



The link between food, nutrition, diet and non-communicable diseases

Why NCDs need to be considered when addressing major nutritional challenges

1 Foods, diets and nutritional status are important determinants of non-communicable diseases (NCDs)

What we eat and our nutritional status can affect cardiovascular diseases, some types of cancer and diabetes (see page 2). Foods, diet and nutritional status, including overweight and obesity, are also associated with elevated blood pressure and blood cholesterol, and resistance to the action of insulin. These conditions are not only risk factors for NCDs, but major causes of illness themselves.

2 NCDs affect people in every corner of the world

Of 52.8 million deaths worldwide in 2010, 34.5 million were due to NCDs, including cardiovascular diseases (coronary heart disease, cerebrovascular diseases such as strokes, and peripheral vascular diseases), diabetes, cancers and chronic respiratory diseases. About 80% of these deaths were in low- and middle-income countries (LMICs); 29% of these deaths were in people under age 60. Once affected, people often live with the consequences of NCDs for the rest of their lives; in 2010, NCDs contributed to 79% of illness in the world's population.

3 Populations around the world are increasingly exposed to foods and diets that influence the risk of developing NCDs

Globally, calories obtained from meat, sugars and oils and fats have been increasing during recent decades, and those from fibre-rich foods such as wholegrains, pulses and roots have been declining. Consumption of processed and convenience foods continue to rise rapidly in LMICs. This nutrition transition affects dietary patterns and nutrient intake, which influence the risk of developing NCDs (see page 2).

4 Undernutrition places people at risk of developing NCDs

Undernutrition, and its effects on growth, development and maturation, has numerous detrimental outcomes, including the potential to increase risk of developing an NCD later in life (see page 2).

5 Food systems present challenges to the prevention and control of NCDs as well as undernutrition

Food systems have undergone dramatic changes in past decades. It is well established that this has had implications for nutrition, food security and environmental sustainability. Global food system changes have also had dramatic implications for NCDs by influencing the nutritional quality of foods that are available, affordable and acceptable to consumers.

6 A more concerted response is needed for policy actions, governance and monitoring and evaluation

In 2011, the UN Political Declaration on NCDs called for population-based policies, multisectoral action, cross-agency working and monitoring and evaluation. The World Health Organization (WHO) has led the way in developing this global response to NCDs. They have put into place a global architecture for addressing NCDs, including recommendations on population-based actions and monitoring frameworks with targets and indicators. Greater coordination is needed between this process and actions being taken to address undernutrition and challenges in the food system at the global, regional and national levels. NCDs have been conspicuously absent from both the health and nutrition-related Millennium Development Goals (MDGs) and other international development agendas. At the national level there has been a wide range of responses, but still insufficient formulation and implementation of integrated policies, cross-sectoral governance, and monitoring and evaluation.

THE SCIENCE ON THE CONNECTION BETWEEN NUTRITION AND NCDs

Dietary patterns



Consuming predominantly **plant-based diets** reduces the risk of developing obesity, diabetes, cardiovascular diseases, and some forms of cancer. Plant-based diets are **high in vegetables and fruits, wholegrains, pulses, nuts and seeds, and have only modest amounts of meat and dairy**. These diets help to achieve and maintain a healthy weight, reduce blood pressure, and are also rich in sources of dietary fibre (which protects against colorectal cancer).



Food and nutrients



Fruits and vegetables independently contribute to preventing cardiovascular disease. It is likely that particular vegetables and fruits, including cruciferous vegetables such as cabbage and broccoli, and many fruits or vegetables that are rich in folate, also protect from developing cancers of the colon and rectum, mouth, pharynx, larynx and oesophagus.

Eating red and processed meat increases risk of developing colorectal cancer. **Saturated fat and trans fats** increase blood cholesterol and cardiovascular risk. Higher **sodium/salt intake** is a major risk factor for elevated blood pressure and cardiovascular diseases, and probably stomach cancer. Diets high in meat and dairy also increase blood pressure. Diets high in **energy-dense, highly-processed foods and refined starches and/or sugary beverages** contribute to **overweight and obesity**.

Body composition



Overweight and obesity is associated with increased total mortality and increased risk of disease or death from cardiovascular diseases, diabetes, and several types of cancer. It does so by increasing high blood pressure, blood cholesterol, insulin resistance and inflammation as well as hormone levels.

Life course



The provision of nutrients in the womb, and what we eat and how active we are from birth onwards influences the size and shape of the human body throughout the life course. These processes influence the rate at which we grow and mature from conception to adult life, and our physical and mental development. There is a need to understand these processes better, but they have already been shown to influence risk of cardiovascular diseases and cancers. Babies that are born large within the normal range and people who grow tall have a lower risk of cardiovascular disease and diabetes in adulthood, but a greater risk of some cancers. Conversely those who are born small have a greater risk of cardiovascular diseases and diabetes later in life. These effects apply not just to people who are seriously over- or under-nourished, but also across the full spectrum of growth and body composition.

Breastfeeding also plays a role in the health of mothers and their children. For example, the greater the sum of months a mother accumulates lactating over successive pregnancies, the lower her risk of developing breast cancer. Breastfeeding also promotes a healthy growth trajectory in the infant that is associated with lower risk of later obesity.

The **first thousand days** from conception to the age of two are critical for the current health of the child and also for later risk of disease in adulthood. By influencing health and nutritional status of prospective mothers, early nutrition can also influence the health of subsequent generations.



RECOMMENDATIONS FOR PRIORITY ACTIONS

While there are many lessons still to be learned, there is widespread agreement on a number of priority actions needed to effect change.

Key actions for national governments



- ▶ **Develop and implement a comprehensive range of well-targeted policy actions to provide an environment conducive to nutritious, healthy diets.** This should include the options set out in WHO and UN documents and take a coordinated approach to undernutrition, obesity and NCDs. World Cancer Research Fund International's NOURISHING framework (see back page) lists some of the policies needed to change food environments, food systems, and create incentives for behaviour change.
- ▶ Governments should **ensure that agricultural and food policies are supportive of health policies.** They should set nutrition goals for policies, programmes and interventions in agriculture and across all other relevant sectors.
- ▶ Where data is available, national governments should **monitor the implementation and effects of policies to address nutrition and NCDs** following the indicators set in international frameworks. They should also assess the **effects of agri-food systems and policies on nutrition and NCDs.**
- ▶ Governments should ensure **evaluation is incorporated early in the policy development** process and establish data collection systems where data is lacking.

Key actions for international health, food and development agencies



- ▶ The **institutional architecture for NCDs and nutrition should be strengthened** to ensure different UN agencies and programmes work more effectively together, engage in constructive dialogue, and agree on common objectives. Clear roles and responsibilities are needed for each agency.
- ▶ In conjunction with other members of the UN Interagency Taskforce on NCDs, the WHO should **provide toolkits to enable countries to design and implement effective policies.** A toolkit should be available for all key policy actions, including a summary of the best available evidence and how policies can more effectively address inequalities.
- ▶ Agencies should champion the prioritising of nutrition, including NCDs, across **international development agendas.** The UN should integrate nutrition and NCDs into the post-2015 development agenda, and explicitly add NCD risk factor measures to its Scaling-Up Nutrition initiative.

- ▶ Agencies should **assist countries in monitoring and evaluation.** They should provide guidance on appropriate metrics where needed (e.g. in agriculture and food systems) and collate the data for international use.
- ▶ Tools should be provided to governments to help them **safeguard against conflict of interest** in governance and policymaking.

Key actions for researchers



- ▶ Researchers should **engage proactively with the monitoring and evaluation of policy actions** in order to build the evidence base, and communicate the full range of available evidence clearly and consistently to policymakers.

Key actions for donors and research funders



- ▶ Support **capacity building for effective policy development in governments,** the development of a trained workforce of public health nutrition professionals, and **advocacy in civil society organisations.** These are needed to enable effective policies to be developed and implemented, sustain support for the prioritisation of nutrition and NCDs, and overcome opposition from vested interests.
- ▶ Support the **development of data systems** to enable countries to monitor and evaluate in the many places where data is lacking.
- ▶ Provide support to evaluation studies, including **'rapid response' funding streams** to allow for the collection of baseline data in response to the introduction of new policies.

Key actions for civil society



- ▶ Civil society should **act as advocates and watchdogs,** by monitoring and assessing policy actions being taken by government agencies and commercial operators and their impact on nutrition and NCDs.
- ▶ Civil society should **build coalitions** across organisations with a stake in nutrition and NCDs for more effective global and national advocacy. They should likewise work to develop a **social movement** to create demand for policy change, and **mobilise the mass media** in support of nutrition and NCDs.

ADAPTING WORLD CANCER RESEARCH FUND INTERNATIONAL'S NOURISHING FRAMEWORK FOR MALNUTRITION IN ALL ITS FORMS

N O U R I S FOOD ENVIRONMENT		H FOOD SYSTEM	I N G BEHAVIOUR CHANGE
	POLICY AREA	POLICY ACTIONS FOR NUTRITION AND NCDs	
N	Nutrition label standards and regulations on the use of claims and implied claims on foods	Nutrition labelling that is clear and concise, such as interpretative signals, on all packaged foods	
O	Offer healthy foods and set standards in public institutions and other specific settings	Offer healthy foods in school feeding, social safety net programmes and other institutional settings, including the use of behavioural incentives	
U	Use economic tools to address food affordability and purchase incentives	Use financial instruments, such as health-oriented cash transfer programmes, and well-targeted taxes and healthy food subsidies	
R	Restrict food advertising and other forms of commercial promotion	Restrict advertising and promotion of breast-milk substitutes, and of unhealthy foods especially to children	
I	Improve nutritional quality of the whole food supply	Improve the nutritional quality of the food supply, such as through community food production, biofortification and reformulation	
S	Set incentives and rules to create a healthy retail and food service environment	Set incentives and rules for retailers and traders to ensure a healthier community food environment	
H	Harness the food supply chain and actions across sectors to ensure coherence with health	Harness the power of other sectors to improve nutrition governance and policy coherence	
I	Inform people about food and nutrition through public awareness	Inform the public and private sector about nutrition and health, the role of government policy, and the need for responsible corporate actions	
N	Nutrition advice and counselling in health care settings	Nutrition interventions, including support for breastfeeding and complementary feeding, and dietary counselling in primary care	
G	Give nutrition education and skills	Give training and education to increase skills, including targeted health literacy to health workers	

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About World Cancer Research Fund International and The NCD Alliance

World Cancer Research Fund International leads and unifies a network of cancer prevention charities with a global reach. We are the world's leading authority on cancer prevention research related to diet, weight and physical activity. We work collaboratively with organisations around the world to encourage governments to implement policies to prevent cancer and other non-communicable diseases.

The NCD Alliance is a global civil society network of over 2,000 organisations in 170 countries working together to elevate non-communicable diseases on the global health and development agenda.

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