

MAYBE IT'S NOT CTE AFTER ALL?

You've had multiple concussions in sport. Do you have

- Impaired concentration and memory loss?
- Lack of well-being?
- Depression and anxiety?
- Reduced energy?

If so, you may fear you have early signs of Chronic Traumatic Encephalopathy (CTE) and that it'll be downhill all the way with this incurable condition.

But maybe it's not as bad as that?

Another effect of concussion could cause these symptoms too. You could have growth hormone deficiency. The good news is this can be treated, often very effectively.

To diagnose it you need a stim test. This could be the insulin stress test or the glucagon stimulation test. If you test positive, you'll need regular growth hormone replacement, probably for life. Replacement growth hormone improves energy, sleep, mood and motivation, and your ability to think and remember.

RESEARCH

Kelly DF et al, Prevalence of Pituitary Hormone Dysfunction, Metabolic Syndrome and Impaired Quality of Life in Retired Professional Footballers: a prospective study, Journal of Neurotrauma, 2014 Out of 68 retired footballers with poor quality of life, 13 had growth hormone deficiency.



Christopher Lane Trust
"Help with diagnosing hypopituitarism"

If you have difficulty getting an appropriate test, contact Christopher Lane Trust

joanna@christopherlanetrust.org.uk for information and support.

WHAT TO DO

1. Go to your GP. Tell him/her your symptoms. Say you think your concussions may have damaged your pituitary gland.
2. You should receive tests for: growth hormone, cortisol, sex hormones (LH/FSH, estradiol, testosterone), thyroxine, prolactin, IGF-1, and a few more.
3. These tests may or may not show up deficiencies. In any case ask for a stimulation test, i.e. a glucagon stimulation test or an insulin stress test. These two tests are designed to reveal growth hormone deficiency and also adrenal insufficiency. The short synacthen test does not reliably detect adrenal insufficiency (i.e. cortisol deficiency) when caused by pituitary damage.
4. An endocrinologist may refuse you a stimulation test, saying that your pituitary scan was normal (if you had one), or that your IGF-1 levels are normal, or that your short synacthen test was normal, or that all your other pituitary hormones were normal and therefore your growth hormone must be normal too. These reasons are all mistaken. For the research see the 'Four mistaken reasons' page on www.christopherlanetrust.org.uk.
5. If the tests show deficiencies in any of your pituitary hormones, you are entitled to receive replacement therapy which should make you feel much better.

FOR SYMPTOMS OF GROWTH HORMONE DEFICIENCY AND CTE, SEE

Wikipedia, growth hormone deficiency

https://en.wikipedia.org/wiki/Growth_hormone_deficiency#Adults

Mayo Clinic

<https://www.mayoclinic.org/diseases-conditions/chronic-traumaticencephalopathy/symptoms-causes/syc-20370921>

FOR THE BENEFITS OF GH REPLACEMENT, SEE

- Diaz JJ et al, Treatment with Growth Hormone for Adults with Growth Hormone Deficiency Syndrome: Benefits and Risks *Int J Mol Sci* 2018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5877754/>
This article summarises recent research. Replacement growth hormone treatment improves quality of life, helps sleep, decreases fat and increases muscle, and reduces cardiovascular risk.
- High, WM et al, Effect of Growth Hormone Replacement Therapy on Cognition after Traumatic Brain Injury, *J Neurotrauma*. 2010 Sep; 27(9): 1565- 1575. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2966848/>
This study demonstrated that growth hormone replacement markedly improved the intelligence scores of those who took part.



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