

Sex hormone binding globulin (SHBG) is a protein that binds to sex hormones (i.e., testosterone and estrogen) in the blood and helps transport the hormones into tissues to do their job. In this way, SHBG plays an important balancing role for sex hormones in the body.

When hormones bind to SHBG, they are essentially inactivated. High concentrations of SHBG in the body can lead to increased bound testosterone, as SHBG more easily binds to testosterone than to estrogen. This can cause symptoms associated with testosterone deficiency, including fatigue, decreased libido, weight gain, mood changes, decreased muscle mass, and decreased bone mineral density, to name a few.

On the other hand, when SHBG levels in the body are low, there is not enough binding power to keep sex hormones within the optimal range. This can lead to increased free testosterone and estrogen in the body, which can lead to symptoms like hair loss, acne, and excess fluid retention.

Some health conditions can affect the level of SHBG in the body. In order to help normalize SHBG levels in the body, your practitioner may have specific recommendations. The table below lists some common health conditions associated with increased or decreased SHBG, and recommendations for addressing both. Talk to your Functional Medicine practitioner before beginning any interventions.

Increases SHBG	Decreases SHBG
<p><b>Health Conditions</b></p> <ul style="list-style-type: none"> <li>■ Aging</li> <li>■ Cirrhosis</li> <li>■ Hepatitis</li> <li>■ Hyperthyroidism</li> <li>■ HIV</li> <li>■ Pregnancy</li> </ul> <p><b>Medications and Supplements:</b></p> <ul style="list-style-type: none"> <li>■ Anticonvulsants</li> <li>■ Exogenous estrogens</li> <li>■ Vitamin D</li> </ul> <p><b>Diet and Nutrition:</b></p> <ul style="list-style-type: none"> <li>■ Low-fat diet</li> <li>■ Low-protein (vegetarian) diet</li> </ul>	<p><b>Health Conditions</b></p> <ul style="list-style-type: none"> <li>■ Diabetes mellitus (Type 2)</li> <li>■ Hypothyroidism</li> <li>■ Metabolic syndrome</li> <li>■ Nephrotic syndrome</li> <li>■ Obesity</li> </ul> <p><b>Hormones</b></p> <ul style="list-style-type: none"> <li>■ Androgens</li> <li>■ IGF-1 and growth hormone</li> <li>■ Insulin</li> <li>■ Progesterone</li> <li>■ Prolactin</li> </ul> <p><b>Medications and Supplements:</b></p> <ul style="list-style-type: none"> <li>■ EPA/DHA</li> <li>■ Glucocorticoids</li> <li>■ Stinging nettle (<i>Urtica dioica</i>)</li> <li>■ Whey protein</li> </ul>