COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA - EPP

AO ILUSTRÍSSIMO (a) SR (a) PREGOEIRO DA COMISSÃO DE LICITAÇÃO DA PREFEITURA MUNICIPAL DE MAMANGUAPE

REFERÊNCIA:

PREGÃO PRESENCIAL Nº: 030/2018

REGISTRO DE PREÇO DO TIPO MENOR PREÇO

Recebida: 10/08/18

ILMA. SR(a). PREGOEIRA E COMISSÃO TÉCNICA

A empresa COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA, pessoa jurídica de direito privado, já devidamente qualificada nos autos do processo em epígrafe, vem, respeitosamente, à presença de V. Sra., com base na Lei 8666/93 e 10.520/2002, apresentar CONTRARAZÕES em resposta ao recurso interposto pela empresa, SOS COMÉRCIO DE MATERIAIS MÉDICOS E HOSPITALARES- EIRELE contra o item 8 mediante os fundamentos de fato e de direito a seguir aduzidos.

SÍNTESE

Trata-se de recurso interposto com o propósito de reformar decisão que declara vencedor o item 8 (PEDIASURE COMPLETE - ABBOTT) apresentada pela empresa, COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA ora Recorrida, nobre comissão e pregoeira, o pedido apresentado de desclassificação não deve prosperar, pois a decisão desta comissão procedeu com a costumeira assertiva, pois os produtos vencedores atendem as exigências do edital.

ITEM 8:
Alimento para nutrição oral ou enteral, em pó, indicado para crianças. Nutricionalmente completo e com adequado aporte de vitaminas e minerais. Com densidade calórica de 1,5kcal/ml. Isento de lactose e glúten e conter proteínas 100% caseinato de cálcio, carboidratos (maltodextrina e/ou sacarose) e lipídeos (100% de óleos vegetais), versão sem sabor e em embalagem de 400g

O produto cotado pela empresa COMERCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES (PEDIASURE COMPLETE- ABBOTT) contempla às

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especificações solicitadas no descritivo, pois trata-se de um Alimento nutricionalmente completo, em pó indicado para crianças.

- **Pediasure Complete** apresenta diluição padrão de 1,0Kcal/ml, porém pode ser diluído até 1,6Kcal/ml, apresentando excelente solubilidade e rendimento, e permitindo maior flexibilidade na preparação de forma a atender as necessidades individuais de cada criança quanto à calorias e nutrientes.

- **Pediasure Complete** apresenta sabor baunilha bastante neutro, podendo ser utilizado em preparações doces e salgadas, conforme receitas disponibilizadas pela própria Abbott no site https://pediasure.abbott/br#recipes?category=recipes. Além disso, apresenta também sabores chocolate e morango, afim de diversificar a dieta.

- **Pediasure Complete** apresenta 86% proteína do soro do leite e 14% proteína isolada de soja, sendo ambas de alto valor biológico. Tanto a caseína quanto a proteína do soro do leite são derivadas de leite, porém, a caseína possui lenta digestão, retardando o esvaziamento gástrico, o que pode influenciar na aceitação alimentar da criança em relação às refeições próximas. Neste caso, cabe lembrar que os suplementos alimentares são indicados para crianças que apresentam dificuldades alimentares, devendo complementar a alimentação e não substituí-la ou prejudicar sua aceitação. A proteína do doro do leite presente em Pediasure é de fácil digestão, contribuindo para o rápido esvaziamento gástrico e síntese protéica. Sobre a relação proteína e obesidade, a explicação científica se apoio no fato do quantitativo protéico, o qual não deve ultrapassar as recomendações segundo a faixa etária da criança e, neste caso, Pediasure atende integralmente as recomendações.

- **Pediasure Complete** é o único suplemento que além de completo e balanceado, contém DHA/ARA e prebióticos/probióticos em sua composição, os quais são imprescindíveis para o desenvolvimento mental das crianças e para a manutenção do bom funcionamento intestinal, já que crianças costumam consumir pouca fibra. Além disso, crianças que não comem bem podem apresentar desequilíbrio do sistema imune e desta forma estão mais suscetíveis a infecções respiratórias e gastroenterites. Neste caso, os probióticos presentes em Pedisure estimulam a produção de IgAs, auxiliando nas defesas imunes do intestino.

- **Pediasure Complete** possui reduzidos níveis de gordura (lipídeos totais = 35% do VCT / gordura saturada = 7,9% do VCT) e está de acordo com o preconizado pelas DRIs (2005), cuja recomendação de lipídeos é de 20 a 35% do VCT, e pela Sociedade Brasileira de Cardiologia (2016) e American Heart Association (2016). Além disso, atualmente está ocorrendo uma pesquisa sobre a influência negativa da gordura na metástase do câncer, focando bastante no óleo de palma, do qual deriva a oleína de palma presente em produtos infantis (https://www.irbbarcelona.org/es/news/las-celulas-tumorales-dependen-de-las-grasas-para-iniciar-metastasis). Assim, é essencial verificar o tipo do óleo vegetal utilizado em tais produtos, pois nem todos são benéficos. Cabe enfatizar que Fortini (Danone) apresenta 41% de lipídeos e 10,4% de gordura saturada, ambos ultrapassando as recomendações, além de conter oleína de palma em sua composição.

Conforme explica a literatura científica, o xarope de milho é derivado da maltodextrina, ou seja, não há diferença entre ambos. Seguem considerações de diversos estudos realizados (vide anexos) a respeito do xarope de milho:

1) Podemos verificar evidências de alta qualidade de ensaios clínicos randomizados, análises sistemáticas e meta-análises de estudos de coorte, desmistificando açúcares adicionados, como o xarope de milho (HFCS), como culpados únicos para doenças metabólicas, como obesidade, diabetes e DCV, principalmente devido aos estudos realizados serem bastante heterogêneos, baseados em dados limitados e cuja metodologia incluía somente animais. Se existe uma ligação entre frutose, HFCS ou sacarose e aumento do risco de doença cardíaca, síndrome metabólica ou infiltração gordurosa do fígado ou músculo, continua em disputa com diferentes estudos usando diferentes metodologias que chegam a conclusões diferentes;

2) Pesquisas que comparam frutose pura com glicose pura, embora interessantes do ponto de vista científico, têm uma aplicação limitada à nutrição humana, uma vez que nenhuma delas é consumida de forma apreciável isoladamente na dieta humana;

3) Embora seja prudente consumir açúcares adicionados com moderação, a redução desses componentes da dieta sem outras reduções de fontes calóricas parece improvável para alcançar qualquer benefício significativo. Cita-se, neste caso, a terrível presença exacerbada de gorduras saturadas em algumas dietas enterais (vide planilha de diferenciais enviada). Assim, estudos que usam dietas extremas de carboidratos podem ser úteis para sondar caminhos bioquímicos, mas não têm relevância para a dieta humana ou para o consumo atual.

Desta forma, o produto vencedor (PEDIASURE- ABBOTT) contempla a solicitação do edital por ser um alimento nutricionalmente completo, que fornece nutrientes na quantidade ideal para suprir as necessidades da criança, por ter todas as substâncias necessárias para tal efeito.

Segue abaixo tabela com a informação nutricional de ambos os produtos para comparação:

	PEDIASURE	FORTINI
Valores Carloricos	1,5 kcal	1,5 kcal
Carboidratos	19,5g	19g
Proteínas	4,65 g	3,4g
Gorduras totais	5,85 g	6,9g
Gorduras Saturadas	1,35g	1,8g
Gorduras Trans.	0g	0g
Monoinsaturadas	2,4g	4,1g
Poliinsaturadas	1,95g	1,0g

Acido linoléico	1,35mg	*
Acido linolênico	1,35mg	*
Colesterol	3,6ml	*
Fibra	0,6mg	0g
Sódio	57mg	68mg
Potássio	216mg	151mg
Cloro	151,5mg	101mg
Fosforo	124,5mg	81mg
Magnésio	30mg	16mg
Ferro	2,1mg	1,5mg
Zinco	1,0mg	1,5mg
Cobre	90mcg	135mcg
Manganês	0,225 mcg	0,23 mcg
Flúor	*	0,1mg
Molibdênio	6mcg	10mcg
Selênio	4,8mcg	5,2mcg
Cromo	4,5mcg	5,2mcg
Iodo	14,55mcg	17mcg
Vit. A	90mcg	69mcg
Vit. D	3 mcg	1,6mcg
Vit. E	2,1 mg	2,0 mg
Vit. K	8,85mcg	6,7mcg
Vit. B^1	0,46 mg	0,23mg
Vit.^{2}	0,31 mg	0,24mg
Niacina	1,23 mg	1,7 mg
Acido Pantotênico	1,05mg	0,52mg
Vit. B6	0,39mg	0,18mg
Acido Fólico	37,5mcg	27mcg
Vit.B^{12}	0,45mcg	0,26mcg
Biotina	3mcg	5,2mcg
Vit.C	18mg	18mg
Inositol	12mg	1,6mg

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Colina	45mg	30mg
Carnitina	2,55mg	3mg
Taurina	10,8mg	11mg
Cálcio	144mg	84mg

A licitante apresentou proposta com o devido cumprimento aos princípios gerais do Direito, atendendo os preceitos que regem as licitações públicas, e no que tange a modalidade Pregão Presencial, além de garantir a observância dos princípios da igualdade, da moralidade, da economicidade, da vinculação ao instrumento convocatório e da busca da proposta mais vantajosa para a Administração, nos termos do artigo 3º da Lei 8.666/93.

DO DIREITO

Como é notório a manifestação da intenção de recorrer é um ônus processual dos licitantes, ou seja, é dever do licitante, manifestar-se MOTIVADAMENTE acerca de sua intenção de interpor recurso administrativo em face do julgamento do pregoeiro.

A Recorrente não apresentou em sua manifestação, ou seja, não apresenta fundamentação válida quanto à intenção "ser único seu produto para o descritivo apresentado", razão pela qual o recurso sequer dever ser apreciado em análise pontual de cada aspecto do recurso interposto, e as razões do recurso não provam a matéria apresentada na intenção de recurso.

São infundados os argumentos utilizados pela empresa Recorrente, desta forma, não merecem prosperar, sendo especulativos os argumentos expostos acima.

Assim presente na decisão da comissão todos os critérios técnicos para instituir a licitação do tipo "menor preço" e adquirir produtos de ótima qualidade e dentro dos padrões técnicos esperados; e o objeto contratado atenda às necessidades da Administração.

Com base nesse conceito o produto da Recorrida para os itens apresentam qualidade, rendimento, garantia e prazos de entrega conforme prevê o edital, e assumiu a obrigação de cumpri-los durante a execução do contrato, assim as exigências feitas no edital e a melhor proposta foram atendidas pela Recorrida, prosperando as alegações da Recorrente para o indeferimento.

Reitera a devida assertiva da comissão julgadora e da equipe técnica de licitações que adjudicou o item 8 para COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA, pois foi a medida tomada de acordo com a modalidade Pregão Presencial, adotada pelo certame ofertou o menor lance de preço para os itens, e cumpre a todos os requisitos descritos no Edital e também observou à comissão todos os objetivos contidos no artigo 3º, caput da lei 8666/93.

DO PEDIDO

Requer assim o Deferimento da contrarrazão para manter na totalidade o julgamento da comissão de licitação no Edital PP nº 16.525/2016, que julgou vencedor os item 8 para a recorrida COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA, pois observou os princípios da legalidade e as exigências contidas nos atos do certame.

Conforme as disposições acima destacadas releva notar que não cabe desclassificar a proposta da Recorrida, por atender aos requisitos da aceitabilidade e também considerada plenamente exequível e julgada vantajosa para Administração.

Diante do exposto reiteramos a procedência para a classificação da Recorrida para o Pregão Presencial nº 030/2018. E requer o indeferimento do RECURSO interposto pela Recorrente, SOS COMERCIO DE MATERIAIS MÉDICOS HOSPITALARES- EIRELI e mantendo a decisão da Comissão que classifica a COMÉRCIO VAREJISTA DE PRODUTOS NUTRICIONAIS E CUIDADOS MÉDICOS E HOSPITALARES LTDA, arrematante para o item 8, por estar presente na decisão da comissão o esperado exercício do direto para os atos do processo de licitação.

Nestes Termos,

Pede e Espera Deferimento.

Campina Grande, 09 de Agosto de 2018.

Insc. no CCICMS 16.224.863-6
Comércio Varejista de Produtos Nutricionais
e Cuidados Médicos Hospitalares Ltda-ME
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Bruna Vaneska de B. Costa

BRUNA VANESKA DE BRITO COSTA
NUTRICIONISTA

Sucrose, High-Fructose Corn Syrup, and Fructose, Their Metabolism and Potential Health Effects: What Do We Really Know?[1,2]

James M. Rippe[5]* and Theodore J. Angelopoulos[6]

[5]University of Central Florida Medical School, Orlando,FL and Rippe Lifestyle Institute, Shrewsbury, MA; and [6]Laboratory of Applied Physiology, Department of Health Professions, University of Central Florida, Orlando, FL

ABSTRACT

Both controversy and confusion exist concerning fructose, sucrose, and high-fructose corn syrup (HFCS) with respect to their metabolism and health effects. These concerns have often been fueled by speculation based on limited data or animal studies. In retrospect, recent controversies arose when a scientific commentary was published suggesting a possible unique link between HFCS consumption and obesity. Since then, a broad scientific consensus has emerged that there are no metabolic or endocrine response differences between HFCS and sucrose related to obesity or any other adverse health outcome. This equivalence is not surprising given that both of these sugars contain approximately equal amounts of fructose and glucose, contain the same number of calories, possess the same level of sweetness, and are absorbed identically through the gastrointestinal tract. Research comparing pure fructose with pure glucose, although interesting from a scientific point of view, has limited application to human nutrition given that neither is consumed to an appreciable degree in isolation in the human diet. Whether there is a link between fructose, HFCS, or sucrose and increased risk of heart disease, metabolic syndrome, or fatty infiltration of the liver or muscle remains in dispute with different studies using different methodologies arriving at different conclusions. Further randomized clinical trials are needed to resolve many of these issues. The purpose of this review is to summarize current knowledge about the metabolism, endocrine responses, and potential health effects of sucrose, HFCS, and fructose. *Adv. Nutr. 4: 236–245, 2013.*

Introduction

Over the past decade, considerable scientific debate and controversy have arisen concerning the metabolism, endocrine response, and potential health effects of sucrose, high-fructose corn syrup (HFCS), and fructose (1–17).

Although an enormous body of scientific literature has been available on all 3 of these sugars for many years (18–23), in retrospect, the recent controversy seems to have started with the publication of a commentary in the *American Journal of Clinical Nutrition* (AJCN) in 2004 (3), suggesting that HFCS in beverages might play a unique role in the epidemic of obesity currently being experienced in the United States and many other countries. Although the authors of this commentary clearly stated that they were only describing a temporal association and not a cause-and-effect relationship, a heated debate concerning the metabolism and potential health effects of sucrose, HFCS, and fructose subsequently ensued. This debate has involved not only the scientific community but also major media outlets, the public at large, and policymakers. Controversies concerning these 3 sugars have been fueled by conditions that, in our view, created a "perfect storm" for confusion and mistaken identity. Even though the original authors of the AJCN commentary were clear that they were simply offering a hypothesis, other investigators, food manufacturers, and the public at large have contributed to this controversy, often without distinguishing between an association and cause and effect, while frequently confusing the sugars used in research studies, or exaggerating the implications of animal work.

In addition, several other factors appear to have contributed to the ongoing controversy about these 3 sugars. The historic choice of the name "high-fructose" corn syrup certainly

[1] Presented at the symposium "Fructose, Sucrose and High-Fructose Corn Syrup. Modern Scientific Findings and Health Implications," held April 22, 2012, at the ASN Scientific Sessions and Annual Meeting at Experimental Biology 2012 in San Diego, CA. The symposium was sponsored by the American Society for Nutrition and supported in part by an educational grant from the Corn Refiners Association. A summary of the symposium "Fructose, Sucrose and High-Fructose Corn Syrup. Modern Scientific Findings and Health Implications" was published in the September 2012 issue of *Advances in Nutrition*.

[2] Author disclosures: J. M. Rippe, consulting fees from ConAgra Foods, PepsiCo International, Kraft Foods, the Corn Refiners Association, and Weight Watchers International. T. J. Angelopoulos, no conflicts of interest.

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©2013 American Society for Nutrition. Adv. Nutr. 4: 236–245, 2013; doi:10.3945/an.112.002824.

Straight talk about high-fructose corn syrup: what it is and what it ain't[1–4]

John S White

ABSTRACT

High-fructose corn syrup (HFCS) is a fructose-glucose liquid sweetener alternative to sucrose (common table sugar) first introduced to the food and beverage industry in the 1970s. It is not meaningfully different in composition or metabolism from other fructose-glucose sweeteners like sucrose, honey, and fruit juice concentrates. HFCS was widely embraced by food formulators, and its use grew between the mid-1970s and mid-1990s, principally as a replacement for sucrose. This was primarily because of its sweetness comparable with that of sucrose, improved stability and functionality, and ease of use. Although HFCS use today is nearly equivalent to sucrose use in the United States, we live in a decidedly sucrose-sweetened world: >90% of the nutritive sweetener used worldwide is sucrose. Here I review the history, composition, availability, and characteristics of HFCS in a factual manner to clarify common misunderstandings that have been a source of confusion to health professionals and the general public alike. In particular, I evaluate the strength of the popular hypothesis that HFCS is uniquely responsible for obesity. Although examples of pure fructose causing metabolic upset at high concentrations abound, especially when fed as the sole carbohydrate source, there is no evidence that the common fructose-glucose sweeteners do the same. Thus, studies using extreme carbohydrate diets may be useful for probing biochemical pathways, but they have no relevance to the human diet or to current consumption. I conclude that the HFCS-obesity hypothesis is supported neither in the United States nor worldwide. *Am J Clin Nutr* 2008;88(suppl):1716S–21S.

INTRODUCTION

High-fructose corn syrup (HFCS) is a liquid sweetener alternative to sucrose (table sugar) used in many foods and beverages. Early developmental work was carried out in the 1950s and 1960s, with shipments of the first commercial HFCS product to the food industry occurring in the late 1960s. Phenomenal growth over the ensuing 35 or more years made HFCS one of the most successful food ingredients in modern history (1).

HFCS was used in relative obscurity for many years. After all, its compositional similarity to sucrose suggested that it would be metabolized in a like manner. Its safety was never seriously doubted because expert scientific panels in every decade since the 1960s drew the same conclusion: sucrose, fructose, glucose, and, latterly, HFCS did not pose a significant health risk, with the single exception of promoting dental caries (2–5).

Although there was considerable speculation in the 1980s that fructose was responsible for several metabolic anomalies (6–8), convincing proof that this was a significant health risk was never forthcoming. It came as a great surprise to many when, seemingly overnight, HFCS was transformed from a mundane ingredient into the principal focus of scientists, journalists, and consumers concerned about the growing incidence of obesity in the United States and around the world. This article will probe the basis and implications for the current hypothesis that HFCS is somehow uniquely responsible for rising obesity rates and will challenge the science purported to demonstrate a unique role for HFCS in promoting obesity.

BRIEF HISTORY OF HIGH-FRUCTOSE CORN SYRUP

Sucrose from sugar cane or sugar beets has been a part of the human diet for centuries; sucrose from fruit or honey has been a part of the human diet for millennia. Sucrose continues to be the benchmark against which other sweeteners are measured. However, sucrose has posed significant technological problems in certain applications: it hydrolyzes in acidic systems (9), changing the sweetness and flavor characteristics of the product, and it is a granular ingredient that must be dissolved in water before use in many applications. Furthermore, sugar cane was traditionally grown in equatorial regions, some known equally well for both political and climatic instability. The availability and price of sugar fluctuated wildly in response to upsets in either one.

HFCS immediately proved itself an attractive alternative to sucrose in liquid applications because it is stable in acidic foods and beverages. Because it is a syrup, HFCS can be pumped from delivery vehicles to storage and mixing tanks, requiring only simple dilution before use. As an ingredient derived from corn—a dependable, renewable, and abundant agricultural raw material of the US Midwest—HFCS has remained immune from the price and availability extremes of sucrose. It was principally for these reasons that HFCS was so readily accepted by the food industry and enjoyed such spectacular growth.

[1] From White Technical Research, Argenta, IL.

[2] Presented at the American Society for Nutrition Public Information Committee symposium "High-Fructose Corn Syrup (HFCS): Everything You Wanted to Know, but Were Afraid to Ask," held at Experimental Biology 2007 in Washington, DC, 30 April 2007.

[3] Preparation of this article supported by the American Society for Nutrition.

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COMMENTARY

Lack of evidence for high fructose corn syrup as the cause of the obesity epidemic

DM Klurfeld[1,7], J Foreyt[2], TJ Angelopoulos[3] and JM Rippe[4,5,6]

International Journal of Obesity (2013) **37**, 771–773; doi:10.1038/ijo.2012.157; published online 18 September 2012

High fructose corn syrup (HFCS) is one of the most misunderstood food ingredients. HFCS was developed in the mid-1960s as an alternative to sucrose and because of its physical and functional properties, was widely embraced by the food industry. The use of HFCS grew rapidly from 1970–1999, principally as a replacement for sucrose. HFCS usage in the United States peaked in 1999 and it has been in decline since that time. At its peak, HFCS was still less consumed in the United States than was sucrose, although sucrose did have a significant decline in usage during the time that HFCS usage increased. Worldwide, sucrose is still the dominant sweetener with over nine times as much consumption as HFCS.

HFCS existed as a benign and essentially non-controversial product for over 35 years until 2004 when Bray, Nielsen and Popkin published a commentary suggesting a potential link between HFCS consumption and obesity.[1] These authors buttressed their argument by charting the consumption of high fructose corn syrup along with the prevalence of obesity in the United States between 1970-2000, as illustrated in Figure 1.

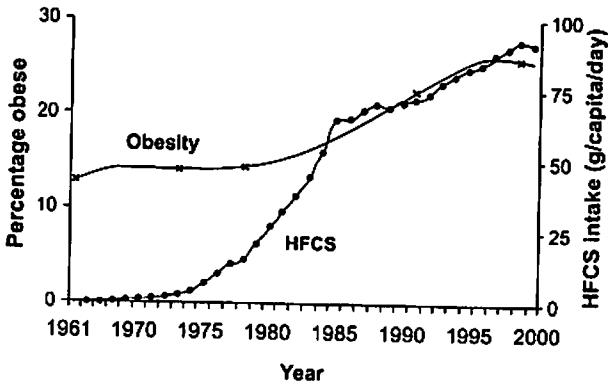

Figure 1. Adapted from: Bray GA, Nielsen SJ, Popkin BM. Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity. *Am J Clin Nutr* 2004; **79**: 537–543.

Bray *et al.*[1] based their hypothesis of a potential unique role for HFCS in beverages as a contributor to the epidemic of obesity in the United States on the following arguments:

- Obesity rates rose dramatically in the United States between 1970 and 2000.
- During the time period between 1970 and 1990, consumption of HFCS rose 1000%, far exceeding the percentage increase of any other food product.
- The digestion absorption and metabolism of fructose is different than glucose.
- Hepatic metabolism of fructose favors *de novo* lipogenesis.
- Fructose consumption results in less rise in blood glucose than does glucose, thus stimulating less of an increase in insulin, which, in turn, stimulates less of a rise in leptin and less suppression of ghrelin—all of which could contribute to lower satiety from fructose and spur increased caloric consumption, weight gain, and obesity.
- There was a temporal association of the increase of HFCS particularly in beverages and the dramatic increase in prevalence of obesity in the United States.

Bray *et al.*[1] used the temporal association as their primary evidence even though this is an example of an ecologic fallacy in which group data are extrapolated to individuals. Controversy and debate about high fructose corn syrup skyrocketed after their initial article often without the initial caution displayed by Bray *et al.* and often based on misperceptions about the metabolism and health effects of HFCS. This concern was also fueled by experiments performed with large doses of pure fructose compared to pure glucose (neither of which is commonly consumed in the human diet in isolation).[2,3] Furthermore, this article was published at a time of increased media concern and public alarm about the growing problem of both childhood and adult obesity in the United States. Additional confusion undoubtedly arose from the name 'high fructose' corn syrup which suggested that it contained higher levels of fructose than does sucrose, which is not true.

To many researchers, the argument that there was some aspect of HFCS, which uniquely contributed to obesity, did not appear to make sense. Furthermore, since fructose and glucose are almost never consumed in isolation in the human diet, research studies or arguments related to the metabolism of fructose vs glucose were not persuasive with regard to their relevance to human nutrition.

Sucrose and HFCS are very similar in their composition. Sucrose contains 50% fructose and 50% glucose. There are two major forms of HFCS in common usage within the food industry. HFCS-55 contains 55% fructose, 42% glucose and 3% other

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[7]The opinions expressed in this article are those of the authors and not necessarily those of USDA or the Agricultural Research Service.

Twenty-four Hour Endocrine and Metabolic Profiles Following Consumption of High Fructose Corn Syrup-, Sucrose- Fructose-, and Glucose-Sweetened Beverages with Meals

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Abstract

Background—We have reported that compared with glucose-sweetened beverages, consuming fructose-sweetened beverages with meals results in lower 24-h circulating glucose, insulin and leptin concentrations, and elevated triacylglycerol (TG). However, pure fructose and glucose are not commonly used as sweeteners. High fructose corn syrup (HFCS) has replaced sucrose as the predominant sweetener in beverages in the U.S.

Objective—We compared the metabolic/endocrine effects of HFCS with sucrose, and in a subset of subjects with pure fructose and glucose.

Design—34 men and women consumed 3 isocaloric meals with either sucrose- or HFCS-sweetened beverages, and blood samples were collected over 24 hours. Eight of the male subjects were also studied when fructose- or glucose-sweetened beverages were consumed.

Results—In 34 subjects, 24-h glucose, insulin, leptin, ghrelin and TG profiles were similar between days that sucrose or HFCS were consumed. Postprandial TG excursions after HFCS or sucrose were larger in men than women. In the men in whom the effects of 4 sweeteners were compared, the 24-h glucose and insulin responses induced by HFCS and sucrose were intermediate between the lower responses during consumption of fructose and the higher responses during glucose. Unexpectedly, postprandial TG profiles after HFCS or sucrose were not intermediate, but comparably high as after pure fructose.

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Kimber L. Stanhope was responsible for study implementation, organiz... ysis of data, and primary preparation of the manuscript. Steven C. Griffen served as study physician and assisted wit... preparation. Brandi R. Bair was responsible for all interactions with human subjects, supervision of dietary staff, and exec... of study protocol. Michael M. Swarbrick provided assistance with the statistical analysis of the data and manuscript preparation. Nancy L. Keim assisted with design of the study and the diets and with manuscript preparation. Peter J. Havel was responsible for the conception and design of the study, obtaining funding, and preparation of the manuscript. All authors read and approved the submitted manuscript. None of the authors had any financial or personal conflict of interest

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Article

The Effect of Normally Consumed Amounts of Sucrose or High Fructose Corn Syrup on Lipid Profiles, Body Composition and Related Parameters in Overweight/Obese Subjects

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Abstract: The American Heart Association (AHA) has advocated that women and men not consume more than 100 and 150 kcal/day, respectively, from added sugars. These levels are currently exceeded by over 90% of the adult population in the United States. Few data exist on longer-term metabolic effects when sucrose and High Fructose Corn Syrup (HFCS), the principal sources of added dietary sugars, are consumed at levels typical of the general population. Sixty five overweight and obese individuals were placed on a eucaloric (weight stable) diet for 10-weeks, which incorporated sucrose- or HFCS-sweetened, low-fat milk at 10% or 20% of calories in a randomized, double-blinded study. All groups responded similarly (interaction $p > 0.05$). There was no change in body weight in any of the groups over the 10-week study, or in systolic or diastolic blood pressure. Likewise,

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Review

Relationship between Added Sugars Consumption and Chronic Disease Risk Factors: Current Understanding

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Abstract: Added sugars are a controversial and hotly debated topic. Consumption of added sugars has been implicated in increased risk of a variety of chronic diseases including obesity, cardiovascular disease, diabetes and non-alcoholic fatty liver dis[illegible]) as well as cognitive decline and even some cancers. Support for these putative associa[illegible]en challenged, however, on a variety of fronts. The purpose of the current review is to summarize high impact evidence including systematic reviews, meta-analyses, and randomized controlled trials (RCTs), in an attempt to provide an overview of current evidence related to added sugars and health considerations. This paper is an extension of a symposium held at the Experim[illegible]y 2015 conference entitled "Sweeteners and Health: Current Understandings, Contro[illegible]Research Findings and Directions for Future Research". We conclude based on h[illegible]ce from randomized controlled trials (RCT), systematic reviews and meta-analyses o[illegible]ies that singling out added sugars as unique culprits for metabolically based diseases such as obesity, diabetes and cardiovascular disease appears inconsistent with modern, high quality evidence and is very unlikely to yield health benefits. While it is prudent to consume added sugars in [illegible], the reduction of these components of the diet without other reductions of caloric s[illegible]ely to achieve any meaningful benefit.

Keywords: sucrose; high fructose corn syrup; d[illegible]vascular disease; obesity

1. Introduction

An ancient Hindu fable tells of six learn[illegible] approach an elephant. All are highly esteemed, but all are blind. The first [illegible] elephant and happens to bump up against its broad and sturdy side and declares "t[illegible]s very like a wall!" The second blind man feels the tusk and cries an elephant is "very [illegible]a spear!" The third happens to grab the elephant's squirming trunk in his hands and [illegible]es the elephant is "very like a snake!" The fourth blind man palpates the leg of the [illegible]es "it is clear the elephant is very like a tree!" The fifth blind man who happens [illegible]'s ear declares "even the blindest man can tell that the elephant is very like a [illegible]" [illegible]ns to grasp the swinging tail and declares to his comrades the elep[illegible]

What then ensues is a long, passion[illegible]heated dispute amongst these learned men which gets them nowhere. Although each is [illegible]e of them has seen the whole picture (while learned, they are blind, after all!). This [illegible]ized in many different eras and many different cultures to recount argume[illegible]and politics. It illustrates the inaccuracy of seeing only a part of a s[illegible]whole. It is a cautionary tale that even learned men can sometimes [illegible]otions or only seeing a portion of the whole.