

Physical Signs and Symptoms of Heart Failure

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Sources:

- *Heart Failure and Cor Pulmonale*. Mann DL. Harrison's Principles of Internal Medicine, 17th ed. 2008
- Bates' Guide to Physical Examination and History Taking, 10th ed. Bickley LS. 2009

Symptoms of Heart Failure

- Fatigue and dyspnea
 - Fatigue initially upon exertion, ultimately may occur at rest
 - Dyspnea mainly due to pulmonary congestion
- Orthopnea
 - Dyspnea when supine: fluid redistribution from legs to central circulation
 - Nocturnal cough: frequently overlooked symptom
- Paroxysmal Nocturnal Dyspnea
 - Patient awakes due to acute episodes of dyspnea and coughing
- Cheyne-Stokes Respiration
 - Cycles of apnea followed by hyperventilation.
 - Reduced sensitivity to P_{CO_2} → central respiratory depression
- Acute Pulmonary Edema
- Other Symptoms
 - Gastrointestinal: Anorexia, nausea, pain. Cause: bowel edema, congested liver
 - Upper-right-quadrant pain: liver congestion → stretching of capsule
 - Cerebral: confusion, mood disturbance. Nocturia

Physical Signs of Heart Failure

- General
 - Mild HF: distress only when lying flat for more than a few minutes
 - Severe: patient must sit up; labored breathing; difficulty finishing sentence
 - Blood pressure: normal/high in early HF; low in advanced HF due to LV dysfunction; ↓ pulse pressure due to ↓ stroke volume
 - Sinus tachycardia
 - Peripheral vasoconstriction: cool temperature, cyanosis
- Jugular Vein
 - Approximates right atrial pressure.
 - Elevated; in early HF, may require pressure on abdomen (abdominojugular reflux)
- Pulmonary
 - Crackles due to transudate in alveoli. Expiratory wheezing.
 - May be absent in chronic CHF due to ↑ lymphatic drainage
- Cardiac
 - If cardiomegaly: PMI displaced lower/laterally
 - S3 heard in patients with volume overload
 - S4 heard in patients with diastolic dysfunction
 - Murmurs due mitral and tricuspid regurgitation

Physical Signs of Heart Failure (cont.)

- Abdomen
 - Hepatomegaly
 - Liver may pulsate if tricuspid regurgitation present.
 - Ascites: late sign. Due to \uparrow pressure in hepatic veins.
 - Jaundice: late sign; secondary to hepatic congestion
- Extremities
 - Peripheral edema – usually symmetric, in ankles and pretibial region
 - Long-term edema associated with hardened, pigmented skin
- Cardiac Cachexia
 - Weight loss in severe, chronic HF.
 - Mechanism multifactorial: elevated BMR, anorexia, vomiting, elevated cytokines (e.g. TNF), impaired intestinal absorption

New York Heart Association Functional Classification of HF

- Class I. Symptomatic only with greater than ordinary activity
- Class II. Symptomatic with ordinary activity
- Class III. Symptomatic with minimal activity
- Class IV. Symptomatic at rest

Framingham Criteria for HF

Diagnosis at least 2 major criteria or 1 major criterion in conjunction with 2 minor criteria.

Major criteria:

- Paroxysmal nocturnal dyspnea
- Neck vein distention
- Rales
- Radiographic cardiomegaly (increasing heart size on chest radiography)
- Acute pulmonary edema
- S3 gallop
- Increased central venous pressure (>16 cm H₂O at right atrium)
- Hepatojugular reflux
- Weight loss >4.5 kg in 5 days in response to treatment

Minor criteria:

- Bilateral ankle edema
- Nocturnal cough
- Dyspnea on ordinary exertion
- Hepatomegaly
- Pleural effusion
- Decrease in vital capacity by one third from maximum recorded
- Tachycardia (heart rate >120 beats/min.)
- Minor criteria are acceptable only if they can not be attributed to another medical condition (such as pulmonary hypertension, chronic lung disease, cirrhosis, ascites, or the nephrotic syndrome).
- 100% sensitive and 78% specific for identifying persons with definite congestive heart failure.

Reference: McKee PA, Castelli WP, McNamara PM, Kannel WB. The natural history of congestive heart failure: the Framingham study. N Eng Med. 1971 Dec 23;285(26):1441-6. [\[Medline\]](#)

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