

2026年度 生活科学研究科食物栄養学専攻 大学院博士前期課程Ⅰ期 外国人選考
外国語

受験番号(Exam number) :

氏名(name):

以下の英文を読んで、内容を A4 用紙半分程度にまとめなさい

Read the English below and summarize the contents into about half an A4 sheet.

日本語または英語で解答しなさい

Answer in Japanese or English.

CHAPTER 2. The double burden of malnutrition in low- and middle-income countries

The double burden of malnutrition (DBM) (sometimes referred to as “malnutrition in all its forms”) is the coexistence of undernutrition (including micronutrient deficiencies) and overnutrition in the same population across the life-course [1]. Undernutrition is the result of insufficient intake, poor absorption, and/or poor biological use of the nutrients. Overnutrition is the result of excess or imbalanced nutrient intakes, which can result in impaired body functions as well as overweight and/or obesity. In most regions, undernutrition and overnutrition coexist in the same country, in the same community, or even in the same household.

There is a complex interplay between early undernutrition (in mothers before and during pregnancy, and in early childhood) and later overnutrition that exacerbates the risk of noncommunicable diseases (NCDs), the prevalence of which is rising rapidly in low- and middle-income countries (LMICs) [2, 3]. Undernutrition during pregnancy, which affects fetal growth, and during the first 2 years of life is a major determinant of the risk of both stunting of linear growth and subsequent obesity and NCDs in adulthood [4]. Fast weight gain and linear growth in children in LMICs are associated with better survival and improved cognitive development but might be associated with an increased risk of obesity and cardiometabolic diseases in later life, particularly for rapid weight gain after age 2 years [5]. Malnutrition affects all countries and one third of people worldwide. Almost 1 billion people continue to be undernourished, with an insufficient intake of calories, protein, and micronutrients [6], and currently about 2 billion people are overweight. Nearly half of all countries face multiple serious burdens of malnutrition, such as poor child growth, micronutrient deficiency, and adult overweight. The cost of treating NCDs, of which nutrition-related NCDs are the major share, is likely to be US\$ 30 trillion globally over the next 20 years [7]. Of the top 20 determinants of global deaths, 14 are related to diet and

nutrition. Obesity now has the third highest global social burden (US\$ 2.0 trillion, or 2.8% of global gross domestic product [GDP]), only marginally less than those of tobacco and armed violence, war, and civil disorder [8].

Drivers of the DBM

Wherever people live – whether they are rural smallholders, urban poor, or urban better-off – they all use food systems to procure the food they eat. The majority of the global hungry live in rural areas and are smallholder farmers who produce most of the food they eat. Improving nutrition for this sector requires an understanding of the factors that currently constrain their access to sufficient healthy, nutritious food. Increasingly, these rural smallholders are purchasing unhealthy, cheap processed foods. With economic development, there is a shift away from diets based largely on minimally processed staple foods to diets high in meat, vegetable oils, and processed foods [21–23] (see [Box 2.3](#)). This unhealthy transition has been accompanied by large numbers of people consuming excess calories, thereby contributing to overweight and obesity in more than 2 billion people in 2013 [11], while micronutrient deficiencies persist because the nutrient quality of these foods is poor.

Three important changes have taken place in the industrialized food system that increasingly dominates: (i) the opening of domestic markets to international food trade and foreign direct investment; (ii) the subsequent increased entry of transnational food companies and their global market, and (iii) global food advertising [24–26]. These changes have made energy-dense, nutrient-poor foods relatively more readily available, affordable, and acceptable than nutritious foods [27]. Ultra-processed foods are now the major sources of sugar, salt, and fats in most diets around the world. Total consumption of processed foods is now positively associated with excess energy intake and obesity, and with rising rates of diabetes and NCDs.

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Energy Balance and Obesity

IARC Working Group Reports, No. 10

CHAPTER 2. The double burden of malnutrition in low- and middle-income countries

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Editors: Isabelle Romieu, Laure Dossus, and Walter C. Willett.

Lyon (FR): [International Agency for Research on Cancer](#); 2017.

ISBN-13: 978-92-832-2519-5 ISBN-13: 978-92-832-2518-8

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