

HDL Dysfunction Assessment and Protocol

How does HDL dysfunction present?

Assessment		
Patient types associated with HDL dysfunction	<input type="checkbox"/> Insulin resistance/diabetes/impaired fasting glycemia <input type="checkbox"/> Hypertension <input type="checkbox"/> Dyslipidemia <input type="checkbox"/> Hypothyroidism <input type="checkbox"/> Cardiovascular disease/event <input type="checkbox"/> Autoimmune conditions including: rheumatoid arthritis, systemic lupus erythematosus, psoriasis, Hashimoto's, celiac, Crohn's, ulcerative colitis	<input type="checkbox"/> Chronic infection <input type="checkbox"/> Obesity <input type="checkbox"/> Obstructive sleep apnea <input type="checkbox"/> History of smoking/current smoker <input type="checkbox"/> Hyperhomocysteinemia <input type="checkbox"/> Chronic kidney disease <input type="checkbox"/> End-stage renal disease <input type="checkbox"/> Family history atherosclerosis <input type="checkbox"/> Nonalcoholic fatty liver disease
Concurrent symptoms	<input type="checkbox"/> Poor stress resilience <input type="checkbox"/> Palpitations <input type="checkbox"/> Angina/chest pain <input type="checkbox"/> Easy fatigability/muscle weakness	<input type="checkbox"/> Flare up of autoimmune condition <input type="checkbox"/> Erectile dysfunction <input type="checkbox"/> Abdominal pain <input type="checkbox"/> Confusion <input type="checkbox"/> Neuropathy
Concurrent physical signs	<input type="checkbox"/> Edema <input type="checkbox"/> Arrhythmias	<input type="checkbox"/> Shortness of breath <input type="checkbox"/> Elevated resting heart rate
Labs	<input type="checkbox"/> HDL-P <input type="checkbox"/> Myeloperoxidase (MPO) <input type="checkbox"/> Inflammatory markers: (hsCRP, ferritin) <input type="checkbox"/> Homocysteine <input type="checkbox"/> HDL2b	<input type="checkbox"/> oxLDL <input type="checkbox"/> NMR lipoprotein profile (TC, LDL-P, LDL-C, LDL size, small LDL-P, HDL-P, HDL-C, TG, insulin-resistance score) <input type="checkbox"/> Ion mobility panel (LDL subfractions; HDL subfractions) <input type="checkbox"/> Standard lipid panel (TC, TG, LDL, HDL)
Drug safety (monitor)	<input type="checkbox"/> Antihypertensives <input type="checkbox"/> Antithrombotics/anticoagulants <input type="checkbox"/> Statins <input type="checkbox"/> Cyclosporine <input type="checkbox"/> Quinolone antibiotics	Substrates of: <input type="checkbox"/> CYP2C8 <input type="checkbox"/> CYP2C9 <input type="checkbox"/> CYP2D6 <input type="checkbox"/> CYP3A4 <input type="checkbox"/> P-glycoprotein
Other assessments	<input type="checkbox"/> Lifestyle Questionnaire <input type="checkbox"/> Stress Questionnaire	<input type="checkbox"/> Health Symptoms Questionnaire <input type="checkbox"/> Bioelectrical Impedance Analysis (BIA)/ body composition

Notes:

Recommendations—Lifestyle and Nutrition

Lifestyle	<input type="checkbox"/> Exercise training recommendations: ¹⁻⁴ <input type="checkbox"/> 60 min/wk @ light intensity <input type="checkbox"/> >150 min/wk @ moderate to vigorous intensity <input type="checkbox"/> >75 min/wk @ vigorous intensity, spread over 3-5 days Endurance should be complemented by resistance training 2x/wk	<input type="checkbox"/> Smoking cessation ^{5,6} <input type="checkbox"/> Stress management ^{7,8} <input type="checkbox"/> Improve sleep hygiene, at least 5h/night ⁹⁻¹¹
Nutrition	<input type="checkbox"/> Mediterranean diet ^{12,13}	

Recommendations—Bioactives

Focus	Bioactive	Quantity	Frequency	Notes
Core	<input type="checkbox"/> Quercetin ¹⁴⁻²¹	50-500 mg	twice daily	
	<input type="checkbox"/> Pomegranate polyphenols ²²⁻³¹	30-300 mg	twice daily	
	<input type="checkbox"/> Lycopene ³³⁻⁴⁴	3.5-10 mg	twice daily	
	<input type="checkbox"/> D-alpha-tocopherol ⁴⁵⁻⁴⁸	200-1,000 IU	twice daily	
Targeted	<input type="checkbox"/> Specialized Pro-resolving Mediators ⁴⁹⁻⁵¹	500 mg	twice daily	
	<input type="checkbox"/> EPA and DHA ⁵²⁻⁵³	500-2,000 mg	twice daily	
	<input type="checkbox"/> Niacin ⁵⁷⁻⁵⁹	750-1,500 mg	twice daily	
	<input type="checkbox"/> Curcumin ⁶⁰⁻⁶²	35-945 mg	twice daily	
	<input type="checkbox"/> Xanthohumol ⁶³⁻⁶⁵	125 mg	twice daily	
Additional support	<input type="checkbox"/> Multivitamin with phytonutrient support	Per practitioner recommendation or N/A	twice daily	
	<input type="checkbox"/> Magnesium glycinate ⁶⁶⁻⁶⁷	125-500 mg	twice daily	
	<input type="checkbox"/> Berberine ⁶⁸⁻⁶⁹	250-750 mg	twice daily	
	<input type="checkbox"/> CoQ10 ⁷⁰⁻⁷²	50-100 mg	twice daily	

References:

Exercise

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Smoking cessation

- Takata K et al. Impact of cigarette smoking cessation on high-density lipoprotein functionality. *Circ J.* 2014;78(12):2955-2962.
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Stress management:

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Sleep:

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Mediterranean diet:

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Quercetin

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Pomegranate polyphenols

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Lycopene

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SPMs

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EPA+DHA

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Curcumin

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Xanthohumol

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Magnesium bisglycinate

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Berberine

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CoQ10

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