Crushing the Myths About Meat

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What “myths” have you heard of?
A. Eating meat leads to obesity
B. Meat has a strong relationship to cancer
C. Meat is full of added hormones
D. Meatless Mondays will drastically reduce our carbon footprint
E. Organic & Natural products are better for you

Eating meat leads to obesity

Myth

• Why eat meat??
  • “Complete proteins” – high quality
    1. All 9 of the essential amino acids
       • Cannot be synthesized by the body
       • Animal protein AA profile more closely matches our own
    2. Highly digestible
       • 95-100% digestible
    3. Easily absorbable

2/24/2016
Eating meat leads to obesity
- Myth largely based on limited scientific data
  - Recall Data
    - Remembering/recalling what was eaten
  - Association Data
    - Difficult to separate meat from associations with other practices
    - Smoking, sugars, refined starches
    - Guilty by association

Meat has a strong relationship to cancer
- International Agency for Research of Cancer (IARC)
- Rating system:
  - Group 1: Carcinogenic to humans
  - Group 2A: Probably carcinogenic to humans
  - Group 2B: Possibly carcinogenic to humans
  - Group 3: Unclassifiable as to carcinogenicity in humans
  - Group 4: Probably not carcinogenic to humans
- Red meat – Group 2A
- Processed meat – Group 1

Meat has a strong relationship to cancer
- Problems with IARC rating
  - Indicates relationship
  - NOT cause & effect
  - Addresses cancer as single factor disease
    - Oversimplification of complex system
- Bradford Hill Criteria & Meat
  - Temporality – Yes
  - Strength – No
  - Dose-Response – Varies
  - Consistency – No
  - Biological Plausibility – No

Meat is full of added hormones
- Hormones are in every food
  - No such thing as “hormone free”
  - Must use “no hormones added”
- Hormone use
  - Dairy
    - Bovine growth hormone (BST)
      - If consumed by humans is NOT biologically active
  - Beef
    - Androgens, estrogens, or progestins (natural or artificial)
      - So low in beef there is no effect

Hormone Production/Content (nanograms)

<table>
<thead>
<tr>
<th></th>
<th>Estrogen</th>
<th>Testosterone</th>
<th>Progesterone</th>
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</thead>
<tbody>
<tr>
<td>Non-pregnant woman</td>
<td>480,000</td>
<td>240,000</td>
<td>10,100,000</td>
</tr>
<tr>
<td>Adult male</td>
<td>1,56,000</td>
<td>6,400,000</td>
<td>410,000</td>
</tr>
<tr>
<td>Non-implanted; 3 oz</td>
<td>1.3</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Implanted; 3 oz</td>
<td>1.9</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Ice cream; 3 oz</td>
<td>520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbage; 3 oz</td>
<td>2,016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat germ; 3 oz</td>
<td>3,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybean oil; 3 oz</td>
<td>1,700,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth control pill</td>
<td>35,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Acceptable daily intake = consumption
should not exceed 1% of body’s own production
- Example: prepubertal boy produces 41,500 ng/estrogen/d
  - Would need to eat 41 lb or more of implanted beef
Meatless Mondays will drastically reduce our carbon footprint

- 2006 UN stated livestock Greenhouse gas emissions = 18%
  - Higher than transportation
- Problems:
  - Livestock – analyzed farm to plate
  - Transportation – analyzed ONLY fossil fuel emissions
- Where did inflated (18%) come from??
  - Underdeveloped countries have less transportation

Example of Overinflating

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Ethiopia</th>
<th>Somalia</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>Energy</td>
<td>31</td>
<td>15</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Transportation</td>
<td>26</td>
<td>10</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Livestock</td>
<td>3.4</td>
<td>35</td>
<td>15.6</td>
<td>18</td>
</tr>
</tbody>
</table>

Makes an inaccurate assumption

That every country contributes the same amount of GHG to the environment

Organic & Natural products are better for you

- Organic Products
- Meat & poultry products
  - Livestock feed 100% organically grown feed & forage
  - No synthetic hormones and vaccinations
  - No pesticides on pastures
  - No sewage sludge for fertilization and genetic engineering
  - Irradiation is prohibited
  - All products must originate from certified farms
- Labeled
  - “100% Organic” to “Contains organic ingredients”

Organic & Natural products are better for you

- Natural Products
  - 1982 USDA policy memo
  - No artificial or synthetic ingredients or coloring additives
  - Minimally processed
  - “Minimally processed”
    - Allows traditional processes to make food edible
    - Smoking, roasting, freezing, drying, & fermenting
    - Allows physical processors that do not alter the raw product
      - Ex-grinding
- Label
  - Should include statement explaining “natural”

Organic & Natural products are better for you

- Labeling
  - Important to distinguish for consumers that care
- Inspection
  - Important to keep standards consistent & enforced
- Safety: organics = traditional products
- To say organics are “better” is prohibited
  - However is often implied
Vegetables offer just as much iron as meat

- Why is Iron important??
  - Oxygen movement
  - Blood cell health
  - Brain function
  - Healthy skin, hair, & nails

Meat
- Heme iron
- Easier for body to absorb iron

Plants
- Non-heme iron
- Not as easily absorbable for the body
- Need to eat 1.8x in order to get the same iron obtained in 1 meat serving

Best method??
- The "meat" effect – Eat both plants & meat
  - Eating meat actually helps pull non-heme iron (& zinc) from plant sources
  - Pair with foods high in vitamin C
  - Same as "meat" effect

Animal proteins
- "Complete proteins" – high quality
  1. All 9 of the essential amino acids
     - Cannot be synthesized by the body
     - Animal protein AA profile more closely matches our own
  2. Highly digestible
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Vegetable proteins
- Lack one or more trait

Top 10 Sources of Veggie Protein

1. Spinach
2. Kales
3. Broccoli
4. Cauliflower
5. Mushrooms
6. Parsley
7. Cucumber
8. Green Pepper
9. Tomato
10. Onion

All proteins are created equal (animal & vegetable)

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Myth:

- Vegetables offer just as much iron as meat
- Best method??
- All proteins are created equal (animal & vegetable)
Nitrites in meat products are unsafe

- Original information from 1950s
  - Didn’t know our bodies produce nitrite and so do plants

- Health benefits
  - Regulates blood pressure
  - Promotes wound healing
  - Prevents heart attack and stroke

- 95% of our nitrite intake comes from plant sources or saliva
  - Celery = 0.3% nitrite
  - Hotdogs = 0.003% nitrite

Alternatives to Nitrite

- Vegetables have natural nitrate levels
  - Celery juice
  - Radishes
  - Lettuce
  - Zucchini squash

“Pink Slime” is unsafe, unnatural, and unhealthy

- Lean finely textured ground beef (LFTB)
  - “Pink slime” name from USDA email

- Process
  - Centrifuge separating of lean beef from fat
  - Finely grinds
  - Ammonia gas to improve safety
  - Less ammonia than dairy or bakery products
  - Freeze and chip to include in ground beef
  - Texturally different from ground beef

- USDA decided no label
  - No compositional difference to beef

Irradiation is not safe for foods

- Ionizing radiation
  - Energy sufficient to cause loss of electrons to produce ions
  - Commonly called “cold pasteurization”
  - Kill microorganisms

- Uses:
  - Spices & flours
  - Fruits & vegetables
  - Medical industry

- Not often used in meat
  - Reduces quality: odor & flavor
Grass fed beef is:  
- Better for your health  
  - Minute increase in quantities of benefits  
    - Omega-3 in fat  
      - Salmon = 1.83 g/100g  
      - Grass finished = 0.052g/100g  
      - Grain finished = 0.039g/100g  
  - To meet adequate intake, need to eat  
    - 12 lb grass fed  
    - 14 lb grain fed

Animals are often:  
- Mistreated at packing plants  
  - Handling  
    - Stress  
      - Reduces carcass quality and value  
      - Leads to poor color, texture, and water binding  
      - Bruising & Broken Bones  
        - Breaks capillaries  
        - Meat unusable and must be removed  
  - Humane Slaughter Act of 1958  
    - All animals must be rendered unconscious prior to harvest

Additional Information

- [www.meatmythcrushers.com](http://www.meatmythcrushers.com)  
- [www.meatscience.org](http://www.meatscience.org)  
- [www.TheMeatWeEat.com](http://www.TheMeatWeEat.com)