A Testosterone and Diet Experiment

Can diet changes turn me into Wolverine?

Maximilian Gotzler

QS Europe Conference Amsterdam– May 10, 2014
It started with a winter funk

“It was a clear day, and yet there seemed an intangible pall over the face of things, a subtle gloom that made the day dark, and that was due to the absence of the sun.”

- Jack London in “How to build a fire”
My biomarkers were in the normal range...
...but they were far from optimal

- Low Vitamin-D

Vitamin D (25-OH-Cholec.) 29.2 ng/ml

Ausreichende Versorgung, empfohlener Spiegel > 30

- Low Testosterone

- Freies Östriol LIA < 0.07 ng/ml
- Testosteron gesamt ECLIA 4.92 ng/ml 3.0
- Testosteron frei RIA 11.7 pg/ml
Testosterone is the primary anabolic hormone

- Present in both men and women
- Made from cholesterol
- Affects mood, lean body mass, and sexual function
- Is affected by diet and lifestyle
Overhyped or underrated?

„Are you kidding? It’s freaking awesome! I’m becoming Wolverine.“

- Tim Ferriss in “The 4-Hour Body”
Let’s find out with a change in diet

• 70% fat and proteins
• High in healthy fats
• Foods rich in B-Vitamins, Magnesium, Vitamin E and Zinc
• Vitamin-D
• Cod liver oil
The diet only worked with carbs

Total Testosterone (blood serum)

<table>
<thead>
<tr>
<th>Risk Ranges</th>
<th>ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk</td>
<td>&gt; 8.1</td>
</tr>
<tr>
<td>Normal</td>
<td>3.3 - 8.1</td>
</tr>
<tr>
<td>High Risk</td>
<td>&lt; 3.3</td>
</tr>
</tbody>
</table>

Low-carb: 4.92, -23%  
High-carb: 6.90, +82%
Why are carbs needed?

- Carbs help balance anabolic and catabolic processes
- Athletes need carbs to counteract fatigue and overtraining
- But: Carbs also increase SHBG, which binds active T

Graph from a recent article by Gil Blander, Founder of InsideTracker
One month with frequent tests

Free Testosterone (blood serum)

<table>
<thead>
<tr>
<th>Risk Ranges</th>
<th>pg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt; 27</td>
</tr>
<tr>
<td>Normal</td>
<td>8.8 - 27</td>
</tr>
<tr>
<td>Low</td>
<td>&lt; 8.8</td>
</tr>
</tbody>
</table>

X X X X X X X X

April 2014
Only about 2% of Testosterone is active

Testosterone fractions in the blood of a healthy male

- **SHBG-bound T** (Sex-Hormone Binding Globulin) **60%**
  - Increases with age, thus reducing active T
- **Albumin-bound T** **38%**
- **Free T** **2%** *(Can be tested in saliva)*

T = Testosterone
Only 2% is free and 98% is bound
Free T fluctuated significantly

Free Testosterone (blood serum)

Risk Ranges | pg/ml |
---|---|
High | > 27 |
Normal | 8.8 - 27 |
Low | < 8.8 |

April 2014: 20.8, 24.8, 24.5, 13.9, 25.2, 32.3

2014:
- Free Testosterone (blood serum)
- April: 20.8, 24.8, 24.5, 13.9, 25.2, 32.3
T increased after a good night of sleep

Free Testosterone (blood serum)

<table>
<thead>
<tr>
<th>Risk Ranges</th>
<th>pg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt; 27</td>
</tr>
<tr>
<td>Normal</td>
<td>8.8 - 27</td>
</tr>
<tr>
<td>Low</td>
<td>&lt; 8.8</td>
</tr>
</tbody>
</table>

April 2014
Stress and sleep did influence my T-level

24.5 pg/ml

60.2 pg/ml
Free T fluctuated significantly

Free Testosterone (blood serum)

<table>
<thead>
<tr>
<th>Risk Ranges</th>
<th>pg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt; 27</td>
</tr>
<tr>
<td>Normal</td>
<td>8.8 - 27</td>
</tr>
<tr>
<td>Low</td>
<td>&lt; 8.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>April</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.8</td>
<td>33.0</td>
</tr>
<tr>
<td>24.8</td>
<td>24.5</td>
</tr>
<tr>
<td>60.2</td>
<td>44.8</td>
</tr>
<tr>
<td>25.2</td>
<td>32.3</td>
</tr>
<tr>
<td>13.9</td>
<td>13.0</td>
</tr>
</tbody>
</table>
Extra cholesterol did not increase T

Free Testosterone (blood serum)

**Risk Ranges**

<table>
<thead>
<tr>
<th>Level</th>
<th>Range</th>
<th>pg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt; 27</td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>8.8 - 27</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>&lt; 8.8</td>
<td></td>
</tr>
</tbody>
</table>

- April 2014:
  - Free Testosterone: 20.8
  - 33.0
  - 60.2
  - 44.8
  - 32.3

- 2014:
  - Free Testosterone: 13.9
  - 13.0
Mood was better on days with high T.

Free Testosterone (blood serum)

<table>
<thead>
<tr>
<th>Risk Ranges</th>
<th>pg/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>&gt; 27</td>
</tr>
<tr>
<td>Normal</td>
<td>8.8 - 27</td>
</tr>
<tr>
<td>Low</td>
<td>&lt; 8.8</td>
</tr>
</tbody>
</table>
For me, testosterone is...

...a very good indicator and important ingredient for a good day...

...but it didn’t turn me into Wolverine.
Wanna improve upon your biomarkers?

Health upgrades with biomarker analytics

www.biotrakr.com
How it works

Easy Dry Spot Test at home

Analysis and visualization on your Biotrakr profile

Personalized recommendations and cutting-edge health advice
Thank you

Reach out!

max@biotrakr.com
Tel.: +49 160 964 77329

…and come to my office hour at 3PM :)}