



The Role of Breakfast in Health: Definition and Criteria for a Quality Breakfast

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BREAKFAST IS OFTEN RECOGNIZED AS THE “most important meal of the day,” yet there is limited consensus as to what defines the breakfast meal^{1,2} and a lack of science-based guidance on what is considered to be a nutrient-dense or “quality” breakfast. History demonstrates that early development of meal patterns and customary meal composition, including breakfast, varies across cultures, geography, and time, giving rise to different definitions and perceptions of the breakfast meal that still persist.¹

The benefits of eating a breakfast meal have been studied extensively, with recent support for various outcomes, and some findings showing an immediate effect of breakfast consumption on cognitive performance³⁻¹⁰ and feelings of well-being,^{5,8,11-13} as well as extended benefits related to nutrient intakes and diet quality¹⁴⁻¹⁹ and weight management.^{16,20-28} Some studies have also shown an association between breakfast consumption and reduced risk of cardiovascular disease or dyslipidemia^{23,29-32} and measures of glycemic control or type 2 diabetes mellitus.³³⁻³⁶ However, there is no consensus on optimal food composition, timing, and amounts of energy and nutrients that define this meal.³⁷ The 2010 Dietary Guidelines Advisory Committee (DGAC) found that the

definition of breakfast varied across the studies that were reviewed; and the DGAC identified the need for a definition to guide future research aiming to assess and better understand the role of breakfast consumption in health and wellness.³⁸

Breakfast, breakfast consumption, and breakfast skipping are defined differently across research studies, such as by weekly frequency, time of day, timing in relation to waking and daily activities, types of food or beverage consumed, or amount of energy provided (Figure 1). The lack of a standard breakfast definition means that measurement of breakfast consumption in research is subject to either individual study-participant interpretation of what constitutes breakfast or differing definitions provided by researchers, which might account for conflicting research results.^{1,20} This lack of a consistent use of the same definition for breakfast limits the possibility of comparing study findings and drawing clear and consistent conclusions within and across studies of associations between breakfast and health outcomes, such as body weight.³⁹ The lack of a consistent definition also hampers policy and nutrition-education efforts. For example, the 2010 Dietary Guidelines for Americans (DGA) recommends consuming a nutrient-dense breakfast for weight loss, weight maintenance, and to improve nutrient intake, without actually defining one.³⁷ Finally, it is difficult to study barriers and enabling factors to consuming breakfast if it is not clear what constitutes this meal. Research derived from a standard definition of breakfast that is consistently used across studies is more likely to produce results that can be reliably used to inform scientifically accurate messages about breakfast in education, outreach, and nutrition policy-making efforts.¹

The purpose of this commentary is twofold: to propose a definition of breakfast, and to further define what constitutes a quality breakfast. The descriptor “quality” was selected to characterize a nutritious breakfast because it encompasses key attributes that include energy consumption, nutrients to include or reduce, portion sizes, and nutrient-dense food/beverage choices. It also allows for future quantification or scoring of breakfast meals using a quality index, such as the Healthy Eating Index.⁴⁰ This commentary also provides an overview of the existing knowledge of breakfast, including what is known about the frequency of breakfast consumption, nutrient contributions, consumer perceptions, and key outcomes associated with eating breakfast. By opening a dialogue and proposing a definition for the breakfast meal, the intent is to help promote consistency across research studies, as well as to facilitate the translation and communication of breakfast guidance by health and nutrition educators, practitioners, and policy makers. Potential applications of the proposed breakfast definition and criteria for a

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<i>Breakfast definitions</i>	<i>Breakfast skipping definitions</i>
An eating occasion that occurred between 5 AM and 10 AM on weekdays, and 5 AM and 11 AM on weekends. ^{24,37,77,84,123}	Skip breakfast at least one time per week. ^{16,179,180}
Consumption of food, beverage, or both between 5 AM and 10 AM. ¹¹⁵	Skip breakfast at least six times per week. ⁸³
First food eaten as a meal between the hours of 6 AM and 9 AM. ¹⁶	“Rarely/never” eat breakfast, or eat breakfast ≤ 2 days per week. ¹⁸¹
First meal of the day ^{177,178} (in the morning). ⁵	Usually skip breakfast, or never or almost never eat breakfast. ^{182,183}
Any energy-containing food or beverage (excludes water, but not black tea/coffee) consumed between 5 AM and 9:30 AM. ¹¹⁷	No breakfast on the day of the survey, dietary recall, or food record. ^{23,60,184}
Any food and/or beverage reported as consumed in the morning, or for breakfast or <i>desayuno</i> (Spanish equivalent of breakfast), or brunch. ⁴⁹	Not eating a morning meal at home. ⁹⁹
The first meal of the day, eaten before or at the start of daily activities (eg, errands, travel, work), within 2 hours of waking, typically no later than 10 AM, and of a calorie level between 20% and 35% of total daily energy needs. ^{15,20}	
The first meal of the day, taken before or at the start of daily activities with an energy content that meets 20% to 25% of total daily energy needs, and which includes dairy products, cereals, fruit, and healthy fats. ⁴⁴	

Figure 1. Examples of *breakfast* and *breakfast skipping* definitions in the literature.

quality breakfast include helping to influence a consistent definition of breakfast in future research, supporting education and intervention to improve the frequency and quality of breakfast, providing consideration for future dietary guidance and public health recommendations, and suggesting direction for food industry innovation.

PROPOSED DEFINITION OF BREAKFAST

Breakfast is defined literally as the meal that breaks the fast. Ideally, it is viewed as the meal that bridges an extended period of fasting, occurring as a result of the longest period of daily sleep, with performance and productivity. As such, breakfast serves as the foundation for a pattern of eating for the day. The following baseline definition of breakfast as an eating occasion is proposed for use in research:

Breakfast is the first meal of the day that breaks the fast after the longest period of sleep and is consumed within 2 to 3 hours of waking; it is comprised of food or beverage from at least one food group, and may be consumed at any location.

The caveats for this proposed definition include recognition that although breakfast is generally consumed in the morning by most people, it might be consumed later in the day by shift workers or others who sleep during the day, and there is no definition for the length of the period of sleep.

Support for the optimal time to consume breakfast is limited; however, evidence of the deleterious effects of omitting breakfast suggests an important role for meal frequency.^{26,41-43} Therefore, a range of times for the breakfast meal in relation to waking is provided, which also serves as a cutoff point to help differentiate breakfast from a snack or lunch meal. Specifying at least one food group precludes consumption of coffee, water, or other noncaloric beverages from qualifying as breakfast. Location is not specified, recognizing that children and adults might consume breakfast at a location other than at home, such as at school, work, a restaurant, or in transit.

PROPOSED CRITERIA FOR A QUALITY BREAKFAST

Establishing criteria for a quality breakfast, including types and amounts of foods, nutrients, and energy, was recognized as a critical component for maximizing the potential benefits of the breakfast meal. Although the proposed definition for breakfast is intended to be applied in research settings, criteria that define a quality breakfast provide guidance on the ideal composition of breakfast. Evidence that intake of food groups or nutrients can be insufficient depending on food choices, or if breakfast is skipped,^{14,18} reinforces the importance of consuming a quality breakfast.

Researchers outside the United States have attempted to identify criteria for an ideal breakfast. In Spain, a breakfast

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