state of complete physical, mental and social well-being, rather than solely as absence of disease. (WHO Constitution, 1946)
Definition of Health Promotion

The World Health Organization defined health promotion as:

The process of enabling people to increase control over their health and it’s determinants, and thereby improve their health. (WHO Bangkok Charter for health Promotion in a Globalized World, 2005)
Natural History of Diseases

Asymptomatic

Onset of symptoms

Rapid progression

Death
Illness and Health

Death

Disease free

Sick

Quality of life

Medical care

Disease prevention

Healthy

Fullest capacity

Health promotion
Health Promotion

Who is Responsible?

1. Government
2. Family, Individual
3. Health Care Provider
Life Style Change

飲食 (Diet)

運動 (Exercise)

放鬆 (Relaxation)
Systemic Implementation
Six Prong Approach

- Leadership Mission
- Environment
- Staff
- Patients
- Spiritual
- community
Strategy

• Enterprise-wide implementation
• Mobilize the entire staff
• Put in the necessary resources
• Institution reengineering
Vegetarian Diet

Omnivorous diet required 2.9 times more water, 2.5 times more primary energy, 13 times more fertilizer, and 1.4 times more pesticides.

Hospital & Environment

1. Energy efficiency
2. Green building design
3. Alternative energy generation
4. Transportation
5. Food
6. Waste
7. Water
Reduce, Reuse & Recycle

- Patients use reusable plates, bowls
- Reusable chopsticks, 3 million pairs in 7 years
因
Greed
Jealousy
Ignorance
Stand tall, Don’t be intimidated

WHERE DO YOU GET YOUR PROTEIN?

Latest studies: A third of Americans are overweight, and an additional quarter are obese.
People love to eat me

I am innocent

是人愛吃
Livestock’s long shadow

FAO (2006)

- Livestock accounts for 18% of greenhouse gas emission (and 80% from agricultural sector)
- Land degradation
- Water depletion and pollution
- Air pollution
- Impact on biodiversity
How did livestock contribute to GHG emission

- **Energy**: burning fossil fuels to produce fertilizers for feed crops
- **Manufacturing Industry**
- **Waste**
- **Land use change/forestry/agriculture**
- (Respiration by livestock not counted)
Amazonian Rainforests

70% Rainforest degraded for cattle rearing
Home to 40,000 plant species, 427 mammals, 1,294 birds, 378 reptiles, 427 amphibians, 3,000 species of fish, and 200,000 indigenous people from 180 ethnic tribes

Livestocks: <1.5% of global economy
Other economic potentials for the rainforest?
(Green Peace Report)
Figure 1: Percent of grain consumed fed to livestock. Data retrieved from World Resource Institute online database.

Chiu TH, Lin CL. Asia Pac J Clin Nutr (Dec, 2009)
### Uncounted, Overlooked, and Misallocated Livestock-related GHG Emissions

<table>
<thead>
<tr>
<th></th>
<th>Annual GHG emissions (CO_2e)</th>
<th>Percentage of worldwide total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAO estimate</strong></td>
<td>7,516</td>
<td>11.8</td>
</tr>
<tr>
<td><strong>Uncounted in current GHG inventories:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Overlooked respiration by livestock</td>
<td>8,769</td>
<td>13.7</td>
</tr>
<tr>
<td>2. Overlooked land use</td>
<td>≥2,672</td>
<td>≥4.2</td>
</tr>
<tr>
<td>3. Undercounted methane</td>
<td>5,047</td>
<td>7.9</td>
</tr>
<tr>
<td>4. Other four categories (see text)</td>
<td>≥5,560</td>
<td>≥8.7</td>
</tr>
<tr>
<td>5. Subtotal</td>
<td>≥22,048</td>
<td>≥34.5</td>
</tr>
<tr>
<td><strong>Misallocated in current GHG inventories:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Three categories (see text)</td>
<td>≥3,000</td>
<td>≥4.7</td>
</tr>
<tr>
<td><strong>Total GHGs attributable to livestock products</strong></td>
<td>≥32,564</td>
<td>≥51.0</td>
</tr>
</tbody>
</table>
The Green House Gas production

Plant-based VS. Animal-based Food

Food and Green House Gas
Green House Gas Production

Production--Slaughtering
Refrigeration--Storage
Transportation
Cooking
Retailing
Consumption of Natural Resources

- Slaughtering
- Packaging
- Refrigeration
- Transportation
Food Mileage

High
1. Processed
2. Imported
3. Animal Products

Low
1. Local
2. Fresh
3. Plant-based
GHG reduction in 6 Tzu Chi hospitals that serve complete vegetarian meals

- CO2 equivalent emission calculation:
  1kg of meat $\rightarrow$ average 13.7kg CO2
- An average meal in an omnivorous food court in Taiwan contains 70g (or 0.07 kg) meat per meal
- In 2011, a total of 2,543,669 vegetarian meals served in 6 Tzu Chi hospitals
- 2,543,669 meals * 0.07kg meat/meal = 178,057 kg meat
- 178,057 kg meat * 13.7kg CO2/kg meat = 2,439,379 kg CO2.
- Average 2,439,379 kg CO2 saved in the year 2011!
Vegetarian Meals for Patients

• No fish, meat, poultry or any animal flesh served in Tzu Chi Hospitals
• Lacto-ovo vegetarian meals, vegan options available
• Meeting Taiwan’s DRIs through plant based diets
• Featuring fresh and local produces
• Minimizing processed and canned foods
Protein

• Major protein source: soy (tofu, yuba, bean curd, and other soy products), eggs, beans, milk and milk products
• Other protein sources: grains, vegetables, seeds and nuts
• High protein formula (for those with special needs)
Soy bean curd with red and yellow pepper in tomato sauce
Soy bean curd with red and yellow pepper in tomato sauce
Stir-fry spinach
Tofu wrapped in veggie ham
Stir-fry bok choy and carrots
Rice with black sesame
Rice with black sesame
Tofu and bean sprout soup
Tofu and bean sprout soup
Fresh melon
Fresh melon
Stir fry egg plants

Asparagus with baby corn and sweet pepper

Broccoli and carrots with black mushrooms

Laver (seaweed) soup with gogi berries

Tofu wrapped in veggie ham

Noodles

Fresh fruit plate
Soups and Snacks
Toona rice with pinenuts
Peanut – Azuki bean – Tapioca Dessert
Vegetarian Food Court for patients, families, visitors and staff

- Minder Garden (vegan buffet with 100+ dishes)
- Thai House
- Hot Pots
- Noodle Shop
- Pancake Kitchen
- Traditional Taiwanese food
- Japanese Style
- Korean Style
- And more …
Vegan Buffet
Vegetarian Food Court
On empty land around the hospital, we grow vegetable, rice. As a rehabilitation program for our patients.
Tzuchi’s Experimental Farms in Taiwan
Tzuchi’s Experimental Farms in Hualien
Experimental Farms in South Africa
(Durban)
Myanmar after hurricane Nagis

納吉斯熱帶氣旋的路徑
Very heavy casualties

災區大批屍體受到豔陽曝曬腐爛未能處理
We provided emergency relief, free medical assistance
A international team provided cataract surgery
And we provided improved seeds to grow rice
Always with grace
Always with grace
Precooked instant vegetarian rice
We prepare hot vegetarian meals inside the shelter
Or outside the shelter
Sharing Dalin Hospital model
Impact on Our Health
The Chances of Developing Diseases

<table>
<thead>
<tr>
<th>Diet group</th>
<th>BMI(^2)</th>
<th>Diabetes(^3)</th>
<th>Hypertension(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonvegetarian</td>
<td>28.26 (28.22, 28.30)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Semivegetarian</td>
<td>27.00 (26.96, 27.04)</td>
<td>0.72 (0.65, 0.79)</td>
<td>0.77 (0.72, 0.82)</td>
</tr>
<tr>
<td>Pescovegetarian</td>
<td>25.73 (25.69, 25.77)</td>
<td>0.49 (0.44, 0.55)</td>
<td>0.62 (0.59, 0.66)</td>
</tr>
<tr>
<td>Lactoovo-vegetarian</td>
<td>25.48 (25.44, 25.52)</td>
<td>0.39 (0.36, 0.42)</td>
<td>0.45 (0.44, 0.47)</td>
</tr>
<tr>
<td>Vegan</td>
<td>23.13 (23.09, 23.16)</td>
<td>0.22 (0.18, 0.28)</td>
<td>0.25 (0.22, 0.28)</td>
</tr>
</tbody>
</table>

\(P^4\)  

0.0001  

0.0001  

0.0001
Our experiences of Plant-based Diets

We have been offering for many years at our hospitals
Healthful, delicious and nutritious
The acceptance of staff, patients, families and visitors have been very high
Can be a very good educational experience
## Type of Vegetarians

<table>
<thead>
<tr>
<th>Type</th>
<th>%</th>
<th>BEEF</th>
<th>POULTRY/FISH</th>
<th>DAIRY/EGGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEGAN</td>
<td>4.3</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>LACTO-OVO</td>
<td>34.0</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>PESCO-VEGE</td>
<td>9.7</td>
<td>NONE</td>
<td>FISH</td>
<td>DAIRY</td>
</tr>
<tr>
<td>SEMI-VEGE</td>
<td>8.3</td>
<td>MEAT</td>
<td>POULTRY</td>
<td>DAIRY</td>
</tr>
<tr>
<td>NON-VEGE</td>
<td>43.7</td>
<td>MEAT</td>
<td>MEAT</td>
<td>MEAT</td>
</tr>
<tr>
<td>Diet group</td>
<td>BMI(^2)</td>
<td>Diabetes(^3)</td>
<td>Hypertension(^3)</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>Nonvegetarian</td>
<td>28.26 (28.22, 28.30)</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Semivegetarian</td>
<td>27.00 (26.96, 27.04)</td>
<td>0.72 (0.65, 0.79)</td>
<td>0.77 (0.72, 0.82)</td>
<td></td>
</tr>
<tr>
<td>Pescevegetarian</td>
<td>25.73 (25.69, 25.77)</td>
<td>0.49 (0.44, 0.55)</td>
<td>0.62 (0.59, 0.66)</td>
<td></td>
</tr>
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<tr>
<td>Vegan</td>
<td>23.13 (23.09, 23.16)</td>
<td>0.22 (0.18, 0.28)</td>
<td>0.25 (0.22, 0.28)</td>
<td></td>
</tr>
</tbody>
</table>

\(P\)\(^4\)  
0.0001     0.0001     0.0001
Benefits of a plant based diet or a vegetarian diet

- Low in cholesterol and saturated fat
- High in fiber
- High in vitamin C, folate, Mg, beta-carotenes and other carotenoids … nutrients that prevents chronic diseases
- High in phytochemicals
- Nutritionally adequate for supporting all stages of lives
- The most effective and practical way to reduce carbon foot print
Health consequences of 30% reduction in livestocks

- Reduction in saturated fat from meat and dairy will lead to a reduction in heart disease by 15% in UK and by 16% in city of Sao Paulo, Brazil.

- Other additional health benefits for obesity, diabetes, hypertension, diet related cancer.

Friel et al. Lancet, Dec, 2009
The Evidence is in!

“It is the position of the American Dietetic Association that appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases. Well-planned vegetarian diets are appropriate for individuals during all stages of the life cycle, including pregnancy, lactation, infancy, childhood, and adolescence, and for athletes.”

Position Paper on Vegetarian Diets 2009
Plant-based Diets

Healthful, delicious and nutritious
We have been offering for many years at our hospitals
The acceptance of staff, patients, families and visitors have been very high
Can be a very good educational experience
Red Meat Consumption and Mortality: Results From 2 Prospective Cohort Studies.
Pan A, Sun Q, Bernstein AM, Schulze MB, Manson JE, Stampfer MJ, Willett WC, Hu FB.

CONCLUSIONS:
Red meat consumption is associated with an increased risk of total, CVD, and cancer mortality. Substitution of other healthy protein sources for red meat is associated with a lower mortality risk.

All-Cause Mortality According to Red Meat Intake in the Health Professionals Follow-up Study and the Nurses' Health Study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Health Professionals Follow-up Study</th>
<th>Nurses’ Health Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total red meat servings per day</td>
<td>0.25 (0.13-0.37)</td>
<td>0.51 (0.37-0.61)</td>
</tr>
<tr>
<td>Caseload/person-years, No.</td>
<td>1713/1512</td>
<td>2594/539-926</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
<tr>
<td>Unprocessed red meat servings per day</td>
<td>0.17 (0.07-0.24)</td>
<td>0.37 (0.28-0.46)</td>
</tr>
<tr>
<td>Caseload/person-years, No.</td>
<td>1655/150-76</td>
<td>2865/441-04</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
<tr>
<td>Processed red meat servings per day</td>
<td>0.02 (0.01-0.03)</td>
<td>0.05 (0.01-0.08)</td>
</tr>
<tr>
<td>Caseload/person-years, No.</td>
<td>1917/71</td>
<td>2799/424-04</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>Reference: 1</td>
<td>Reference: 1</td>
</tr>
</tbody>
</table>

Abbreviations: HR, hazard ratio; NA, not applicable.

Cardiovascular Mortality According to Red Meat Intake in the Health Professionals Follow-up Study and the Nurses' Health Study

Table 3. Cardiovascular Mortality According to Red Meat Intake in the Health Professionals Follow-up Study and the Nurses' Health Study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency of Consumption Quintiles</th>
<th>P Value for Trend</th>
<th>HR (95% CI) for a 1-Serving-per-Day Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1/2</td>
<td>Q2/3</td>
<td>Q3/4</td>
</tr>
<tr>
<td>Total red meat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases/person-years, No.</td>
<td>557/152,293</td>
<td>490/153,126</td>
<td>506/152,623</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1.05 (0.97-1.19)</td>
<td>1.11 (0.96-1.26)</td>
<td>1.15 (1.02-1.30)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1.09 (0.96-1.24)</td>
<td>1.16 (1.03-1.32)</td>
<td>1.17 (1.03-1.33)</td>
</tr>
<tr>
<td>Unprocessed red meat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases/person-years, No.</td>
<td>573/151,850</td>
<td>526/150,172</td>
<td>446/155,316</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1.08 (0.99-1.20)</td>
<td>0.97 (0.86-1.10)</td>
<td>1.11 (0.98-1.25)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1.10 (0.97-1.24)</td>
<td>1.08 (0.95-1.22)</td>
<td>1.14 (1.01-1.29)</td>
</tr>
<tr>
<td>Processed red meat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases/person-years, No.</td>
<td>594/172,817</td>
<td>423/131,953</td>
<td>510/153,537</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>0.99 (0.88-1.12)</td>
<td>1.14 (1.01-1.29)</td>
<td>1.13 (1.00-1.27)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1.05 (0.93-1.19)</td>
<td>1.15 (1.01-1.33)</td>
<td>1.15 (1.02-1.31)</td>
</tr>
</tbody>
</table>

Total red meat

| Cases/person-years, No.       | 601/443,429 | 570/444,046 | 517/441,619 | 508/442,319 | 506/441,994 | NA | NA |
| Age-adjusted model            | 1.11 (0.99-1.25) | 1.09 (0.97-1.22) | 1.33 (1.19-1.49) | 1.98 (1.79-2.09) | .0001 | 1.44 (1.36-1.50) | NA | NA |
| Multivariate model            | 1.14 (1.01-1.27) | 1.11 (0.99-1.26) | 1.28 (1.13-1.43) | 1.45 (1.30-1.63) | .0001 | 1.17 (1.11-1.22) | NA | NA |
| Unprocessed red meat          |      |      |      |      |                               |                                |                               |
| Cases/person-years, No.       | 617/443,224 | 646/443,182 | 481/441,163 | 543/432,988 | 901/449,850 | NA | NA |
| Age-adjusted model            | 1.21 (1.06-1.35) | 0.96 (0.85-1.09) | 1.15 (1.03-1.29) | 1.82 (1.65-2.02) | .0001 | 1.46 (1.30-1.54) | NA | NA |
| Multivariate model            | 1.22 (1.09-1.37) | 1.09 (0.96-1.23) | 1.19 (1.06-1.34) | 1.39 (1.24-1.55) | .0001 | 1.17 (1.10-1.24) | NA | NA |
| Processed red meat            |      |      |      |      |                               |                                |                               |
| Cases/person-years, No.       | 671/444,237 | 551/422,411 | 586/467,265 | 572/443,383 | 814/442,609 | NA | NA |
| Age-adjusted model            | 0.98 (0.88-1.10) | 1.10 (0.99-1.23) | 1.16 (1.03-1.29) | 1.65 (1.48-1.83) | .0001 | 1.79 (1.64-1.95) | NA | NA |
| Multivariate model            | 0.97 (0.87-1.09) | 1.10 (0.99-1.23) | 1.12 (0.99-1.25) | 1.29 (1.15-1.43) | .0001 | 1.26 (1.15-1.39) | NA | NA |

Pooled Results

| Total red meat                | 1.12 (1.03-1.22) | 1.13 (1.04-1.24) | 1.23 (1.13-1.34) | 1.40 (1.29-1.53) | .0001 | 1.16 (1.12-1.20) | NA | NA |
| Unprocessed red meat          | 1.16 (1.05-1.28) | 1.09 (1.00-1.18) | 1.17 (1.07-1.27) | 1.36 (1.25-1.47) | .0001 | 1.18 (1.13-1.23) | NA | NA |
| Processed red meat            | 1.01 (0.92-1.10) | 1.12 (1.03-1.22) | 1.13 (1.04-1.23) | 1.27 (1.18-1.38) | .0001 | 1.21 (1.13-1.31) | NA | NA |

Abbreviations: HR, hazard ratio; NA, not applicable.

A data are given as HR (95% CI) except where indicated otherwise.

The multivariate model was adjusted for age (continuous); body mass index (calculated as weight in kilograms divided by height in meters squared) category (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, or ≥35.0); alcohol consumption (0, 0.1-4.9, 5.0-9.9, or ≥10.0 g/d in men; 0, 0.1-4.9, 5.0-9.9, or ≥10.0 g/d in women); physical activity level (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, or ≥27.0 hours of metabolic equivalent tasks per week); smoking status (never, past, or current [1-14, 15-24, or ≥25 cigarettes per day]); race (white or nonwhite); menopausal status and hormone use in women (premenopausal, postmenopausal never users, postmenopausal current users); family history of diabetes mellitus, myocardial infarction, or cancer; history of diabetes mellitus, hypertension, or hypercholesterolemia; and intakes of total energy, whole grains, fruits, and vegetables, all in quintiles.

Cancer Mortality According to Red Meat Intake in the Health Professionals Follow-up Study and the Nurses' Health Study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency of Consumption Quintiles</th>
<th>P Value for trend</th>
<th>HR (95% CI) for a 1-Serving-per-Day Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td><strong>Health Professionals Follow-up Study</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total red meat</td>
<td>595/152.206</td>
<td>555/153.082</td>
<td>561/152.574</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>1.03 (0.91-1.15)</td>
<td>1.05 (0.93-1.18)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.05 (0.94-1.18)</td>
<td>1.07 (0.95-1.20)</td>
</tr>
<tr>
<td>Unprocessed red meat</td>
<td>650/151.745</td>
<td>589/150.121</td>
<td>540/150.265</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>1.00 (0.89-1.12)</td>
<td>0.97 (0.86-1.08)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.01 (0.90-1.13)</td>
<td>1.03 (0.91-1.15)</td>
</tr>
<tr>
<td>Processed red meat</td>
<td>669/172.756</td>
<td>452/131.005</td>
<td>504/152.393</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>0.97 (0.86-1.10)</td>
<td>0.99 (0.88-1.22)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.07 (0.90-1.27)</td>
<td>1.07 (0.90-1.20)</td>
</tr>
<tr>
<td><strong>Nurses' Health Study</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total red meat</td>
<td>1264/439.774</td>
<td>1191/443.695</td>
<td>1185/440.970</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>1.04 (0.96-1.13)</td>
<td>1.08 (1.05-1.17)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.05 (0.97-1.14)</td>
<td>1.10 (1.01-1.19)</td>
</tr>
<tr>
<td>Unprocessed red meat</td>
<td>1308/442.572</td>
<td>1224/442.671</td>
<td>1120/440.530</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>1.02 (0.94-1.10)</td>
<td>0.97 (0.90-1.06)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.04 (0.96-1.12)</td>
<td>1.05 (0.95-1.12)</td>
</tr>
<tr>
<td>Processed red meat</td>
<td>1294/444.119</td>
<td>1230/421.760</td>
<td>1236/456.667</td>
</tr>
<tr>
<td>Age-adjusted model</td>
<td>1 [Reference]</td>
<td>1.08 (1.00-1.17)</td>
<td>1.11 (1.03-1.20)</td>
</tr>
<tr>
<td>Multivariate model</td>
<td>1 [Reference]</td>
<td>1.05 (0.97-1.14)</td>
<td>1.05 (0.98-1.17)</td>
</tr>
<tr>
<td><strong>Pooled Results</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total red meat</td>
<td>1 [Reference]</td>
<td>1.05 (0.96-1.12)</td>
<td>1.09 (1.02-1.16)</td>
</tr>
<tr>
<td>Unprocessed red meat</td>
<td>1 [Reference]</td>
<td>1.03 (0.97-1.10)</td>
<td>1.03 (0.96-1.10)</td>
</tr>
<tr>
<td>Processed red meat</td>
<td>1 [Reference]</td>
<td>1.03 (0.97-1.10)</td>
<td>1.03 (0.97-1.15)</td>
</tr>
</tbody>
</table>

Abbreviations: HR, hazard ratio; NA, not applicable.

Data are given as HR (95% CI) except when indicated otherwise.

The multivariate model was adjusted for age (continuous), body mass index (calculated as weight in kilograms divided by height in meters squared) (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, or ≥35.0); alcohol consumption (0, 0.1-4.9, 5.0-9.9, and ≥10.0 g/d in men; 0, 0.1-4.9, 5.0-9.9, and ≥15.0 g/d in women); physical activity level (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, or ≥27.0 hours of metabolic-equivalent tasks per week); smoking status (never, past, or current 1-14 cigarettes per day, current 15-24 cigarettes, or current ≥25 cigarettes); race (white or nonwhite); menopausal status and hormone use in women (premenopausal, postmenopausal never users, postmenopausal past users, or postmenopausal current users); family history of diabetes mellitus, myocardial infarction, or cancer; history of diabetes mellitus, hypertension, or hypercholesterolemia, and intakes of total energy, whole grains, fruits, and vegetables in all quintiles.

Results from the multivariate model were combined using the random-effects model.

Dose-response relationship between red meat intake and risk of all-cause mortality in the Health Professionals Follow-up Study (A) and the Nurses' Health Study (B)

Hazard ratios and 95% CIs (error bars) for total mortality associated with replacement of other food groups for red meat intake
改變生活形態
飲食 (Diet) 运动 (Exercise) 放鬆 (Relaxation)
What are the lesions a normal coronary angiogram may conceal?
VASCULAR DILATORY FUNCTIONS
OF OVO-LACTOVEGETARIANS
COMPARSED WITH OMNIVORES

Chin-Lon Lin, Te-Chao Fang, Mein-Kai Gueng
Division of Cardiology
Department of Internal Medicine
Buddhist Tzu Chi Dalin General Hospital,

C.L Lin et al./Atherosclerosis 2001;158:247-251
Method

Twenty healthy vegetarians over the age of fifty and 20 healthy omnivores over the age of 50 were recruited for this study. Subjects with known risk factors for atherosclerosis such as hypertension, diabetes, obesity, hypercholesteremia, cigarette smoking, family history of vascular diseases, or taking any regular medication were excluded.
Method

Medical history, body weight, height, and duration of vegetarian diet were recorded. Baseline CBC, urinalysis and biochemical data such as fasting blood glucose, thyroid function, blood urea nitrogen, creatinine, serum electrolytes (sodium, potassium, chloride, calcium and magnesium)
Lipid profiles [total cholesterol, triglycerides, high density lipoprotein (HDL) cholesterol, low density lipoprotein (LDL) cholesterol] were obtained after a 14 hour fast.

Blood pressures and heart rate were recorded in supine position.
Method

Vascular dilatory functions

A. Flow-mediated (endothelium-dependent)
B. Nitroglycerin-induced (endothelium-independent),

Were evaluated using a non-invasive ultrasonographic method.
結果 The Results

There was no significant differences in blood pressure, heart rate, or biochemistry.

血壓心跳生化檢查無差異
Table 1. Characteristics of both vegetarian and omnivore volunteers.

<table>
<thead>
<tr>
<th></th>
<th>Omnivore N=20</th>
<th>Vegetarian N=20</th>
<th>T-test p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (mean ±SD)</td>
<td>56.4 ±4.0</td>
<td>58.6 ±3.5</td>
<td>0.073</td>
</tr>
<tr>
<td>Body Mass Index (Kg/m²)</td>
<td>24.8 ±3.1</td>
<td>23.1 ±3.1</td>
<td>0.085</td>
</tr>
<tr>
<td>Systolic Blood Pressure (mm Hg)</td>
<td>121 ±8</td>
<td>123 ±5</td>
<td>0.672</td>
</tr>
<tr>
<td>Diastolic Blood Pressure (mm Hg)</td>
<td>78 ±8</td>
<td>77 ±9</td>
<td>0.602</td>
</tr>
<tr>
<td>Heart Rate (Beats per minute)</td>
<td>66 ±8</td>
<td>65 ±8</td>
<td>0.612</td>
</tr>
<tr>
<td>Blood Urea Nitrogen (mg/dL)</td>
<td>11.2 ±2.6</td>
<td>12.4 ±2.4</td>
<td>0.159</td>
</tr>
<tr>
<td>Serum Creatinine (mg/dL)</td>
<td>0.9 ±0.2</td>
<td>0.8 ±0.2</td>
<td>0.210</td>
</tr>
<tr>
<td>Serum Sodium (mmol/L)</td>
<td>142.4 ±1.6</td>
<td>141.4 ±1.7</td>
<td>0.067</td>
</tr>
<tr>
<td>Serum Potassium (mmol/L)</td>
<td>4.3 ±0.4</td>
<td>4.5 ±0.8</td>
<td>0.205</td>
</tr>
<tr>
<td>Serum Chloride (mmol/L)</td>
<td>105.7 ±2.0</td>
<td>105.3 ±1.7</td>
<td>0.413</td>
</tr>
<tr>
<td>Serum Calcium (mmol/L)</td>
<td>2.2 ±0.1</td>
<td>2.2 ±0.1</td>
<td>0.726</td>
</tr>
<tr>
<td>Serum Magnesium (mmol/L)</td>
<td>2.2 ±0.3</td>
<td>2.2 ±0.2</td>
<td>0.823</td>
</tr>
</tbody>
</table>

Abbreviations: SD, standard deviation.
Table 2. Blood biochemistry and thyroid function of vegetarian and omnivore

<table>
<thead>
<tr>
<th></th>
<th>Omnivore</th>
<th>Vegetarian</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=20</td>
<td>N=20</td>
<td></td>
</tr>
<tr>
<td>Glucose (mg/dL)</td>
<td>98 ±14</td>
<td>87 ±8</td>
<td>0.655</td>
</tr>
<tr>
<td>Total Cholesterol (mg/dL)</td>
<td>166 ±36</td>
<td>162 ±32</td>
<td>0.694</td>
</tr>
<tr>
<td>LDL Cholesterol (mg/dL)</td>
<td>120 ±30</td>
<td>116 ±29</td>
<td>0.617</td>
</tr>
<tr>
<td>HDL Cholesterol (mg/dL)</td>
<td>46 ±17</td>
<td>48 ±8</td>
<td>0.664</td>
</tr>
<tr>
<td>Triglycerides (mg/dL)</td>
<td>100 ±51</td>
<td>94 ±33</td>
<td>0.655</td>
</tr>
<tr>
<td>T₃ (ng/dL)</td>
<td>118 ±28</td>
<td>116 ±23</td>
<td>0.816</td>
</tr>
<tr>
<td>T₄ (μg/dL)</td>
<td>8.3 ±1.4</td>
<td>8.3 ±1.7</td>
<td>0.864</td>
</tr>
<tr>
<td>TSH (uIU/mL)</td>
<td>1.5 ±0.9</td>
<td>1.4 ±0.6</td>
<td>0.693</td>
</tr>
</tbody>
</table>

All values are expressed as mean ± standard deviation. Abbreviations: LDL, low density lipoprotein; HDL, high density lipoprotein; T₃, triiodo-L-thyronine; T₄, L-thyroxine; TSH, thyroid-stimulating hormone.
Table 3. Vasodilatory functions of brachial artery evaluated by ultrasonography in omnivores and vegetarians.

<table>
<thead>
<tr>
<th></th>
<th>Omnivore N=20</th>
<th>Vegetarian N=20</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline vessel size (mm)</td>
<td>4.42 ±0.53</td>
<td>4.21 ±0.55</td>
<td>0.2071</td>
</tr>
<tr>
<td>Flow-mediated dilatation (%)</td>
<td>3.13 ±1.36</td>
<td>13.78 ±2.54</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>NTG-induced dilatation (%)</td>
<td>13.78 ±2.06</td>
<td>21.99 ±2.21</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

All values are expressed as mean ± standard deviation.
結論 Conclusion

素食者內皮細胞功能較葷食者好
The endothelial function is far better in vegetarians

素食越久內皮細胞功能越好
The longer being on vegetarian diet, the better
Insulin Sensitivity in Ovo-lactovegetarians compared with Omnivores

Chin-Sung Kuo, Ning-Sheng Lai, Low-Tone Ho, Chin-Lon Lin.

The study included 36 healthy volunteers (vegetarian, \( n=19 \); omnivore, \( n=17 \)) who had normal fasting plasma glucose level. Each participant completed an insulin suppression test.
Results-2

• SSPG: 105.4 ± 10.2 vs 80.3 ± 11.3, $p<0.001$
• Fasting insulin: 4.06 ± 0.77 vs 3.02 ± 1.19 µU/ml, $p=0.004$
• HOMA-IR: 6.75 ± 1.31 vs 4.78 ± 2.07, $p=0.002$
• HOMA %S: 159.2 ± 31.7 vs 264.3 ± 171.7 %, $p=0.018$
• In addition, We found a good linear relationship between years on vegetarian diet and SSPG ($r=-0.541, p=0.017$).
Steady-state plasma glucose (mg/dl) vs. Years on a vegetarian diet

$r = -0.541$, $p = 0.017$, $n = 19$
Conclusions

The vegetarians are more insulin sensitive than the omnivores
Taiwanese Vegetarians and Omnivores: Dietary Composition, Prevalence of Diabetes and IFG

Tina H. T. Chiu¹,², Hui-Ya Huang³, Yen-Feng Chiu⁴, Wen-Harn Pan²,⁵, Hui-Yi Kao⁴, Jason P. C. Chiu⁶, Ming-Nan Lin³,⁷*, Chin-Lon Lin¹,⁸,⁹

¹ Medical Mission, Tzu Chi Foundation, Hualien, Taiwan, ² Graduate Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taipei, Taiwan, ³ Department of Family Medicine, Buddhist Dalin Tzu Chi Hospital, Dalin, Chiayi County, Taiwan, ⁴ Department of Biostatistics and Bioinformatics, Institute of Population Health Sciences, National Health Research Institutes, Miaoli County, Zhunan, Taiwan, ⁵ Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan, ⁶ Department of Computer Science, University of British Columbia, Vancouver, Canada, ⁷ Department of Family Medicine, College of Medicine, Tzu Chi University, Hualien, Taiwan, ⁸ Department of Internal Medicine, Buddhist Hualien Tzu Chi Hospital, Hualien, Taiwan, ⁹ Department of Internal Medicine, College of Medicine, Tzu Chi University, Hualien, Taiwan

Abstract

Introduction: Vegetarian diets have been shown to improve glucose metabolism and reduce risk for diabetes in Westerners but whether Chinese vegetarian diets have the same benefits is unknown.

Methods: We evaluated the association between diet and diabetes/impaired fasting glucose (IFG) among 4384 Taiwanese Buddhist volunteers and identified diabetes/IFG cases from a comprehensive review of medical history and fasting plasma glucose.

Results: Vegetarians had higher intakes of carbohydrates, fiber, calcium, magnesium, total and non-heme iron, folate, vitamin A, and lower intakes of saturated fat, cholesterol, and vitamin B12. Besides avoiding meat and fish, vegetarians had higher intakes of soy products, vegetables, whole grains, but similar intakes of dairy and fruits, compared with omnivores. The crude prevalence of diabetes in vegetarians versus omnivores is 0.6% versus 2.3% in pre-menopausal women, 2.8% versus 4.3% versus 8.1% in men. Polytomous logistic regression adjusting for age, body...
Abstract

Introduction: Vegetarian diets have been shown to improve glucose metabolism and reduce risk for diabetes in Westerners, but whether Chinese vegetarian diets have the same benefits is unknown.

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Conclusion: We found a strong protective association between Taiwanese vegetarian diet and diabetes/IFG, after controlling for various potential confounders and risk factors.
Our Conclusions

The vegetarians have 50% (men) and 25% (women) chances of developing diabetes as compared with omnivores.
Total Cardiovascular Risk Profile of Taiwanese Vegetarians

By
Chih-Wei Chen\textsuperscript{a, b}, Ying-Lung Lin\textsuperscript{c}, Tin-Kwang Lin\textsuperscript{a}, Chih-Ta Lin\textsuperscript{a}, Bin-Chen Chen\textsuperscript{a}, Chin-Lon Lin\textsuperscript{a, b}

European J of Clinical Nutrition
Methods

One hundred ninety eight healthy subjects (99 vegetarians and 99 omnivores) were recruited.

Fasting blood samples were analyzed for glucose, cholesterol, triglyceride, HDL-C, LDL-C, white blood cell count, hs-CRP, and homocysteine.
Table 3A Baseline characteristics and results for male subjects

<table>
<thead>
<tr>
<th></th>
<th>Vegetarians Mean ± S.D.</th>
<th>Omnivores Mean ± S.D.</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>34</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Age ^a (years)</td>
<td>50.88 ± 9.33</td>
<td>49.25 ± 10.51</td>
<td>0.461</td>
</tr>
<tr>
<td>Body Weight (kg)^a</td>
<td>67.10 ± 13.16</td>
<td>69.61 ± 11.19</td>
<td>0.345</td>
</tr>
<tr>
<td>Body Height (cm)^a</td>
<td>166.68 ± 7.13</td>
<td>167.75 ± 5.96</td>
<td>0.448</td>
</tr>
<tr>
<td>BMI ^a (kg/m^2)</td>
<td>24.00 ± 3.53</td>
<td>24.67 ± 3.44</td>
<td>0.385</td>
</tr>
<tr>
<td>Smoke ^b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>11 (32.4)</td>
<td>21 (39.6)</td>
<td>0.493</td>
</tr>
<tr>
<td>No</td>
<td>23 (67.6)</td>
<td>32 (60.4)</td>
<td></td>
</tr>
<tr>
<td>SBP ^a (mmHg)</td>
<td>123.15 ± 16.30</td>
<td>126.89 ± 15.23</td>
<td>0.288</td>
</tr>
<tr>
<td>DBP ^a (mmHg)</td>
<td>79.71 ± 9.67</td>
<td>81.43 ± 12.03</td>
<td>0.462</td>
</tr>
<tr>
<td>UA ^a (mg/dL)</td>
<td>6.42 ± 1.23</td>
<td>6.22 ± 1.35</td>
<td>0.471</td>
</tr>
<tr>
<td>Cholesterol ^a (mg/dL)</td>
<td>183.85 ± 33.63</td>
<td>201.36 ± 37.28</td>
<td>0.029 *</td>
</tr>
<tr>
<td>Triglyceride ^c (mg/dL)</td>
<td>127.62 ± 87.46</td>
<td>127.00 ± 97.8</td>
<td>0.744</td>
</tr>
<tr>
<td>HDL-C ^a (mg/dL)</td>
<td>47.97 ± 17.52</td>
<td>49.32 ± 11.86</td>
<td>0.669</td>
</tr>
<tr>
<td>LDL-C ^a (mg/dL)</td>
<td>120.44 ± 28.94</td>
<td>138.98 ± 35.74</td>
<td>0.013 *</td>
</tr>
<tr>
<td>Glucose ^a (mg/dL)</td>
<td>90.09 ± 7.60</td>
<td>91.53 ± 20.73</td>
<td>0.647</td>
</tr>
<tr>
<td>WBC ^a (10^3/µL)</td>
<td>6.73 ± 1.35</td>
<td>6.75 ± 1.59</td>
<td>0.941</td>
</tr>
<tr>
<td>hs-CRP ^c (mg/dL)</td>
<td>0.12 ± 0.18</td>
<td>0.24 ± 0.43</td>
<td>0.087</td>
</tr>
<tr>
<td>Homocysteine</td>
<td>15.00 ± 9.74</td>
<td>9.82 ± 2.40</td>
<td>0.001 *</td>
</tr>
</tbody>
</table>

^c (umol/L)
Conclusions

• Taiwanese vegetarians have lower total cholesterol, LDL-C, and hs-CRP levels, and higher homocysteine levels than omnivores.
• Taiwanese vegetarians had a better cardiovascular risk profile than omnivores, due to different predictive value of each risk factor,
Healthy diets (low meat and high intake of fruits, vegetables, and whole-grain bread), had a BMI less than 30, and had at least 30 minutes / day of physical activity

78% lower overall risk of chronic diseases
93% reduced risk of diabetes
81% lower risk of myocardial infarction
50% reduction in risk of stroke
36% overall reduction in risk of cancer

Article

Cyanobacterial Neurotoxin $\beta$-$N$-Methylamino-$L$-alanine (BMAA) in Shark Fins

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$^3$ Leonard and Jayne Abess Center for Ecosystem Science and Policy, University of Miami, Coral Gables, FL 33124, USA

$^4$ RJ Dunlap Marine Conservation Program, University of Miami, Miami, FL 33149, USA

$^5$ Institute for Ethnomedicine, Box 3464, Jackson Hole, WY 83001, USA; E-Mail: sandra@ethnomedicine.org
Abstract: Sharks are among the most threatened groups of marine species. Populations are declining globally to support the growing demand for shark fin soup. Sharks are known to bioaccumulate toxins that may pose health risks to consumers of shark products. The feeding habits of sharks are varied, including fish, mammals, crustaceans and plankton. The cyanobacterial neurotoxin \( \beta\)-N-methylamino-L-alanine (BMAA) has been detected in species of free-living marine cyanobacteria and may bioaccumulate in the marine food web. In this study, we sampled fin clips from seven different species of sharks in South Florida to survey the occurrence of BMAA using HPLC-FD and Triple Quadrupole LC/MS/MS methods. BMAA was detected in the fins of all species examined with concentrations ranging from 144 to 1836 ng/mg wet weight. Since BMAA has been linked to neurodegenerative diseases, these results may have important relevance to human health. We suggest that consumption of shark fins may increase the risk for human exposure to the cyanobacterial neurotoxin BMAA.
Soul
Food
People love to eat me

I am innocent
Butchering Vs. Eating Animal Flesh

Butchers who have to kill animals, experience fear and guilt from their acts, such that they sing the following song before slaughtering, in an effort to shed guilt:

_Piggy, Piggy, please don’t blame me!
You are a dish for humankind!
He doesn’t eat, I don’t kill.
To revenge – go to those who eat meat!_
To care with compassion
To give with joy

No killing is the starting point
Eye for Eye, Blood for Blood
Plant based diet for the soul

There is still a holocaust going on – just ask the cows (100,000/day killed in the USA) or pigs (250,000/day) or chickens (15,000,000/day). The healthier are our nonhuman animals, the healthier are the human ones. We kill them, and then, they kill us!

~ William C. Roberts, MD, Editor, American Journal of Cardiology
Butchers who have to kill animals, experience fear and guilt from their acts, such that they sing the following song before slaughtering, in an effort to shed guilt:

*Piggy, Piggy, please don’t blame me!*
*You are a dish for humankind!*
*He doesn’t eat, I don’t kill.*
*To revenge – go to those who eat meat!*
To care with compassion
To give with joy
No killing is the starting point
"THERE IS MORE HAPPINESS IN GIVING THAN IN RECEIVING"
(According to Paul/Luke, Acts 20,35, a saying of Jesus)

施比受更有福
From Father Luis Gutheinz
(May 17, 2004)
TIMA
Tzu Chi International Medical Association
Over 30 countries around the globe
Love and Gratitude, Inheritance and Awakening
Conclusion

1. It’s feasible to provide delicious and nutritionally adequate plant-based menus.
2. The patient, family and staff's acceptance has been very high
3. Reduce climate footprint and support food access and nutrition
5. Plant-based diets are good for planet earth, health and soul
Healthy diets (low meat and high intake of fruits, vegetables, and whole-grain bread), had a BMI less than 30, and had at least 30 minutes / day of physical activity

78% lower overall risk of chronic diseases
93% reduced risk of diabetes
81% lower risk of myocardial infarction
50% reduction in risk of stroke
36% overall reduction in risk of cancer

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• Non-killing, compassion, peace of mind
• “God said, ‘Behold, I have given you every seed bearing plant on the face of the earth, and every tree that has seed bearing fruit. It shall be to you for food.’” Genesis 1:29
There is still a holocaust going on – just ask the cows (100,000/day killed in the USA) or pigs (250,000/day) or chickens (15,000,000/day). The healthier are our nonhuman animals, the healthier are the human ones. We kill them, and then, they kill us!

~ William C. Roberts, MD, Editor, *American Journal of Cardiology*
Steve Jobs
Stay Hungry
Stay Foolish
Stay Vege
Conclusion
Plant-based diet is good for

1. Earth  地球
2. Health  健康
3. Soul    心靈
The End