IL RISO ITALIANO: UNA SFIDA AL DIABETE?

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The American Journal of CLINICAL NUTRITION

Glycemic index of foods: a physiological basis for carbohydrate exchange[1-3]

David J. A. Jenkins,[4] D.M., Thomas M. S. Wolever,[5] M.Sc., Rodney H. Taylor,[6] M.R.C.P., Helen Barker, B.Sc.,[6] S.R.D., Hashmein Fielden,[6] S.R.N., Janet M. Baldwin,[6] M.R.C.P., Allen C. Bowling,[5] Hillary C. Newman,[5] B.A., Alexandra L. Jenkins,[5] and David V. Goff,[5] M.Biol.

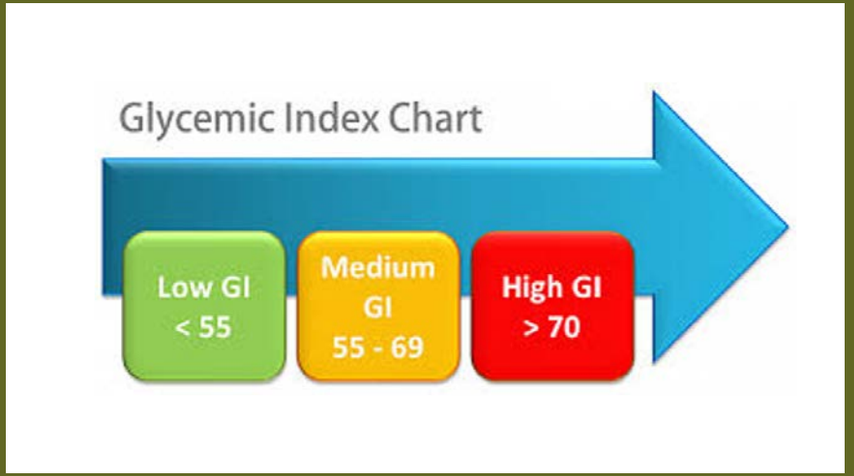
ABSTRACT To determine the effect of different foods on the blood glucose, 62 commonly eaten foods and sugars were fed individually to groups of 5 to 10 healthy fasting volunteers. Blood glucose levels were measured over 2 h, and expressed as a percentage of the area under the glucose response curve when the same amount of carbohydrate was taken as glucose. The largest rises were seen with vegetables (70 ± 5%), followed by breakfast cereals (65 ± 5%), cereals and biscuits (60 ± 3%), fruit (50 ± 5%), dairy products (35 ± 1%), and dried legumes (31 ± 3%). A significant negative relationship was seen between fat ($p < 0.01$) and protein ($p < 0.001$) and postprandial glucose rise but not with fiber or sugar content. *Am. J. Clin. Nutr.* 34: 362–366, 1981.

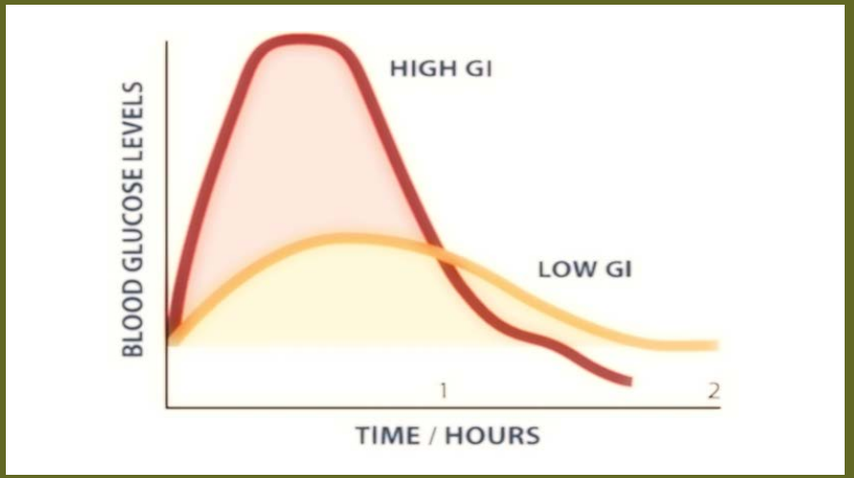
PMID: 6259925 DOI: 10.1093/ajcn/34.3.362

L'indice glicemico (IG), nella pratica clinica, **esprime la capacità dei carboidrati contenuti negli alimenti di innalzare la glicemia e permette di definire la qualità di carboidrati**.

Il procedimento per la misurazione del GI è stato ormai standardizzato al fine di consentire risultati consistenti fra diversi centri di ricerca; esso prevede l'assunzione, da parte di dieci soggetti, di una porzione dell'alimento in valutazione che contenga 50g di carboidrati e la misurazione della glicemia attraverso diversi prelievi di sangue capillare o venoso eseguiti ogni 30 minuti nell'arco delle tre ore successive.

La curva incrementale di risposta glicemica viene quindi integrata e rapportata alla curva corrispondente, nel medesimo soggetto, all'assunzione di una medesima quantità di glucosio, il cui GI è fissato come riferimento a 100.





The American Journal of CLINICAL NUTRITION

Glycemic index: overview of implications in health and disease

David J A Jenkins [1], Cyril W C Kendall, Livia S A Augustin, Silvia Franceschi, Maryam Hamidi, Augustine Marchie, Alexandra L Jenkins, Mette Axelsen

Abstract

The glycemic index concept is an extension of the fiber hypothesis, suggesting that fiber consumption reduces the rate of nutrient influx from the gut. The glycemic index has particular relevance to those chronic Western diseases associated with central obesity and insulin resistance. Early studies showed that starchy carbohydrate foods have very different effects on postprandial blood glucose and insulin responses in healthy and diabetic subjects, depending on the rate of digestion. A range of factors associated with food consumption was later shown to alter the rate of glucose absorption and subsequent glycemia and insulinemia. At this stage, systematic documentation of the differences that exist among carbohydrate foods was considered essential. The resulting glycemic index classification of foods provided a numeric physiologic classification of relevant carbohydrate foods in the prevention and treatment of diseases such as diabetes. Since then, low-glycemic-index diets have been shown to lower urinary C-peptide excretion in healthy subjects, improve glycemic control in diabetic subjects, and reduce serum lipids in hyperlipidemic subjects. Furthermore, consumption of low-glycemicindex diets has been associated with higher HDL-cholesterol concentrations and, in large cohort studies, with decreased risk of developing diabetes and cardiovascular disease. Case-control studies have also shown positive associations between dietary glycemic index and the risk of colon and breast cancers. Despite inconsistencies in the data, sufficient, positive findings have emerged to suggest that the dietary glycemic index is of potential importance in the treatment and prevention of chronic diseases.

PMID: 12081850 DOI: 10.1093/ajcn/76/1.266S

High glycemic index and glycemic load are associated with moderately increased cancer risk

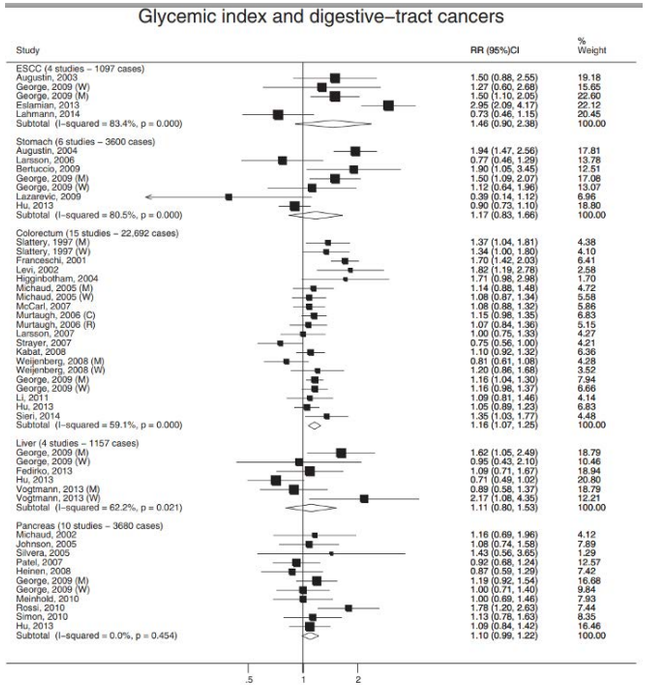
Federica Turati [1], Carlotta Galeone [1], Sara Gandini [2], Livia S Augustin [3], David J A Jenkins [3], Claudio Pelucchi [1], Carlo La Vecchia [4]

Abstract

Scope: To obtain an up-to-date quantification of the association between dietary glycemic index (GI) and glycemic load (GL) and the risk of cancer.

Methods and results: We conducted a systematic review and meta-analysis of observational studies updated to January 2015. Summary relative risks (RRs) were derived using random effects models. Seventy-five reports were evaluated in the systematic review (147,090 cases), and 72 were included in the meta-analyses by cancer site. Considering hormone-related cancers, summary RRs comparing the highest versus the lowest GI and GL intake were, respectively, 1.05 and 1.07 for breast, 1.13 and 1.17 for endometrial, 1.11 and 1.19 for ovarian, and 1.06 and 1.04 for prostate cancers. Considering digestive-tract cancers, summary RRs for GI and GL were, respectively, 1.46 and 1.25 for esophageal (squamous cell carcinoma), 1.17 and 1.10 for stomach, 1.16 (significant) and 1.10 for colorectal, 1.11 and 1.14 for liver, and 1.10 and 1.01 for pancreatic cancers. In most of these meta-analyses, significant heterogeneity among studies was observed. In subgroup analyses, case-control studies and studies from Europe tended to estimate higher RRs.

Conclusion: High-GI and high-GL diets are related to moderately increased risk of cancer at several common sites.



PMID: 25693843 DOI: 10.1002/mnfr.201400594

atherosclerosis
Editor-in-Chief: Professor Arnold von Eckardstein
EAS

Glycemic load, glycemic index and risk of cardiovascular diseases: Meta-analyses of prospective studies

Xiang-yu Ma [a,b,1], Jian-ping Liu [a,1], Zhi-yuan Song [a,*]

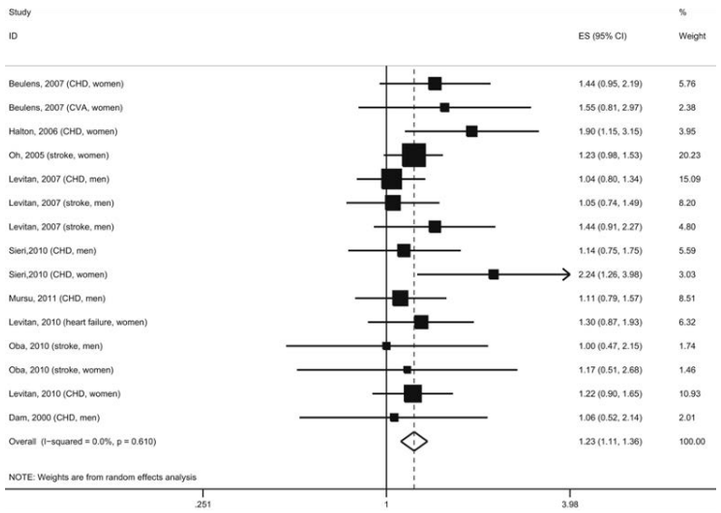
Abstract

Objective: The objective of this study was to assess the relations between glycemic load (GL), glycemic index (GI) and the risk of fatal or nonfatal cardiovascular diseases (CVDs).

Methods: Prospective studies were identified by a comprehensive search of Pubmed, ISI web of Science, the Cochrane Library and EMBASE database, supplemented with manual searches through the reference lists of original publications and review articles. Relative risks (RRs) and 95% confidence intervals (CIs) were extracted and pooled using a random-effect model, and dose-response meta-analysis was performed by the method of generalized least-squares.

Results: Fourteen studies were identified, involving 229,213 participants and more than 11,363 cases. The pooled RRs of CVDs risk for the highest vs lowest categories of GL and GI were 1.23 (95% CI: 1.11-1.36) and 1.13 (95% CI: 1.04-1.22) respectively. Both the risk estimates of GL and GI for women (GL: RR = 1.35, 95% CI: 1.18-1.55; GI: RR = 1.19, 95% CI: 1.06-1.34) were higher than men (GL: RR = 1.10, 95% CI: 0.95-1.28; GI: RR = 1.05, 95% CI: 0.94-1.17). No heterogeneity or publication bias was detected. Dose-response meta-analysis found an increased RR of 1.18 (95% CI: 1.01-1.38, P = 0.033) per 50 unit increment of GL with cardiac event risk in Caucasians.

Conclusions: High GL and GI were associated with significant increased risk of CVDs, specifically for women.



PMID: 22727193 DOI: 10.1016/j.atherosclerosis.2012.05.028

Glycemic index, glycemic load, and risk of type 2 diabetes: results from 3 large US cohorts and an updated meta-analysis

Shilpa N Bhupathiraju [1], Deirdre K Tobias [1], Vasanti S Malik [1], An Pan [1], Adela Hruby [1], JoAnn E Manson [1], Walter C Willett [1], Frank B Hu [1]

ABSTRACT

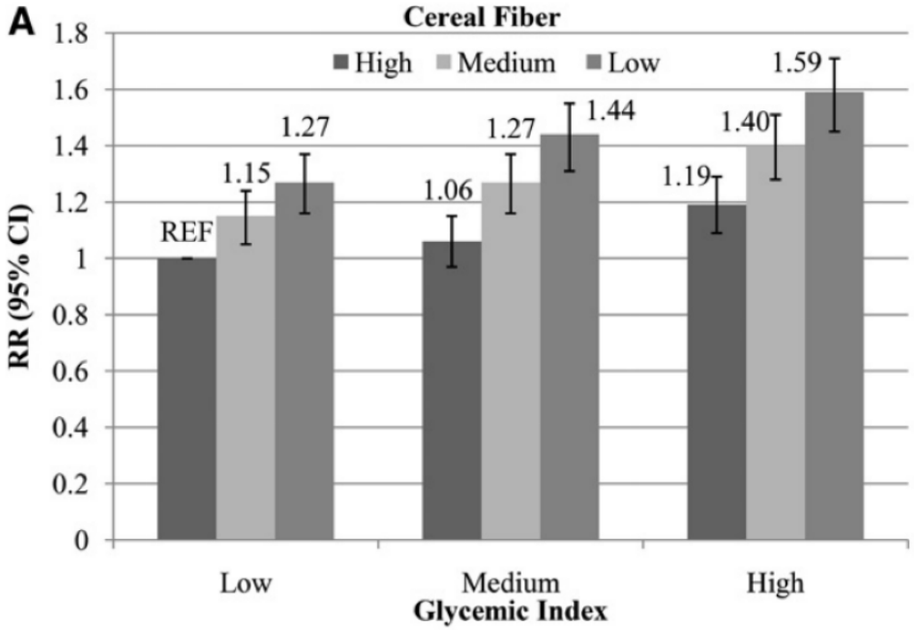
Background: Epidemiologic evidence for the relation between carbohydrate quality and risk of type 2 diabetes (T2D) has been mixed.

Objective: We prospectively examined the association of dietary glycemic index (GI) and glycemic load (GL) with T2D risk.

Design: We prospectively followed 74,248 women from the Nurses' Health Study (1984–2008), 90,411 women from the Nurses' Health Study II (1991–2009), and 40,498 men from the Health Professionals Follow-Up Study (1986–2008) who were free of diabetes, cardiovascular disease, and cancer at baseline. Diet was assessed by using a validated questionnaire and updated every 4 y. We also conducted an updated meta-analysis, including results from our 3 cohorts and other studies.

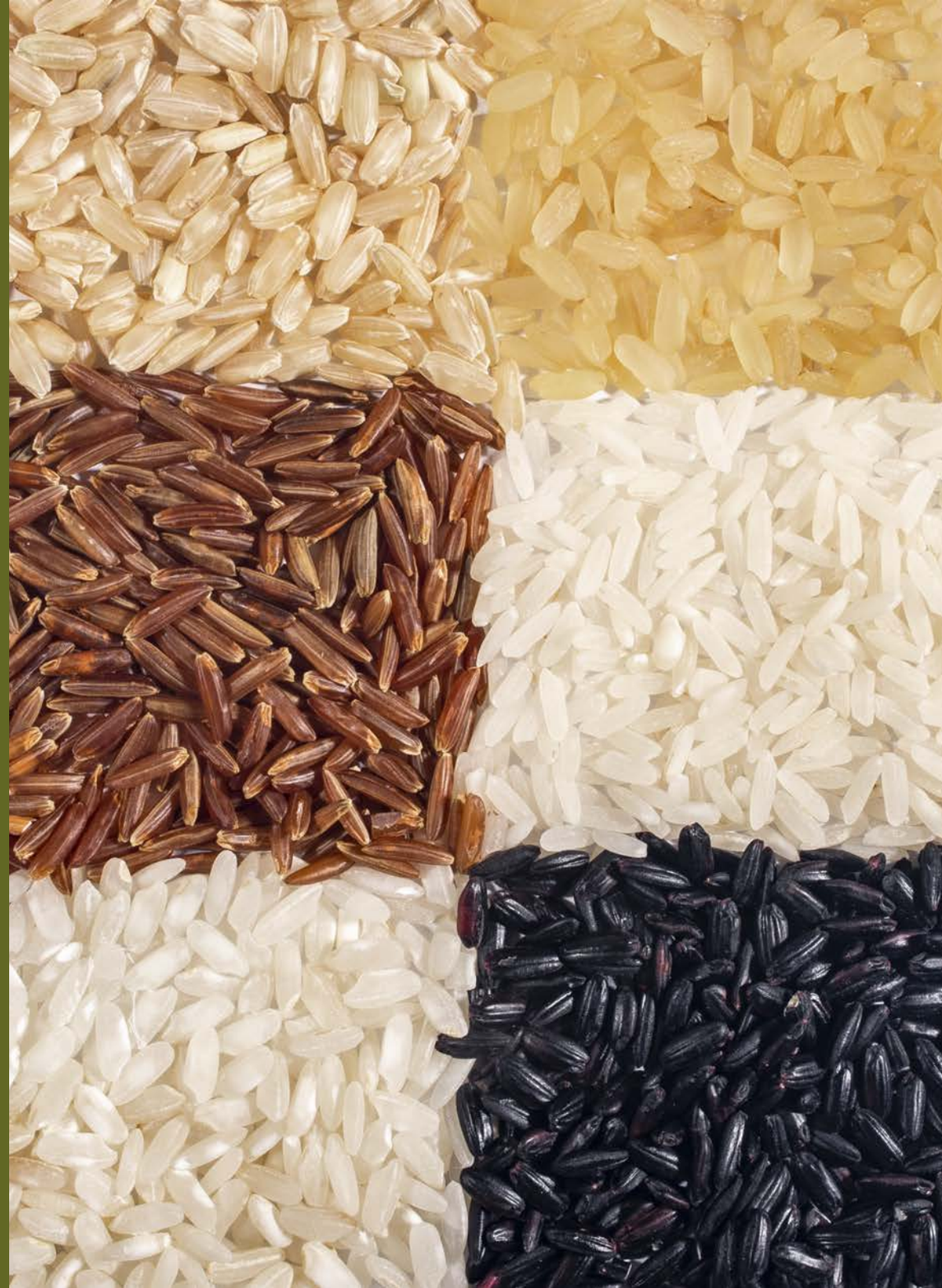
Results: During 3,800,618 person-years of follow-up, we documented 15,027 cases of incident T2D. In pooled multivariable analyses, those in the highest quintile of energy-adjusted GI had a 33% higher risk (95% CI: 26%, 41%) of T2D than those in the lowest quintile. Participants in the highest quintile of energy-adjusted GL had a 10% higher risk (95% CI: 2%, 18%) of T2D. Participants who consumed a combination diet that was high in GI or GL and low in cereal fiber had an ~50% higher risk of T2D. In the updated meta-analysis, the summary RRs (95% CIs) comparing the highest with the lowest categories of GI and GL were 1.19 (1.14, 1.24) and 1.13 (1.08, 1.17), respectively.

Conclusion: The updated analyses from our 3 cohorts and meta-analyses provide further evidence that higher dietary GI and GL are associated with increased risk of T2D. *Am J Clin Nutr* 2014;100:218–32.



PMID: 24787496 PMCID: PMC4144100 DOI: 10.3945/ajcn.113.079533

L'INDICE GLICEMICO DELLE VARIETÀ DI RISO



CONTENUTO DI AMILOSIO E IG

Miller JB, 1992	Nello studio è stato valutato l'indice glicemico di 12 prodotti a base di riso, integrale o bianco, con un normale contenuto di amilosio (20%), con un elevato contenuto di amilosio (28%) e con scarso contenuto di amilosio (0-2%). Sono stati fatti testare a otto soggetti sani per la valutazione dell'indice glicemico.	Lo studio ha mostrato che i prodotti, integrali o non integrali, con un alto contenuto di amilosio presentano indice glicemico più basso.

Am J Clin Nutr. 1992 Dec;56(6):1034-6.

Rice: a high or low glycemic index food?

Miller JB[1], Pang E, Bramall L

Author information

Abstract

We determined the glycemic (GI) and insulin-index (II) values for 12 rice products, using eight healthy subjects. The products were brown and white versions of three commercial varieties of rice [two varieties with normal amylose content (20%) and the other with 28% amylose], a waxy rice (0-2% amylose), a converted rice, a quick-cooking brown rice, puffed rice cakes, rice pasta, and rice bran. The GI of the rices ranged from 64 +/- 9 to 93 +/- 11, where glucose = 100. The high amylose rice gave a lower GI and II ($P < 0.01$) than did the normal-amylose and waxy-rice varieties. The converted rice and most other rice products gave a high GI. Insulin indices correlated positively with GI ($r = 0.75$, $P < 0.05$), although they were lower than expected. These results indicate that many varieties of rice, whether white, brown, or parboiled, should be classified as high GI foods. Only high-amylose varieties are potentially useful in low-GI diets.

PMID: 1442654 DOI: 10.1093/ajcn/56.6.1034

Br J Nutr. 2015 Oct 14;114(7):1035-45. doi: 10.1017/S0007114515001841. Epub 2015 Aug 27.

A systematic review of the influence of rice characteristics and processing methods on postprandial glycaemic and insulinaemic responses.

Boers HM[1], Seijen Ten Hoorn J[1], Mela DJ[1].

Author information

Abstract

Rice is an important staple food for more than half of the world's population. Especially in Asian countries, rice is a major contributor to dietary glycaemic load (GL). Sustained consumption of higher-GL diets has been implicated in the development of chronic diseases such as type 2 diabetes mellitus. Given that a reduction in postprandial glycaemic and insulinaemic responses is generally seen as a beneficial dietary change, it is useful to determine the variation in the range of postprandial glucose (PPG) and insulin (PPI) responses to rice and the primary intrinsic and processing factors known to affect such responses. Therefore, we identified relevant original research articles on glycaemic response to rice through a systematic search of the literature in Scopus, Medline and SciFinder databases up to July 2014. Based on a glucose reference value of 100, the observed glycaemic index values for rice varieties ranged from 48 to 93, while the insulinaemic index ranged from 39 to 95. There are three main factors that appear to explain most of the variation in glycaemic and insulinaemic responses to rice: (1) inherent starch characteristics (amylose:amylopectin ratio and rice cultivar); (2) post-harvest processing (particularly parboiling); (3) consumer processing (cooking, storage and reheating). The milling process shows a clear effect when compared at identical cooking times, with brown rice always producing a lower PPG and PPI response than white rice. However, at longer cooking times normally used for the preparation of brown rice, smaller and inconsistent differences are observed between brown and white rice.

KEYWORDS: Blood glucose; Glycaemic index; Insulin; Processing; Rice; Starch

PMID: 26310311 PMCID: PMC4579564 DOI: 10.1017/S0007114515001841

Una revisione sistematica di Boers ha riportato che l'indice glicemico delle varietà di riso può oscillare tra

48 e **93**

Inoltre, questa revisione ha identificato tre fattori principali che sembrano spiegare la maggior parte della variazione della risposta glicemica e insulinemica al riso:

1. le **caratteristiche dell'amido**, relative al rapporto amilosio/amilopectina e alla cultivar di riso;
2. il **trattamento post-raccolta**, in particolare la parboilizzazione;
3. il **trattamento del consumatore**.
4.

Tutti gli studi condotti per valutare l'IG del riso sono stati condotti su **RISO INDICA**.

BJN
BRITISH JOURNAL OF NUTRITION

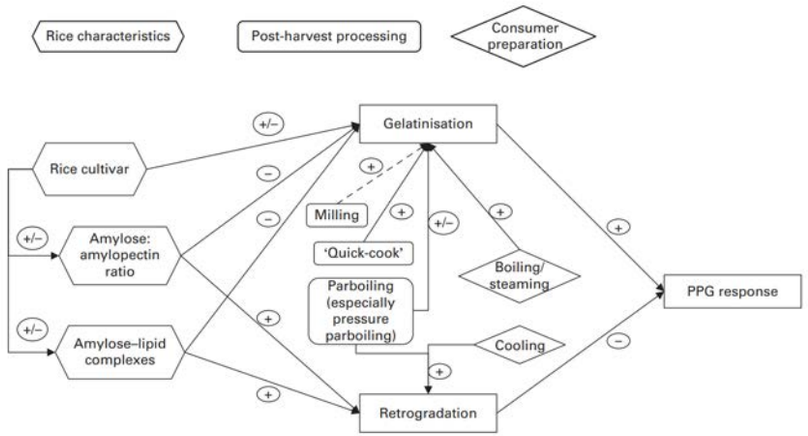
Systematic Review

A systematic review of the influence of rice characteristics and processing methods on postprandial glycaemic and insulinaemic responses

Hanny M. Boers*, Jack Seijen ten Hoorn and David J. Mela
Unilever R&D, Vlaardingen, The Netherlands

Abstract

Rice is an important staple food for more than half of the world's population. Especially in Asian countries, rice is a major contributor to dietary glycaemic load (GL). Sustained consumption of higher-GL diets has been implicated in the development of chronic diseases such as type 2 diabetes mellitus. Given that a reduction in postprandial glycaemic and insulinaemic responses is generally seen as a beneficial dietary change, it is useful to determine the variation in the range of postprandial glucose (PPG) and insulin (PPI) responses to rice and the primary intrinsic and processing factors known to affect such responses. Therefore, we identified relevant original research articles on glycaemic response to rice through a systematic search of the literature in Scopus, Medline and SciFinder databases up to July 2014. Based on a glucose reference value of 100, the observed glycaemic index values for rice varieties ranged from 48 to 93, while the insulinaemic index ranged from 39 to 95. There are three main factors that appear to explain most of the variation in glycaemic and insulinaemic responses to rice: (1) inherent starch characteristics (amylose:amylopectin ratio and rice cultivar); (2) post-harvest processing (particularly parboiling); (3) consumer processing (cooking, storage and reheating). The milling process shows a clear effect when compared at identical cooking times, with brown rice always producing a lower PPG and PPI response than white rice. However, at longer cooking times normally used for the preparation of brown rice, smaller and inconsistent differences are observed between brown and white rice.



TUTTI GLI STUDI SU INDICE GLICEMICO SONO SU VARIETÀ DI RISO INDICA

L’INDICE GLICEMICO DELLE VARIETÀ DI RISO JAPONICA

INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION

INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION, 2017
VOL. 68, NO. http://dx.doi.org/10.1080/09637486.2016.1221385

Food quality, effects on health and sustainability today: a model case report

Vittorio Natale Borroni[a], Silvia Fargion[a], Alessandra Mazzocchi[b], Marco Giachetti[c], Achille Lanzarini[c], Margherita Dall'Asta[d], Francesca Scazzina[d] and Carlo Agostoni[b]

ABSTRACT

The Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico is a five-century institution that, besides the unique clinical role in the center of Milan, may rely on benefactor donations such as fields and farming houses not far from the city, for a total of 8500 ha, all managed by the "Sviluppo Ca' Granda' Foundation". Presently, the main products of these fields are represented by rice and cow's milk. During the latest years, farmers and managers have developed a model of sustainable food production, with great attention to the product quality based on compositional analysis and functional nutritional characteristics. This experience represents a new holistic model of food production and consumption, taking great care of both sustainability and health.

IG CARNAROLI 46% **IG ARBORIO 48 %**

CULTIVAR CARNAROLI: 64%

NMCD
Nutrition, Metabolism & Cardiovascular Diseases

Glycemic index and glycemic load of commercial Italian foods

F. Scazzina [a], M. Dall'Asta [a], M.C. Casiraghi [b], S. Sieri [c], D. Del Rio [a], N. Pellegrini [a,*], F. Brighenti [a]

Abstract *Background and aim:* The glycemic index (GI) and glycemic load (GL) are useful parameters in the nutritional classification of carbohydrate foods. Diets characterized by a low GI and/or a low GL have been repeatedly and independently associated with decreased risk of diabetes and other chronic diseases. The aim of this study is to report the GI and GL value of carbohydrate-rich foods available on the Italian market and mostly consumed in Italy.
Methods and results: GI values were determined according to FAO/WHO (1997) and ISO (2010). Overall, the 141 commercial foods that were analyzed represent food categories that are the source of >80% carbohydrate intake in Italy. The food items chosen were based mainly on the market share of the brand within each food category and grouped into 13 food categories: 1) beverages: fermented milk drink, juice, smoothie, soft drink; 2) biscuits; 3) breads; 4) bread substitutes; 5) breakfast cereals; 6) cakes and snacks; 7) candy and confectionery; 8) cereals; 9) desserts and ice-creams; 10) marmalade and jam; 11) pasta; 12) pizza; 13) sugar and sweetener.
Conclusion: This database of commercial Italian foods partly overcomes the lack of information on GI and GL of local foods, contributing to a better understanding of the association between GI/GL and health and providing a more informed choice to Italian consumers and health practitioners.

Inoltre, non sono stati condotti studi per valutare la relazione tra contenuto di amilosio e indice glicemico nel riso Japonica.

PMID: 27103122 DOI: 10.1016/j.numecd.2016.02.013

GLYCEMIC INDEX AND AMYLOSE CONTENT OF TWENTY-FIVE JAPONICA RICE ITALIAN CULTIVAR

ISSN 0038-9056 · STARDD · 74 (5-6) (2022). · Vol. 74 · No. 5-6 · May 2022

Scope: The glycaemic index (GI) was developed to classify foods according to their ability to increase postprandial blood glucose. The literature reports that the GI of rice varieties ranges from 48 to 93. All studies evaluated Indica rice but none evaluated the GI of Japonica rice. Furthermore, no studies have been conducted to assess the relationship between amylose content and GI in Japonica rice. The aim of this study was to evaluate the GI and amylose content of 25 Japonica rice cultivars.

Methods and Results: This study was based on the standard method for GI determination according to the international standard ISO 26642; it included 2 men and 8 women (mean age 28.3±3.7, BMI 21.4±2.6). Five cultivars showed low GI (Selenium, Argo, Enr18215, Enr18328, Enr18433), ten medium GI (Carnaroli, CL12, CL388, CRLB1, Elio, Enr18126, Iarim, S. Andrea, Tiberio and Valente) and ten high GI (Arborio, Lince, Duilio, Castelmochi, Padano, Puma, Baldo, CL18, CL35, CL71). A negative association was also observed between medium GI and amylose (r = -0.528). As the amylose content increases, the mean GI decreases.

Conclusions: Five rice cultivars have a low glycaemic index and are therefore suitable for diabetics and those with impaired fasting blood sugar.

lo scopo di questo studio è stato quello di valutare L'INDICE GLICEMICO e il CONTENUTO DI AMILOSIO di 25 cultivar di riso JAPONICA

- 21 Cultivar già in coltivazione: Arborio, Argo, Baldo, Carnaroli, Castelmochi, CL12, CL18, CL35, CL71, CL388, CRLB1, Duilio, Elio, Iarim, Lince, Padano, Puma, S. Andrea, Selenio, Tiberio.
- 4 Linee in fase di selezione finale: Enr18126, Enr18215, Enr18328, Enr18433.

STRUTTURA COMPLESSA DI RIABILITAZIONE METABOLICA

(Responsabile Prof M. Rondanelli)

Azienda di Servizi alla Persona
Polo Universitario Geriatrico
Università degli Studi di Pavia

INTERNATIONAL STANDARD

ISO 26642

First edition
2010-10-01

Food products — Determination of the glycaemic index (GI) and recommendation for food classification

Produits alimentaires — Détermination de l'index glycémique (IG) et recommandations relatives à la classification des aliments

World Health Organization

ISO

Reference number
ISO 26642:2010(E)

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METODI

Soggetti	Criteri di inclusione	Criteri di esclusione
Dieci volontari sani e non fumatori	Adulti sani di età compresa tra i 18 e i 40 anni	Glicemia a digiuno ≥ 5,5 mmol/L
Arruolati da personale e studenti	Indice di massa corporea (BMI) compreso tra ≥ 18,5 e ≤ 25 kg/m2	Presenza di Malattie Croniche
Arruolamento: dall'11 giugno 2021 al 1° marzo 2022		Chi segue una dieta speciale
		Assunzione di farmaci per metabolismo del glucosio o funzione tiroidea
		Atleti, donne in gravidanza o in allattamento.

Lo studio è stato condotto secondo le linee guida della Dichiarazione di Helsinki e tutte le procedure sono state approvate dal Comitato etico locale (codice etico: 2608/11012022) e registrate su Clinicaltrials.gov (NCT05333081).

Cultivar	Available carbohydrates/ 100 g	Amylose (%)	Portion size row (g)	Water for cooking (ml)	Cooking time (min)	Mean GI	± standard error	± standard deviation
Arborio	79	14,1	63,0	320	17	92,31	8,35	26,39
Lince	81	17,5	62,0	620	15	88,93	9,22	29,5
Duilio	81	9,6	62,0	620	15	86,22	10,18	32,19
Castelmochi	78	5,0	64,0	640	13	84,71	10,65	33,69
Padano	79	12,7	62,0	620	14	73,69	10,66	31,99
CL18	80	11,2	62,5	630	13	73,01	8,17	25,83
Puma	81	14,0	62,0	620	15	73,00	7,05	22,28
Baldo	79	14,2	63,0	620	13	71,42	6,44	19,32
CL71	78	20,7	64,0	640	13	71,29	7,14	20,37
CL35	81	14,4	62,0	620	15	71,03	9,76	30,85
CL12	80	13,0	62,5	630	13	68,69	7,03	22,15
S. Andrea	80	15,2	63,0	630	15	66,49	7,64	24,17
Valente	81	12,1	62,0	620	15	66,17	6,86	21,69
Carnaroli	79	20,7	63,0	320	17	64,17	6,5	20,54
CL388	79	12,6	63,0	320	17	62,56	8,67	24,55
Tiberio	81	23,9	62,0	620	15	61,77	5,99	18,94
CRLB1	78	21,8	64,0	640	13	61,06	3,73	11,78
Elio	79	22,9	62,0	620	14	60,39	5,87	18,53
Enr18126	79	17,7	62,0	620	13	58,45	5,83	21,24
Iarim	78	24,4	64,0	640	13	58,00	9,29	26,36
Enr18215	80	12,0	62,5	630	13	54,26	6,79	21,46
Enr18328	78	23,4	64,0	640	13	53,56	5,01	15,84
Argo	77	20,3	65,0	650	14	50,55	7,17	22,67
Enr18433	81	18,7	62,0	620	15	49,21	5,59	17,68
Selenio	80	14,6	62,5	630	13	49,15	6,55	20,71

PASTO

riso contenente 50 g di carboidrati
200 ml di acqua

SOLUZIONE DI GLUCOSIO

50 g di glucosio in 250 ml di acqua

La **soluzione di glucosio** è stata somministrata tre volte, rispettivamente il primo, il secondo e l'ultimo giorno. I partecipanti sono stati istruiti a consumare la soluzione di carboidrati di riferimento preparata (la soluzione di glucosio) per un periodo di 12-15 minuti.

Per il **test di risposta glicemica**, sono stati prelevati campioni di sangue capillare con una lancetta, dal dito medio e anulare .
Inizialmente è stato chiesto ai partecipanti di lavarsi le mani, quindi sono stati prelevati due campioni di sangue con puntura del dito a -5 e 0 minuti a digiuno.

La **glicemia postprandiale** è stata misurata 15 minuti dal termine dell'assunzione del riso e, successivamente, a 30, 45, 60, 90 e 120 minuti.

La glicemia è stata misurata nel sangue intero utilizzando un glucometro standard affidabile (ACCU-CHEK Performa-Roche Diagnostics GmbH, Germania).

La risposta glicemica è stata espressa come area incrementale sotto la curva di risposta glicemica ed è stata calcolata con il **metodo trapezoidale** e il **metodo IAUC**, basato su una formula matematica (senza tenere conto dell'area al di sotto della linea di base).

La IAUC, per ogni alimento test ingerito da ciascun soggetto, è stata espressa come percentuale della IAUC media del glucosio per tre ripetizioni dell'alimento di riferimento (glucosio) consumato dallo stesso soggetto, come:

$$IG = \left(\frac{\text{IAUC alimento test}}{\text{glucosio IAUC medio}} \right) \times 100$$

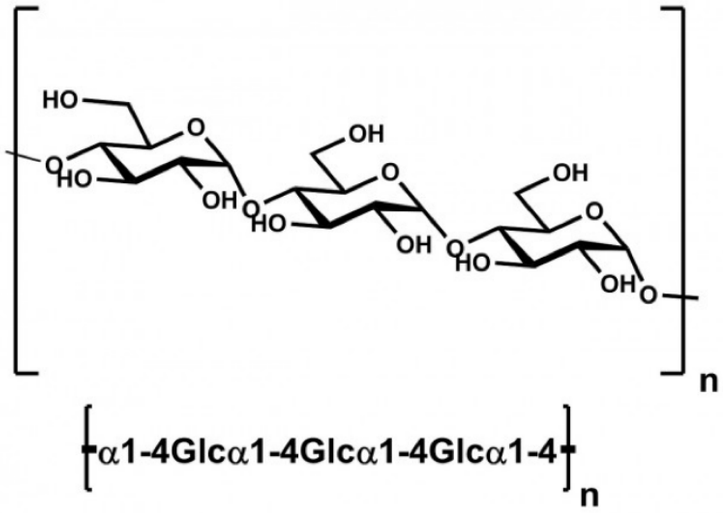
I valori dell'IG sono stati classificati in **risposta glicemica bassa, media o alta**.
Il cut-off per i valori IG era rispettivamente:

- < 55
- 56 – 69
- ≥ 70

VALUTAZIONE DEL CONTENUTO DI AMILOSIO

Il contenuto di amilosio è stato valutato mediante metodo spettrofotometrico, con una procedura di sgrassatura con metanolo e con soluzioni di calibrazione di amilosio di patata e amilopectina cerosa di riso basate sul metodo standard per la determinazione dell'amilosio, pubblicato dalla norma internazionale ISO 6647-1:2020.

La valutazione è stata effettuata presso l'Ente Nazionale Risi, Laboratorio Chimico Merceologico, Centro Ricerche sul riso, Strada per Ceretto 4, Castello D'Agnona, Pavia, Italia.

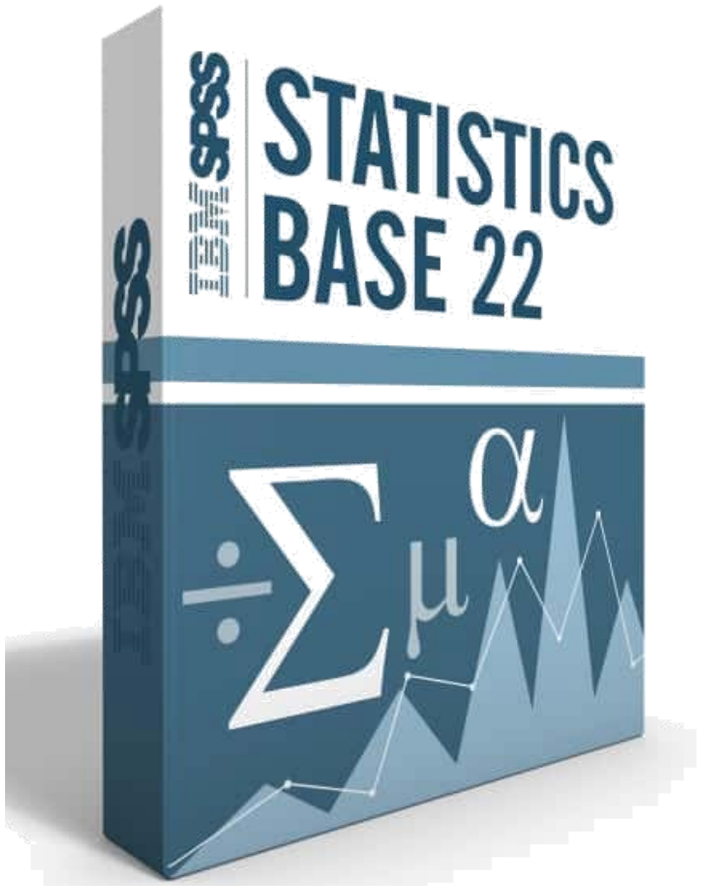


ANALISI STATISTICA

I dati sono stati analizzati con la versione 22.0 di SPSS.

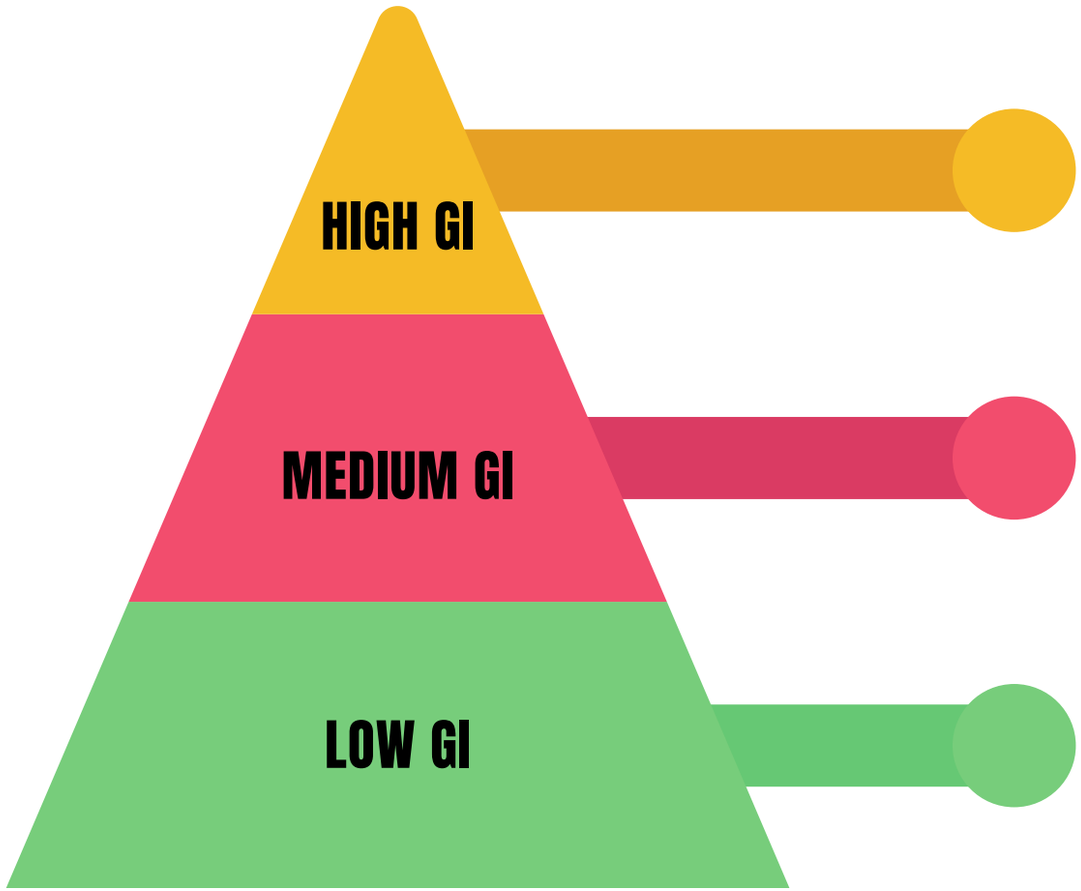
La matrice di correlazione è stata eseguita per valutare la correlazione tra l'IG e il contenuto di amilosio.

Il $p < 0,05$ è stato considerato significativo.



RISULTATI

ANALISI STATISTICA



Arborio, Lince, Duilio, Castelmochi, Padano, Puma, Blado, CL18, CL35, CL71

Carnaroli, CL12, CL388, CRLB1, Elio, Enr18126, Iarim, S. Andrea, Tiberio, Valente

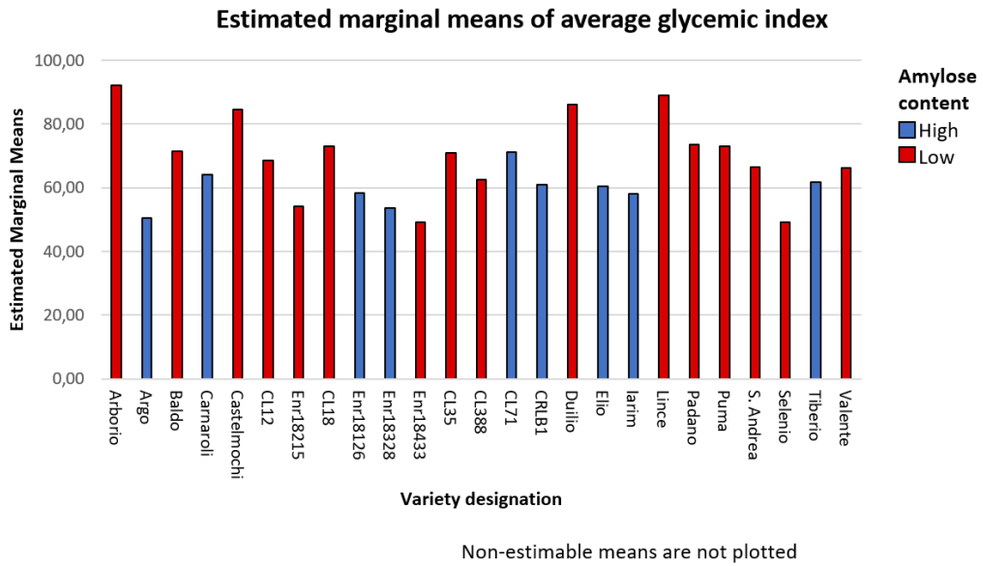
Selenium, Argo, Enr18215, Enr18328, Enr18433

ANALISI STATISTICA

La Tabella 2 mostra un'associazione negativa tra indice glicemico medio e contenuto di amilosio (r = -0,528).

	Mean GI	Amylose by ISO 6647-1:2020
Mean GI	1.000	-.528**
Amylose by ISO 6647-1:2020		1.000

All'aumentare del contenuto di amilosio, l'indice glicemico medio diminuisce.



Conclusioni

Questo studio ha quindi dimostrato che 2 varietà di riso a basso indice glicemico (Selenio e Argo) sono adatte
per una alimentazione salutare e anche per soggetti diabetici e per soggetti con glicemia a digiuno alterata.

La maggior parte dei soggetti con IFG svilupperà il diabete di tipo 2 entro 10 anni: in particolare, è stato dimostrato un aumento del diabete di tipo 2 nel 70% degli uomini e nel 40% delle donne con IFG in un periodo di 10 anni, rispetto ai soggetti normoglicemici.

Diabetes Care

Prevalences of diabetes and impaired glucose regulation in a Danish population: the Inter99 study

Charlotte Glümer [1], Torben Jørgensen, Knut Borch-Johnsen; Inter99 study

OBJECTIVE—To determine the age- and sex-specific prevalence of impaired fasting glycemia, impaired glucose tolerance, screen-detected diabetes, and known diabetes in a Danish population aged 30–60 years and to examine the phenotype and the cardiovascular risk profile in individuals with impaired glucose regulation.

RESEARCH DESIGN AND METHODS—In the Inter99 study, 13,016 inhabitants living in Copenhagen County were invited. All participants underwent anthropometric measurements, blood samples, and a 75-g standardized oral glucose tolerance test.

RESULTS—The age-specific prevalences in men were as follows: impaired fasting glycemia: 1.4–16.3%; impaired glucose tolerance: 6.9–17.8%; screen-detected diabetes: 0.7–9.7%; and known diabetes: 0–5.8%. The corresponding figures in women were 0–5.1, 10.5–17.3, 0.6–6.3, and 0.5–9%. The prevalence of impaired glucose regulation increased with age. Among individuals with diabetes, 65.6% were previously undiagnosed; this proportion was highest in the youngest age-group (82% among 45-year-old men vs. 63% among 60-year-old men, and 70% among 45-year-old women vs. 52% among 60-year-old women). Mean BMI, waist, HbA_{1c}, systolic blood pressure, diastolic blood pressure, and total cholesterol were significantly higher ($P < 0.0001$) in the individuals with impaired glucose regulation compared with individuals with normal glucose tolerance.

CONCLUSIONS—This study revealed that the prevalence of type 2 diabetes is high and that still two out of three individuals are undiagnosed, indicating a need for more attention to the disease in society.

› Diabetes Care. 2003 Aug;26(8):2335-40. doi: 10.2337/diacare.26.8.2335.

GRAZIE PER L'ATTENZIONE