

minimal cost, in typhoid incidence: from 76.3 per 100 000 in 1981 (the highest in the Americas) to less than 10 per 100 000 over a period of three years.

Time will tell whether or not our experience is worth emulating. We do not claim to be a model for everybody but we think there is much to be learned by studying our example....



Declaration of Olympia on Nutrition and Fitness

The Second International Conference on Nutrition and Fitness met at the Olympic Athletic Center of Athens, Greece, from 23 to 25 May 1992. The conference was organized by the Center for Genetics, Nutrition, and Health (U.S.A.), the Hellenic Sports Research Institute (Greece), and the Spyros Louis Olympic Athletic Center of Athens; its sponsors included numerous private-sector companies, governmental agencies, and non-governmental organizations. The conference was under the patronage of the Pan American Health Organization/World Health Organization, the Food and Agriculture Organization of the United Nations, and the International Olympic Academy/General Secretariat of Athletics of Greece. Some 780 registrants attended the conference, which featured the presentation of 32 scientific papers and 46 posters displaying results of recent investigations.¹

On 26–27 May 1992, a group of program participants² met at the Interna-

tional Olympic Academy, Ancient Olympia, to develop a declaration of aims and objectives resulting from the conference. The following is a condensed version of their report and is published with the permission of the Executive Committee of the conference, which holds the copyright for this material.³

BACKGROUND

The 20th century has brought unprecedented changes in life-style and health patterns. Increases in the availability of wide varieties of food and reduction in the physical effort required for daily activities are prominent features of life in industrialized societies and among affluent groups in developing countries. These

chairman)—Sweden, Derek Prinsley (Secretary)—Australia, Nicholas T. Christakos—United States, Carlos Hernán Daza—PAHO/WHO, Uri Goldbourt—Israel, Demetre Labadarios—South Africa, Eleazar Lara-Pantin—Venezuela, Meke Mukeshi—Kenya, J. E. Dutra de Oliveira—Brazil, York Onnen—United States, Konstantin N. Pavlou—Greece, Eric Ravussin—United States (NIH), Victor Rogozkin—Russia, Artemis P. Simopoulos—United States, Stewart Truswell—Australia, and Clyde Williams—United Kingdom.

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¹The proceedings of the Second International Conference on Nutrition and Fitness will be published in two volumes in the series *World Review of Nutrition and Dietetics* under the titles "Nutrition and Fitness for Athletes" (vol. 71) and "Nutrition and Fitness in Health and Disease" (vol. 72).

²Present were: Alexander Leaf (Co-chairman)—United States of America, Per-Olof Astrand (Co-

conditions may lead to poor nutrition because of inadequate or incorrect food choices and poor physical fitness owing to the diminished need to be physically active. The interrelationship between nutrition and fitness is clear. The goal of the Second International Conference on Nutrition and Fitness was to promote good nutrition and regular physical activity during all stages of the human life-span.

During more than 99% of our existence on earth, human beings subsisted as hunters and food gatherers. During these 2 million or more years, our genetic makeup evolved to adapt us to the hunter-gatherer life-style, which was more active, less cushioned, and less predictable in terms of food availability. Adaptations for survival were consonant with the need for habitual physical activity—requiring both endurance and peak effort—alternating with periods of rest and socialization. Major changes in both diet and physical activity began some 10 000 years ago with the development of agriculture and the domestication of animals; the current high levels of saturated fats and trans fatty acids in the diet, together with physical inactivity, are much more recent phenomena, dating from the turn of this century. But even 10 000 years is too brief a time to allow significant adaptations to these changes to be integrated into our genetic code.

Human beings evolved on a diet that was not only low in saturated fats but was also balanced in the amounts of omega-6 and omega-3 fatty acids acquired from seeds, green leafy vegetables, fish, and meats. The meat of wild animals and birds is lean, unlike the meat from domesticated and fattened cattle, sheep, and fowl that humans eat today. Vitamin C intake from wild vegetables and fruits was higher than today's international recommendations and dietary allowances. The same was true for calcium and potassium, while sodium in-

take was lower than today's average. Thus, the ancestral diet was rich in vitamins and minerals, high in protein and fiber, and low in fat.

Industrialized societies are characterized by an abundant and palatable food supply and by a sedentary existence for most individuals at home, at work, and during transportation. Even children, who are naturally very active, spend their days—from nursery school through secondary school—sitting most of the time. Few schools provide adequate programs or mandatory classes for physical exercise and individual involvement in sports. Children have become spectators instead of active participants. Today, the weight of a child may be predicted by the number of hours he or she watches television.

Major increases in weight tend to occur during adolescence and young adulthood, with potentially dire health consequences. Obesity is rampant in the Western developed countries and is also occurring among the affluent in developing countries. Thus, changing quickly from the life-style of a hunter-gatherer to that of a modern urban dweller apparently constitutes a health risk. Insight into our biological heritage may help us make beneficial changes in our current life-style.

In most developing countries the nutritional problems center on deficient intake of energy, protein, and micronutrients rather than the excesses of affluent Western diets. Thus, two entirely different nutritional scenarios must be addressed by governments, sometimes within the same country.

The Concept of Positive Health

In 480 B.C., Hippocrates recognized the importance for health of the balance between food intake, which provides fuel for the body, and physical activity (energy expenditure). He developed the following concept of positive health:

Primary health requires a knowledge of man's primary constitution [which today we call genetics] and of the powers of various foods, both those natural to them and those resulting from human skill [today's processed food]. But eating alone is not enough for health. There must also be exercise, of which the effects must likewise be known. The combination of these two things makes regimen, when proper attention is given to the season of the year, the changes of the winds, the age of the individual, and the situation of his home. If there is any deficiency in food or exercise the body will fall sick.

Hippocrates also noted that "death occurs earlier in the obese."

The concept of positive health was important to the ancient Greeks, and those who had the means and leisure time applied themselves to maintaining positive health, conceived of as an esthetic goal and as an end in itself.

The Olympic Ideal

From ancient times, the Olympic ideal—as manifested in its most competitive form, the Olympic Games—involved perfection of not only bodily movement but also the whole of the human being as a psychosomatic unit. The fundamental principle of the Olympic ideal was excellence—that is, for the athlete to excel over others and over his own previous performance. Physical education in the form of play and agonistics was part of the culture of the time. The setting of the conference and its follow-up in Ancient Olympia prompted recollections of the Olympic ideal and of the hippocratic concept of positive health.

The Olympic ideal emphasized the need to be responsible for one's body, and the belief that a healthy mind resides in a healthy body. To promote an optimal lifestyle and successful aging, an important and urgent challenge is to teach and pro-

mote good nutrition and physical activity from childhood to old age, including advice about smoking, alcohol abuse, and other recognized threats to health. The message needs to be clear, and then a better quality of life becomes a matter of personal choice.

CHILDREN AND ADOLESCENTS

The role and effectiveness of tomorrow's citizens will be directly determined by the individual and collective physical and mental health of today's children. All children must have the opportunity to start life with a potential for fitness based on optimal health. To attain this goal, the following actions are needed:

- All expectant mothers should have access to proper prenatal care and counseling on the importance of smoking cessation and avoidance of alcohol and addictive drugs.
- All children should receive a healthful, nutritious diet without excesses or deficiencies of calories or essential nutrients. Instruction in nutrition and food should begin in childhood.
- All children should have the opportunity to engage in a variety of sports and physical fitness programs, with emphasis on aerobic endurance, muscle strength, flexibility, and general fitness, and to receive instruction in school about the health benefits of such exercise. Adoption of forms of activity that can be enjoyed throughout life on a regular and frequent basis should be encouraged.
- All children and adolescents should be helped to avoid use of tobacco, alcohol, and drugs and to abstain from early, unhealthful sexual practices.
- A positive self-image for all children should be fostered by universal ac-

cess to education and opportunities to fulfill their potential in society.

- Universal access to health care should be provided for all children, with emphasis on primary care and health promotion to prevent illness and to achieve optimal health.

Promotion of good nutrition and regular aerobic physical activity for everyone throughout life must be a mainstay of any system that promotes the welfare of the individual and of society.

PHYSICAL ACTIVITY AND NUTRITION

Overweight due to excessive body fat is a major disorder of people in affluent countries and increasingly in some developing countries. Overweight increases the chance of developing chronic diseases such as diabetes, high blood pressure and stroke, coronary heart disease, arthritis, and possibly some forms of cancer. In addition, reduced mobility and concerns about appearance hamper the individual's emotional well-being. Because obesity is often familial and has a strong genetic component, early identification of those at risk and proper counseling should aid in the prevention of obesity.

The two most effective measures to control weight are regular physical activity and consumption of a low-fat diet. When people expend more energy through regular exercise and consume a wide variety of low-fat foods, the higher energy intake increases the probability that the resulting mixture of foods in their diet will meet requirements for all essential nutrients.

It should be emphasized that simple, nontaxing physical activities, such as walking, cycling, swimming, and gardening, are effective, but they must be done regularly, with the target of some

such activity daily. An environment where physical activity is encouraged can ensure continuation of such activities throughout life. Consequently, communities should be urged to provide opportunities and facilities for exercise, particularly in cities. Open spaces and attractive worksite facilities will encourage physical activities for all age groups.

Good nutrition and regular physical exercise promote feelings of well-being and improve performance in all daily activities. Energy intake must be consonant with levels of physical activity. More research is needed on the nutritional requirements that will most effectively improve exercise capacity and performance.

EDUCATION, DEVELOPMENT, AND TRAINING

Because there is a dearth of training of health professionals in nutrition and physical education and a dereliction by them of responsibility for promoting this fundamental basis of good health, the public is bombarded by fads and conflicting pseudo-facts conceived by self-styled authorities. Information and education for the public is not provided in a reliable way. The opportunity for improved well-being through diet and physical activity is lost because the message has not been effectively delivered.

At present, those who have educational and practical responsibilities for the health of the public receive only minimal instruction in these disciplines. Therefore, there is a need to develop curricula in schools of nutrition, schools of physical education, and medical schools that will integrate nutrition, exercise physiology, and genetics into health education.

DECLARATION

- In developed countries technological developments have minimized phys-

ical activity, whereas variety and availability of foods make dietary choice a personal but not always well-advised decision.

- In most developing countries, the nutrition problems are quite different. Dietary fat is already low and unrefined carbohydrate intake high, but the intake of energy, protein, and micronutrients is all too often inadequate. A more bountiful and sanitary supply of all the foods that are traditional in these cultures is needed. Surely, emulation of the excesses of the diets of Western affluent societies is to be avoided.
- The existence of large numbers of hungry children and adults amidst the abundance of food in many of the industrialized countries is destructive to the individual and to society. Governments must correct the maldistribution problems that allow such inhumane inequities to exist and encourage food choices that provide optimal nutrition for all.
- The adverse health effects of physical inactivity and consumption of high-fat diets have been repeatedly demonstrated in affluent societies by the high incidence of chronic diseases associated with these factors.
- Programs encouraging physical activity and good nutrition have now been shown to reduce diseases associated with inactivity and ill-advised diets and can improve the quality of life.

- Understanding of the benefits to health from increased physical activity and good nutrition should be widely disseminated through extensive publicity.
- Health professionals should be educated in nutrition and exercise physiology to assume leadership roles in educating the public on the health benefits of physical activity and good nutrition.
- Education of the public should be promoted in schools at all levels, in the workplace, through the media, and by health professionals.
- Advice provided to the public should be based on validated research findings in the fields of nutrition, genetics, and physiology. Research in these interrelated biomedical sciences deserves increased public and private support.
- Communities must provide clean and open spaces for children's playgrounds and adult sports, and designate specific paths for pedestrians, cyclists, and other exercisers.
- Evidence is now convincing that general well-being and health can be greatly enhanced by achievable adjustments of life-styles, nutrition, and physical activity. We call on all to respond.

26 May 1992
Ancient Olympia