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ORIGINAL RESEARCH

International table of glycemic index and glycemic load values: 2002 - Review of evidence

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1. ABSTRACT

The analyzed study updated a large international table of the glycemic index and glycemic load of carbohydrate-containing foods. It collected nearly 1,300 results related to more than 750 types of food, using verified data obtained through standardized methods. Its goal was not to test a diet or demonstrate clinical effects, but to provide a tool for comparing how different foods can increase glycemia after a meal.In the section on “The Choice to Live in Health or Illness” by Dr. A. Colonnese and R. Panzironi, the publication contributes to the narrative that vegetables and unrefined fruits generally have lower glycemic loads compared to grains and their derivatives. Independent evidence indicates that replacing refined grains with whole grains reduces average glycemia and insulinemia after a meal; in subjects with type 2 diabetes, dietary patterns with a low glycemic index or glycemic load modestly improve certain indicators of glycemic control. However, the effect is not identical for all grains, and observational studies do not prove that glycemic load alone causes chronic diseases.

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MISSION

LIFE Science Hub – Journal of Science was founded with the aim of making scientific knowledge accessible without giving up methodological rigour, quality of sources and authoritativeness of content. The journal promotes the dissemination of knowledge in the health, nutrition, medical and longevity sciences, building a bridge between the world of research and society.

Through articles, reviews, in-depth analyses and expert contributions, the Journal champions evidence-based medicine and science, fostering a correct interpretation of scientific data and countering misinformation. Every piece of content is developed with the aim of translating the complexity of research into understandable, useful and applicable information, while keeping intact the principles of accuracy, transparency and scientific independence.

Free from political, industrial and commercial influence, the journal stands as an authoritative and independent editorial space, dedicated to promoting scientific culture, professional development and the growth of health awareness among the public.

2. ANALYZED STUDY

The research question was practical: how can reliable values be made available to researchers and professionals to compare the effect of carbohydrate-rich foods on glycemia? The initial hypothesis was that the chemical classification of carbohydrates, such as sugars or starches, does not by itself describe the body's response after a meal. The glycemic index indicates how quickly a carbohydrate-containing food raises glycemia compared to a reference food. The glycemic load, on the other hand, combines the speed of the response with the amount of carbohydrates present in a serving.The relevance to the section "The Choice to Live in Health or Illness" by Dr. A. Colonnese and R. Panzironi therefore concerns the comparison between foods: the work allows for the classification of vegetables, fruit, grains, and derived products also based on their predictable glycemic response. However, it cannot document when the massive consumption of refined flours began, nor measure the historical consumption of the population, nor demonstrate that a specific food causes insulin resistance, obesity, or chronic diseases.

3. MATERIALS AND METHODS OF THE ORIGINAL STUDY

The publication is an update of a reference table, not a clinical study with participants assigned to different diets. The authors collected results from both published and verified unpublished sources. The updated table contains nearly 1,300 data entries relating to over 750 distinct foods, tested using standardized methods.For each food, where available, the glycemic index and glycemic load associated with specified serving sizes were reported. Only the abstract is available. For this reason, the detailed criteria for source selection, the characteristics of the subjects in the individual tests, the full research period, the quality assessment procedures, and the statistical analyses are not included in the available material.

4. RESULTS

The main result is the availability of a much broader table compared to the previous version: nearly 1,300 entries, about three times the number of the first table, covering over 750 types of food. The authors report that the glycemic index is useful for moving beyond the distinction between simple and complex carbohydrates, because foods belonging to the same chemical category can produce different glycemic responses.The publication also includes glycemic load values for defined portions. This is the most relevant step for the book: a food may have a high glycemic index but have little impact if it contains few carbohydrates in a standard portion, whereas a large portion of a starchy food can generate a greater load. The abstract does not report the average glycemic load values attributed in the book to vegetables, fruit, and grains; these specific average values are therefore not verifiable in the available material.The abstract also recalls that prospective observational studies have associated diets with a high glycemic load over time with a higher incidence of type 2 diabetes, cardiovascular diseases, and certain cancers. This sentence summarizes previous literature, but the publication analyzed does not present new risk data, hazard ratios, or clinical results of its own.

5. INTERPRETATION

In simple terms, the study provides a map for estimating how much a food might contribute to an increase in glycemia after a meal. The segment of the book's narrative that documents this is: different plant-based foods, and especially different portion sizes, do not have the same glycemic impact. Technically, the glycemic load is derived from the glycemic index and the grams of available carbohydrates present in the portion.This distinction is important because grains and their derivatives do not constitute a uniform group. The response depends on the type of grain, the structure of the kernel, the milling, the cooking, the added ingredients, and the quantity consumed. The work does not demonstrate that all grains, including whole grains, always produce a higher glycemic load than every fruit or vegetable. Nor does it demonstrate that repeated increases in glycemia after meals inevitably lead to chronic hyperinsulinemia or metabolic diseases.The relationship with refined flours is therefore indirect: the removal of bran and germ can alter the structure and composition of the product, but the table does not directly compare the technological history of milling nor does it quantify the biological effects of refining in

the population.

6. INDEPENDENT CONFIRMING EVIDENCE

The narrative of this section first requires verifying whether the comparison between refined and less refined grain products is reflected in the post-meal glycemic response. A systematic review with meta-analysis of 80 randomized studies in adults compared whole grains and refined grains. Compared to refined products, whole grains reduced postprandial glycemia—that is, blood sugar levels in the hours following a meal—with a standardized difference of –0.30 (95% confidence interval from –0.43 to –0.18; P<0.001). They also reduced postprandial insulinemia, meaning the rise in insulin after a meal, with a standardized difference of –0.23 (from –0.35 to –0.10; P<0.001) [1]. This is direct confirmation of the idea that the degree of refining and the food matrix can modify the acute response; however, it does not prove long-term clinical effects in healthy individuals.A second level concerns people with diabetes, in whom glycemic regulation is already compromised. A meta-analysis of 29 randomized comparisons, involving 1,617 participants with type 1 or type 2 diabetes, found that dietary patterns with a low glycemic index or glycemic load reduced glycated hemoglobin—an indicator of average blood sugar over the previous two to three months—by 0.31 percentage points compared to control diets. The confidence interval was from –0.42 to –0.19, and the result was statistically significant [2]. The synthesis did not, however, show a significant reduction in fasting blood insulin. It therefore confirms that the overall quality of carbohydrates can influence glycemic control in a clinical setting, without demonstrating that every single grain is a cause of chronic hyperinsulinemia.Regarding the possible link to the risk of type 2 diabetes, a systematic review and meta-analysis of 21 prospective cohorts, based on 24 publications, found that for every 5-unit increase in the glycemic index, there was an 8% increase in the relative risk of type 2 diabetes. For every 20-unit increase in glycemic load, there was a 3% increase in relative risk [3]. These associations maintained a consistent direction, but heterogeneity between studies was high, and observational cohorts cannot completely exclude the influence of lifestyle, overall diet quality, and other factors.

7. CONFLICTING EVIDENCE

No directly conflicting evidence of sufficient relevance has been identified; this does not prove the absence of contrary results. However, there is data that precisely defines the limits of generalization. A meta-analysis of randomized trials compared whole grains and refined versions, controlling for food matrix and processing whenever possible. Brown rice, compared to white rice, significantly reduced the postprandial glycemic response. Conversely, ground whole wheat compared to white wheat, and ground whole rye compared to endosperm-only rye, did not show statistically significant reductions in postprandial glycemia [4].This result does not contradict the utility of the glycemic index and glycemic load. Rather, it indicates that the "whole grain" label alone does not guarantee a lower glycemic response. The physical structure of the grain, the fineness of the milling, the recipe, and the portion consumed can substantially alter the effect. Therefore, the book's statement is more robust if interpreted as an average comparison between food categories rather than an absolute rule for every cereal-based food.

8. QUADRO COMPARATIVO E SINTESI DELLE EVIDENZE

The table distinguishes the study that provided the classification tool from independent studies that evaluate the physiological and clinical effects relevant to the book's narrative.

Quadro comparativo

Reference	Study type	Population or model	Main result	Direction of evidence	Strength of evidence
Original study	International reference table	Nearly 1,300 data points for over 750 foods	Compiles glycemic index and glycemic load to compare foods and portions	biologically consistent evidence	moderate
[1]	Systematic review and meta-analysis of RCTs	Adults; 80 randomized studies identified	Whole grains compared to refined grains reduce postprandial glycemia and insulinemia	direct confirmation	moderate
[2]	Systematic review and meta-analysis of RCTs	1,617 people with type 2 diabetes or type 1; 29 comparisons	Low glycemic index or glycemic load patterns reduce glycated hemoglobin by 0.31 percentage points	indirect confirmation	high
[3]	Systematic review and meta-analysis of prospective cohorts	21 cohorts; 24 publications	Higher glycemic index and glycemic load are associated with a higher relative risk of type 2 diabetes	indirect confirmation	moderate
[4]	Systematic review and meta-analysis of RCTs	Comparisons between whole wheat, rice, and rye and their refined counterparts	Brown rice reduces glycemic response; ground whole wheat and rye do not show significant reductions	conflicting evidence	moderate

9. SINTESI EDITORIALE E CONCLUSIONI

CONCLUSIONS

The study analyzed is well-utilized as a source for defining and comparing the glycemic index and glycemic load of foods. Its contribution to the book's section primarily concerns the ability to distinguish the glycemic impact of foods and portion sizes, rather than demonstrating the historical effects of refining or chronic diseases.Independent evidence moderately confirms that, on average, whole grain products compared to refined ones can reduce post-meal glycemia and insulinemia, and that dietary patterns with a lower glycemic index or load improve certain glycemic indicators in people with diabetes. Associations with diabetes risk are consistent but observational. The response remains dependent on the individual food, processing, portion size, and overall dietary context.

Aggiornato al 17/11/2026. Questo contenuto riflette una sintesi divulgativa delle evidenze scientifiche al momento della pubblicazione e non sostituisce il parere medico.

10. TRANSPARENCY AND SCIENTIFIC RESPONSIBILITY

Artificial Intelligence was used solely as a tool for editorial and documentary support. All content, interpretations, bibliographic citations and conclusions have been verified, reviewed and approved by the author, who assumes full scientific responsibility for them.

The manuscript was also subjected to independent peer review prior to publication.

To ensure the greatest transparency, the complete history of the article, including the dates of submission, revision, acceptance and publication, as well as information on the peer review process, is available on the dedicated Article History page.

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