



### The Pathophysiology of Low Libido in Males

Low libido or impaired sexual desire is common as part of the normal aging process. The associated condition is known as male sexual dysfunction (SD). This is a disorder of sexual behavior and sensation that manifests as an absence or impairment in sexual psychology and physiological response. Approximately 52% of men 40 to 70 years old experience some degree of male SD.<sup>1,2</sup>

Male SD encompasses several symptoms, including erectile dysfunction (ED), loss of libido or sexual desire, difficulty achieving orgasm, absent penile sensation, decreased ejaculation, and failure of sexual intercourse.<sup>3</sup> There are a variety of biopsychosocial comorbid factors that are associated with reduced libido, SD, and its related symptoms, including male functional hypogonadism, alterations in hypothalamic-pituitary-gonadal (HPG) axis signaling, sexual disharmony among couples, and other potential pathological mechanisms.<sup>4-6</sup> Total serum testosterone (T) begins to decline in the third decade of life, with nearly 30% of men experiencing low T by age 70.<sup>7</sup> Chronic noncommunicable diseases, exposure to environmental toxins and hormone-disrupting chemicals, psychological stress, unhealthy lifestyle and diet, certain medications, and anabolic steroid and illicit drug use are all risk factors for SD in men.<sup>1,3,4</sup>

Sexual desire exists on a spectrum, making it important to consider a comprehensive evaluation of the patient's history when making a diagnosis.<sup>8</sup> This clinical protocol is designed to support male patients with low libido.\*

### Diagnostic Biomarkers and Clinical Indicators

- Validated Questionnaires in Male Sexual Function Assessment<sup>9</sup>
  - Sexual Arousal and Desire Inventory<sup>10</sup>
  - International Index of Erectile Function<sup>11</sup>
- Blood sugar markers<sup>12</sup>
  - Fasting plasma glucose
  - Hemoglobin A1c
- Serum zinc<sup>17</sup>
- High-sensitivity C-reactive protein<sup>16</sup>
- HPG axis function<sup>5,13,14</sup>
  - Serum steroid hormone levels
    - Total testosterone
    - Free testosterone
    - Dihydrotestosterone
    - Gonadotropin
    - Estradiol
    - Sex hormone binding globulin
  - Adrenal function<sup>15</sup>
    - Cortisol
    - Serum DHEA

### Therapeutic Diet and Nutritional Considerations

- Instruct patients to balance each meal with protein, fiber, and fat to help support healthy blood sugar metabolism and body composition; cardiometabolic diseases are associated with SD, and low libido.<sup>2,12,18,19</sup>
- Encourage consumption of an anti-inflammatory diet by incorporating omega-3 fatty acids, as these have been shown to support the dopaminergic system,<sup>20</sup> and diet this type of influences hormone production, metabolism, and excretion<sup>21</sup>
  - Fatty fish (e.g., sockeye salmon, sardines, mackerel)
  - Walnuts, chia, flax, and hemp seeds
- Recommend nutrients and antioxidants that support healthy hormonal balance and normal testosterone production in men<sup>7</sup>
  - Maca root (*L. meyenii*) has been shown to significantly improve libido and SD.<sup>22,23</sup>
  - Aromatase inhibitors: licorice, green tea (EGCg), resveratrol, curcumin<sup>24</sup>
  - Zinc: oysters, shellfish, pumpkin seeds<sup>25</sup>
  - Foods that support circulation and nitric oxide production.<sup>1,26,27</sup>
    - Turkey breast, legumes, nuts, melons, dark leafy greens, beets, and pomegranate

### Lifestyle Interventions

- Recommend mindfulness meditation and stress relief techniques, as stress (i.e., increased cortisol) and anxiety are correlated with alterations of the HPG axis, libido, and SD.<sup>28,29</sup>
- Counsel patients on maintaining regular physical activity, such as resistance training; exercise is associated with lower risk of developing ED and SD and increasing testosterone.<sup>19</sup>
- Advise quality, uninterrupted sleep, as men with untreated sleep apnea have been shown to suffer from low libido and lower testosterone levels.<sup>30</sup>
- Recommend smoking cessation and limiting alcohol consumption
- Inquire about medication and recreational drug use, as certain drugs may have negative effects on libido.<sup>8,31</sup>
- Encourage patients to explore new activities, such as sex therapy, and foster open and honest communication with their partner to help stimulate healthy sexual drive



# Supplement Protocol

Primary Support:



CODE

## LibidoStim-M™

<b>Dose</b>	2 capsules per day with a meal
<b>Duration</b>	Ongoing as needed
<b>Formula Highlights</b>	LibidoStim-M™ is a synergistic blend of biologically active nutrients and botanicals specially formulated to help promote normal testosterone production, erectile function, and sexual desire in men.* This formula contains extracts of tribulus, tongkat ali, horny goat weed, and ginkgo biloba standardized to meet targeted amounts of bioactive phytochemicals that possess antioxidant properties, along with diindolylmethane (DIM), chrysin, and boron for comprehensive libido support.*

## Annatto-GG™ 150

<b>Dose</b>	1 softgel per day
<b>Duration</b>	Ongoing as needed
<b>Formula Highlights</b>	Annatto-GG™ 150 is a unique product that provides 150 mg of geranylgeraniol (GG), a compound that plays critical roles in numerous biological processes affecting organs and tissues throughout the body. It features GG-Gold®, a patented form of GG extracted from annatto seeds. By introducing an external source of GG, Annatto-GG™ 150 may help compensate for the natural decline in GG synthesis during aging, in addition to the decreased production of GG associated with the use of common prescription drugs.*

## NOx Synergy™

<b>Dose</b>	Mix 1 TBSP (approximately 2 scoops) in water per day
<b>Duration</b>	Ongoing as needed
<b>Formula Highlights</b>	NOx Synergy™ is a synergistic formula designed to optimize nitric oxide (NO) levels in the body. The ingredients in this formula work to help promote the synthesis and discourage the degradation of nitric oxide, which is beneficial for cardiovascular function, circulation, and muscular performance.*

### Adjunct Support:

## Zinc Supreme™

<b>Dose</b>	1 capsule per day
<b>Duration</b>	Ongoing as needed
<b>Formula Highlights</b>	Zinc Supreme™ offers chelated minerals by Albion Advanced Nutrition, the leader in mineral technology. These are ideal chelates with a 2:1 molar ratio of two molecules of the amino acid glycine chemically bonded in liquid to one mineral ion of zinc or molybdenum for optimal absorption. These minerals are combined with other nutrients such as vitamin B6 and taurine to provide superior results.

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---low-libido-male-protocol-references>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities, appropriate monitoring, including liver function tests (LFT) is recommended.

For considerations regarding herb-drug and nutrient-drug interactions, please refer to reliable, evidence-based resources such as the Natural Medicine Database or Stargrove MB, Treasure J, McKee DL. *Herb, Nutrient, and Drug Interactions: Clinical Implications and Therapeutic Strategies*. St. Louis, MO: Mosby-Elsevier; 2008.

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\*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.