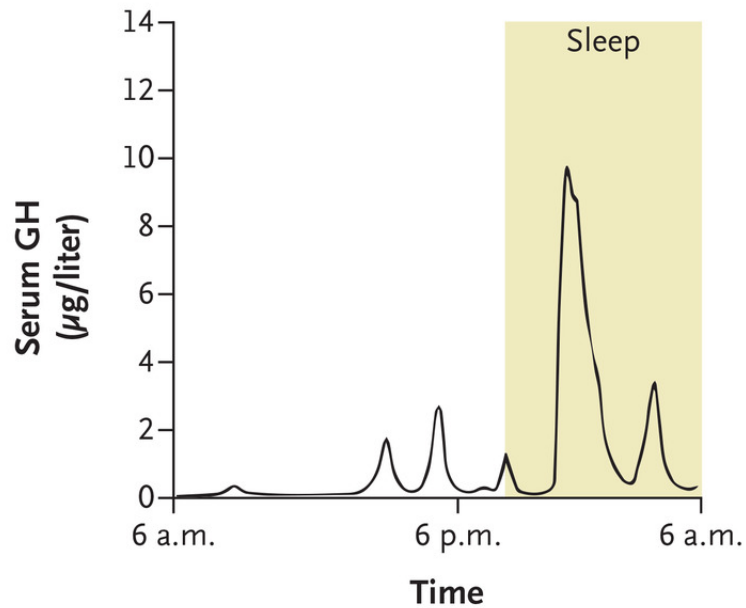


Growth Hormone Secretion Patterns in Adults

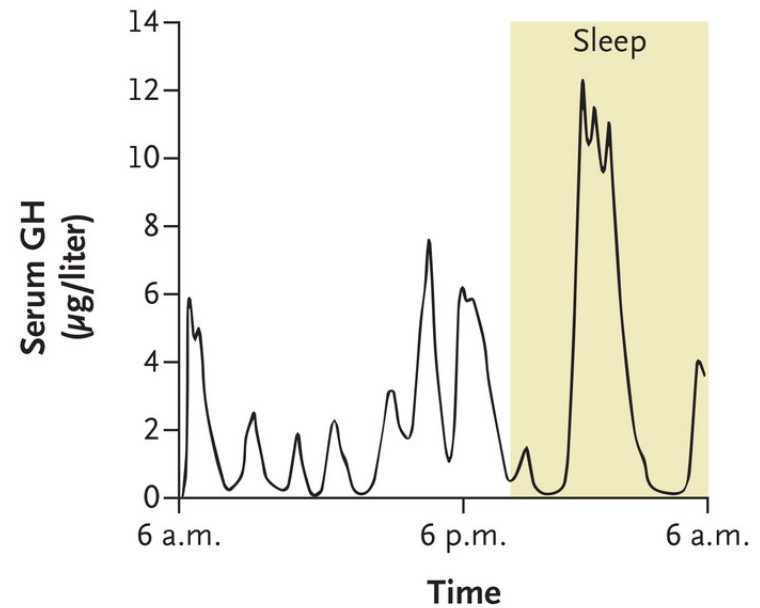
A Men



GH Secretion Rate
(µg/24 hr)

15.0±1.8

B Women

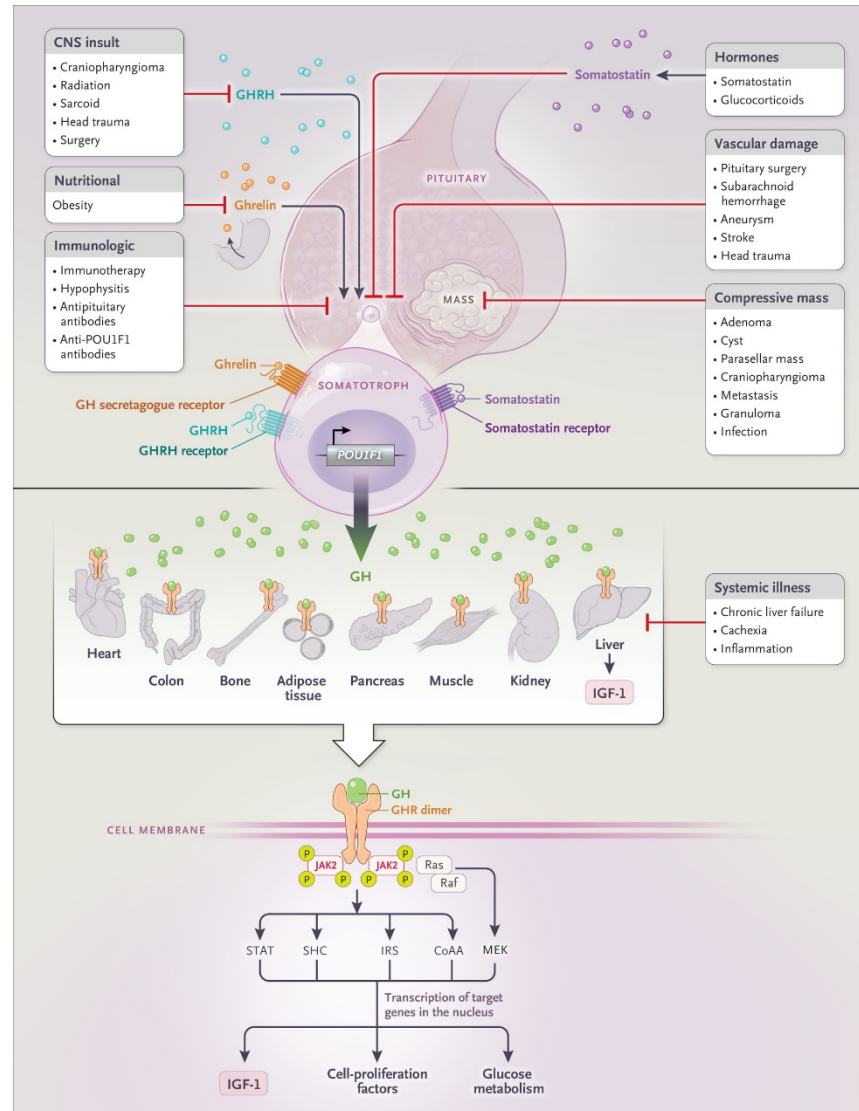


GH Secretion Rate
(µg/24 hr)

47.0±4.8

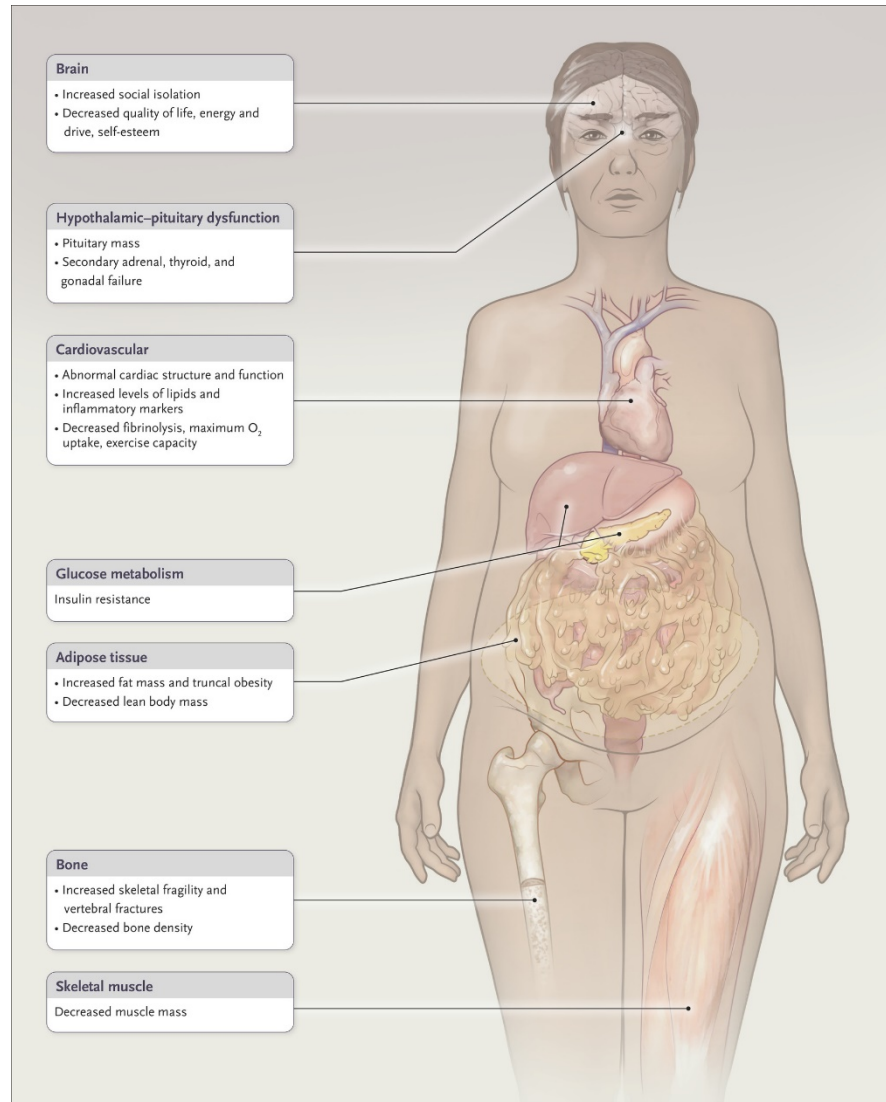
Physiologic patterns of adult growth hormone (GH) secretion in men (Panel A) and women (Panel B) are shown (adapted from Jessup et al.). GH secreting profiles in men and women were assessed by deconvolution analysis. Plus–minus values, which are derived from van den Berg et al., are means \pm SE.

Causes of Acquired Adult GH Deficiency



Differentiated pituitary GH production, determined largely by POU1F1, is induced by GH-releasing hormone (GHRH) and ghrelin and is suppressed by somatostatin by means of signaling through cognate somatotroph surface receptors. GH binds the preformed GH receptor (GHR) dimer. Internal dimer rotation results in Janus kinase 2 (JAK2) phosphorylation (P) and signaling by JAK2-dependent and JAK2-independent pathways. GH targets include insulin-like growth factor 1 (IGF-1), cell-proliferation factors, glucose metabolism, and cytoskeletal proteins. GHR internalization and translocation may directly induce nuclear proliferation genes. GHR signaling may be abrogated by suppressors of cytokine signaling proteins and by phosphatases. GH production may be suppressed by a range of conditions. GH action targets pleiotropic tissues mainly in the organs depicted. A model of GH bound to the GHR dimer is shown. CNS denotes central nervous system, and IRS insulin receptor substrate.

Clinical Features of GH Deficiency in Adults



Shown are the most prominent clinical features of GH deficiency.