Who Should Take Human Growth Hormone?

Human growth hormone (hGH) is a hormone produced by the pituitary gland, an endocrine gland at the base of the brain. hGH is a protein hormone that acts on almost all body cells. The main targets of hGH, however, are bone and muscle cells. hGH stimulates bone and muscle growth in children and young adults, and aids in the upkeep of muscles and bones throughout life.

Growth Hormone Deficiency  hGH is the most important hormone in the body for regulating growth. Usually, the amount of hGH secreted by the pituitary is greatest during childhood, when most body growth takes place. The hGH stimulates the bones and muscles to grow longer and larger.

Bones become insensitive to growth hormone during a person’s late teens. At this time, the person can no longer grow any taller. When a person has finished growing, hGH production declines, but hGH remains an important hormone for maintaining muscles and for other functions in the body.

Some children produce extremely small amounts of hGH. When this happens, the child will have normal body proportions, but will never grow any taller than four feet. Such children have the potential to grow taller, but do not because they lack the body’s hormonal signal to begin growing—a high level of hGH.

Children with growth hormone deficiency (GHD) can be helped. Regular injections of hGH will stimulate their growth. Thousands of children are treated for GHD in the United States every year. These children receive regular injections of hGH throughout their growth years.

hGH used to be very expensive and difficult to produce, because it only came from one source—the pituitary glands of cadavers. The amount of hGH that can be obtained from a pituitary gland is very small, and finding large numbers of cadavers posed obvious problems. As a result, hGH was always in short supply.

This situation changed, however, in the mid 1980s. A biotechnology company used genetic engineering to transfer the gene for human growth hormone into a bacteria. The bacteria then expressed the gene, and produced human growth hormone. Because bacteria can be cultured in large numbers, hGH was suddenly available at a reduced cost.

Potential Abuse  The increased availability of hGH has been a boon to children suffering from GHD. These children and their parents no longer have to worry about the supply of medicinal growth hormone. But GHD is fairly rare, and hGH is a powerful hormone. The wide availability of the drug has led to several forms of hGH abuse.

Some athletes abuse hGH by taking it in an effort to increase their performance. hGH does stimulate muscle growth, which would seem to be a benefit to body builders and athletes who require great strength. However, doctors question whether hGH can really improve athletic performance, and athletes who use hGH have been banned from all international sporting events.

hGH abuse can cause undesirable side effects. Young people who take hGH can seriously disrupt their growth pattern, growing larger than normal and causing other developmental problems. Full-grown people who take hGH do not grow larger because most of their bones are insensitive to hGH. But areas of their bodies that remain sensitive, such as the face, hands, and feet, do grow larger. Very large levels of hGH can cause a condition called acromegaly, in which the face, hands, and feet grow abnormally large.

A second form of potential hGH abuse is by parents, who may decide that they want their child to be larger and taller. Should naturally small children be allowed to take hGH to grow? There is no easy answer.

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REVIEW  On the lines provided, answer the following questions.

1. What is hGH? What does it do?
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2. Why is hGH more available now than it was in the past?
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CONSIDER THIS  On the lines provided, answer the following questions.

1. Do you think athletes should be allowed to take hGH in an effort to increase performance?
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2. Who should have access to hGH? Do you think everyone who wants to be taller and larger should be allowed to take it?
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