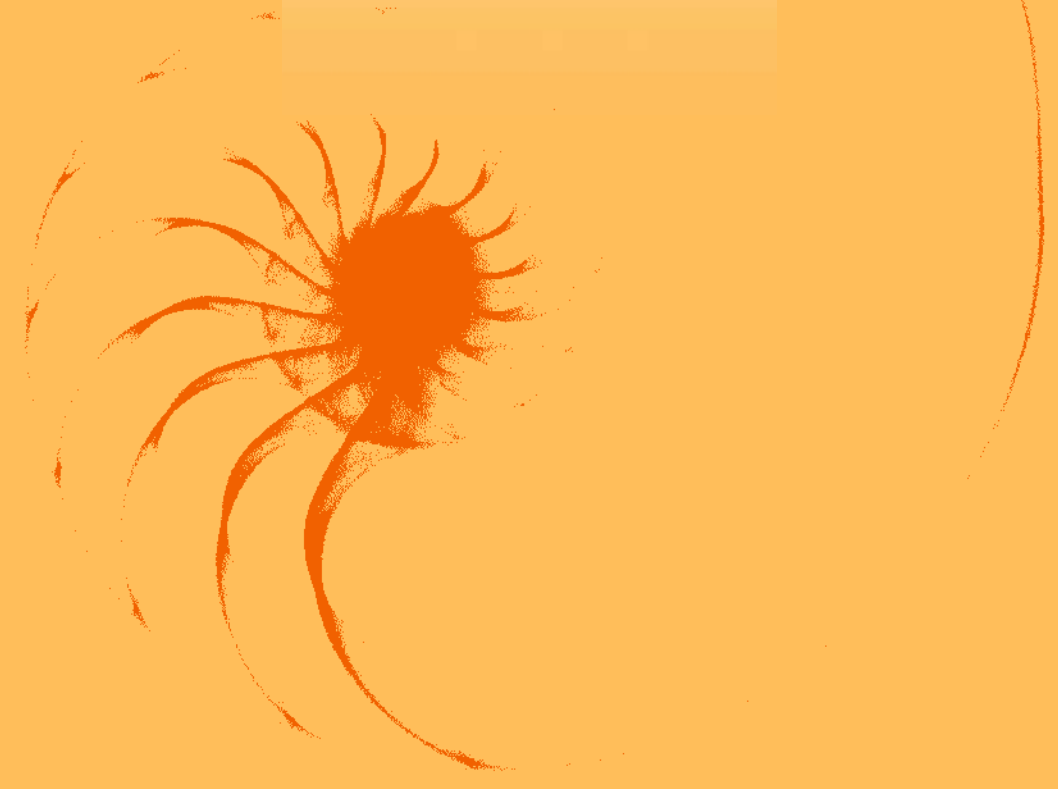


The main consequences of malnutrition throughout the course of life

| Common nutritional disorders | Main consequences |
|---|--|
| Pregnant and lactating women | |
| PEM, IDD, VAD, IDA Folate deficiency Calcium deficiency | Insufficient weight gain in pregnancy Maternal anaemia Maternal mortality Increased risk of infection Night blindness Low birth weight/high-risk death rate for fetus |
| Intergenerational Cycle | |
| PEM, IDD, VAD, IDA Folate deficiency Calcium deficiency | Deficiencies passed on to child who may then pass them on to the following generation. |
| Adults | |
| PEM, IDA Obesity Diet-related diseases | Thinness Lethargy Obesity Heart disease Diabetes Cancer Hypertension/stroke Anaemia |
| Older persons | |
| PEM, IDA Obesity Osteoporosis Diet-related diseases | Obesity Spine and hip fractures, accidents Heart disease Diabetes Cancer |

NHD helps prevent nutrition-related tragedies

- **Brain damage** – The greatest single preventable cause of brain-damage and mental retardation worldwide is *iodine deficiency*. Something as simple as iodized table salt solves the problem;
- **Blindness** – The single greatest preventable cause of childhood blindness is *vitamin A deficiency*. Capsule supplements costing only 2 cents each can save children's lives; food fortification and better diets can brighten their futures;
- **Infant deaths** – Fifty percent of infant deaths – that translates into six million lost lives – could be saved each and every year by eliminating *protein-energy malnutrition*; another 1.5 million could be spared through appropriate *breastfeeding*.



Nutrition risk factors throughout the life course

The main consequences of malnutrition throughout the course of life

Common nutritional disorders Main consequences

Embryo/fetus

| | |
|-----------------------------------|---------------------|
| Intrauterine growth retardation | Low birth weight |
| Iodine deficiency disorders (IDD) | Brain damage |
| Folate deficiency | Neural tube defects |
| | Stillbirths |

Neonate

| | |
|------------------|---------------------------|
| Low birth weight | Growth retardation |
| IDD | Developmental retardation |
| | Brain damage |
| | Early anaemia |

Infant and young child

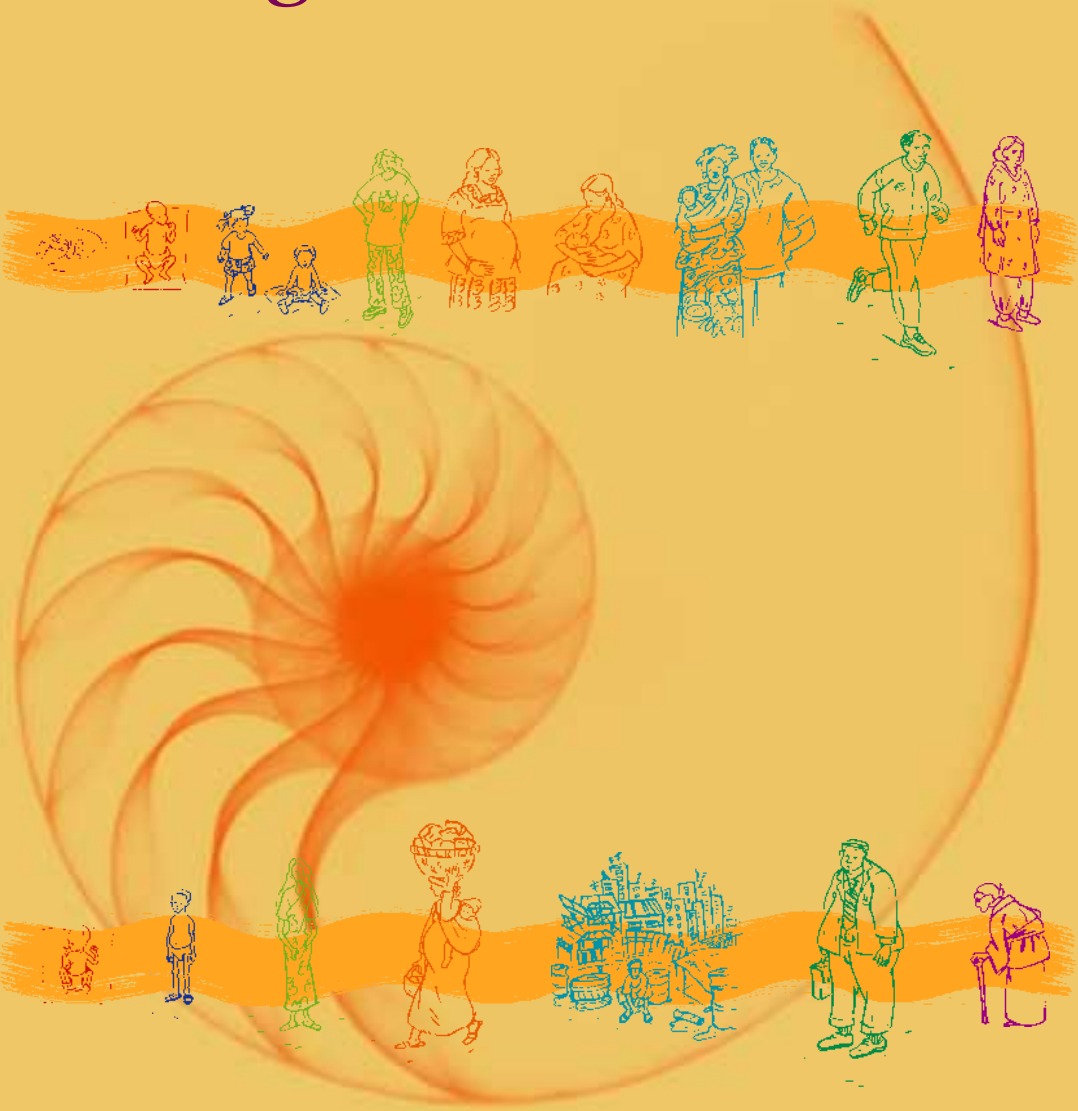
| | |
|-----------------------------------|-----------------------------|
| Protein-energy malnutrition (PEM) | Continuing malnutrition |
| IDD | Developmental retardation |
| Vitamin A deficiency (VAD) | Increased risk of infection |
| Iron deficiency anaemia (IDA) | High risk of death |
| | Goitre |
| | Blindness |
| | Anaemia |

Adolescent

| | |
|--------------------|---|
| PEM, IDD, IDA | Delayed growth spurt |
| Folate deficiency | Stunted height |
| Calcium deficiency | Delayed/retarded intellectual development |
| | Goitre |
| | Increased risk of infection |
| | Blindness |
| | Anaemia |
| | Inadequate bone mineralization |

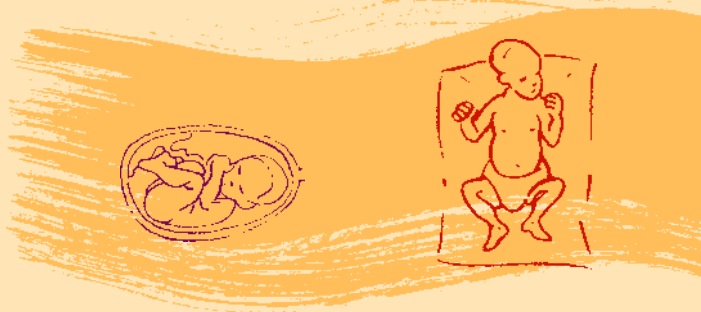
Acronym key:

| | |
|------|-----------------------------|
| IDA: | Iron deficiency anaemia |
| IDD: | Iodine deficiency disorders |
| PEM: | Protein-energy malnutrition |
| VAD: | Vitamin A deficiency |





Nurturing nutritional well-being and health is a lifelong process, with each phase affecting the next. But in turning the tide of malnutrition, time is of the essence. The first 45 months – that is, the nine prenatal months plus the first three years of a child's life – are crucial for the entire course of life.



Fetus/neonate: The most critical months

The child's future is foreshadowed before birth by the mother's state of health and overall well-being during pregnancy. A gravely malnourished mother almost inevitably gives birth to a low-birth-weight baby.

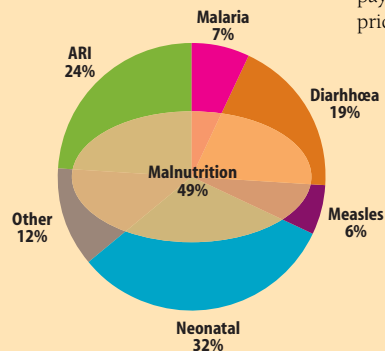
One of every three children on earth suffers from some form of malnutrition. Though many deficiencies are invisible, the most

devastating – like protein-energy malnutrition at one extreme and obesity at the other – are not.

Children lose their families, their futures, their lives. Losses of this magnitude affect us all, directly or indirectly, undermining individual lives and entire societies. Sooner or later, all the world pays the price.



Deaths of children under 5 years of age



Of the 10.4 million children under five in developing countries who die each year, over 5 million succumb to malnutrition-related causes.

Nutrition risk factors th



The vulnerability of infants and young children

Breastfeeding is of paramount importance for the child's subsequent development. Whether and for how long babies are

breastfed will influence their resistance to disease, their mental development and, in some parts of the world, their chances of surviving beyond infancy.

A malnourished child, deprived of vitamin supplementation and food fortification, will become a more vulnerable adult who may pass deficiencies on to the next generation.



Timely, safe and adequate complementary feeding with continued breastfeeding, needs to be accorded priority status on the global nutrition agenda. Indeed, the continued high levels of growth faltering in many parts of the world suggest that complementary feeding practices remain inadequate for substantial numbers of children.

Adolescent nutrition: a neglected dimension

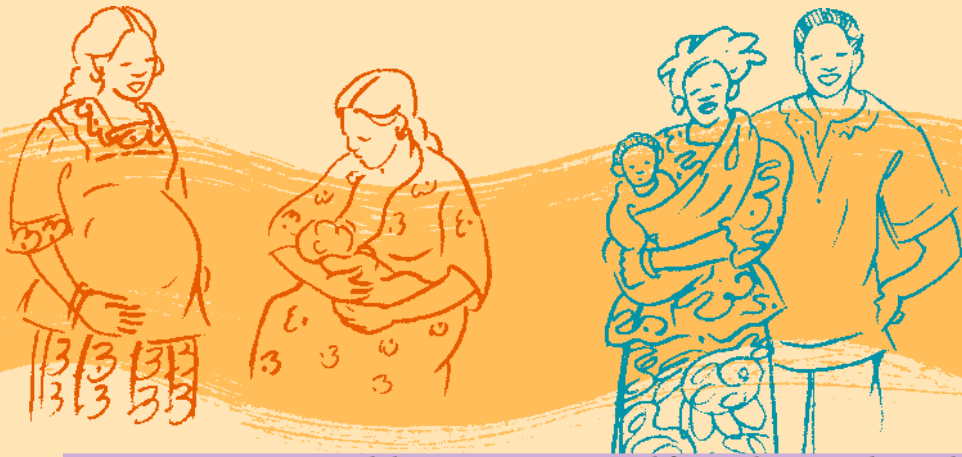
There are some 1.2 billion youths between 10 and 19 years of age, or about 19% of the total global population. A unique period in life, adolescence is one of intense physical, psychosocial and cognitive development. Adolescents gain up to 50% of their adult weight, 50% of their adult skeletal mass and more than 20% of their adult height.

This means maximum caloric and protein requirements. However, increased physical activity, combined with poor eating habits and other factors (e.g. menstruation, early pregnancy), accentuate the risk of poor adolescent nutrition.



The Intergenerational Cycle

throughout the life course



Adult nutrition: navigating life's productive and reproductive years



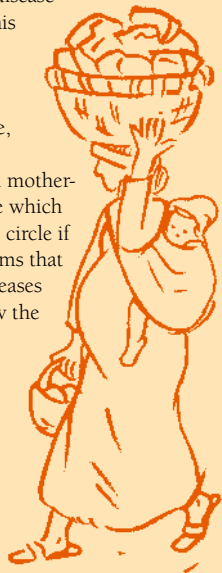
Mothers

A mother's well-being during pregnancy and lactation is of paramount importance for both herself and child. High regional rates of intrauterine growth retardation (IUGR) in unborn children are a sensitive indicator. They should set off a public health alarm, warning that women of childbearing age are at high risk of malnutrition and disease and that they may pass this legacy along to the next generation.

Within the overall life course, there is an intergenerational mother-to-child cycle which may turn full circle if research confirms that certain adult diseases are linked to how the fetus develops *in utero*.



the intergenerational cycle



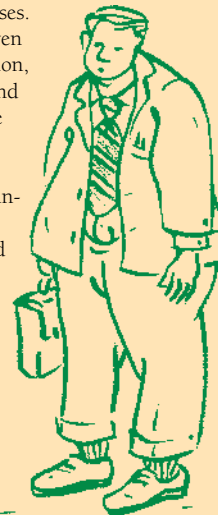
Breadwinners

Bread is the staff of life. Conversely, if a breadwinner falls ill, an entire family may be pulled down into poverty, illustrating the vicious circle perpetuated by malnutrition, ill-health and poverty. It is estimated that almost 46 million years of productive life were lost through just four forms of malnutrition – stunting, iodine, iron and vitamin A deficiencies – in 1990 alone.



Midlife careerists

Swirled along in what may well be the most rapid global transformation ever, efforts to cope often produce unhealthy changes in diet and lifestyle that can greatly increase the risk of disease-driven midlife crises. Stress-driven hypertension, diabetes and obesity are high-risk chronic disease spin-offs of our accelerated pace that often strike in midlife.



Our ageing world: emerging challenges

The older we become, the more our inappropriate lifestyles catch up with us. Unhealthy diets and sedentary habits exacerbate the risk factors of ageing. Worldwide, both the number and the proportion of older persons (aged 60 and over) are growing. Today's estimated 540 million older persons will almost double to 1 billion by 2020, 710 million (71%) of them living in developing countries.

Women comprise the majority of the older population. By 2025, the number of older women in Asia is projected to soar from the current figure of 107 to 248 million, and in Africa from 13 to 33 million. This trend will spawn its own unique nutritional challenges and responses.

