17-Hydroxysteroids

**If high Total 17-hydroxysteroids, with or w/out high cortisol**

**Possible Causes**
- High cortisol production, e.g., stress, strenuous exercise, anorexia nervosa, Cushing's disease
- Normal or low cortisol production in conjunction with increased clearance of cortisol

**Further Testing**
- Confirm adrenal function with salivary AdrenoCortex Stress Profile or serum a.m. cortisol

**Treatment Options for Adrenal Excess (confirmed by saliva or serum)**
- Identify sources of cortisol activation
- Stress management
- Dietary adjustments
- Adrenal nutrient support
- Consider additional support

**If low Total 17-hydroxysteroids, with or w/out high cortisol**

**Possible Causes**
- Suppression of endogenous cortisol production from glucocorticoids, e.g., Prednisone
- Low cortisol production, e.g., adrenal insufficiency or congenital adrenal hyperplasia (enzyme deficiency)
- Pituitary insufficiency

**Further Testing**
- Address physiologic sources of stress
- Stress management
- Dietary adjustments
- Adrenal nutrient support
- Consider additional support

**Treatment Options for Adrenal Insufficiency**
- Inflammation, infections, hypoglycemia, dyshormone/gut, allergies
- Adequate sleep, meditation, yoga, or other stress-reducing activities
- Reduce intake of sweets and other high-glycemic load foods
- Vitamin C, zinc, B vitamins, consider exigra BS (100-200 mg/d) and BS (500-1500 mg/d); consider phosphatidyl-serine, GABA, L-theanine
- Eleutherooccus, Panax ginseng, ashwagandha, astragalus, schizandra, rhodiola, licorice

**Progesterone**

**If Estrone and/or Estradiol is low**

**Possible Causes**
- Low body mass index or strenuous exercise (esp. in women)
- Chronic stress (shutting of precursors to cortisol)
- Decreased conversion from androgens (if high Total 17-ketosteroids)

**Treatment Options**
- Increase BMI if relevant
- Stress management (Refer to section for High Total 17-hydroxysteroids)
- Rule out: -Aromatase inhibitors -Smoking
- Decreased conversion from androgens (if high Total 17-ketosteroids)
- Hypothalamic or pituitary insufficiency

**If Estrone and/or Estradiol is high**

**Possible Causes**
- Decreased conversion from androgens (if high Total 17-ketosteroids)

**Treatment Options**
- Lifestyle adjustments
- Nutritional support
- Reduce aromatase activity (check for low Total 17-ketosteroids)
- Identify contributing medications

**Estrogen Quotient**

**If Estrogen Quotient is low**

**Implication**
- Possibly higher risk of breast & endometrial cancer, benign breast disease

**Progestosterone**

**Estrogens**

**If Estrone and/or Estradiol is low**

**Possible Causes**
- Low body mass index or strenuous exercise (esp. in women)
- Chronic stress (shutting of precursors to cortisol)
- Decreased conversion from androgens (if high Total 17-ketosteroids)

**Treatment Options**
- Increase BMI if relevant
- Stress management (Refer to section for High Total 17-hydroxysteroids)
- Rule out: -Aromatase inhibitors -Smoking
- Decreased conversion from androgens (if high Total 17-ketosteroids)
- Hypothalamic or pituitary insufficiency

**If Estrone and/or Estradiol is high**

**Possible Causes**
- Decreased conversion from androgens (if high Total 17-ketosteroids)

**Treatment Options**
- Lifestyle adjustments
- Nutritional support
- Reduce aromatase activity (check for low Total 17-ketosteroids)
- Identify contributing medications

**Estrogen Quotient**

**If Estrogen Quotient is low**

**Implication**
- Possibly higher risk of breast & endometrial cancer, benign breast disease

**Treatment Options**
- Reduce E1 or E2 if elevated (refer to section for high E1 or E2)
- Consider E3 administration
**Implication**

Higher risk of breast or prostate cancer

**Treatment Options**

- Increase cruciferous vegetables
- Consider IIC (150 mg 2-3 X day), DIM (120-150 mg 2-3 X day), or sulforaphane (30 mg 2-3 X day)
- Rule out hypothyroidism and toxicity (e.g., pesticides, polycyclic aromatic hydrocarbons, PCBs)

**Androgens**

<table>
<thead>
<tr>
<th>Concentrate</th>
<th>Anabolic/Catabolic Balance 17 Ketosteroids/17Hydroxysteroids Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-Ketosteroids, Total</td>
<td>Anabolic/Catabolic Balance (FMV urine)</td>
</tr>
<tr>
<td>Testosterone</td>
<td>17-Ketosteroids, Total</td>
</tr>
<tr>
<td>Androstenedione</td>
<td>Anabolic (Growth &amp; Healing)</td>
</tr>
</tbody>
</table>

**Possible Causes**

- Chronic stress, excessive wear and tear, poor recovery from illness or injury

**Treatment Options**

- Refer to Treatment Options for high Total 17-Ketosteroids or low Total 17-Ketosteroids

**11β-HSD Index**

<table>
<thead>
<tr>
<th>(a-ThF + ThF)/THE</th>
<th>Less Cortisol</th>
<th>More Cortisol</th>
</tr>
</thead>
</table>

**Implication**

Less cortisol activation

**Treatment Options**

- Rule out hyperthyroidism, consider licorice, vitamin D, or grapefruit (tariemogen), rule out contributing meds (e.g., risperidone, luteinase)

**Implication**

More cortisol activation

**Treatment Options**

- Improve insulin sensitivity, reduce abdominal fat, correct hypothyroidism or growth hormone insufficiency, control inflammation, rule out hypoparathyroidism, reduce sodium intake