Asia Pacific Clinical Nutrition Society
1996 Award

TAKEHIKO TANAKA

Professor Takehiko Tanaka who holds the chair of Nutrition and Physiological Chemistry, Osaka University Medical School, has devoted his life to attracting international professionals to a career in nutrition. Dr Tanaka obtained his medical degree from Osaka University Medical School in 1953. Then he entered the institute for Protein Research of Osaka University and spent his younger days in the basic research of protein metabolism and enzymology. In 1967, he became a professor and chairman of the Department of Nutrition and Physiological Chemistry of Osaka University Medical School. He has devoted himself to nutritional research and the organisation of those few departments responsible for human nutrition in medical schools in Japan.

In 30 years, he has developed and made significant contributions to several nutritional research areas: (1) the isozymes of glycolytic enzymes in higher animals, (2) the regulatory mechanisms for glycolytic enzyme genes, (3) regulation of polynucleotide synthesis, (4) metabolic approaches to cancer cachexia, (5) energy metabolism and whole body calorimetry. He helped establish the concept of “molecular nutrition”. Using molecular biology, he demonstrated the regulation of L-type pyruvate kinase gene expression in various nutritional conditions. With these studies, he developed the new concept of “Nutrients and gene expression”. His work in the field of energy metabolism was based on the fact that indirect calorimetry in small animals shows immediate heat production on the intake of several nutrients; he clearly showed that this was initiated by hormonal and autonomic nervous system signals.

Besides his research interests, he has been a Council Member of IUNS (the International Union of Nutritional Sciences), a member of the Japanese National Committee of Nutrition and Food Sciences, a member of the US-Japan Cooperative Medical Science Program, Secretary General of the Fifth Asian Society of Nutritional Sciences Council and, most recently, the president of the International Symposium on “Nutritional Support in Organ Failure”.

Originally a basic scientist, he showed great understanding of clinical medicine, especially with his interest in the modern nutrition support systems of parenteral and enteral nutrition. Likewise, he promoted the need for nutrition assessment in clinical practice. His lectures have always been informative. He has contributed significantly to the education of nutritionists, dietitians and doctors and served as Dean of Medicine at Osaka University. Thus, his contribution to the development of nutritional sciences is international and considerable.

The nomination of Professor Tanaka for the annual award of the Asia Pacific Clinical Nutrition Society reflects his great services to the international development of nutrition science and clinical nutrition.

Akira Okada
President, Asia Pacific Clinical Nutrition Society


Internet and the International Nutritional Community

Bridget Huey-Huedge Hsu-Haged and May-Choy Wang

1. Department of Medicine, Monash University; 2. Department of Paediatrics, Stanford University

The Internet and the international nutrition community

We would guess that almost every reader has heard of the Internet. It is also our guess that not every one has had the opportunity to experience being on the Internet, and that many have yet to "surf the net". However, we do not intend to teach this here. For a detailed guide to the Internet, we recommend a series of articles published by the British Medical Journal*.

The World Wide Web

The World Wide Web (WWW or simply "The Web") provides a user friendly interface to the Net. The information provided is often graphically attractive. Its most useful feature is its ability to search for information by just typing one or more "keywords". The basic unit of the Web is the web page (or home page). There are virtually millions of home pages on the Web since many institutions, organisations and individuals have begun to publish their own home pages. To address the problem of locating useful sites for information, efforts have been made to develop Web sites exclusively dedicated to the systematic classification of Web pages. These sites often serve as a starting point for linkage to other Web pages that deal with related material in a specific area of interest. A good example is the MedWeb which has a nutrition section that contains the nutrition home page: http://www.cc.emory.edu/medweb/medweb/nutrition.html.

As a nutritionist, you may wish to explore what is available about food and nutrition on the Web. The best way to start is to use a "search engine" (Yahoo, Excite, Infoseek, etc.). An input box allows you to enter a keyword or string of words. We located more than 200,000 sites with the keywords "food OR nutrition".

Newsgroups or Usenet

The "usenet" can be used as a world-wide discussion system. There are several nutrition related usenets on the Internet, such as sci.med.nutrition, alt.support.diet, and alt.food. Readers who wish to know more about "usenet" may wish to e-mail Mark Meehan at netannounce@denham.com. The site ftp://rfft.mit.edu/pub/usenet/news.answers/usenet/site-setup shows you how to set up a "usenet" site.

Teaching and interactive information exchange

The Internet can be used for interactive teaching. For example, the Monash University Health Promotion Unit (MHPU) first explored the potential of the Internet as a new medium for health promotion1. The MHPU home page contains teaching material, including student workbooks, slides from lecture series, student projects, etc. Students may submit their assignments via the Net. Perhaps one of the greatest advantages of the Internet is that it allows individuals and organisations, with shared interests, to communicate and collaborate on projects in an interactive, effective and efficient manner.


Correspondence address: Dr. Bridget Huey-Huedge, Department of Medicine, Monash University, Block E Level 5, 246 Clayton Road, Clayton 3168, Victoria, Australia

Tel: +61-3-9530-5522 Fax: +61-3-9530-5524

Email: Bridget.Huey-Huedge@med.monaunews.edu.au

maychoo@igeland.Stanford.EDU

* Both provide a simultaneous "many-to-many" communication mode which is still at a developmental stage, and is not widely used. The Interactive Information Exchange potential of the Internet can be fully utilised to enhance our performance in research and education.

In the United States, the University of Minnesota, Department of Food Science and Nutrition, through its Continuing Education and Extension courses, offers Internet on-line teaching and interaction with off-campus students at the "virtual campus" (access to parts of this site requires a password). To the knowledge of the authors, this is one of the most comprehensive interactive food and nutrition teaching sites available. From the various page-links, the site takes advantage of virtually every feature of the Internet: e-mail, newsgroups, FTP (File Transfer Protocol), Gopher, Telnet, etc. Academic credit may be granted on completion of the course. Together with other Universities which offer Food and Nutrition as a discipline, this site is conveniently linked to the IUNS home page under "Nutrition Education" (http://www.monaunews.edu.au/IUNS/nutrition-education.htm).

Benefits to the international nutrition community

The Internet can benefit the international nutrition community in at least two ways: (1) by providing web sites that supply information - on nutrition education, professional meetings and events, ongoing research (published and unpublished), progress in intervention programmes, professional membership lists, nutrition and dietetic related legislation, nutrition labelling regulations; and (2) by providing an efficient and effective means for communication - networking and collaboration among members of the international nutrition community.

We will call food and nutrition information handled by electronic means "Nutrition Informatics", and classify Web sites into two major categories (a) those making original contributions to Nutrition Informatics, and (b) food and nutrition link sites. Most of the sites under category (a) also provide links to "other Web sites", and will not be discussed again under (b). In addition, there is a large number of Web sites that are set-up by profit making commercial establishments.

(a) Original contribution to Nutrition Informatics

Web sites making original contributions to Nutrition Informatics include predominantly government agencies, tertiary education institutions, research projects/groups, professional societies/ associations, news corporations, newsletters, journals (abstracts only), and books (via leaflet type of info). New material or information is constantly being added to Web pages. Some Web sites also change their page layouts to take advantage of new Internet software and to accommodate the ever increasing volume of information. Previously published information can be stored or archived using an internal index system. To visit these sites regularly, use the Bookmark facility of your browser.
The determinants of stunting: Can we regard the linear growth performance as a continuum of fetal development?

Patrick Kolsteren

Institute of Tropical Medicine, Antwerp, Belgium

The relationship between early post-natal growth and the possible links with intra-uterine development is examined in this review. In the linear growth faltering stage, which almost always after birth, the deficit is most marked in the first six months of life. Catch-up growth, later in life, is possible. Children in developing countries, however, will most often become short adults. The environment is not permissive for a catch-up growth. A conceptual model has been constructed and divided in two parts: intra-uterine factors and factors in the first year of life. Only those determinants which the author considered important for the link between fetal life and early post-natal linear growth are analysed.

Introduction

Linear growth retardation is perhaps the most prevalent worldwide nutritional problem. According to UNICEF, 7.8% of the world’s children are too thin and 42.2% are too short. South Asia is the region where 62.2% of the children below the age of five are too short.

The importance of short stature is to be found in the combination of its prevalence and the human suffering it represents. This suffering relates to the association of short stature and other outcomes such as pregnancy risk and work capacity, but even more to the processes which lead to this phenomenon. Moreover, stunting is not only a consequence of malnutrition, but is also an indicator of risk of malnutrition. Therefore, the existence of events which affect linear growth and also morbidity and mortality.

The available evidence, on the determinants of stunting, indicates that stunting is an extremely complex and multi-causal phenomenon. If we take a local perspective, it will be necessary to determine from a model which is the simplified representation of reality to be tested experimentally. In the present study, where determinants were found to be logical or where circumstantial evidence could be substantiated in the place they model where kept and used as hypotheses to be tested further. The model is represented in Figures 1-3.

The main hypothesis put forward in the analysis is that the growth of children in the first year of life could, in part, be determined by fetal life experience.

A first evidence for this comes from a biologically-oriented mathematical model of ICP (model) which involves the linear growth of children from birth to adulthood is modelled on the basis of three phases: Infancy, Childhood and Puberty. For all of these phases, a mathematical function describes the growth curves of children. These functions are additive, in the sense that the infancy function describes the growth of children up to the moment childhood growth starts, described by another function which is then added to the infancy curve.

The existence of the infancy component of the ICP growth model is supported by the growth of children with growth hormone deficiency. They show a growth pattern for supine length close to the reference values given by the infancy function from birth up to the start of substitution therapy at about 2 years of age. Infants with a late onset childhood component tend to continue growing according to the infancy growth component until the childhood growth starts. If one extrapolates values for the mean infancy function, that is the values of attained height derived from the fitted curve on the observed values of infants, into fetal life, one observes that the extrapolated values are close to the mean values for crosses measured supra navel length from about mid-gestation onward.2

Karlberg, who studied different populations using his ICP model concludes that during the period preceding the age of onset of the childhood component, 83% of normal infants have a non-linear growth faltering pattern, free of seasonal variation. For the majority of the infants in this phase growth seems very stable over time. We can add to this the information that the hormonal control of growth in the first months after birth is similar to the intra-uterine one. Indeed the resemblance of the hormonal control between intra-uterine life and the first months of neonatal life are extraordinary. The childhood component of linear growth is triggered by the onset of growth hormone secretion.

Could it be possible that the infancy growth and fetal growth are very intricately interwoven, and form perhaps one continuum?

How should we then interpret the observations that growth faltering start early?

Very few longitudinal studies have actually investigated when growth faltering starts. Cross sectional studies conclude that it indeed starts early, around two months and possibly earlier. The possibility arises here that we are observing an artefact that growth is sub-optimal from birth onwards and therefore determined by intra-uterine factors. A testable might be the result of the observations being prematurely cross-sectional. If the average z-score of the studied population is below zero at two months, one decides that this is the period when growth faltering increases.