Every four years an International Conference on Nutrition and Fitness is held in Greece prior to the Olympic Games. Following each conference, a declaration is developed at the International Olympic Academy to update advice on nutrition and fitness for all. The Third International Conference on Nutrition and Fitness was held from 24 to 27 May 1996 in Athens and was attended by 480 participants from 31 countries. The Fourth International Conference on Nutrition and Fitness will be held in spring of the year 2000.

The international panel that developed the Declaration of Olympia on Nutrition and Fitness agreed that on the occasion of the one-hundredth anniversary of the Olympic Games it was important to reaffirm the concept of positive health articulated by Hippocrates in 480 BC, and to reassess its relevance to the Olympic ideal and the health of the world’s population. Hippocrates’ concept of positive health was based on the interaction of heredity (today recognized as genetics), diet and physical activity, which influences the spiritual, mental and physical aspects of health:

“Positive health requires a knowledge of man’s primary constitution and of the powers of various foods, both those natural to them and those resulting from human skill. 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.”

The concept is represented graphically in the Figure.

The concept of positive health was important in ancient Greece, and it occupied much of the Greeks’ thinking. People who had the means and leisure time applied themselves to maintaining positive health, which they often conceived in aesthetic terms. They placed themselves in the hands of trainers, who subjected them to a regimen. The ancient Greeks’ training for war and athletic competition is of course well known. Health was a form of excellence in its own right, the physical counterpart of mental activation. The details of the health regimen were an important part of Greek medicine.

**GENETIC VARIATION, NUTRITION, PHYSICAL ACTIVITY AND HEALTH**

The interaction between genetic and environmental factors influences human development and is the foundation for health and disease. While genetic factors define the individual’s potential for health and susceptibility to disease, it is environmental factors that determine if the potential is reached and how the susceptibility affects the individual. Nutrition and physical activity are two of the most important environmental factors in maintenance of health and well-being.

Each human being is exceptional in some way. Individuality is determined by genes, constitutional factors (age, sex, developmental stage, parental factors) and environmental factors (diet, physical activity, socio-economic status, occupation, education, time, geography and climate). Genetic variation influences the response to diet. Nutrients and physical activity influence gene expression. Under many conditions proper diet and exercise have similar beneficial effects, and their effects may be additive.

Because of differences in gene frequency, dietary habits and activity levels, universal dietary and physical activity

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_Hippocrates’ concept of the influence of the interaction of genetics, nutrition and physical activity on the spiritual, mental and physical aspects of health_
recommendations are not appropriate. Instead, recognition of variability in genetic make-up and response to exercise, coupled with an appreciation of the cultural context of diet and physical activity patterns, should guide advice for health and the prevention and management of chronic diseases.

**DIET**

The purpose of diet is to supply energy and nutrients required for optimal health. Energy intake must be balanced against physical activity. Over 800 million humans are chronically energy deficient, but obesity is common in many industrialized societies. Protein intake should be adequate for normal growth and development in children and for maintenance of body structures. Carbohydrates, both simple and complex, are essential for energy and fibre.

Fat is a concentrated energy source, and in energy-deficient populations increased fat intake may be necessary to enhance energy availability and to ensure absorption of fat-soluble vitamins. However, in sedentary populations excess fat may contribute to chronic degenerative diseases. In such circumstances total fat intake should be reduced, mainly by decreasing saturated and trans fatty acids, and physical activity should be increased. All populations need essential polyunsaturated fatty acids for mental and cardiovascular health. An omega-6:omega-3 fatty acid ratio of 5:1 or less appears to be desirable (Simopoulos, 1991).

Adequate balanced micronutrient intake should be provided commensurate with emerging understanding of needs for these nutrients. Special attention should be directed to correcting micronutrient deficiencies, which have the most extensive nutritional impact throughout the world: 2 000 million persons are anaemic, 1 000 million are at risk of iodine deficiency and 40 million children suffer from vitamin A deficiency (FAO/WHO, 1992). Understanding of the functions of micronutrients is currently increasing, and health workers should have up-to-date knowledge regarding both deficiencies and optimal requirements. Having a variety of foods in the diet helps to maintain adequate micronutrient intake. Most populations would benefit from increased intakes of fruits and vegetables.

**PHYSICAL ACTIVITY**

A wealth of evidence points to the conclusion that human fitness and health improve when sedentary individuals begin to exercise. Although low physical activity levels are most frequent in industrialized, affluent nations, sedentary behaviour is becoming increasingly common in developing countries as well. Because mechanization and industrialization have reduced occupational physical activity levels in many communities, there is often a need for additional daily physical activities designed to improve health and fitness.

Physical activity can be categorized as follows:
- non-labour daily physical activities, e.g. feeding, bodily functions (such as temperature regulation, heart rate, breathing rate), minimum physical activities necessary for life maintenance;
- labour physical activities, e.g. industrial work, agriculture, carpentry, housework;
- leisure or recreational physical activities (exercise) of low to moderate intensity, e.g. walking, dancing, hiking, bowling, cycling, golf.

A wide variety of fitness parameters, including aerobic capacity, muscular strength, endurance, coordination, flexibility and body composition, improve with increases in activity levels. Perhaps more importantly, indices of human health also improve. Physical activity has been shown to reduce the severity and outcome of three of the most common chronic degenerative diseases of westernized nations: hypertension, coronary heart disease and non-insulin-dependent diabetes mellitus. Physical activity also has a well-known role in preventing and reducing obesity, and it has a beneficial influence on insulin metabolism. Furthermore, increased levels of physical activity have a positive impact in virtually all chronic diseases, including but not limited to stroke, peripheral artery disease, chronic obstructive pulmonary disease, osteoporosis and some forms of cancer. For previously sedentary individuals, even non-taxing physical activities such as walking, gardening, cycling and swimming can elicit improved health and reduce morbidity and mortality.

Physical activities are advised to promote growth and health, improve body functions and protect from illness. Exercise prescription should be considered as an essential component of therapy for treatment or reversal of various diseases.

**EDUCATION**

Education about nutrition and physical activity needs to be adapted to each country and to different populations and cultures. Education about the beneficial physical and psychological effects of proper nutrition and physical activity in health and disease needs to be directed to all age groups – children, adults and the elderly – since research has shown that levels of physical activity are correlated with awareness of its benefits. Education needs to address the detrimental effects of sedentary lifestyles, undernutrition and malnutrition, particularly for children. Education about opportunities for obtaining proper nutrition and engaging in
physical activity is important in view of findings that increases in elective physical activity depend on accessibility.

Education should be disseminated in the workplace and in the community through various channels – the mass media, print, television and radio – in order to reach everybody in the population. Role models in the family, schools, sports and entertainment also provide education. Institutions such as schools can set examples for proper nutrition and physical activity. The food and sports industries need to be cognizant of the scientific evidence regarding optimal nutrition and physical activity levels.

Labelling of the nutritional composition of all foods sold is another means of education. There is a particular need for education of health professionals and health workers, nutrition and sports scientists and educators.

REFERENCES


1. Nutrition and physical activity interact in harmony and are the two most important positive factors that contribute to metabolic fitness and health interacting with the genetic endowment of the individual. Genes define opportunities for health and susceptibility to disease, while environmental factors determine which susceptible individuals will develop illness. Therefore, individual variation may need to be considered to achieve optimal health and to correct disorders associated with micronutrient deficiency, dietary imbalance and a sedentary lifestyle.

2. Every child and adult needs sufficient food and physical activity to express their genetic potential for growth, development, and health. Insufficient consumption of energy, protein, essential fatty acids, vitamins (particularly vitamins A, C, D, E and the B-complex) and minerals (particularly calcium, iron, iodine, potassium and zinc), and inadequate opportunities for physical activity impair the attainment of overall health and musculoskeletal function.

3. Balancing physical activity and good nutrition for fitness is best illustrated by the concept of energy intake and output. For sedentary populations, physical activity must be increased; for populations engaging in intense occupational and/or recreational physical activities, food consumption may need to be increased to meet their energy needs.

4. Nutrient intakes should match more closely human evolutionary heritage. The choice of foods should lead to a diverse diet high in fruits and vegetables and rich in essential nutrients, particularly protective antioxidants and essential fatty acids.

5. The current level of physical activity should match more closely our genetic endowment. Re-establishment of regular physical activity into everyday life on a daily basis is essential for physical, mental, and spiritual well-being. For all ages and both genders the physical activity should be appropriately vigorous and of sufficient duration, frequency, and intensity, using large muscle groups rhythmically and repetitively. Special attention to adequate nutrition should be given to competitive athletes.

6. The attainment of metabolic fitness through energy balance, good nutrition and physical activity, reduces the risk of and forms the treatment framework for many modern lifestyle diseases such as diabetes mellitus, hypertension, osteoporosis, some cancers, obesity, and cardiovascular disorders. Metabolic fitness maintains and improves musculoskeletal function, mobility, and the activities of daily living into old age.

7. Education regarding healthy nutrition and physical activity must begin early and continue throughout life. Nutrition and physical activity must be interwoven into the curriculum of school-age children and of educators, nutritionists and other health professionals. Positive role models must be developed and promoted by society and the media.

8. Major personal behavioural changes supported by the family, the community, and societal/resources are necessary to reject unhealthy lifestyles and to embrace an active lifestyle and good nutrition.

9. National governments and the private sector must co-ordinate their efforts to encourage good nutrition and physical activity throughout the life cycle and thus increase the pool of physically fit individuals who emulate the Olympic ideal.

10. The ancient Greeks (Hellenes) attained a high level of civilization based on good nutrition, regular physical activity, and intellectual development. They strove for excellence in mind and body. Modern men, women, and children can emulate this Olympic ideal and become swifter, stronger, and fitter through regular physical activity and good nutrition.

DECLARATION OF OLYMPIA ON NUTRITION AND FITNESS

1. Nutrition and physical activity interact in harmony and are the two most important positive factors that contribute to metabolic fitness and health interacting with the genetic endowment of the individual. Genes define opportunities for health and susceptibility to disease, while environmental factors determine which susceptible individuals will develop illness. Therefore, individual variation may need to be considered to achieve optimal health and to correct disorders associated with micronutrient deficiency, dietary imbalance and a sedentary lifestyle.

2. Every child and adult needs sufficient food and physical activity to express their genetic potential for growth, development, and health. Insufficient consumption of energy, protein, essential fatty acids, vitamins (particularly vitamins A, C, D, E and the B-complex) and minerals (particularly calcium, iron, iodine, potassium and zinc), and inadequate opportunities for physical activity impair the attainment of overall health and musculoskeletal function.

3. Balancing physical activity and good nutrition for fitness is best illustrated by the concept of energy intake and output. For sedentary populations, physical activity must be increased; for populations engaging in intense occupational and/or recreational physical activities, food consumption may need to be increased to meet their energy needs.

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6. The attainment of metabolic fitness through energy balance, good nutrition and physical activity, reduces the risk of and forms the treatment framework for many modern lifestyle diseases such as diabetes mellitus, hypertension, osteoporosis, some cancers, obesity, and cardiovascular disorders. Metabolic fitness maintains and improves musculoskeletal function, mobility, and the activities of daily living into old age.

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8. Major personal behavioural changes supported by the family, the community, and societal/resources are necessary to reject unhealthy lifestyles and to embrace an active lifestyle and good nutrition.

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Every four years, the International Conference on Nutrition and Fitness is held in Greece prior to the Olympic Games. At the 1996 conference, an international panel developed the Declaration of Olympia on Nutrition and Fitness to update advice on nutrition and fitness for all. The declaration assessed the relevance of the concept of positive health, articulated by Hippocrates in 480 BC, to the Olympic ideal and the health of the world’s population. The concept of positive health was based on the interaction of heredity (today recognized as genetics), diet and physical activity; these factors are the foundation for health and disease. Genetic factors define the individual’s potential for health and susceptibility to disease, and the environment determines if the potential is reached. Nutrition and physical activity are two of the most important environmental factors in maintaining health and well-being.

Individuality is determined by genes, constitutional factors (e.g. age, sex) and environmental factors (e.g. socio-economic status, geography). Because of differences in gene frequency, dietary habits and activity levels, universal dietary and physical activity recommendations are not appropriate. Instead, genetic variability and response to exercise should be recognized, and the cultural context of diet and physical activity patterns should guide health advice.

Energy intake must be balanced against physical activity. Over 800 million humans are chronically energy deficient, while obesity is common in many industrialized societies. Protein intake should be adequate for normal growth and development as well as maintenance of body structures. Carbohydrates, both simple and complex, are essential for energy and fibre. Fat is a concentrated energy source. In energy-deficient populations, increased fat intake may be necessary to meet energy needs and to ensure absorption of fat-soluble vitamins. Special attention should be directed to correcting these micronutrient deficiencies.

Low physical activity levels are most common in industrialized, affluent nations but are becoming increasingly common in developing countries. Education about nutrition and physical activity needs to be adapted to each country and to different populations and cultures. Education about the beneficial physical and psychological effects of proper nutrition and physical activity in health and disease needs to be directed to all age groups – children, adults and the elderly.

Through energy balance, good nutrition and physical activity, diseases such as diabetes mellitus, hypertension, osteoporosis, some cancers, obesity and cardiovascular disorders can be diminished. Personal behaviour changes supported by the family, the community and societal resources are necessary to reject unhealthy lifestyles. National governments and the private sector must coordinate their efforts to encourage good nutrition and physical activity throughout the life cycle. The ancient Greeks attained a high level of civilization based on good nutrition, regular physical activity and intellectual development. Modern men, women and children can emulate this Olympic ideal.
Cada cuatro años, se celebra la Conferencia Internacional sobre Nutrición y Bienestar Físico en Grecia antes de los Juegos Olímpicos. En la conferencia de 1996, un grupo internacional de expertos formuló la Declaración de Olimpia sobre nutrición y bienestar físico, en la que se actualizan los consejos sobre alimentación y ejercicio físico. En la declaración se evalúa el concepto de salud, enunciado por Hipócrates en el año 480 a.C. en relación con el ideal olímpico y la salud de la población mundial. Este concepto, se basaba en la interacción entre los factores hereditarios (hoy día reconocidos como genéticos), la alimentación y la actividad física; en estos factores se funda la salud y la enfermedad. Los factores genéticos determinan el potencial de salud y sensibilidad a las enfermedades de cada persona, y los ambientales la materialización de ese potencial. La nutrición y la actividad física son dos de los factores ambientales más importantes para mantener la salud y el bienestar.

El carácter del individuo está determinado por los genes, factores constitucionales (el sexo, la edad) y factores ambientales (condición socioeconómica, geografía). Dadas las diferencias en cuanto a frecuencia de genes, hábitos alimentarios y nivel de actividad, son inútiles las recomendaciones universales sobre alimentación y actividad física. En cambio, el asesoramiento en materia de salud debe guiarse más bien por la variabilidad genética y la reacción al ejercicio, así como el contexto cultural de los modelos de alimentación y actividad física.

Existe la necesidad de equilibrar el aporte energético con la actividad física. Más de 800 millones de personas presentan una deficiencia energética crónica, mientras que la obesidad es común en muchas sociedades industrializadas. La ingestión de proteínas debe ser apropiada para asegurar un crecimiento y desarrollo normales y para mantener la estructura corporal. Tanto los carbohidratos simples como los complejos aportan energía y fibras. Las grasas son una fuente de energía concentrada. En las poblaciones que padecen de deficiencia energética puede ser necesaria la ingestión de una mayor cantidad de grasas para hacer frente a las necesidades de energía y asegurar la absorción de vitaminas liposolubles. La corrección de estas deficiencias de micronutrientes ha de ser objeto de especial atención.

Los niveles bajos de actividad física son más corrientes en los países industrializados y prósperos,
pero se están generalizando también en los países en desarrollo. La educación sobre nutrición y actividad física debe adaptarse a cada país y a las diferentes poblaciones y culturas. Niños, adultos y ancianos deben recibir educación sobre los beneficios físicos y psicológicos de un nivel apropiado de nutrición y actividad física.

Gracias al equilibrio energético, a una correcta nutrición y a la actividad física, es posible disminuir la incidencia de enfermedades como la diabetes mellitus, la hipertensión, la osteoporosis, algunos tipos de cáncer, la obesidad y los trastornos cardiovasculares. Es necesario el apoyo de la familia, la comunidad y la sociedad para que las personas cambien su comportamiento. Los sectores público y privado deben coordinar sus esfuerzos para promover la actividad física y una nutrición adecuada durante todo el ciclo vital. En Grecia antigua se había alcanzado un alto nivel de civilización basado en una buena nutrición, una actividad física regular y el desarrollo intelectual. Los hombres, mujeres y niños de hoy pueden imitar este ideal olímpico. ♦