Healing Hormones
Episode 2
Testing
why measure

- track changes in levels
- establish a baseline
- understand relationships
- everyone is unique
what your doctor may say

- too many variables
- no need to look more deeply
- range of normal is so wide, doesn’t help
types of hormone tests

- blood
- saliva
- urine
blood testing
Blood Tests Pros

- often covered by insurance
- can measure free and total testosterone which usually can’t be done with other tests
- can follow pituitary hormones
- can screen things like PSA which is useful for men
- only way to measure pregnenolone
Blood Test Cons

- one moment in time
- large variability
- cannot measure estrogen metabolites
- harder to get a series of cortisol numbers
saliva testing
Saliva Testing Pros

- easy to collect
- can follow treatment
- possibly the only way to accurately measure progesterone cream
- easy way to chart hormone changes over time
Saliva Testings Cons

- harder to get accurate readings
- low hormone levels in saliva
- any change in pH, mouth condition, amount of saliva affect levels
Urine Testing Pros

- can measure metabolites
- provide an average of 24 hours
- only way to track cortisol metabolism
Urine Testing Cons

- used to be inconvenient because you had to collect for 24 hours, new test available now
- not always accurate
- only measures the hormones you are excreting
- can’t directly measure progesterone level
what can we test?

- thyroid
- adrenals
- brain chemistry
- brain hormones
my list - adrenal tests

- estrogen - estradiol, estriol, metabolites
- progesterone
- DHEA
- pregnenolone
- testosterone - free and total
- cortisol / cortisone
my list - thyroid

- TSH
- free T3
- free T4
- total T4
- antithyroid antibodies
- antithyroglobulin antibodies
- thyroid ultrasound if necessary
my list - brain

- TSH
- LH
- FSH
- PRL
what is “normal”

- every lab has certain parameters for measuring hormones
- the normal range is wide
- have to think about how you feel versus what your blood tests say
- ALWAYS - how you feel is more important
optimize testing

- measure at certain time of the month
- measure when you feel crappy
- certain times of day
interpreting results

- normal ranges are too wide
- timing of tests makes a difference
- remember relationships
- how you feel is more important than numbers
example TSH

- “normal range” = 0.35 - 4.5
- functional “optimal range” = 1-2
- the higher the number, the less your thyroid is working
Metabolism of Select Steroids

- Deoxycorticosterone
  - Corticosterone
    - Aldosterone
    - 11-Dehydrotetrahydrocorticosterone (THA)
    - Allo-Tetrahydrocorticosterone (5α-THB) + Tetrahydrocorticosterone (THB)
  - Cortisone
    - Tetrahydrocortisone (THE)
    - 11β-OH Androsterone
    - 11β-OH Etiocholanolone
    - Allo-Tetrahydrocortisol (5α-THF)
    - Tetrahydrocortisol (THF)
  - 11-OH Progesterone
    - Pregnanediol
    - Pregnanetriol
  - DHEA
    - Androsterone
    - Etiocholanolone

- Progesterone
  - 21-OH
  - 17-OH Progesterone
  - Pregnenolone
  - 21-OH
  - 17α-HSD
  - 17β-HSD
  - 5α-DHT
  - 5β-DHT
  - Estradiol
  - Estrone
  - Testosterone
  - Androstenedione
  - 2-OH Estradiol
  - 2-MeO Estradiol
  - 16α-OH Estrone
  - Estriol
  - 2-OH Estriol
<table>
<thead>
<tr>
<th>Steroid</th>
<th>Amount Excreted in μg/24hr</th>
<th>Phase</th>
<th>Day</th>
<th>Female μg/24hr</th>
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<td>Luteal</td>
<td>17-26</td>
<td>3.3 - 44.6 *</td>
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<td>27-11</td>
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<td>Mid-Cycle</td>
<td>12-16</td>
<td>11.0 - 46</td>
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<td>Post Menopausal</td>
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<td>17-26</td>
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<td>1.0 - 23</td>
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<td>Mid-Cycle</td>
<td>12-16</td>
<td>4.0 - 45</td>
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<td>Mid-Cycle</td>
<td>12-16</td>
<td>20 - 130</td>
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<td>17-26</td>
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<td>Mid-Cycle</td>
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<td>Estrogen Quotient</td>
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<td>Estriol / (estrone + estradiol)</td>
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### Hormone Levels

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<th>Hormone</th>
<th>Value</th>
<th>Category</th>
<th>Range</th>
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<td>1450 - 6140 *</td>
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<td>DHEA</td>
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<td>Follicular</td>
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<tr>
<td>Androsterone</td>
<td>257</td>
<td>Post Menopausal</td>
<td>200 - 1000</td>
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<tr>
<td>Etiocholanolone</td>
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<tr>
<td>Testosterone</td>
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<td>LOW</td>
<td>5.0 - 35.0</td>
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<td>Androsterone</td>
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<td>LOW</td>
<td>500 - 3200</td>
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<td>Etiocholanolone</td>
<td>467</td>
<td>LOW</td>
<td>500 - 5000</td>
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<td>100 - 1500</td>
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<td>Cortisol</td>
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<td>Tetrahydrocortisone</td>
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<td>1700 - 4200</td>
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<td>400 - 2100</td>
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<td>100</td>
<td>6.0</td>
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<td>LOW</td>
<td>130-600</td>
<td>30-240</td>
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its all about balance