

Publications stating that in-range IGF-1 does *not* rule out GHD

Compiled by Gareth Hamill, patient with isolated, idiopathic AGHD

Below is a non-exhaustive list of articles published online which conclude, amongst other things, that IGF-1 alone cannot rule out a diagnosis of Growth Hormone Deficiency (GHD). It seems that the misuse of IGF-1 in the diagnosis of GHD is a common reason for patients remaining undiagnosed and therefore not receiving appropriate treatment. You will note that many articles are over a decade old. In-range IGF-1 in the presence of a failed GH stim test seems anecdotally common.

Title:	Insulin-like growth factor-I in growth hormone-deficient adults: relationship to population-based normal values, body composition and insulin tolerance test
Date:	May 1997
Link:	https://pubmed.ncbi.nlm.nih.gov/9231054
PMID:	9231054
Key text:	<i>"The measurement of serum IGF-I concentrations is not suitable as a single diagnostic test for growth hormone deficiency in adults."</i>

Title:	Defining growth hormone deficiency in adults
Date:	Oct 1995
Link:	https://pubmed.ncbi.nlm.nih.gov/7476318
PMID:	7476318
Key text:	<i>"...only a third of GH-deficient subjects having low IGF-I values. The limitation of IGF-I has been confirmed by others, ..."</i>

Title:	The value of IGF1 estimation in adults with GH deficiency
Date:	Nov 2009
Link:	https://eje.bioscientifica.com/view/journals/eje/161/suppl_1/S33.xml
PMID:	N/A
Key text:	<i>"Having normal levels of IGF1 and IGFBP-3 does not exclude a diagnosis of GHD in adults."</i>

Title:	Prevalence of GH and other anterior pituitary hormone deficiencies in adults with nonsecreting pituitary microadenomas and normal serum IGF-1 levels
Date:	Aug 2008
Link:	https://pubmed.ncbi.nlm.nih.gov/18221393
PMID:	18221393
Key text:	<i>"Our data demonstrated that a substantial number of patients with nonsecreting pituitary microadenomas failed the GHRH-arginine test despite normal serum IGF-1 levels,..."</i>

Title:	Consensus guidelines for the diagnosis and treatment of adults with GH deficiency II: a statement of the GH Research Society in association with the European Society for Pediatric Endocrinology, Lawson Wilkins Society, European Society of Endocrinology, Japan Endocrine Society, and Endocrine Society of Australia
Date:	2007
Link:	http://www.ghresearchsociety.org/files/2007_Consensus_AGHD.pdf
PMID:	
Key text:	<i>"... a normal IGF-I does not rule out GHD at any age."</i>

Title:	IGF-I measurements in the diagnosis of adult growth hormone deficiency
Date:	11 April 2007
Link:	https://link.springer.com/article/10.1007/s11102-007-0028-8
PMID:	N/A
Key text:	<i>"...serum IGF-I cannot be used as a stand-alone test for the diagnosis of adult GH deficiency, ..."</i>

Title:	IGF-I measurements in the diagnosis of adult growth hormone deficiency
Date:	2007
Link:	https://pubmed.ncbi.nlm.nih.gov/17429593
PMID:	17429593
Key text:	<i>"... IGF-I cannot be used as a stand-alone test for the diagnosis of adult GH deficiency ..."</i>

Title:	Glucagon Stimulation Testing in Assessing for Adult Growth Hormone Deficiency: Current Status and Future Perspectives
Date:	11 August 2011
Link:	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3262627/
PMID:	22363884
Key text:	<i>"Growth hormone deficiency (GHD) is a well-recognized clinical syndrome in adults. However, due to the high frequency of normal serum IGF-I levels in hypopituitary adults with GHD, it is now widely accepted that despite normal levels of total IGF-I, adults clinically suspected with GHD within the appropriate clinical setting must undergo GH provocative testing to confirm its diagnosis."</i>

Title:	Diagnostic reliability of a single IGF-I measurement in 237 adults with total anterior hypopituitarism and severe GH deficiency
Date:	July 2003
Link:	https://pubmed.ncbi.nlm.nih.gov/12807504/
PMID:	12807504
Key text:	<i>"Total IGF-I levels are often normal even in patients with total anterior hypopituitarism but this does not rule out severe GHD that therefore ought to be verified by provocative testing of GH secretion."</i>

Title:	Diagnosis of growth-hormone deficiency in adults
Date:	30 April 1994
Link:	https://www.sciencedirect.com/science/article/abs/pii/S0140673694901813
PMID:	N/A
Key text:	<i>"70% and 72%, respectively, of the IGF-I and IGFBP-3 values in hypopituitary subjects were within the range for normal subjects. We conclude that GH deficiency in adults is most reliably identified by stimulatory testing, and that IGF-I and IGFBP-3 are poor diagnostic tests of adult GH deficiency."</i>