PALM OIL NUTRITION
Consumer Perception: Where we are and where we should be
People are fed by the **Food Industry** which pays almost no attention to **health**…

…and treated by the **Health Industry** which pays almost no attention to **food**.
Twinkies
Espresso
Tetanus
First Car
Twinkies expire after 25 days

Standard cup of coffee > expresso

Brain neuronal activity at any given time is about 10%

Tetanus comes from C. tetini, not rust

First car invention: Karl Benz
MISCONCEPTIONS
READ ALL ABOUT IT!

Misconceptions persist for many reasons. Media is one!

Sound bites are often misconstrued.

When something is NEW (vs status quo) it is more likely to make NEWS
BE CAREFUL OF CORRELATION - CAUSATION

Correlation coefficient: 0.9926
**Red Palm Oil**

This oil is available as a cooking oil, in finished products and its nutrients are also available as supplements. It does not have to undergo unhealthy hydrogenation. Red palm oil has more carotenoids (pro-Vitamin A) than tomatoes or carrots, and more vitamin E tocotrienols than any other vegetable oil.

**Palm Oil**

Palm oil is a natural, semi-solid fruit fat used in various food formulations. It is ideal as a non-GMO replacement for trans fats. Palm oil is stable at high heat, and is prized by food processors for its great versatility. It can be fractionated into palm olein and palm stearin.

**Palm Olein**

This fruit oil is the liquid fraction of palm oil. It is naturally high in monounsaturated oleic acid. Palm olein has been found to be nutritionally comparable to olive oil in several human dietary trials. It is the primary cooking oil used in tropical and sub-tropical regions of the world. It helps feed billions in these regions.

**Palm Stearin**

This is the solid fat from palm fruit oil, and is trans-free. Primarily used as an ingredient in food formulations, particularly bakery and pastry items, to bring out the best food functionality. Because it is often used in combination with other oils and fats, its saturated fat contribution to the finished products is small.
MISCONCEPTIONS OF PALM OIL

- **Saturated** fat is bad
- **New** oil
- **Not widely used**
- **Difficult** to incorporate into diet
- No major **nutrient** advantage
REALITY OF PALM OIL

- Saturated fats in the diet are CVD-neutral
- 5,000 yrs of use
- Most produced edible oil globally
- Very high smoke point (caveat)
- 15x more provitamin-A carotenes than carrots and 30x more than tomatoes
- PLUS one huge advantage: Tocotrienols
## COMPARISON OF COMMON OILS

<table>
<thead>
<tr>
<th>Oil</th>
<th>Tocopherols (mg/100 g product)</th>
<th>Tocotrienols (mg/100 g product)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>alpha</td>
<td>beta</td>
</tr>
<tr>
<td>Canola</td>
<td>21.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Castor</td>
<td>2.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Coconut</td>
<td>0.5</td>
<td>-</td>
</tr>
<tr>
<td>Corn</td>
<td>11.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Cottonseed</td>
<td>38.9</td>
<td>-</td>
</tr>
<tr>
<td>Olive</td>
<td>11.9</td>
<td>-</td>
</tr>
<tr>
<td><strong>Palm</strong></td>
<td>25.6</td>
<td>-</td>
</tr>
<tr>
<td>Palm kernel</td>
<td>6.2</td>
<td>-</td>
</tr>
<tr>
<td>Peanut</td>
<td>13.0</td>
<td>-</td>
</tr>
<tr>
<td>Rice bran</td>
<td>32.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Safflower</td>
<td>34.2</td>
<td>-</td>
</tr>
<tr>
<td>Sesame</td>
<td>13.6</td>
<td>-</td>
</tr>
<tr>
<td>Soybean</td>
<td>7.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Sunflower</td>
<td>48.7</td>
<td>-</td>
</tr>
<tr>
<td>Walnut</td>
<td>56.3</td>
<td>-</td>
</tr>
<tr>
<td>Wheat germ</td>
<td>133.0</td>
<td>71.0</td>
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</tbody>
</table>
MISCONCEPTION OF VITAMIN E

Vitamin E has been lumped together as a group of compounds.

Most studies using alpha-tocopherol – has resulted in the unfair assumption that the other members of the vitamin E family would result in the same outcomes.
Tocotrienols are a natural form of vitamin E. It is found in our regular diet. While tocopherols are generally present in common vegetable oils (i.e. soy, canola), tocotrienols are concentrated in cereal grains (i.e. oat, barley, and rye, rice bran), with the highest level found in crude palm oil.
ENVIRONMENTAL MISCONCEPTIONS

Poor yield

Unsustainable

Major cause of deforestation

Tremendous biomass waste

Negative impact on wildlife

Malaysia has the same practices as Indonesia and Africa
ENVIRONMENTAL REALITY

Highest yielding edible oil bearing crop per hectare in the world

Worlds first certified sustainable vegetable oil: RSPO

Minimal deforestation

MPO strives toward zero waste by using biomass as renewable energy

Wildlife Conservation Fund ensures industry support and commitment for animals

In Malaysia, oil palm plantations are net carbon sink with over 700M oil palms planted
Tocotrienols in Clinical Practice
Heart Health
• Cholesterol reduction

• Reversal of arterial blockage (in Carotid Stenosis patients)

• Elasticity of large arteries (arterial compliance)

• Potent antioxidant (40 - 60 times more potent than alpha tocopherol)


- Framingham Risk
- ApoA1 and Lp(a)
- ApoE4 Genomic Variant
- Blood Pressure
- Pulse Wave
Neuro Health
NIH funded studies in collaboration with Ohio State University Medical Center.

Mixed tocotrienols were found to **attenuate the progression of white matter lesions** (linked to neurodegenerative diseases and to an increased risk of stroke)

Recently the **largest ever clinical trial on tocotrienol with 240 subjects** (using EVNol SupraBio).

Outcome: **neuroprotection in reducing white matter lesions / TIA.**
• Preferential accumulation in the stratum corneum (top layer)
• Major attention from the oral and topical cosmetic and personal care industry
• Scar reduction and acceleration of wound healing
• Increased moisture, elasticity, reduced swelling under the eyes, and overall better skin
Liver Health
• NAFLD increasing in Asian countries (25% in NA) due to rise in Metabolic Syndrome

• 66.7% significant improvement in one trial

• 50% cured after one year in another trial

• Palm tocotrienol complex (EVNol® SupraBio™) is effective in treating NAFLD and there is no other drug treatment available
### LIVER ENZYMES & ABDOMINAL U/S

<table>
<thead>
<tr>
<th>Enzyme</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT</td>
<td>78</td>
<td>(15-55)</td>
</tr>
<tr>
<td>AST</td>
<td>277</td>
<td>(15-45)</td>
</tr>
<tr>
<td>GGT</td>
<td>959</td>
<td>(&lt;50)</td>
</tr>
<tr>
<td>ALK</td>
<td>264</td>
<td>(30-105)</td>
</tr>
</tbody>
</table>
Hair Health
• University of Science Malaysia conducted a RDBPCT n=36

• 50mg of tocotrienol complex (EVNol SupraBio) or placebo

• 95% of the volunteers in the tocotrienol group had hair growth

• 40% had more than 50% hair growth
Immune Health
Researchers at MPOB, International Medical University and University Putra Malaysia conducted RDBPCT

- n=108 (18-25); Palm tocotrienol complex during TT immunization
- Higher concentration of anti-TT IgG Antibody in tocotrienol group
- Inflammation in tocotrienol group (IL-6 production) significantly lower
COMPREHENSIVE STIMULATED CYTOKINES
In The Media
CONSUMER FEEDBACK

Over 75 M impressions
WHERE WE ARE / NEED TO BE

- Saturated fats are bad, all the same, olive oil is the only healthy oil
- Vitamin E supplementation may not be healthy
- Palm oil causes cancer
- Not many solutions for slowing down aging or hair regrowth
- Major environmental impact

- Saturated fats are CVD-neutral, some are better than others, RPO is healthier than Olive oil
- Vitamin E in the form of tocotrienols can prevent/intervene on many health issues
- Zero evidence that Palm Oil causes Cancer
- Tocotrienols showing promise for both
- Minimal environmental footprint
ONGOING HUMAN CLINICAL TRIALS

1. Ohio State University
   Liver / Skin Health

2. University Science Malaysia
   Stroke / Neuroprotection

3. University Science Malaysia
   Prediabetes
Thank You
References


