

In This Issue Reviews & Comments

page

- 33** Genetics of Stature
- 35** Gender of Growth Hormone Recipients in the US and Globally
- 36** Height Velocity Targets for First Year Growth Hormone Responses in Short Children
- 38** Adult Height of Treated Congenital Adrenal Hyperplasia Patients
- 40** Combined GH and Aromatase Inhibitor Therapy in GHD Adolescents
- 41** Factors Predicting Ante- and Postnatal Growth
- 42** Height Sparing in Anorexia Nervosa?
- 43** Growth Plate Changes of Catch-up Growth Following Caloric Restriction: Morphologic and Gene Expression Changes, Especially HIF1 α
- 44** High Growth Rate of Girls with Precocious Puberty Exposed to Estrogenic Mycotoxins
- 45** Long-term Follow-up of Idiopathic CPP Treated with GnRHa
- 46** Genetics of Dwarfism
- 49** Genetics Influences Allelic Expression Patterns
- 50** Growth Hormone Therapy Improves Mental and Motor Development in Young Prader-Willi Patients
- 51** Central Adrenal Insufficiency, Pituitary and Neuroradiological Alterations in Prader-Willi
- 52** Genital Function and Sensitivity Following Feminizing Surgery
- 54** Diagnosis of Congenital Central Hypothyroidism in Infants
- 55** Effect of Levo-thyroxine Treatment on Weight and BMI in Children with Acquired Hypothyroidism
- 56** Geographic Distribution of Childhood Diabetes and Obesity: Workforce of Pediatric Endocrinologists

GROWTH HORMONE ADMINISTRATION: IS IT SAFE AND EFFECTIVE FOR BODYBUILDING AND IMPROVED ATHLETIC PERFORMANCE?

ALAN D. ROGOL, MD, PHD

*Departments of Pediatrics
Indiana University School of Medicine
Indianapolis, Indiana
University of Virginia
Charlottesville, Virginia*

INTRODUCTION

Athletes and the media have demonstrated great interest in the subject of administration of growth hormone (GH), popularly referred to as *doping*. Thus, a review of the evidence for safety and efficacy in athletes, especially, adolescents, is warranted. Many other drugs are administered off-label, particularly a majority given to children and adolescents. However, recombinant human GH (rhGH) is unusual because off-label prescribing and

administration is illegal if given for indications not approved by the US Secretary of Health and Human Services (HHS). In this article—following short sections on the physiology of GH and the clinical role of rhGH—the data pertinent to athletic performance and problems with detection of doping are presented. This article ends with the specific legal issues and the activity surrounding further legal action with reference to rhGH and athletes.

The consideration of rhGH as an ergogenic aid and its potential to enhance athletic performance and/or body composition goes back many decades.¹ Due to the banning of rhGH use for officially sanctioned sport, there has been a large effort to detect its

From The Editor's Desk

Dear Colleague:

We have applied for and expect to be granted the opportunity of granting CME credits for reading GGH. Thus, while you enjoy the lead article and each one of the reviews you may also meet your requirements for licensure in the comfort of your home or office. In the near future the CME application and questionnaire will be posted on line. Once you complete it you will attain the necessary credits. Hopefully this feature will add to the value you place to the journal.

The current issue of GGH includes a very timely review of the safety and effectiveness of growth hormone for body building and improved athletic performance. The article by Dr. Alan Rogol brings us up to date and clarifies the issues that were widely discussed during this past summer's Olympic Games in China. However the article should also serve the pediatric endocrinologist to guide their patients and their families who seek this treatment to enhance their children's abilities. It should also serve as a resource to warn them of the illicit use of this product for such purposes, as well as to caution them to avoid falling prey to the multiple ineffective, expensive, and unregulated products available for purchase through the Internet. I also want to bring to your attention the reviews on the genetics of stature and the genetics of dwarfism. These excellent reviews include a synthesis of the state of the art of the most current papers and concepts in the field. Also noteworthy is the review dealing with the limited workforce of pediatric endocrinologists.

The economic situation of GGH continues to worsen with the downturn of the economy, yet we do not qualify for a bailout. Therefore I would appreciate your support in the form of a generous contribution so we may continue fulfilling your educational needs. I am sure you are being swamped with donation requests, please put GGH on top of your list and make your tax-deductible contribution to Pediatric Sunshine Academics, Inc. at www.PedSacademics.org or mail to 1040 Alston Road, Santa Barbara, CA 93108.

Happy Holidays and Best Wishes for 2009
Fima Lifshitz, MD
Editor-in-Chief