My Blood Value Responses to Diet and other Activities

Ben Best
Pharmacy (BSc Pharm)
Physics/Computing Science (BSc)
FreeStyle Lite
to measure blood glucose

- Values in mg/dL
- [milligrams per tenth of a liter (decaLiter)]
CardioChek System
to measure blood triglycerides

- Values in mg/dL (same units as glucose)
- [milligrams per tenth of a liter (decaLiter)]
Measuring Ketones

Precision Xtra

Blood β-Hydroxybutyrate

[mmol/Liter]
CardioChek Plus

- Measures total cholesterol, HDL, and triglycerides
- Calculates LDL, non-HDL, and ratios
- Mostly not of much use for my purposes, and much more trouble to work with
Whole Eggs (high cholesterol)
Glucose, Triglycerides, and Ketone
Whole Eggs (high cholesterol)
HDL, LDL, and Remnant Cholesterol

Cholesterol, 400 grams Eggs

[Graph showing cholesterol levels for HDL, LDL, and Remnant Cholesterol over different values]
Palm Kernel Oil (47% Laurate, 44% Palmate) HDL, LDL, and Remnant Cholesterol

![Graph showing the effects of 200 grams of organic palm kernel oil on HDL, LDL, and remnant cholesterol levels over time.](image-url)
Exercise

45 minutes aerobic, 20 minutes HIIT, 20 minutes resistance (3 session averages)
Exercise

Continuous Glucose Monitoring

- My continuous glucose monitoring system consistently shows a 15 to 30 mg/dL drop in blood glucose during aerobic exercise, with blood glucose rising after stopping.

- Interstitial blood versus blood vessel blood?
Warm bath: no effect?
Warm bath

Continuous Glucose Monitoring

- My continuous glucose monitoring system generally shows an increase in blood glucose during a warm bath
- Interstitial blood versus blood vessel blood?
- Disturbances caused by interrupting a bath to measure blood glucose values?
Deep Tissue (pressure) Massage

Averages of 5 hour-long sessions of deep tissue massage

<table>
<thead>
<tr>
<th></th>
<th>GLUCOSE mg/dL</th>
<th>KETONES mmol/L</th>
<th>TRIGLYCERIDES mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEFORE</td>
<td>85</td>
<td>2.1</td>
<td>160</td>
</tr>
<tr>
<td>AFTER</td>
<td>84</td>
<td>2.5</td>
<td>232</td>
</tr>
</tbody>
</table>
## Thai (Stretching) Massage

**Averages of 2 sessions of stretching massage (no oil)**

<table>
<thead>
<tr>
<th></th>
<th>GLUCOSE mg/dL</th>
<th>KETONES mmol/L</th>
<th>TRIGLYCERIDES mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEFORE</td>
<td>78</td>
<td>1.6</td>
<td>116</td>
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<tr>
<td>AFTER</td>
<td>75</td>
<td>1.1</td>
<td>98</td>
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</table>
Week-long water fast
Glucose, Triglycerides, and Ketone

Week of Fasting

- Glucose
- Triglycerides
- beta-Hydroxybutyrate
Week-long water fast
HDL, LDL, and Remnant Cholesterol

Cholesterol in Week-Long Fast

- HDL
- LDL
- Remnant
### Sleep

- **Averages of 5 nights of sleep**
- **Higher blood pressure due to morning cortisol?**

<table>
<thead>
<tr>
<th></th>
<th>GLU mg/dL</th>
<th>KET mmol/L</th>
<th>TGs mg/dL</th>
<th>Systolic mmHg</th>
<th>Diastolic mmHg</th>
<th>Heart Rate beats/minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEF</td>
<td>101</td>
<td>0.71</td>
<td>174</td>
<td>111</td>
<td>74</td>
<td>65</td>
</tr>
<tr>
<td>AFT</td>
<td>91</td>
<td>0.49</td>
<td>183</td>
<td>116</td>
<td>80</td>
<td>61</td>
</tr>
</tbody>
</table>
CARBOHYDRATES
Oral Glucose Tolerance Test

70 grams Glucose

mg/dL glucose

Hours

Glucose
Hamburger Buns (White Bread)
100% Whole Wheat Bread

400 grams Whole Wheat Bread

- Glucose
- Triglycerides
- beta-Hydroxybutyrate

Graph showing changes in glucose, triglycerides, and beta-hydroxybutyrate over time.
Pumpernickel rye kernal bread

400 grams Mestemacher Pumpernickel whole rye

Graph showing the changes in glucose, triglycerides, and beta-hydroxybutyurate levels over 12 hours for 400 grams of Mestemacher Pumpernickel whole rye.
Rolled Oats

400 grams Whole Foods Rolled Oats

mg/dL glucose/TG

mmol/L Ketone

Hours

Glucose
Triglycerides
beta-Hydroxybutyrate
Oat Bran (soluble fiber)
All-fiber (no starch) Noodles

400 grams Genki Allfiber Noodles

- mg/dL glucose/TG
- mmol/L Ketone

- Glucose
- Triglycerides
- beta-Hydroxybutyrate
Tomato Paste

400 grams Trader Joe's Tomato Paste

- **Glucose**
- **Triglycerides**
- **beta-Hydroxybutyrate**

- **mg/dL glucose/TG** vs. **mmol/L Ketone**
- **Hours**

Graph showing changes in glucose, triglycerides, and beta-hydroxybutyrate over time.
450 grams Allfiber noodles + 150 grams Tomato paste (600 grams total)
Bagels without starch
Organic Avocado

400 grams Organic Avocado

- Glucose
- Triglycerides
- beta-Hydroxybutyrate
KerryGold Irish Butter

200 grams KerryGold Irish Butter

mg/dL glucose/TG

mmol/L Ketone

Hours

Glucose
Triglycerides
beta-Hydroxybutyrate
Organic Olive Oil (MUFA Oleic Acid)
Norwegian Fish Oil
PUFAs: DHA and EPA

200 grams Norwegian Fish Oil

Hours
0 2 4 6 8 10 12

mg/dL glucose/TG

200 150 100 50

mmol/L Ketone

0 1 2 3 4 5 6 7

Glucose  Triglycerides  beta-Hydroxybutyrate
Sesame seeds, initial high glucose
Sesame seeds, initial low glucose

300 grams Organic Sesame Seeds
(Initial Low Glucose & TG)

mg/dL glucose/TG

mmol/L Ketone

Glucose
Triglycerides
beta-Hydroxybutyrate

Hours

0 1 2 3 4 5 6 7 8 9 10
Zenwise MCT Oil
2/3 C8:0 Caprylic Acid
1/3 C10:0 Capric Acid
90 grams Broccoli, 75 grams Beet sprouts, plus oils

165 grams Broccoli & Beet Sprouts with 286 ml oils
(mayonnaise, olive oil, green salad dressing)
Organic Lactose-Free Cream Cheese
LIQUIDS
Campbell’s V8 Juice
Soy milk

One liter unsweetened organic Soymilk

Graph showing levels of glucose, triglycerides, and beta-hydroxybutyrate over six hours.
Flaxmilk

One liter unsweetened organic Flaxmilk

- Glucose
- Triglycerides
- beta-Hydroxybutyrate

Graph showing levels of Glucose, Triglycerides, and beta-Hydroxybutyrate over 6 hours.
BERRIES
Blueberries

1,000 grams Blueberries

- Glucose
- Triglycerides
- beta-Hydroxybutyrate
Strawberries

1,000 grams Strawberries

- Glucose
- Triglycerides
- beta-Hydroxybutyrate

Chart showing data on glucose, triglycerides, and beta-hydroxybutyrate levels over time in 1,000 grams of strawberries.
Unsweetened Dried Cranberries

150 grams Unsweetened Dried Cranberries

- Glucose
- Triglycerides
- beta-Hydroxybutyrate
No lessons for changing my lifestyle from most tests

- **EXERCISE**: My responses not much different from those that have been much better studied by scientists

- **MASSAGE**: The triglyceride changes are unexplained, may or may not be unique to me, and may be a new discovery. Need more data.

- **SLEEP**: Cortisol (stress hormone) rises in the morning, making my responses harder to explain

- **BATH**: Does the testing process affect the result?

- **FASTING**
  - Glucose falls, and ketones rise with increasing time
  - Triglycerides rise after 3-4 days, then fall
Food testing provides the most lessons

- All grains greatly raise glucose, the effect usually lasting several hours.
- Low starch, high-fiber noodles and breads do not raise blood glucose.
- Fatty foods raise triglycerides and ketones, with TGs falling after 3 hours (with elevated ketones) for avocado, flax seed, and butter, but persisting for more hours for mayonnaise, sesame seed, and olive oil.
- MCT oil raises ketones without raising TGs or glucose, but can be very unpalatable in doses over 100 grams.
- Lactose-free cream cheese elevates TGs & ketones, but not glucose.
- Flaxmilk has the best effect on blood values of beverages.
- Strawberries raise blood glucose the least of the berries (except for cranberries), because of high water content.
- Dried, unsweetened cranberries do not raise blood glucose, but are unpalatably acidic when eaten alone.