

Hormone Health Panel: Standard Operating Procedures



Nourish Action Plan by Lab Result

Lab test	Standard Reference Range	Nourish RD Standard Operating Procedures by Non-Critical Result
Free T3	<ul style="list-style-type: none"> • 13-20 years: 3.0-4.7 pg/mL • >20 years: 2.3-4.2 pg/mL 	<p><i>Free T3 is the biologically active thyroid hormone and largely reflects peripheral conversion from T4 rather than direct thyroid output.</i></p> <p>Below reference range</p> <ul style="list-style-type: none"> • Screen for symptoms of hypothyroidism (fatigue, cold intolerance, weight gain, constipation, cognitive impairment, dry skin, and menstrual irregularities) • Screen for inadequate nutrition, restrictive dieting, or excessive endurance exercise • Discuss selenium, zinc, and iron sufficiency • Counsel on stress and sleep adequacy • Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside other thyroid function tests and document recommendation <p>Above reference range</p> <ul style="list-style-type: none"> • Screen for symptoms of hyperthyroidism (anxiety, insomnia, palpitations, unintentional weight loss, diarrhea, heat intolerance, and excessive sweating) • Review supplement use (thyroid support products, iodine) • Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside other thyroid function tests and document recommendation
Free T4 (Quest) Total T4 (BioRef)	<p>Free T4</p> <ul style="list-style-type: none"> • 13-20 years: 0.8-1.4 ng/dL • >20 years: 0.8-1.8 ng/dL <p>Total T4</p> <ul style="list-style-type: none"> • Male <ul style="list-style-type: none"> • 13-20 years: 5.1-10.3 mcg/dL • >20 years: 4.9-10.5 mcg/dL • Female <ul style="list-style-type: none"> • 13-20 years: 5.3-11.7 mcg/dL • >20 years: 5.1-11.9 mcg/dL 	<p><i>Free T4 is the primary hormone produced by the thyroid gland and serves as a precursor to T3.</i></p> <p>Below reference range</p> <ul style="list-style-type: none"> • Screen for symptoms of hypothyroidism (fatigue, cold intolerance, weight gain, constipation, cognitive impairment, dry skin, and menstrual irregularities) • Screen for inadequate nutrition, restrictive dieting, or excessive endurance exercise. • Discuss selenium, zinc, and iron sufficiency • Counsel on stress and sleep adequacy • Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside other thyroid function tests and document recommendation <p>Above reference range</p> <ul style="list-style-type: none"> • Screen for symptoms of hyperthyroidism (anxiety, insomnia, palpitations, unintentional weight loss, diarrhea, heat intolerance, and excessive sweating) • Review supplement use (thyroid support products, iodine) • Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside other thyroid function tests and document recommendation <p><i>Total T4 includes both bound and unbound hormone and is influenced by estrogen status, pregnancy, and hormone-binding proteins.</i></p> <p>Outside reference range</p> <ul style="list-style-type: none"> • Educate patient that total T4 may be altered by estrogen status, pregnancy, oral contraceptives, or SHBG • Reinforce importance of Free T4 and TSH for interpretation • Provide general thyroid-supportive nutrition counseling • Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside other thyroid function tests and document recommendation
Estradiol (Quest) Estradiol, high sensitivity (BioRef)	<p>Male</p> <ul style="list-style-type: none"> • ≤39 pg/mL <p>Female</p> <ul style="list-style-type: none"> • Follicular Phase: 30-144 pg/mL • Mid-Cycle: 64-357 pg/mL • Luteal Phase: 56-214 pg/mL • Postmenopausal: ≤31 pg/mL 	<p>Estradiol levels vary significantly by menstrual phase, menopausal status, and exogenous hormone use; interpretation requires appropriate clinical context.</p> <p>Below expected range for age/phase</p> <ul style="list-style-type: none"> • Confirm menstrual phase or menopausal status • Assess for adequate calories, adequate dietary fat, and excessive exercise • Counsel on bone-supportive nutrients (calcium, vitamin D) • Recommend PCP or Ob/Gyn follow-up within 30 days for interpretation and document recommendation <p>Above expected range</p> <ul style="list-style-type: none"> • Confirm whether patient is pregnant • Review hormone therapy, oral contraceptives, or supplements • Counsel on adequate fiber intake to support estrogen metabolism and excretion • Recommend PCP or Ob/Gyn follow-up within 30 days for interpretation and document recommendation

Note on timing: Hormonal panels for female patients should ideally be drawn on days 2-5 of the menstrual cycle (with day 1 being the first day of menstruation). This window offers the most useful baseline for assessing hormonal status and identifying patients approaching menopause. If labs are drawn outside this window, document the cycle day to support accurate interpretation.

Note on oral contraceptives: Patients taking oral birth control pills (OCPs) should be counseled that their results will largely reflect their medication rather than their underlying hormonal function. Results during the placebo week may shift slightly but will not return to true baseline. RDs should note OCP use when discussing lab timing with patients and set expectations accordingly.

Links to Nourish Care Pathways: [Nourish Care Pathway: Weight Loss, Overweight & Obesity \(Adult\)](#), [Nourish Care Pathway: GLP-1-Supported Weight Loss \(Adult\)](#), [Nourish Care Pathway: Women's Health](#)

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Progesterone	<p>Male</p> <ul style="list-style-type: none"> <1.4 ng/mL <p>Female</p> <ul style="list-style-type: none"> Follicular Phase: <1.0 ng/mL Luteal Phase: 2.6-21.5 ng/mL Postmenopausal: <0.5 ng/mL <p>Pregnancy</p> <ul style="list-style-type: none"> First Trimester: 4.1-34.0 g/mL Second Trimester: 24.0-76.0 g/mL Third Trimester: 52.0-302.0 ng/mL 	<p><i>Progesterone interpretation depends on correct menstrual-cycle timing, particularly confirmation of luteal-phase testing.</i></p> <p>Lower than expected for cycle phase</p> <ul style="list-style-type: none"> Confirm menstrual phase or menopausal status Assess for low energy availability, excessive exercise, or chronic stress Counsel on adequate total energy intake to support reproductive function Counsel on stress management and sleep adequacy Recommend PCP or Ob/Gyn follow-up within 30 days for interpretation and document recommendation <p>Above reference range</p> <ul style="list-style-type: none"> Confirm whether patient is pregnant Review hormone therapy, oral contraceptives, or supplements Screen for ovarian cysts or adrenal disorders if clinically indicated Recommend PCP or Ob/Gyn follow-up within 30 days for interpretation and document recommendation
Testosterone (Free and Total)	<p>Free</p> <ul style="list-style-type: none"> Male: <ul style="list-style-type: none"> 18-69 years: 46.0-224.0 pg/mL 70-89 years: 6.0-73.0 pg/mL Female: <ul style="list-style-type: none"> 18-69 years: 0.2-5.0 pg/mL 70-89 years: 0.3-5.0 pg/mL <p>Bioavailable</p> <ul style="list-style-type: none"> Male: <ul style="list-style-type: none"> 18-69 years: 110.0-575.0 pg/mL 70-89 years: 15.0-150.0 pg/mL Female: <ul style="list-style-type: none"> 18-69 years: 0.5-8.5 pg/mL 70-89 years: 0.5-8.8 pg/mL <p>Total</p> <ul style="list-style-type: none"> Male: <ul style="list-style-type: none"> ≥ 18 years: 250-1100 ng/dL Female: <ul style="list-style-type: none"> ≥ 18 years: 2-45 ng/dL 	<p><i>Free testosterone represents hormone available to tissues and is influenced by sex hormone-binding globulin (SHBG); total testosterone alone may not reflect biologically available hormone.</i></p> <p>Below reference range for sex/age</p> <ul style="list-style-type: none"> Confirm menopausal status and history of oophorectomy Review medications (oral estrogens, corticosteroids, opioids, prior androgen use) Assess for obesity, diabetes, and metabolic comorbidities (men) Assess for low energy availability, excessive exercise, or chronic stress Screen for symptoms of hypogonadism: decreased libido, erectile dysfunction, fatigue, diminished well-being Counsel on weight management if overweight/obese (particularly men) Counsel on adequate total energy intake to support reproductive function Counsel on adequate sleep and stress management Recommend PCP, Endocrinology, or Ob/Gyn follow-up within 30 days for interpretation and document recommendation <p>Above reference range</p> <ul style="list-style-type: none"> Confirm whether patient is pregnant (women) Review exogenous androgen use (testosterone therapy, supplements, anabolic steroids, partner's testosterone gel) Confirm timing of blood draw (morning, fasting) Screen for signs of hyperandrogenism: hirsutism, acne, alopecia, menstrual irregularity Screen for signs of insulin resistance: acanthosis nigricans, central adiposity Counsel on low-glycemic dietary patterns if insulin resistance suspected Recommend PCP, Endocrinology, or Ob/Gyn follow-up within 30 days for interpretation and document recommendation
Albumin	3.6-5.1 g/dL	<p><i>Albumin is a major transport protein for hormones and nutrients and can influence measured free hormone levels. Albumin levels reflect a complex interplay of synthesis, catabolism, distribution, and losses; interpretation requires consideration of inflammation, hydration status, and underlying disease.</i></p> <p>Below reference range</p> <ul style="list-style-type: none"> Assess for signs of inflammation or acute illness Review for conditions causing protein loss: kidney disease (proteinuria), liver disease, protein-losing enteropathy, burns, wounds Assess hydration status (IV fluid administration can cause dilutional hypoalbuminemia) Screen for inadequate protein and energy intake, particularly in clinically stable patients Counsel on adequate protein intake (1.0-1.2 g/kg/day or higher depending on clinical status) Consider omega-3 fatty acid supplementation in patients with cancer or on dialysis Recommend PCP follow-up within 30 days for interpretation alongside inflammatory markers and document recommendation <p>Above reference range</p> <ul style="list-style-type: none"> Assess for dehydration (most common cause) Review for severe diarrhea, vomiting, or inadequate fluid intake Review high-protein supplement use Counsel on adequate hydration Recommend PCP follow-up within 30 days for interpretation and document recommendation

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Sex-Hormone Binding Globulin	<ul style="list-style-type: none"> Male: <ul style="list-style-type: none"> 18-55 years: 10-50 nmol/L >55 years: 22-77 nmol/L Female: <ul style="list-style-type: none"> 18-55 years: 17-124 nmol/L >55 years: 14-73 nmol/L 	<p><i>SHBG regulates the proportion of free versus protein-bound sex hormones and can significantly affect free testosterone and estradiol levels.</i></p> <p>Below reference range</p> <ul style="list-style-type: none"> Screen for insulin resistance, type 2 diabetes, or metabolic syndrome Assess for obesity, particularly abdominal/central adiposity Review thyroid status (hypothyroidism lowers SHBG) Review medications (glucocorticoids, androgens, progestins) Counsel on weight management and metabolic health optimization Counsel on reducing refined carbohydrates and increasing fiber intake Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside free testosterone and document recommendation <i>Note: Low SHBG increases free testosterone. Total testosterone may appear low while free testosterone is normal.</i> <p>Above reference range</p> <ul style="list-style-type: none"> Review thyroid status (hyperthyroidism raises SHBG) Review medications: oral estrogens (HRT, oral contraceptives), anti-seizure (carbamazepine, phenytoin, phenobarbital) Assess for signs of liver disease or chronic alcohol use Screen for eating disorders or severe energy deficit Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside free testosterone and document recommendation <i>Note: High SHBG decreases free testosterone. Total testosterone may appear normal while free testosterone is low.</i>
DHEA-S	<ul style="list-style-type: none"> Male: <ul style="list-style-type: none"> 18-21 years: 20-480 nmol/L 22-30 years: 74-617 nmol/L 31-40 years: 93-415 nmol/L 41-50 years: 61-442 nmol/L 51-60 years: 32-279 nmol/L 61-70 years: 20-217 nmol/L ≥70 years: 3-225 nmol/L Female: <ul style="list-style-type: none"> 18-21 years: 44-286 nmol/L 22-30 years: 14-349 nmol/L 31-40 years: 19-237 nmol/L 41-50 years: 15-205 nmol/L 51-60 years: 5-167 nmol/L 61-70 years: 9-118 nmol/L ≥70 years: 4-157 nmol/L 	<p><i>DHEA-S is an adrenal-derived androgen precursor that declines with age and is commonly affected by over-the-counter DHEA supplementation.</i></p> <p>Below age-adjusted reference range</p> <ul style="list-style-type: none"> Consider patient's age (DHEA-S declines to ~20-30% of peak values by age 70-80) Review medications: glucocorticoids, dexamethasone, antiseizure (carbamazepine, phenytoin) Assess for signs of adrenal insufficiency (fatigue, weakness, weight loss, hypotension) Screen for severe systemic illness, acute stress, or anorexia Assess for signs of hypothyroidism Recommend PCP or Endocrinology follow-up within 30 days for interpretation alongside cortisol and document recommendation <i>Note: Limited dietary interventions to raise DHEA-S; focus on overall health optimization</i> <p>Above age-adjusted reference range</p> <ul style="list-style-type: none"> Review exogenous DHEA supplement use Screen for signs of hyperandrogenism in women: hirsutism, acne, alopecia, menstrual irregularity Screen for signs of virilization if markedly elevated (voice deepening, clitoromegaly) Recommend PCP, Endocrinology, or Ob/Gyn follow-up within 30 days for interpretation and document recommendation <i>Red flag: DHEA-S >600 µg/dL may indicate adrenal tumor - urgent referral warranted</i> Review for severe diarrhea, vomiting, or inadequate fluid intake Review high-protein supplement use Counsel on adequate hydration Recommend PCP follow-up within 30 days for interpretation and document recommendation

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