EXHIBIT 12

From: Cassandra Kuball <CKuball@corn.org>
Sent: Thursday, January 05, 2012 1:39 PM
To: Carol Moreau
Cc: David Knowles
Subject: CRA Request - 2 of 2

Dr. Rippe –

We would like for you to reach out to Dr. Marks from the Robert Wood Johnson Foundation via email in regards to the following statement, "Researchers have drawn strong links between obesity and such socioeconomic disparities. Families in low-income areas are less aware of the harm that beverages and foods sweetened with high-fructose corn syrup can cause." If you could reach out to Dr. Marks with your vast resources on HFCS /added sugars as they are part of youth health, we would greatly appreciate it.

Thank you,

Cassandra

Contact Information:
James Marks, M.D., M.P.H.
Senior Vice President
Robert Wood Johnson Foundation
Ph: 609-627-5796
Fax: 609-452-2129
Email: jmarks@rwjf.org

Bio: http://www.rwjf.org/about/staffbio.jsp?id=980

James S. Marks, M.D., M.P.H., senior vice president, directs all program and administrative activities of the RWJF Health Group. This includes the Foundation's work in childhood obesity, public health and vulnerable populations.

Prior to joining RWJF in 2004, Marks retired as assistant surgeon general after serving as director of the Centers for Disease Control's National Center for Chronic Disease Prevention and Health Promotion for almost a decade. Throughout his tenure at CDC, Marks developed and advanced systematic ways to prevent and detect diseases such as cancer, heart disease and diabetes, reduce tobacco use and address the nation's growing epidemic of obesity.

Two Cities, One Vast Gap In Child Obesity, CentreDaily.com, January 4, 2012: In a byline, Anna Gorman notes that poor and rich families have divergent attitudes toward food and exercise, which reflects just part of the challenge that officials are facing as they try to close a vast and costly gap in obesity rates across Latino Bell Gardens, where the obesity rate is 36% higher than in any other city. While highlighting the issue of socio-economic disparity being the cause of obesity epidemic, Gorman notes Dr. James Marks of the Robert Wood Johnson Foundation, saying, "Researchers have drawn strong links between obesity and such socioeconomic disparities. Families in low-income areas are less aware of the harm that beverages and foods sweetened with **high fructose corn syrup** can cause." *This also appeared on The Sacramento Bee, Ledger Enquirer.com and pennlive.com.*

Action: Dr. Rippe to reach out to Dr. Marks (AMA/ADA, child nutrition, obesity)

http://www.centredaily.com/2012/01/04/3039919/two-cities-one-vast-gap-in-child.html

Doris Chang limits her three sons' intake of sweets and doesn't feed them any processed or frozen food. At their Manhattan Beach, Calif., home, she monitors the boys' time in front of the television and keeps them busy with baseball, basketball and karate.

About 20 miles to the northeast, Lorena Hernandez takes her 6-year-old daughter to McDonald's at least twice a week and frequently gives her Kool-Aid and soda. They go to the park often, but when they are in their Bell Gardens, Calif., home, the television is usually on.

The families' divergent attitudes toward food and exercise reflect just part of the challenge facing officials as they try to close a vast and costly gap in obesity rates across the greater Los Angeles region.

Just 4 percent of children in affluent, mostly white Manhattan Beach are considered obese, the lowest rate countywide, according to public health officials. In poor, predominantly Latino Bell Gardens, the rate is 36 percent _ higher than in any other city.

"They are like two different worlds," said Paul Simon, who directs chronic disease prevention for the county health department.

Obesity among the young is starting to level off in California and around the nation. But stark disparities persist, posing vexing obstacles to further change.

In Los Angeles County alone, the obesity epidemic costs about $12 billion a year for healthcare and in lost productivity, according to a 2006 report by the California Center for Public Health Advocacy.

The challenges are plain at the Bell Gardens Community Health Clinic, where physician Jacqueline Lopez, deals with the consequences: diabetes and heart disease. She delicately coaches families to pick healthful foods and break through cultural barriers. Many Latino parents, she said, simply don't recognize the risks of their children being overweight.

"There is a misperception that bigger children are healthier children," she said. "I am trying to be sensitive, but really what we are talking about is these children are at risk of having a shortened life span."

Arturo Gonzalez said his 13-year-old daughter's doctor recently told him she is 30 pounds overweight and showing early signs of diabetes. "I am worried," he said, watching his 5-year-old son play on a swing set in a Bell Gardens park. "We talk about the consequences of being overweight. ... She listens, but it goes in one ear and out the other."

Gonzalez said his children watch too much television, snack too much and complain when he makes them take walks. He has enrolled his daughter in an after-school program to cut down on TV time and snacking.

But he doesn't think poverty is a culprit. "In Mexico, we were poor, but we weren't overweight," he said, recalling that children in his homeland drank water instead of soda and walked a lot.

Bell Gardens' officials are trying to combat the problem. They recently declared obesity a "serious public health threat," banned sodas from park vending machines and are discussing adding track and fitness equipment as part of a park renovation.

"We are trying policy-wise to make changes, but we can't dictate what parents do in their homes," said city recreation director Pam Wasserman. For parents on tight budgets, she said, healthful food isn't always the least expensive option. "It is hard for us to compete with 10 tacos for $10."

Lorena Hernandez said her family often chooses fast-food restaurants because they are cheap. At home, she cooks Mexican specialties, such as beans, rice, tortillas and soups. Her husband has diabetes, but both she and her 6-year-old daughter, Leanne, are thin, so she doesn't worry about what they eat. "We don't really talk about it at home, honestly," she said.

Bell Gardens falls at the opposite end from Manhattan Beach on many economic and demographic indexes.

About 80 percent of Manhattan Beach's 36,000 residents are white, and the median household income is $127,000. Only 3 percent of people are living in poverty and three-fourths of residents over 25 have college degrees. There was a single homicide and 48 other violent crimes in 2010, according to the FBI.

There are relatively few fast-food restaurants and several upscale grocery stores emphasizing fresh foods, including Trader Joe's, Whole Foods and Bristol Farms.

In Bell Gardens, 96 percent of the 44,000 residents are Latino, and median household income is less than one-third of Manhattan Beach's. Nearly one in four residents lives in poverty and just 4 percent of those 25 or older have a college degree. Crime is far more prevalent, with five homicides and 210 other violent crimes in 2010.

A 2009 survey by the Campaign for a Healthier Bell Gardens, started by a community clinic, found 141 convenience or fast-food restaurants within the city's 2.4 square miles. Many grocery shopping options are smaller corner stores, where fresh produce choices and availability tend to be limited.

Researchers have drawn strong links between obesity and such socioeconomic disparities. Families in low-income areas are less aware of the harm that beverages and foods sweetened with high-fructose corn syrup can cause, said Dr. James Marks of the Robert Wood Johnson Foundation. And schools in low-income areas generally have fewer physical education programs and may offer less healthful options in school cafeteria lunches, he said.

"If people who want to make the healthy choices are unable to, they are not going to succeed," Marks said.

County health officials have noted more obesity in communities with less parkland, where children can get out and exercise. Manhattan Beach, for example, has 5.7 acres of parkland per 1,000 residents, more than three times the ratio in Bell Gardens, according to a 2007 report. And parks in poorer areas may be considered less safe and operate fewer hours, researchers say.

Health advocates are working with Bell Gardens' city government, businesses and educators, as well as the county, to plant gardens, hold mini-farmers markets and take mobile health clinics to schools, encouraging the students to become advocates of better diets and more exercise. A major challenge is getting families to prepare healthful versions of traditional Latino dishes.

"We are nowhere near where we need to be," said Lani Cupchoy, who is directing the health improvement campaign. "We can't really say we have a healthy city, but we are on the path."

Manhattan Beach Mayor Nicholas Tell noted that his city has a natural advantage to encourage healthy lifestyles: two miles of open waterfront. Residents ride bikes, run along the beach-side path or go surfing and play volleyball on the sand. "We have this amazing beach that tells people to go outside," he said.

Manhattan Beach resident Barbra Fontana, 46, a former professional volleyball player, said her sons _ ages 6 and 8 _ go boogie boarding or bike riding on weekends and play soccer, basketball and baseball other days. On a recent afternoon, they kicked a ball around Sand Dune Park as she looked on.

"This is what I like my kids to be doing," she said. "Sitting at a computer or a TV isn't my cup of tea."

The differences extend indoors. At the Manhattan Beach Trader Joe's, Chang, 39, filled her basket with fruit, bread, vegetables, eggs and yogurt. She generally avoids junk food, but lets the grandparents occasionally take the children out for ice cream or to McDonald's.

"I'm not inspecting every single package," she said. "But I try to eat wholesome foods."

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Cassandra A. Kuball
Communications
Corn Refiners Association
Washington, DC 20006
Ph: 202.331.1634
Fx: 202.331.2054

www.SweetSurprise.com

From: Cassandra Kuball <CKuball@corn.org>
Sent: Thursday, January 05, 2012 1:35 PM
To: Carol Moreau
Cc: David Knowles
Subject: CRA Request - 1 of 2

Greetings Dr. Rippe:

Would you be in the position to reach out to Dr. Thompson via email over her negative comments around HFCS when she was a guest on WMBF discussing New Year resolutions. Dr. Thompson notes that the science on the role of HFCS in the diet is inconclusive in addition to the fact that it instills food cravings. You can see the segment via the WMBF hyperlink below.

If you have any questions, please let me know.

Thank you,

Cassandra

Contact Info:
Sharon Howell Thompson, Ed.D., C.H.E.S.
Professor of Health Promotion ~ Coastal Carolina University
Spadoni College of Education – Department of Health, Physical Education, and Recreation
Office - 843-349-2635
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e-mail - thompson@coastal.edu
http://www.coastal.edu/education/photos/ST_9_06_Vita.html

WMBF Local Living (Community), WMBF (NBC), January 3, 2012; 12:20 PM EDT: The segment features Dr. Thompson discussing New Year resolutions for losing weight and the importance of nutrition with Candace Howell. While mentioning about the controversy pertaining to ubiquitous **high fructose corn syrup**, Thompson suggests consuming **HFCS** in moderation. While recommending reading 'The End of Overeating', a book by David Kessler, Thompson notes that processed foods like **HFCS** instill food cravings. Dr. Thompson opines on 'FoodEducate'; a food app, which can detect foods high in **corn syrup** etc. and provides nutritious recommendations.

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From: David Knowles <dknowles@corn.org>
Sent: Thursday, September 08, 2011 2:32 PM
To: Carol Moreau
Cc: Audrae Erickson; Cassandra Kuball
Subject: CRA Request: WebMD correction

Dear Dr. Rippe,

Please see the WebMD article below. It touts a product made "without trans fats or high-fructose corn syrup." Would you be in a position to reach out to your WebMD contact and ask that HFCS not be singled out in this manner and lumped in with trans fats?

Thank you,
David

http://www.webmd.com/parenting/features/smart-snacks-for-kids?src=RSS_PUBLIC

Smart (Healthy) Snacks for Kids

Our nutrition expert explains why healthy snacks don't have to be dull – and why cookies are still OK.

Making sure the snack kids grab is a healthy one can make a difference in how they finish the day. You want them energized and refueled until dinner, not overfull and oversugared. The best snacks to help kids perk up are fresh fruits and vegetables, whole grains, and lean or low-fat protein, says Kathleen Zelman, MPH, RD, LD, WebMD's director of nutrition, who offers these tips for after-school snacking.

Pizza Face

Cheese pizza is a kid-crowd pleaser, but not all snack versions are created equal. Zelman likes frozen pizzas such as Made in Nature Organic Three-Cheese and Whole Foods 365 Everyday Value Four Cheese, both low in saturated fats and tasty, too.

Dippity Do

Kids love dipping. Serve up hummus with veggies or a small portion of baked tortilla or pita chips. Hummus is "super nutritious, naturally fat-free, and loaded with protein and fiber that will keep kids full until dinner," Zelman says. She likes Athenos or Cedar's for their ultra-smooth creaminess and flavor.

Chocolate and Tigers and Bears, Oh My!

There's no reason to leave cookies 'n' milk out of the after-school snack roster. Just practice portion control to keep numbers reasonable. Do your kids love chocolate? Zelman says kids can enjoy two Back to Nature Chocolate Chunk Cookies (130 calories, 1 gram protein, and 6 grams fat, but no trans fats). She also likes Barbara's Bakery Wheat Free Oatmeal Snackimals. Made from whole oats, these updated animal-cracker minis offer whole-grain goodness without trans fats or high-fructose corn syrup.

Best Bars

Fruit, nut, grain, and cereal snack bars promise ready-wrapped nutrition on the run. But some are fat and sugar bombs. Read nutrition labels to ensure sugar isn't the top ingredient. Look for bars with the highest fiber and protein in flavors that have kid appeal, such as Kind Plus Peanut Butter Dark Chocolate + Protein, tasty as candy but loaded with 7 grams protein plus fiber you won't find in most candy bars. Zelman also likes Kashi GoLean's Oatmeal Raisin Cookie Chewy Protein & Fiber Bar, which tastes as good as a cookie but packs 5 grams fiber and 10 grams protein.

From: David Knowles <dknowles@corn.org>
Sent: Tuesday, July 05, 2011 5:52 AM
To: Carol Moreau
Subject: Fwd: Nashville Tennessean Rippe op-ed

Carol,

Please let Dr. Rippe know about this.

Thanks,
David

Begin forwarded message:

> **From:** Shannon McNamara <smcnamara@corn.org>
> **Date:** July 4, 2011 8:26:56 AM EDT
> **To:** David Knowles <dknowles@corn.org>, Audrae Erickson <aerickson@corn.org>, David Rosenthal <DRosenthal@corn.org>, Cassandra Kuball <CKuball@corn.org>, Therese Pompa <TPompa@corn.org>
> **Subject: RE: Nashville Tennessean Rippe op-ed**
>
> Dr. Rippe's op-ed has been published.
>
> http://www.tennessean.com/article/20110703/OPINION/307030038/Chocolate-milk-isn-t-nutritional-villain-portrayed
>
> **Chocolate milk isn't nutritional villain as portrayed**
>
> Written by
>
> James M. Rippe, M.D.
>
> 10:16 PM, Jul. 2, 2011|
>
> Global economic distress. Federal budgetary gridlock. Presidential politics. Now add chocolate milk to the list of national concerns.

That's right. Chocolate milk.

There exists an odd hysteria about chocolate milk, and it's spreading to Tennessee, where Metro Nashville Public Schools recently reformulated the chocolate milk in schools to reduce sugar content.

Still, that's better than what is going on in Los Angeles, where the Unified School District recently voted to ban flavored milk entirely from lunchrooms. Other districts are pondering similar action.

But is this really what's best for kids? No. It may have exactly the opposite effect by undermining children's health. Lost in the cacophony of opinions are a few basic facts.

For starters, a sugar is a sugar. Some districts are reformulating flavored milks to replace high-fructose corn syrup with sugar under the view that it is somehow "healthier." But compositionally, table sugar and corn sugar are nearly identical. They are nutritionally the same. There is broad scientific agreement on this, supported by the American Medical Association and American Dietetic Association.

Second, while MNPS officials are correct that children should cut back on calorie consumption, added sugars in the right foods can actually play a valuable role by getting kids to consume the nutrients we need, in cereals and grains, proteins, fruits, vegetables and dairy, including milk.

Third, according to the American Academy of Pediatrics, barely 40 percent of children ages 6-11 receive the recommended daily calcium they need for bones and teeth to grow properly. The story is worse for teens, with only 10 percent of girls 12-19 and 30 percent of boys getting enough calcium.

According to a 2009 survey of 58 elementary and secondary schools by the Milk Processor Education Program, kids' Advertisement consumption of milk overall dropped an average 35 percent when chocolate milk was taken off the menu.

The School Nutrition Association, American Dietetic Association, American Academy of Pediatrics, National Medical Association and American Heart Association agree that the nutritional value of low-fat or skim milk more than outweighs any potential downside of added sugar in flavored milk.

It's admirable that parents and school leaders in Nashville are concerned about the amount of sugar their kids eat, but they should not deprive them of important nutrients by removing flavored milk from lunchrooms.

Dr. James M. Rippe is a cardiologist and graduate of Harvard College and Harvard Medical School. He is an adviser to the food and beverage industry, including the Corn Refiners Association.

jamiebowie04

1:48 AM on July 4, 2011

It may have exactly the opposite effect by undermining children's health. Lost in the cacophony of opinions are a few basic facts. I get so many sample stuff for free

its awesome. Actually it is not difficult to find them just search online for "123 Samples" It is the best way!

From: David Knowles
Sent: Wednesday, June 29, 2011 2:44 PM
To: Audrae Erickson; David Rosenthal; Cassandra Kuball; Therese Pompa; Shannon McNamara
Subject: Nashville Tennessean Rippe op-ed

Good news from Cameron. The Nashville Tennessean has agreed to run the Rippe flavored milk op-ed. It will run soon, possibly by Friday or over the weekend. I will have copies at the booth and will work with Ogilvy and Gyro to determine the best way to leverage it for pitches, etc. TP, this could be part of the SNA digital effort as well. Let's discuss tomorrow.

Thanks,

David Knowles

Director of Communications

Corn Refiners Association

Washington, DC

(202) 331-1634

www.CornSugar.com

From: Audrae Erickson <aerickson@corn.org>
Sent: Monday, August 24, 2009 3:37 PM
To: Carol Moreau
Subject: WebMD article on AHA statement on added sugars

Dear Dr. Rippe,

Here is a copy of the WebMD story today. Thanks again for your help!

Audrae

http://www.webmd.com/diet/news/20090824/heart-group-limit-added-sugars-diet

Heart Group: Limit Added Sugars in Diet

American Heart Association Issues Guidelines on How Much Added Sugar Is Too Much

By Miranda Hitti
WebMD Health News
Reviewed by Louise Chang, MD

Aug. 24, 2009 -- The American Heart Association today released new recommendations on limiting intake of added dietary sugars.

Back in 2006, the American Heart Association (AHA) recommended minimizing consumption of beverages and foods with added sugars.

Now, the AHA is getting more specific, with recommendations detailed down to the teaspoon based on a person's age, sex, and activity level.

In its statement, published online in the journal *Circulation*, the AHA states that "excessive consumption of sugars has been linked with several metabolic abnormalities and adverse health conditions, as well as shortfalls of essential nutrients."

The sugar industry takes issue with the AHA's paper. In a statement emailed to WebMD, the Sugar Association says that the AHA's emphasis on sugary foods is "misplaced" and "may have unforeseen detrimental consequences."

Added Sugar Guidelines

How much added sugar does the AHA suggest? Maybe less than you get on a typical day.

The AHA's new guidelines depend upon a person's "discretionary calories" -- their calorie budget beyond what they need to run their bodies without overindulging. Your discretionary calorie allowance depends on your age, sex, and activity level.

"Most American women should eat or drink no more than 100 calories per day from added sugars, and most American men should eat or drink no more than 150 calories per day from added sugars," states the AHA.

The AHA's paper includes examples of upper limits on added sugars for various groups of adults, but not for children. Here are those examples:

- Active man aged 21-25: up to 18 teaspoons (288 calories)
- Sedentary man aged 46-50: up to 9 teaspoons (144 calories)
- Moderately active woman aged 51-55: up to 5 teaspoons (80 calories)
- Sedentary woman aged 71-75: up to 3 teaspoons (48 calories)

The AHA notes that one 12-ounce can of cola contains about 8 teaspoons of sugar, or about 130 calories. That's more than the AHA suggests for a moderately active woman in her early 50s.

The AHA's new guidelines don't include sugar found naturally in fruits, vegetables, whole grains, or milk. By "added sugars," the AHA means sugars that you add to food yourself, and also to sugars and syrups used to make foods or drinks.

The experts who wrote the new guidelines aren't against sugars. They write that sugars are found naturally in many healthy foods, and that adding sugars to foods makes them tastier. Their point is about overdoing it.

"Deleterious health effects may occur when sugars are consumed in large amounts," write the AHA panelists, who included Rachel Johnson, PhD, MPH, RD, of the University of Vermont.

Johnson's team is talking about extra weight and its health risks, effects on metabolism, and missing out on nutrients that may be lacking in sugary fare.

Cutting Back on Added Sugars

Added sugars may be more common than you think, notes Kathleen Zelman, MPH, RD, LD, WebMD's director of nutrition.

"Most people are aware of the sugar they add to their coffee and when they eat sweet treats, but beyond sweetened drinks and treats, it is used extensively in our food supply in foods like bread and ketchup," Zelman writes in an email. "Become a label reader and check out the list of ingredients in search of foods with added sugars."

Drinks are another source of added sugar. "One of the easiest ways to cut back on added sugars is to curtail your consumption of sweetened beverages like soft drinks, sweet tea, alcoholic mixers, and juice drinks," says Zelman, noting that other drink choices include water, diet drinks, 100% fruit juice, and nonfat milk.

Zelman notes that limiting added sugars to 100-150 calories is roughly equal to "one soft drink, a small candy bar, a few plain cookies, or a small portion of light ice cream or frozen yogurt."

Industry Responds

In a statement emailed to WebMD, the Sugar Association says it is "very disappointed that a premier health organization such as the [AHA] would issue a scientific statement titled 'Dietary Sugars Intake and Cardiovascular Health' without a higher standard of evidence to support its contentions and therefore mislead the average consumer."

The Sugar Association notes that "simply reducing sugars in the diet, as this paper contends, is counterproductive if a reduction in total caloric intake is not achieved. ... If one consumes more calories -- no matter the source -- than one burns, weight gain is inevitable."

The Sugar Association also states that "every major systematic review of the body of scientific evidence exonerates sugar as the cause of any lifestyle disease, including heart disease and obesity." And the association argues that other organizations -- including the European Food Safety Authority and an expert panel convened by the Institute of Medicine in 2002 -- declined to set an upper limit for total or added sugars.

The Corn Refiners Association -- the national trade group for the U.S. corn refining industry, which makes corn sweeteners including high-fructose corn syrup -- also issued a response to the AHA's guidelines.

In a statement emailed to WebMD, the Corn Refiners Association states that "sweeteners are found in many foods, and when consumed in moderation, often serve a useful role in making nutrient-rich foods, like yogurt and flavored milk, palatable. Like all sugars, high fructose corn syrup should be enjoyed in moderation as part of a balanced diet."

From: Potter, Susan M. <Susan.Potter@tateandlyle.com>
Sent: Thursday, March 19, 2009 8:04 AM
To: Nabors, Lyn; Hurt, L. Martin; white.tech.res@gmail.com
Subject: FW: Sue, I am sure you have seen this.

Importance: Low

Yet another article.

Sue

From: Schwenk, Michelle P.
Sent: Thursday, March 19, 2009 7:10 AM
To: Potter, Susan M.; Sanders, Lisa M.; Wolfe, Kelly L.
Subject: Sue, I am sure you have seen this.

Fructose Metabolism More Complicated

Posted: Mar. 2, 2009

Source: Manabu Nakamura, (217) 333-1267, mtnakamu@uiuc.edu

Chances are you consume quite a bit of fructose. Most Americans do -- in refined sugars such as sucrose or table sugar (which is half fructose) and in high-fructose corn syrup, used in products like soft drinks, protein bars, and fruit juice.

But University of Illinois food scientist Manabu Nakamura believes that high dietary fructose contributes to the development of metabolic syndrome, a group of risk factors that predict heart disease and Type 2 diabetes.

Most carbohydrates are handled fairly simply by our bodies, but it's not so simple with fructose. Unlike glucose, fructose metabolism occurs mainly in the liver.

In Nakamura's study, rats were fed diets with either high glucose or high fructose.

He says that fructose feeding induced a broader range of genes than had previously been identified and there were simultaneous increases in stored glucose and triglycerides in the liver.

Nakamura is continuing to assess the risk of fructose insulin resistance and the risk for development of diabetes.

From: Audrae Erickson <aerickson@corn.org>
Sent: Wednesday, March 25, 2009 11:07 AM
To: O'Dowd, Maryanne (CHI-WSW)
Cc: Ruland, Susan; Schiferl, Michael (CHI-WSW); David Knowles; Jim Callan; John White
Subject: Fructose Study
Attachments: image001.gif

Importance: Low

We are obtaining a copy of this study, the abstract for which notes that both HFCS and table sugar contain fructose.

Public release date: 25-Mar-2009
[Print Article | E-mail Article | Close Window]

Back To EurekAlert!

Contact: Adriaan Klinkenberg
f.klinkenberg@elsevier.com
31-204-852-456
Elsevier

Fructose metabolism by the brain increases food intake and obesity

Increase in consumption of high fructose sweeteners raises concerns

Amsterdam, 25 March 2009 - The journal *Biochemical and Biophysical Research Communications* (http://www.elsevier.com/locate/ybbrc) (BBRC), published by Elsevier, will publish an important review this week online, by M. Daniel Lane and colleagues at Johns Hopkins, building on the suggested link between the consumption of fructose and increased food intake, which may contribute to a high incidence of obesity and Type 2 diabetes.

Over the past four decades life-styles have gravitated toward the excessive consumption of 'high energy' foods and sedentary behavior that has resulted in a high incidence of obesity and its pathological consequences. This scenario has led to the increased occurrence of insulin resistance and Type 2 diabetes. At present, approximately thirty percent of adult Americans can be classified as obese. Moreover, these changes now extend into the younger age group.

M. Daniel Lane and co-workers at The Johns Hopkins University School of Medicine in Baltimore have now pulled together work, largely in their laboratory (many papers beginning in 2000), dealing with the role of malonyl-CoA in the signaling system in the brain (specifically the hypothalamus) that has inputs into the higher brain centers that determine feeding behavior, most notably appetite. Two papers in the journal PNAS in 2007 and 2008 showed that glucose and fructose act quite differently in the brain (hypothalamus) - glucose decreasing food intake and fructose increasing food intake. Both of these sugars signal in the brain through the malonyl-CoA signaling pathway and have inverse effects on food intake.

Lane commented: "We feel that these findings may have particular relevance to the massive increase in the use of high fructose sweeteners (both high fructose corn syrup and table sugar) in virtually all sweetened foods, most notably soft drinks. The per capita consumption of these sweeteners in the USA is about 145 lbs/year and is probably much higher in teenagers/youth that have a high level of consumption of soft drinks. There is a large literature now that correlates, but does not prove that a culprit in the rise of teenage obesity may be fructose."

The fact that fructose metabolism by the brain increases food intake and obesity risk raises health concerns in view of the large and increasing per capita consumption of high fructose sweeteners, especially by youth.

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Notes to Editors:

The article, appearing in Volume 382/1 (print edition: coverdate April 24) is available on ScienceDirect at http://dx.doi.org/10.1016/j.bbrc.2009.02.145, copies of the full text are available to members of the media by contacting the Elsevier press office, newsroom@elsevier.com.

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From: John White <white.tech.res@gmail.com>
Sent: Friday, April 10, 2009 12:20 AM
To: J S W
Subject: Fwd: CiteTrack Fructose Articles - April 2009

Importance: Low

Review/LTE warranted
Glycemic Index, Carbohydrates, Glycemic Load, and the Risk of Pancreatic Cancer in a Prospective Cohort Study
Li Jiao, Andrew Flood, Amy F. Subar, Albert R. Hollenbeck, Arthur Schatzkin, and Rachael Stolzenberg-Solomon
Cancer Epidemiol. Biomarkers Prev. published 31 March 2009, 10.1158/1055-9965.EPI-08-1135 [Abstract]
Diets with high glycemic index and glycemic load have been associated with insulin resistance. Insulin resistance has been implicated in the etiology of pancreatic cancer. We prospectively investigated the associations between glycemic index, carbohydrates, glycemic load, and available carbohydrates dietary constituents (starch and simple sugar) intake and the risk of pancreatic cancer. We followed the participants in the NIH-AARP Diet and Health Study from 1995/1996 through December 2003. A baseline self-administered food frequency questionnaire was used to assess the dietary intake and exposure information. A total of 1,151 exocrine pancreatic cancer cases were identified from 482,362 participants after excluding first-year of follow-up. We used multivariate Cox proportional hazards regression models to calculate relative risks (RR) and 95% confidence intervals (95% CI) for pancreatic cancer. There were no associations between glycemic index, total or available carbohydrates, gycemic load, and pancreatic cancer risk. Participants with high free **fructose** and glucose intake were at a greater risk of developing pancreatic cancer (highest compared with lowest quintile, RR, 1.29; 95% CI, 1.04-1.59; *P* trend = 0.004 and RR, 1.35; 95% CI, 1.10-1.67; *P* trend = 0.005, respectively). There were no statistically significant interactionsby body mass index, physical activity, or smoking status. Our results do not support an association between glycemic index, total or available carbohydrate intake, and glycemic load and pancreatic cancer risk. The higher risk associated with high free **fructose** intake needs further confirmation and elucidation. (Cancer Epidemiol Biomarkers Prev 2009;18(4):1144–51)

Poll Committee for interest in review/LTE
No articles

Fructose advantage
No articles

Awareness only
Fructose and Vitamin C Intake Do Not Influence Risk for Developing Hypertension

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Higher uric acid levels are associated with an increased risk for developing hypertension. Higher intake of **fructose** increases plasma uric acid levels and higher intake of vitamin C reduces uric acid levels, but whether these nutrients are independently associated with the risk for developing hypertension is unknown. We studied this question by analyzing data from participants of three large and independent prospective cohorts: Nurses' Health Study 1 (n = 88,540), Nurses' Health Study 2 (n = 97,315), and the Health Professionals Follow-up Study (n = 37,375). Relative risks and 95% confidence intervals for incident hypertension were computed according to quintiles of **fructose** intake and categories of vitamin C intake using multivariable Cox proportional hazards regression. **Fructose** intake was not associated with the risk for developing hypertension; the multivariable relative risks (95% confidence intervals) for the highest compared with the lowest quintile of **fructose** intake were 1.02 (0.99 to 1.06) in Nurses' Health Study 1, 1.03 (0.98 to 1.08) in Nurses' Health Study 2, and 0.99 (0.93 to 1.05) in Heath Professionals Follow-up Study. Regarding vitamin C, the relative risks for individuals who consumed ≥1500 mg/d compared with those who consumed <250 mg/d were 0.89 (0.83 to 0.96) in Nurses' Health Study 1, 1.02 (0.91 to 1.14) in Nurses' Health Study 2, and 1.06 (0.97 to 1.15) in Health Professionals Follow-up Study. In conclusion, **fructose** and vitamin C intake do not substantially influence the risk for developing hypertension.