



Information about Growth Hormone deficiency in adults and growth hormone replacement.

What is growth hormone?

Hormones act as chemical messengers, they are secreted by endocrine glands and attach at various sites on particular cells in order to complete a process in the cell.

Growth Hormone, also called Somatotropin, is secreted by the pea sized pituitary gland that sits at the base of the brain and it acts on all tissues in the body.

What is growth hormone deficiency?

Growth hormone deficiency occurs when too little or no growth hormone is produced by the pituitary gland.

What causes growth hormone deficiency in adults?

In some cases childhood growth hormone deficiency can continue into adulthood. More commonly growth hormone deficiency in adulthood is caused by either a malfunction of the pituitary or hypothalamus (the portion of the brain that links the nervous system to the endocrine system) usually by a benign tumour called an adenoma or by damage to the pituitary gland which can be caused by surgery, head injury, radiation therapy or inflammation in the pituitary area.

What is the role of growth hormone in adults?

Growth hormone plays a part in maintaining normal conditions in the body throughout life. It contributes to regulating the amounts of fat, water and muscle we have and how they are distributed in our bodies. Other functions that it has an influence on are the heart function and bone structure.

How is it diagnosed?

Growth hormone is released intermittently through out the day and night (most is usually produced at night) so a one off blood test isn't useful; we have to carry out a test to stress the pituitary gland in order to stimulate the release of growth hormone. The main test we use is the insulin tolerance test which stresses the pituitary gland by lowering the blood sugar levels. As this is not suitable for everyone your doctor may recommend a different test such as a glucagon stress test or GHRH Arginine test. Your doctor will also ask you to fill out an AGHDA (Assessment of Growth Hormone Deficiency in Adults) quality of life questionnaire as part of their assessment.

How may I feel if I have growth hormone deficiency?

Some people have feelings of anxiety, depression and fatigue, leading them to feel isolated socially because they do not want to or are unable to go out and do things such as meet friends, do the weekly shop or take part in other activities.

They don't feel like their normal selves but can not pinpoint exactly why.

Some can feel more emotional than they used to be, have a lack of motivation to carry out general daily tasks and have a lack of concentration.

What are the benefits of growth hormone replacement for adults?

Physical

Growth hormone replacement can help to alter body composition by affecting the amounts of fat that are stored and the amount of muscle we have, you may notice that you have better control of your weight.

The levels of fats in the blood stream are influenced by growth hormone; you may see an improvement in cholesterol levels. This in turn can reduce risks to the heart.

Bones are in a constant state of change of renewal and destruction; growth hormone may help to improve bone density and strength.

Psychological

These will vary depending on your individual experience and can include; being able to concentrate on things again, an increase in energy levels and motivation to do things, better sleeping patterns. For some it can be as significant in helping them be able to return to work, study or social activities and an improvement in memory.

Generally you may find an improvement in your wellbeing.

How is growth hormone replaced?

Growth hormone is given daily by an injection. You will be trained by your endocrine nurse or a home care nurse how to do this yourself. Only a small needle is used that does not usually cause any discomfort. The devices used are usually pre-filled or cartridge pens that look like insulin pens used by people with diabetes.

How long will it take to work?

Changes in feelings of well being can usually be seen around three to six months after starting the injections, but it will take longer to see fuller benefits.

How long will I need to stay on growth hormone replacement?

The main aim of growth hormone treatment is to improve your quality of life. You will start the injections and the dose of this will be adjusted to your requirements during the first three months on it. You will stay on this dose for six more months, and then at the end of nine months you will be asked to complete the AGHDA questionnaire again.

If you have an improved score you may be able to stay on the treatment. If it hasn't helped you may be asked to stop the injections.

Potentially it is a life long therapy.

How will I know if I am taking enough growth hormone replacement?

You will have regular blood tests when you start the growth hormone therapy and your dose will be adjusted according to these.

What are the side-effects of growth hormone replacement?

Side-effects are most likely to happen when you first start treatment; they can include swelling of the hands and feet, muscle or joint pain. These effects are often last only for a short time but it is important that you talk to your endocrine doctor or specialist nurse if you experience any of them.

Other side-effects can include nausea, vomiting, headache, carpal tunnel syndrome, visual problems, tingling, under active thyroid gland, problems with blood glucose regulation and injection site reactions such as redness. You should talk to your endocrine nurse or doctor if you experience any of the above.

Who can I speak to if I have any problems when I am on growth hormone replacement?

If you are a patient at Charing Cross or Hammersmith Hospitals you can contact the Endocrine Specialist Nurse on 020 331 11000 then bleep 7934