In this issue of *Annales Nestlé* the growth of children is taken into close focus. The growth of children is the absolute prerequisite for a normal healthy life during the growth process and after it has terminated. Health per se is defined as a continuous state with requirements for normal nutrition, less childhood disease and acceptable socioeconomic conditions.

Among the indisputable rights of children is the right to health. Without respecting this right and providing the necessary resources to secure it, we cannot hope to achieve any of the major developmental goals in the world. Human capital is essential to all development. Without basic health and nutrition, the potential of our children goes to waste. Child health is attributed closely to child growth. To assess the growth of children, growth references are among the most valuable and widely used tools we have to measure how children's basic physical needs can be fulfilled. Of course, assessing growth alone is not enough to adequately evaluate an individual's health status. But his or her physical development is a core element. The usefulness of growth references, however, stretches far beyond that. Because so many physiological processes must 'go right' and so many needs must be met in childhood if growth is to proceed normally, divergences and variations within populations and strata can give useful indications of how supportive the children's surroundings are and even help us track our progress in attaining 'health for all'. Data collected throughout populations over time can give us important information about their medium- and long-term social and economic development. Under the leadership of the World Health Organization (WHO), in 1993 the United Nations undertook a comprehensive review of the uses and interpretations of anthropometric references. As a result of this review, the World Health Assembly endorsed the development of a new set of tools to assess infant and young child growth in different regions of the world [1]. To accomplish this more ambitious goal, WHO and its principal partner, the United Nations University, undertook the Multicentre Growth Reference Study (MGRS) in six distinct sites: Brazil, Ghana, India, Norway, Oman, and the United States. The rationale for developing a new international growth reference derived principally from a working group on infant growth established by the WHO in 1990. It recommended an approach that described how children do grow rather than how children grow; that an international sampling frame be used to highlight the similarity in early childhood growth among diverse ethnic groups; that modern analytical methods be employed, and that links among anthropometric assessments and functional outcomes be included to the fullest possible extent. Upgrading international growth references to resemble standards more closely will assist in monitoring and attaining a wide variety of international goals related to health and other aspects of social equity. In addition to providing scientifically robust tools, a new reference based on a global sample of children whose health needs are met will provide a useful advocacy tool for healthcare providers and others interested in promoting child health [2]. The MGRS data provide a solid foundation for developing a standard because they are based on healthy children living under conditions likely to favor the achievement of their full genetic growth potential. Furthermore, the mothers of the children selected for the construction of the standards engaged in fundamental health-promoting practices, namely breastfeeding and not smoking [3]. The results of the MGRS data showed: a notable effect is that stunting will be greater throughout childhood when assessed using the new WHO standards compared to the previous international reference. The growth pattern of breastfed infants compared to the NCHS/WHO reference will result in a substantial increase in underweight rates during the first half of infancy (i.e. 0–6 months).
and a decrease thereafter. For wasting, the main difference between the new standards and the old reference is during infancy (i.e. up to ~70 cm length) when wasting rates will be substantially higher using the new WHO standards. With respect to overweight, use of the new WHO standards will result in a greater prevalence that will vary according to the age, sex and nutritional status of the index population [4]. The advantages of the new WHO growth standards are that they were assessed under optimal environmental conditions and can be used to assess children everywhere, regardless of ethnicity, socioeconomic status, and type of feeding. The new WHO growth charts as ‘standards’, however, are distinct from ‘references’ that describe the growth of all children, including those who are not living under favorable conditions. Ekhard E. Ziegler and Steven E. Nelson from the Department of Pediatrics, University of Iowa, USA, took the difficult task to describe the differences between the new ‘standard’ and the ‘reference’ growth charts available. They compared the available growth charts and conclude that the new WHO growth standards differ from other growth charts in a number of ways, particularly in the first year of life. Also between 2 and 5 years, WHO weight standards tend to be at the lower end of the spectrum, especially at the lower percentiles.

Our understanding of the various processes involved in the physiology of growth has increased tremendously over the last decade. Arlan L. Rosenbloom, Division of Endocrinology, Department of Pediatrics, University of Florida College of Medicine, depicts in detail the physiology during the different phases of growth, i.e. growth during fetal life, infancy, childhood and adolescence. The secular trend has stopped now due to improvements in nutrition and a reduction in childhood disease. Nevertheless during all the growth phases things can go wrong. A variety of genes beyond the growth hormone (GH) gene have been detected and found to be responsible for disturbances in growth. Rosenbloom gives a comprehensive overview of all the factors and their relation to the disease in those cases where gene mutations are involved.

In a given population the height of children follows a normal Gaussian distribution. 3% of children are too small or too tall. Jurgen H. Bramswig, University Children’s Hospital, Münster, Germany, gives an overview of the assessment and treatment of children with small or tall stature and debates the pros and cons of tall stature as well as the present indications of GH treatment in small stature. Here the constitutional delay of growth and puberty (CDGP) is of course the most controversial issue. Should these children be treated with GH or not? Is the final height of a child something which is tailor-made? Are the demands of the parents of a CDGP child justified to start GH treatment? Bramswig discusses all these questions in detail and gives answers to these understandable demands.

Growth can be deeply influenced and disturbed by chronic diseases. Lena Patel, Manchester Children’s University Hospital, describes the mechanisms by which growth is impaired in cystic fibrosis, Crohn’s disease and juvenile idiopathic arthritis. Moreover she focuses on the current understanding of the etiology of growth impairment in chronic disease, in particular the molecular mechanisms which disrupt the integrity of the GH–insulin-like growth factor (IGF) axis and cellular changes in the epiphysial plate. Data are now accumulating that recombinant human (rh)IGF-1 or rhGH has some potential in a few of these chronic conditions. Indeed improvements in weight and height in prepubertal children with cystic fibrosis have been reported from randomized trials of rhGH treatment for up to 2 years. Similar results were achieved in children with persistently active juvenile idiopathic arthritis.

Growth in fetal life, during infancy, childhood and adolescence is fundamental to all children in our societies. The riddle of the sphinx with the question, ‘What goes on four legs in the morning, on two legs at noon, and on three legs in the evening?’, would never have been solved without the understanding of growth in childhood. Normal growth is related to the development and health of all the children of the world. It is our responsibility to maintain and improve the health of children as the former Secretary General of the UN Kofi Annan stated a few years ago, ‘A future of sustainable development begins with safeguarding the health of every child’.

The Editorial Committee

References