

**STRUCTURED REVIEW OF  
AMINO ACIDS AS HUMAN GROWTH HORMONE  
SECRETAGOGUES IN  
ANTI-AGING**

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## ABSTRACT

Human growth hormone (hGH) produced in the anterior pituitary, controlled by the hypothalamus is directly responsible for the growth. Levels peak in the adolescent years and gradually decline as one age. It is associated with aging symptoms and decline in cognitive functions. However it has been found that the aging pituitary is capable of producing adequate levels of hGH, but not released to adequate level. Rudman's findings supported the fact that hGH will retard and reverse the process of aging. Not only hGH but also certain human growth hormone secretagogues (hGHs) stimulate the production of hGH. Amino acids act as hGHs and are involved in the production of hGH (8). Taking supplemental amino acids can raise serum levels of hGH and can be used as anti-aging treatment. A search of the English-language published papers (1970-2012) was conducted using MEDLINE, PUBMED, COCHRANE, EMBASE and Google scholar, using keywords amino acids, human growth hormone, human growth hormone secretagogue, aging and anti-aging. Data was extracted from retrieved articles in a systematic manner. Summary data was categorized and tabulated for data analysis. Comparison of intervention, control and outcomes were noted. These data were synthesized in order to discuss in this paper. Use of hGH extracted from cadaver brains was responsible for Creutzfeldt-Jakob Disease (CJD), Mad Cow Disease. Non-bio-identical, biosynthetic "met-hGH" ended the possibility of CJD. hGH is secreted throughout the day and night in many pulses. When injection hGH is taken it causes a very sharp spike in hGH level followed by a fall due to "negative feedback". It is impossible to mimic the body's natural rhythm. Further it is expensive, painful, lead to infection and associated with complications like raised blood pressure, carpal tunnel syndrome, antibody development, joint pain, insulin resistance and water retention (17). Ghrelin effectively triggers hGH release and help to treat hGH deficiency. However, it has adverse effects on reproduction. The large amounts of circulating prolactin can cause amenorrhoea and infertility (19, 20, 21). Ghrelin mimetics were shown in a recently published study that a majority of GH deficient adults did not respond (23). Amino acids as secretagogues stimulate hGH secretion and has been used in anti-aging. It not only stimulates the production of hGH, it also accelerates fat burning. It is also a precursor for the antioxidant glutathione. It deflects cortisol damage, and prevents the muscle wasting and stress. They also have effects on cardiac disease, diabetes and neuro-degenerative conditions. There is enough of evidence from the on-going research that amino acids as secretagogues trigger the body's own growth hormone, enhance beneficial growth hormone activity in the body, boost immune function and produce numerous anti-aging effects. They boost IGF-1 levels in humans. The potential applications of hGHs are numerous, but long term trials are needed to evaluate its clinical efficacy and safety of these substances.

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