PFNDAI Bulletin July 2009

Editorial

There is a lot of information being published in various forms of media. Print media probably contributes the most at present through newspapers, magazines, books, journals and also the brochures, booklets and pamphlets and even the fliers that are given as publicity campaigns for some products. In such print media, we also encounter many advertorials which look like scientific articles but actually are promotional materials prepared for giving information about a particular product giving good points being emphasised.

Television is becoming slowly a very big form of information not only through advertisements and sponsored programmes but also discussion forums, documentary etc. which studies in depth a particular range of products like fruit juices or spices and condiments etc. Consumers are more likely to listen to these rather than read a newspaper article unless the article is on a topic that has been bothering him or her lately.

The biggest growth has been seen in internet where virtually all topics are covered by all sorts of people who may or may not have any qualifications to write on the subject. Email has become so fast in spreading information and more so the misinformation that within no time it goes around the world. Consumers still have the gullibility to believe anything that is in written form and forwarded by so-called Doctor or Professor or Scientist (verification is almost impossible) that it is nowadays very easy to create a false impression about a product. This is especially true if the so-called report is damaging for the product.

Earlier, newspapers used to give the antecedents of the contributing authors including the qualification and affiliation etc. This system has been let go and now anybody writes articles for newspapers and unfortunately nothing much is written about the author so one does not know how far to believe. Especially when it comes to foods, everyone feels he or she is an expert as they have been consuming foods all their lives.

We need the scientific community to start writing authentic articles giving proper evaluation of a product, an ingredient or a process with respect to its safety, nutrition, quality and efficacy. Even the media should encourage faculty members of university to write articles so lay people would get some reliable information. Of course the teachers of food and nutrition also should spare some time away from research and publication in order to educate the public on the science of food, nutrition and health that is fast evolving because of so much new information is coming out about how certain ingredients in foods can affect our health.

Our association is attracting many new members. We are very happy to welcome Puratos India, Plethico Pharmaceuticals, Vasta Biotech, Prosoya Foods, Advanced Enzymes, Tinna Oils and Chemicals, Wyeth, PepsiCo India Holdings into our membership. We hope they have a very long and fruitful association with us. With greetings to all,

Prof. Jagadish S. Pai
Executive Director

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In Pursuit of Sweet Foods:

By Dr. Jagadish S. Pai

Stressed spelled backwards is Desserts!

Sweet taste is universally accepted as a pleasurable experience. Sweetness is accepted by humans to characterise foods as safe from substances that are bitter which are construed to be unsafe according to behavioural studies. Even babies like and accept sweet tasting foods readily as they are used to slightly sweet taste of mothers' milk which contains lactose. This taste is cultivated even more when children prefer sweet tasting mithais like pedha, burfi, jalebi, gulab jamun, laddu, etc. as well as candies, chocolates, ice cream, cakes, biscuits & cookies.

Sugar Consumption

Sugar consumption in India is estimated to be over 23.3 million tonnes in 2008-09 from 21.8 million tonnes in the previous year. This is the highest in the world. Consumption of sugar and other natural sweeteners like corn syrup, jaggery etc. in 2003 was around 160 million tonnes of which sugar alone was about 130 million tonnes. The consumption has been increasing in spite of steep increases in price recently as Indians love sweet foods. However, per capita consumption of sugar of Indians of about 24 kg per year is nothing compared to that of Americans, Canadians, Australians and many Europeans and West Indians. Africans normally consume quite low and so do Chinese and Nepalese.

Sugar & Sweeteners consumption in different countries in 2003

(kg/per year per capita)

Argentina	41.00	Iceland	56.00
Australia	47.00	India	24.00
Barbados	57.00	Jamaica	54.00
Belgium	55.00	Japan	28.00
Brazil	56.00	Mexico	48.00
Canada	63.00	Nepal	4.00
China	8.00	Netherlands	52.00
Colombia	49.00	New Zealand	60.00
Congo, Democratic Republic of	2.00	Pakistan	27.00
Costa Rica	57.00	Sri Lanka	31.00
Croatia	60.00	Swaziland	50.00
Denmark	58.00	Sweden	47.00
France	40.00	Switzerland	60.00
Germany	45.00	Trinidad and Tobago	57.00
Grenada	56.00	United Kingdom	41.00
Hungary	45.00	United States of America	70.00

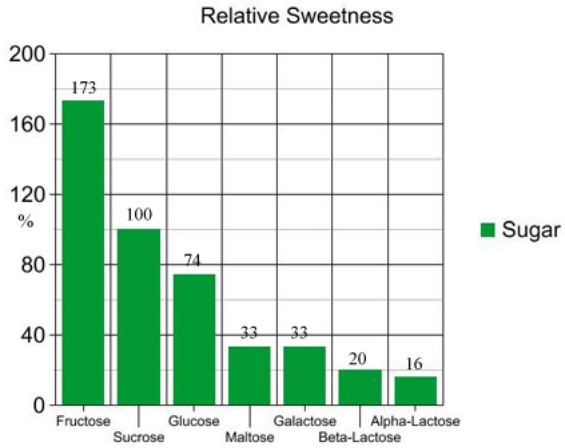
Brazil is the largest sugar producer (30 million tonnes) followed by India (21), China (11) etc. Among the highest sugar-producing states in India are Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh and Gujarat. Besides sugar, other common sweeteners used are jaggery, palm sugar as well as corn syrup and dextrose all of which are used commonly in India.

Different Sugars & Their Uses

There are many other sweeteners now available such as high fructose corn syrup, fructose, some sugar alcohols and many high-intensity low-calorie sweeteners like aspartame and sucralose. When one says sugar, it generally means sucrose, however, there are many sugars that are present naturally and those that are used commercially in preparation of sweet foods. There are monosaccharides like glucose, fructose, galactose and there are disaccharides which contain two monosaccharides combined e.g. sucrose (glucose & fructose), lactose (glucose & galactose) and maltose (glucose & glucose).

Early attempts to make alternative sugar source from corn starch by acid hydrolysis gave rise to corn syrup or dextrose and contained mostly glucose with some amounts of maltose and higher saccharides. Although it was sweet it was not as sweet as sugar. Relative sweetness of different sugars is compared in the graph below.

Since corn syrup is not very sweet when compared with sucrose attempts were made to make it sweeter by converting part of the glucose to fructose as glucose is less sweet and fructose is sweeter than sucrose. This conversion was successfully done using enzyme (glucose isomerase or xylose isomerase) and the resultant sugars contained somewhat equal proportions of glucose and fructose. This was named High Fructose Corn Syrup as corn starch was hydrolysed to glucose prior to conversion to fructose. Higher fructose syrups can be prepared by separating part of the glucose from the mixture and reconverting it to fructose so one can get higher proportion of fructose in the final syrup that is very much sweeter compared to sucrose.



Sugar in India is mostly produced from sugar cane. Many of the other sugar producing countries in South America like Brazil, Mexico etc. also use sugar cane as the source. European countries produce good amounts of sugar from sugar beet. The juice from cane or beet is clarified and concentrated to prepare raw crystallised sugar (also referred to as brown sugar) that may be refined to remove colour and other impurities to give white refined sugar that is over 99% sucrose. The mother liquor from which sugar crystals are prepared is molasses that may be used for fermentative production of ethanol. If the cane juice after clarification using lime is simply concentrated without refining the solidified mass is jaggery. Jaggery has good proportions of minerals including calcium and iron and has brown colour and typical flavour. Lesser colour product may be prepared by using bleaching agents like sulphites. It has fairly good amounts of glucose and fructose as some sucrose gets hydrolysed during its preparation. This also makes the products softer than sugar. Small amounts of sugar or jaggery are also prepared from date palm, sorghum and sugar maple.

Sugars not only provide energy and sweetness to the food products but have many other useful functions in foods. They act as preservatives in jams, jellies etc. They control crystallisation in confectionery products. They provide texture in many frozen desserts. They balance acidity and enhance flavour in many non-sweet foods like sauces and condiments. They provide nourishment to yeast in fermented products like breads. However, sugars are commonly considered negatively as it is felt that since it tastes pleasant, more quantity of food is consumed when it is sweet contributing to overeating.

Metabolism & Concerns about Sugars

Sucrose when consumed is digested to glucose and fructose and absorbed in small intestine going into the blood. Starch also is digested to glucose that is absorbed there. Glucose metabolism is facilitated by insulin. Glucose level in blood is controlled by several hormones including insulin so it will not keep on rising indefinitely nor fall too low as brain needs constant supply of glucose. Fructose does not require insulin for its metabolism. When adequate amounts of insulin are not produced glucose levels rise very high and remain high for a long time leading to diabetes. Sometimes insulin resistance is developed wherein in spite of adequate amounts of insulin glucose level is not controlled adequately. Diabetes gives rise to many other problems.

Sugars have been blamed for all kinds of ailments including obesity, diabetes type 2, cardiovascular diseases etc. as well as dental caries. There are many epidemiological studies suggesting possible link between obesity and certain lifestyle diseases and the sugar consumption. There are also dietary guidelines recommending restriction of sugars in the diet but there is still ambiguity about the causality of these diseases.

Bacteria in mouth can grow very well and cause tooth decay when sugary substances are available. They produce plaques that progressively deteriorate tooth hygiene resulting in cavities and toothache. It has been found that beverages that allow sugar to remain in mouth transiently do not affect as much as sticky or hard substances like candies that allow sugar to remain in mouth much longer allowing prolific growth of bacteria.

Refined sugars provide calories but are not sources of micronutrients. This led health professionals to ask whether sugars intake negatively affect nutrient quality of diets. Current research does not conclusively correlate sugar intake and micronutrient intake. Some research has found that effect of sugars on micronutrient intakes can depend on the nutritional quality of sugar containing foods consumed. Sweetened milk products would correlate well with sugar and calcium intakes but high consumption of sugar-sweetened soft drinks has lower intake of calcium.

Some researchers believe that consuming high energy density and low nutrient density foods displaces needed nutrients in a diet, but others disagree and suggest that nutrient rich foods intake is independent of intake of high energy density foods.

Institute of Medicine found that very high intakes of added sugars were associated with lower micronutrient intakes and recommends calories from sugars to be not more than 25% in the daily diets. WHO recommends not more than 10%. However, as per American Dietetic Association, these recommendations had impact of epidemiologic, economic, social and political factors and are not based solely on scientific evidence.

As many favourite foods are sweet it is natural to think of their role in contributing to overconsumption and obesity. However, many epidemiological studies find inverse relation between sucrose intake and body weight or BMI. Institute of Medicine found no clear and consistent association between intake of added sugars and BMI.

Scientists have also found that sucrose contributes to satiety and if taken before meals reduces food intake. Evidence available to date shows no direct relation between sugar intake and obesity. Although many older children and adults that are overweight or obese have insulin resistance, the notion that insulin resistance leads to obesity is unproven yet. These individuals however should not overeat or markedly decrease their physical activity.

Researchers at Harvard School of Public Health found a positive association between greater intake of sugar-sweetened beverages and weight gain and obesity in children and adults after review of many studies. They also acknowledge the multifactorial nature of obesity and that the studies do not establish causality. There are other studies that have produced different results and found no statistical association between consumption of sugar

sweetened beverages and fruits drinks and BMI. Obesity is a major public health issue. A report by American Institute for Cancer Research and the World Cancer Research Foundation stated that excess weight and obesity can increase the risk for several types of cancers and recommended that intake of energy-dense foods including sugar-sweetened beverages be limited.

Concepts of glycemic index (GI) and glycemic load (GL) were developed as useful tools in management of diets of people with impaired glucose tolerance. It was hypothesised that slowly absorbed, high-fibre foods with low GI would be beneficial in diabetes, GI being a measure of rise in blood glucose caused by consuming a carbohydrate. Glucose has been given a GI of 100. Since the amount of carbohydrate consumed would also affect the rise of blood glucose, GL described both quality and quantity of carbohydrate in a meal. Although a nice and useful concept, it has too many variables that affect the consistency and reproducibility of GI calculations like ripeness, physical form of food, its processing and preparation. Researchers also found variability among individual response to the foods.

There are guidelines and advises that GI is a useful concept for management of blood glucose in diabetics. American Diabetes Association however, states that there is not sufficient, consistent information to conclude that low-GL diets reduce the risk for diabetes although both GI and GL may provide additional benefit over consideration of total carbohydrates alone.

There have been some studies indicating that people who consume diets with high GI or GL may be more likely to develop type II diabetes than those at lower levels. Results from Nurses' Health Study and Health Professionals' Follow-Up Study showed a positive association between GI and diabetes risk. However, recent studies found no such relationship. American Diabetes Association states that current information is not sufficient or consistent enough to conclude that low-GL diets reduce risk for diabetes. It also cautions about use of added fructose as a sweetening agent in diabetic diet due to evidence that fructose may adversely affect plasma lipids. Research is still continuing as there are many other factors such as less physical activity, smoking, high caloric intake, lower intake of protein etc. also come into play.

Although sugars themselves may not have been proven harmful, just like any other energy-dense substance, more one consumes sugar-sweetened foods more calories are consumed and more weight may be put on. This may lead to obesity which might lead to various ailments related to it including type II diabetes, cardiovascular diseases etc. when it is combined with lack of exercise. There are some studies that have shown some relationship of excessive sugar consumption with some of the lifestyle problems although causality has not been shown because of many other factors. It is too early to give a clean chit to very high sugar consumption. Hence it is advisable not to completely avoid sugars but limit sugar-sweetened food consumption and also select nutrient containing sweet foods and to have a physically active life.

Alternative Sweeteners

There are many alternative sweeteners now available some with calories and others either very low or no calories. There is a wide choice of sweeteners for those who want to restrict their caloric intake and those who are diabetic or have difficulty controlling blood glucose levels. Some are natural e.g. sugar alcohols exist in nature and some have been used for long e.g. sorbitol. Stevia leaves and their preparations have been used in some countries for quite long. There are many low-calorie artificial sweeteners that are several hundred times as sweet as sugar and their usage has grown over the years.

Sugar Alcohols or Polyols

A group of sweeteners called sugar alcohols or polyols have been approved in many countries. Many of them are naturally present in fruits and vegetables. The commercially they are prepared from sugars by hydrogenation. Following table gives a list of these with their caloric contents and their sweetness compared to sucrose.

Sugar Alcohols or Polyols

	Calories per g	Approx. sweetness (sucrose =100%)	Typical Food Applications
Sorbitol	2.6	50 - 70%	Sugar-free candies, chewing gums, frozen desserts and baked goods
Xylitol	2.4	100%	Chewing gum, gum drops and hard candy, pharmaceuticals and oral health products, such as throat lozenges, cough syrups, children's chewable multivitamins, toothpastes and mouthwashes; used in foods for special dietary purposes
Maltitol	2.1	75%	Hard candies, chewing gum, chocolates, baked goods and ice cream
Isomalt	2.0	45 - 65%	Candies, toffee, lollipops, fudge, wafers, cough drops, throat lozenges
Lactitol	2.0	30 - 40%	Chocolate, some baked goods (cookies and cakes), hard and soft candy and frozen dairy desserts
Mannitol	1.6	50 - 70%	Dusting powder for chewing gum, ingredient in chocolate-flavored coating agents for ice cream and confections
Erythritol	0 - 0.2*	60 - 80%	Bulk sweetener in low calorie foods
Hydrogenated Starch Hydrolysates (HSH)	3	25 - 50%	Bulk sweetener in low calorie foods, provide sweetness, texture and bulk to a variety of sugarless products

Although they are carbohydrates, polyols are partially absorbed in the small intestine and so they have less calories than sugars and starches. Also they do not need insulin for their metabolism and do not affect blood glucose levels greatly. So they can be consumed by diabetics. However, if they are consumed in large quantities they have laxative effects. American Dietetic Association advises that more than 50g of sorbitol or over 20g mannitol may cause diarrhea. This is because as they are partially absorbed a good amount goes to large intestine and microbes there thrive on them and produce gases resulting in laxative effect. Exception is erythritol which is almost completely absorbed and is excreted as such almost completely in urine.

PFA recently allowed sorbitol, mannitol, xylitol, isomalt, lactitol and maltitol in many products including chewing and bubble gums, sugar-based and sugar-free confectionery like candies, chocolate, lozenges etc. while the first three are also permitted in Indian sweets like halwa, Mysore pak, ladoo, jalebi, burfi, peda, gulab jamun, rasogolla etc. Besides lower calories and being safe for diabetics, another advantage of these polyols is that bacteria in mouth cannot use them so they are useful in preventing dental caries.

Low-calorie Sweeteners

There are many low-calorie sweeteners available for use. As more and more people all over the world are facing the problem of obesity and the diabetes, these sweeteners are becoming very popular. They have been tested rigorously and have been found to be safe. As they are extremely sweet, they are required in very small amounts and their normal intake levels have been found to be adequately safe in all individuals except those with extremely rare genetic disease, phenylketoneuria who must restrict phenylalanine content from all sources of food including aspartame. Although neotame also releases phenylalanine, the fact that it is several thousand times sweeter than sugar, the amounts that would be consumed even by phenylketoneurics would be safe.

Although stevia is natural and not new as its leaves and other preparations have been used in Japan and in some South American countries for long, there was some hesitation in approving it in many countries since it was indicated that certain preparations from stevia leaves may affect fertility and genes. Highly purified steviosides have been proved safe and without any side-effects by several studies so US FDA has recently permitted

stevioside and rebaudioside A from stevia to be used in foods although they were permitted in dietary supplements earlier.

Sweetener	No. of Times Sweeter Than Sugar
Acesulfame-K	200
Aspartame	180
Neotame	7,000
Saccharin	300
Stevia sweeteners	200
Sucralose	600

Saccharin, aspartame, acesulfame K and sucralose have been permitted in India in many food products including soft drinks, chocolates, Indian traditional sweets, sugar confectionery, chewing and bubble gums etc. Neotame has been permitted recently in soft drinks. Thus recently there have been a surge in low calories, sugar-free products in the market and Indians have been enjoying the traditional products at festive occasions without the fear of gaining too many calories and also diabetics can enjoy the sweets at such occasions. Here also, even though one may avoid calories from sugars from such artificially sweetened food products, they are by no means devoid of calories. There are calories in sugarless sweets from fats and proteins and also from carbohydrates like starch. In dairy products, there might also be lactose. All these contribute to calories. Although consumed in restricted amounts these products may be safe for diabetics, if large quantities are consumed, the starch, lactose etc. might contribute to glucose being produced in intestine and absorbed to increase its levels in blood. If such foods have good fibre contents, then the problems would be minimised.

Finally

Sweet foods give a lot of pleasure to all, young and old. However, overindulgence may cause certain problems and afflictions and if neglected might produce certain dangerous diseases like obesity, diabetes and cardiovascular disease. Indians have large number of diabetics and the numbers of obese is rising alarmingly even in children. The problem is not just because of eating sweet foods but overeating and lack of physical exercise. There is not need to avoid sweets but the key is moderation. Dietary fibres also help maintain glucose levels in blood by controlling sugar absorption in blood. Diabetics should consult medical doctors while controlling their carbohydrate including sugar intake. There are many alternative sweeteners available that are shown to be safe at the levels consumed in foods so they may also help satisfy a person’s sweet tooth and also not unduly elevate glucose levels in diabetics. Regular physical activity is very essential especially in today’s lifestyle which saves a lot of activity and offers a tremendous choice of calorie laden foods.

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Research in Nutrition & Health

Orange Juice Worse For Teeth Than Whitening Agents, Study Finds

With the increasing popularity of whitening one's teeth, researchers at the Eastman Institute for Oral Health, part of the University of Rochester Medical Center, set out to learn if there are negative effects on the tooth from using whitening products. Eastman Institute's YanFang Ren, DDS, PhD, and his team determined that the effects of 6 percent hydrogen peroxide, the common ingredient in professional and over-the-counter whitening products, are insignificant compared to acidic fruit juices. Orange juice markedly decreased hardness and increased roughness of tooth enamel.

Unlike ever before, researchers were able to see extensive surface detail thanks to a new focus-variation vertical scanning microscope. "The acid is so strong that the tooth is literally washed away," said Ren, whose findings were recently published in *Journal of Dentistry.* "The orange juice decreased enamel hardness by 84 percent." No significant change in hardness or surface enamel was found from whitening.

Weakened and eroded enamel may speed up the wear of the tooth and increase the risk for tooth decay to quickly develop and spread. "Most soft drinks, including sodas and fruit juices, are acidic in nature," Ren said. "Our studies demonstrated that the orange juice, as an example, can potentially cause significant erosion of teeth."

It's long been known that juice and sodas have high acid content, and can negatively affect enamel hardness. "There are also some studies that showed whitening can affect the hardness of dental enamel, but until now, nobody had compared the two," Ren explained. "This study allowed us to understand the effect of whitening on enamel relative to the effect of a daily dietary activity, such as drinking juices.

"It's potentially a very serious problem for people who drink sodas and fruit juices daily," said Ren, who added that dental researchers nationwide are increasingly studying tooth erosion, and are investing significant resources into possible preventions and treatments. "We do not yet have an effective tool to avert the erosive effects, although there are early indications that higher levels of fluoride may help slow down the erosion."

In the meantime, Ren advises that consumers be aware of the acidic nature of beverages, including sodas, fruit juices, sports and energy drinks. The longer teeth are in contact with the acidic drinks, the more severe the erosion will be. People who sip their drinks slowly over 20 minutes are more likely to have tooth erosion than those who finish a drink quickly. It's also very important to keep good oral hygiene practices, Ren added, by brushing twice daily with fluoride toothpaste, and see a dentist for a fluoride treatment at least once a year if you are at risk.

From: Science Daily (July 1, 2009)
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New science review examines multiple health benefits of dairy foods

WHAT: Food prices rose by 5.5 percent in the past year and are expected to increase up to an additional 4 percent in 2009. Americans are seeking to get the most out of their dollar, and since together, dairy foods provide a unique package of nine essential nutrients, they are a nutritional bang for the buck.

In a supplement to the current issue of the *Journal of the American College of Nutrition* (JACN), several prominent nutrition researchers weigh in on an updated review of the health benefits of consuming dairy foods. This supplement further contributes to the well-established evidence that consuming the recommended servings

of dairy foods each day is a convenient and affordable way to get several key nutrients that many Americans do not consume enough.

Together, milk, cheese and yogurt provide a unique package of nine essential nutrients at a low cost per serving. Research cited in the review supports consuming three to four daily servings of dairy foods and indicates that these nutrients contribute to several health benefits.

Highlights include:

- Child nutrition – Children and adolescents between the ages of 9-18 need, on average, four servings of dairy foods a day to meet calcium recommendations and at least three servings to meet magnesium recommendations. Adolescents who do not regularly consume dairy, on average, only meet 40 percent of the Adequate Intake for calcium.
- Bone health – The evidence supports the 2005 Dietary Guidelines for Americans recommendation to meet nutrient needs through foods, including dairy foods, rather than supplements. Studies continue to show that dairy foods provide a unique nutrient package beneficial for bone mass and play a major role in lifelong bone health.
- Cardiovascular health – Low-fat and fat-free dairy foods play a key role in the Dietary Approaches to Stop Hypertension (DASH) diet, which has been shown to lower blood pressure and prevent hypertension. Eating the recommended servings of dairy foods can lower blood pressure and is associated with a lower risk of developing high blood pressure.
- Healthy weight – Studies show that dairy foods may favorably impact body composition and weight maintenance, particularly in overweight or obese adults who consume three servings of dairy foods daily while moderately reducing daily caloric intake.
- Shortfall nutrients – Dairy foods play a vital role in building a diet that contains the nutrients Americans consistently do not consume enough of including calcium, potassium and magnesium. The most practical way to meet these nutrient recommendations may be to add an additional serving of dairy to the current daily recommendation.

WHEN: The overview was released on July 1, 2009, as a supplement to the current issue of the Journal of American College of Nutrition, Vol. 28, No. 1, 69S-129S (2009)
From: Eurekalert 1 July 2009
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Vegetarians Less Likely To Develop Cancer Than Meat Eaters

Vegetarians are 12 per cent less likely to develop cancer than meat eaters, according to new research published in the *British Journal of Cancer*. In a study of more than 61,000 people, Cancer Research UK scientists from Oxford followed meat eaters and vegetarians for over 12 years, during which 3,350 of the participants were diagnosed with cancer.

They found that the risk of being diagnosed with cancers of the stomach, bladder and blood* was lower in vegetarians than in meat eaters. The most striking difference was in cancers of the blood including leukaemia, multiple myeloma and non-Hodgkin lymphoma. The risk of these diseases was 45 per cent lower in vegetarians than in meat eaters.

Professor Tim Key, study author from the Cancer Research UK Epidemiology Unit at Oxford University, said: "Our large study looking at cancer risk in vegetarians found the likelihood of people developing some cancers is lower among vegetarians than among people who eat meat. In particular vegetarians were much less likely to develop cancers of the blood which include leukaemia and non-Hodgkin lymphoma. More research is needed to substantiate these results and to look for reasons for the differences."

The study looked at 20 different types of cancers. The differences in risks between vegetarians and meat eaters were independent of other lifestyle behaviours including smoking, alcohol intake and obesity which also affect the chance of developing cancer.

Sara Hiom, director of health information at Cancer Research UK, said: "These interesting results add to the evidence that what we eat affects our chances of developing cancer. We know that eating a lot of red and processed meat increases the risk of stomach cancer. But the links between diet and cancer risk are complex and more research is needed to see how big a part diet plays and which specific dietary factors are most important.

"The relatively low number of vegetarians who developed cancer in this study supports Cancer Research UK's advice that people should eat a healthy, balanced diet high in fibre, fruit and vegetables and low in saturated fat, salt and red and processed meat. It's understandable that what you eat can be linked to cancers of the digestive system, but more surprising to see an association between diet and leukaemia, non-Hodgkin lymphoma or multiple myeloma. More research is needed to understand the mechanisms behind this."
From: Medical News Today 5 Jul 09
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Fish Fuels Young Men's Brains

Swedish researchers have found a clear link between fish consumption and higher cognitive scores among teenage males. According to a new study published in Acta Paediatrica, a monthly international, peer-reviewed pediatric research journal, 15 year old males who ate fish at least once a week had higher cognitive skills at age 18 than those who ate it less frequently. "There are a number of studies linking Omega-3 EPA/DHA found in oily fish to thinking, reasoning, and remembering abilities - our cognitive functions – in infants and the elderly," said Ocean Nutrition Canada's Chief Sales and Marketing Officer, Jon Getzinger. "We know that Omega-3 EPA/DHA is a critical nutrient for these age groups, but studies like this demonstrate that Omega-3 EPA/DHA from fish oil is important for our bodies and minds not just when we're young or older, but throughout our lives. In addition to validating the essential need our bodies have for Omega-3 EPA/DHA, such studies highlight its deficiency in our diets, a deficiency easily addressed by eating fatty fish, by taking Omega-3 EPA/DHA dietary supplements, and by consuming Omega 3 EPA/DHA fortified foods. And, given how difficult it can often be to get younger children and teens to eat fatty fish - many of them just don't like the taste - Omega-3 EPA/DHA enhanced foods are an easy way to incorporate this nutrient into their diets."

The study, called Fish intake of Swedish male adolescents is a predictor of cognitive performance, examined fish consumption in healthy teenage Swedish boys at age 15 to see if was associated in any way with intelligence at age 18. In conducting the study, researchers compared the responses of the 3972 males who took part in the study at age 15 with their cognitive scores recorded three years later when they entered compulsory military service, finding a definite link between frequent fish consumption and cognitive function.

Researchers found that 58 percent of study respondents ate fish at least once a week, while 20 percent ate fish more than once a week. When the young men ate fish more than once a week, their combined intelligence scores were, on average, almost 11 percent higher than those who ate fish less than once a week. Boys who consumed fish once a week scored almost seven percent higher on their combined intelligence scores. Verbal scores were about nine percent higher than those who ate fish less than once a week and those who ate fish once a week scored about four percent higher. This same pattern was also seen in visuospatial scores, with those who ate fish more than once a week scoring about 11 percent higher than those who consumed it less than once a week.

Researchers believe this is the first large scale study to explore the benefits of fish consumption on adolescents. The findings are considered significant due to the age group of the young men who took part in it - educational achievements during these crucial developmental years often shape the rest of a teenager's life.
From: Reuters July 6, 2009

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Higher levels of a certain protein associated with lower risk of type 2 diabetes

Persons with higher levels of adiponectin, a protein that is produced by fat cells and that has anti-inflammatory and insulin-sensitizing properties, have an associated lower risk of type 2 diabetes, according to an analysis of previous studies, reported in the July 8 issue of *JAMA*. Some studies have suggested several mechanisms through which adiponectin may decrease the risk of type 2 diabetes, although the strength and consistency of the relation between plasma adiponectin and risk of type 2 diabetes has been unclear, according to background information in the article.

Shanshan Li, M.D., M.Sc., of the Harvard School of Public Health, Boston, and colleagues conducted a review and meta-analysis to assess the consistency of the association of adiponectin levels and risk of type 2 diabetes. The researchers identified thirteen studies with a total of 14,598 participants and 2,623 new cases of type 2 diabetes that met criteria for inclusion in the meta-analysis. The authors found that higher adiponectin levels were associated with a lower risk of type 2 diabetes. This inverse association was consistently observed in whites, East Asians, Asian Indians, African Americans and Native Americans. The results did not differ substantially by method of diabetes ascertainment, study size, follow-up duration, body mass index or proportions of men and women.

"Although these epidemiologic studies cannot establish causality, the consistency of the association across diverse populations, the dose-response relationship, and the supportive findings in mechanistic studies indicate that adiponectin is a promising target for the reduction of risk of type 2 diabetes," the authors write.

The researchers add that recent studies have shown that adiponectin levels can be increased through pharmaceutical and lifestyle interventions. "In addition, adiponectin levels may be useful for identifying persons likely to benefit most from interventions to treat 'dysfunctional adipose tissue' and its metabolic complications. Future studies should also evaluate whether adiponectin is useful for prediction of type 2 diabetes in addition to established risk factors using statistical techniques appropriate for prognostic analyses."
From: July 7, 2009 E-Science News: Health & Medicine
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Fruit and Vegetable Intake in Pregnant Women Reduces Risk of Upper Respiratory Tract Infection

Boston University School of Medicine researchers (BUSM) have observed in a study of pregnant women that consumption of at least seven servings per day of fruits and vegetables moderately reduced the risk of developing an upper respiratory tract infection (URTI). The BUSM study appears online in the journal Public Health Nutrition.

URTIs include the common cold and sinus infections, which can lead to lower respiratory problems, such as asthma or pneumonia. Even though the majority of URTIs are uncomplicated colds, identifying ways to prevent their occurrence is important because colds are the most common reason for school and work absences. Eating nutritious foods, especially fruits and vegetables, improves immunity but hadn't previously been associated with reducing the risk of URTIs in pregnant women.

BUSM researchers studied more than 1,000 pregnant women and found those who ate the most fruits and vegetables were 26 percent less likely to have URTI relative to those who ate the least amount. Neither fruit nor vegetable intake alone was found to be associated with the five-month risk of URTI. The patterns observed for total fruit and vegetable intake and either fruit or vegetable intake alone in relation to the three-month risk of URTI were consistent with those when assessing the five-month risk of URTI. Women in the highest quartile of

fruit and vegetable intake had a stronger reduced three-month risk than the five-month risk of URTI. Moreover, there was a significant decreasing linear trend for the three-month risk of URTI with consumption of fruits and vegetables.

Pregnant women have been recommended to consume at least five servings of fruits and vegetables per day. This study showed that intake of higher levels, 6.71 servings per day, was associated with a moderate risk reduction for URTI. "Pregnant women may require more fruits and vegetables than usual because of the extra demands on the body," said senior author Martha M. Werler, M.P.H., Sc.D., professor at Slone Epidemiology Center at Boston University.

This study was supported by the National Institute of Dental and Craniofacial Research. The Institute had no role in the design and conduct of the study, the collection, management, analysis and interpretation of the data, or the preparation, review and approval of the manuscript.
From: Nutrition & Health News, Nutrition Horizon 09 Jul 2009
###

Glutamine Supplements Show Promise In Treating Stomach Ulcers

Nearly 20 years ago, it was discovered that bacteria known as Helicobacter pylori were responsible for stomach ulcers. Since then, antibiotics have become the primary therapy used to combat the H. pylori infection, which affects approximately six percent of the world population and is also a primary cause of stomach cancer. But today the bacteria are growing increasingly resistant to antibiotics.

Now a study led by scientists at Beth Israel Deaconess Medical Center (BIDMC) and the Massachusetts Institute of Technology demonstrates that the amino acid glutamine, found in many foods as well as in dietary supplements, may prove beneficial in offsetting gastric damage caused by H. pylori infection. Reported in the May 2009 issue of the Journal of Nutrition., the findings offer the possibility of an alternative to antibiotics for the treatment of stomach ulcers.
"Our findings suggest that extra glutamine in the diet could protect against gastric damage caused by H. pylori," says senior author Susan Hagen, PhD, Associate Director of Research in the Department of Surgery at BIDMC and Associate Professor of Surgery at Harvard Medical School. "Gastric damage develops when the bacteria weakens the stomach's protective mucous coating, damages cells and elicits a robust immune response that is ineffective at ridding the infection." Eventually, she notes, years of infection result in a combination of persistent gastritis, cell damage and an environment conducive to cancer development.

Glutamine is a nonessential amino acid naturally found in certain foods, including beef, chicken, fish, eggs, dairy products and some fruits and vegetables. L-glutamine – the biologically active isomer of glutamine – is widely used as a dietary supplement by body builders to increase muscle mass. Hagen and her coauthors had previously shown that glutamine protects against cell death from H. pylori-produced ammonia. "Our work demonstrated that the damaging effects of ammonia on gastric cells could be reversed completely by the administration of L-glutamine," explains Hagen. "The amino acid stimulated ammonia detoxification in the stomach – as it does in the liver – so that the effective concentration of ammonia was reduced, thereby blocking cell damage."

She and her coauthors, therefore, hypothesized that a similar mechanism might be at work in the intact stomach infected with H. pylori. To test this hypothesis, the investigators divided 105 mice into two groups, which were fed either a standardized diet (containing 1.9 percent glutamine) or the same diet with supplemental L-glutamine (containing 6.9 percent glutamine) replacing carbohydrates for five percent of the total calories. After two weeks, the mice were subdivided into two more groups, with one group receiving a sham (fake) dose and the other group receiving a real dose containing H. pylori. (This resulted in four separate mouse groups: an uninfected control group; an uninfected glutamine group; an infected control group; and an infected glutamine group.)

The mice were then followed for a 20-week period, during which time samples of blood and stomach tissue were removed. Blood was analyzed for antibodies to specific types of T-helper immune cells, which mediate the body's response to H. pylori infection. Stomach tissues were examined for evidence of damage and cancer progression and also chemically analyzed for cytokines (inflammatory substances) which are produced by T-helper cells. Their results showed that at six-weeks-post infection, the animals exhibited increased expression of three cytokines – interleukin 4, interleukin 10 and transforming growth factor-alpha mRNA. "These all play an important role in the stomach's ability to protect against damaging effects resulting from other responses to H. pylori infection," explains Hagen.

Of even greater significance, by week 20, the study results showed that, among the H. pylori-infected animals, the mice that were fed the L-glutamine diet exhibited lower levels of inflammation than did the mice that received the standard control diet. "Because many of the stomach pathologies during H. pylori infection [including cancer progression] are linked to high levels of inflammation, this result provides us with preliminary evidence that glutamine supplementation may be an alternative therapy for reducing the severity of infection," explains Hagen, adding that studies in human subjects will be the next step to determine the relevance of this finding in the clinical setting.

"H. pylori bacteria infect more than half of the world's population and were recently identified as a Group 1 carcinogen by the World Health Organization," she adds. "Approximately 5.5 percent of the entire global cancer burden is attributed to H. pylori infection and, worldwide, over 900,000 new cases of gastric cancer develop each year. The possibility that an inexpensive, easy-to-use treatment could be used to modify the damaging effects of H. pylori infection warrants further study in clinical trials."

From: Science Daily May 22, 2009
###

Genistein May Improve Help of Women Affected by Metabolic Syndrome

According to recent research from Messina, Italy, "Genistein aglycone, a soy derived isoflavone, has been demonstrated to be effective in reducing cardiovascular risk in postmenopausal women. We therefore investigated its effects in an experimental model of postmenopausal metabolic syndrome."

"Female spontaneously hypertensive Obese rats (SHROB, n=40), it genetic model of syndrome X, and age matched Wistar Kyoto (WKY, n=40) rats were used. A group of SHROB (n=20) and WKY (n=20). animals were ovariectomized (OVX). Four weeks after surgery all animals were randomized to receive either genistein (54 mg/human equivalent dose/day for 4 weeks), or vehicle. Body weight, food intake, systolic blood pressure (SBP), heart rate, plasma glucose, insulin resistance (HOMA-IR), total plasma cholesterol and triglycerides, and uterine weights were studied. Furthermore, we investigated acetylcholine- And sodium nitroprusside-induced relaxation of aortic rings as well as NG-L-arginine (L-NMA: 100 mM) induced vasoconstriction in phenyle-ephrine-precontracted aortic segments. Liver expression of the peroxisome proliferator-activated receptor alpha (PPARA and gamma (PPARG, was also assessed. OVX annuals had a slight increase in SBP, body weight, insulin resistance, and plasma cholesterol. OVX-SHROB rats showed also impaired endothelial responses, blunted L-NMA induced contraction (L-NMA 100 mM, WKY = 2.2 +/- 0.3 g/mg tissue; OVX-SHROB = 1.1 +/- 0.4 g/mg tissue).

Genistein treatment decreased SBP and plasma lipids, ameliorated endothelial dysfunction and insulin resistance, increased HDL cholesterol, and enhanced liver expression of PPAR-A and PPARG. Our data suggest that genistein is effective in ameliorating cardiovascular profiles in an experimental model of postmenopausal metabolic syndrome, attenuating the features of this disease. The effects of genistein are likely mediated by PPARA and PPARG, receptors," wrote A. Bitto and colleagues, University of Messina (see also Obesity and Diabetes).

The researchers concluded: "This evidence would Support the rationale for some pilot clinical trials using genistein in postmenopausal women affected by metabolic syndrome." Bitto and colleagues published their study in the Journal of Endocrinology (Effects of aglycone genistein in a rat experimental model of postmenopausal metabolic syndrome. Journal of Endocrinology, 2009;200(3):367-376).

From: Soya Tech E-News May 19, 2009
###

How High Carbohydrate Foods Can Raise Risk For Heart Problems

Doctors have known for decades that too much carbohydrate-laden foods like white bread and corn flakes can be detrimental to cardiac health. In a landmark study, new research from Tel Aviv University now shows exactly how these high carb foods increase the risk for heart problems.

"Looking inside" the arteries of students eating a variety of foods, Dr. Michael Shechter of Tel Aviv University's Sackler School of Medicine and the Heart Institute of Sheba Medical Center — with collaboration of the Endocrinology Institute — visualized exactly what happens inside the body when the wrong foods for a healthy heart are eaten. He found that foods with a high glycemic index distended brachial arteries for several hours.

Elasticity of arteries anywhere in the body can be a measure of heart health. But when aggravated over time, a sudden expansion of the artery wall can cause a number of negative health effects, including reduced elasticity, which can cause heart disease or sudden death.
Using a clinical and research technique pioneered by his laboratory in Israel, Dr. Shechter was able to visualize what happens inside our arteries before, during and after eating high carb foods. It is a first in medical history. The results were published in the Journal of the American College of Cardiology.

Time to skip the wedding cake?
"It's very hard to predict heart disease," says Dr. Shechter, a fellow of the American College of Cardiology and the American Heart Association. "But doctors know that high glycemic foods rapidly increase blood sugar. Those who binge on these foods have a greater chance of sudden death from heart attack. Our research connects the dots, showing the link between diet and what's happening in real time in the arteries." Like the uncomfortable medical warnings on packets of cigarettes, this new research could lead to a whole new way to show patients the effects of a poor diet on our body.

Using 56 healthy volunteers, the researchers looked at four groups. One group ate a cornflake mush mixed with milk, a second a pure sugar mixture, the third bran flakes, while the last group was given a placebo (water). Over four weeks, Dr. Shechter applied his method of "brachial reactive testing" to each group. The test uses a cuff on the arm, like those used to measure blood pressure, which can visualize arterial function in real time. The results were dramatic. Before any of the patients ate, arterial function was essentially the same. After eating, except for the placebo group, all had reduced functioning.

All roads lead to the endothelium
Enormous peaks indicating arterial stress were found in the high glycemic index groups: the cornflakes and sugar group. "We knew high glycemic foods were bad for the heart. Now we have a mechanism that shows how," says Dr. Shechter. "Foods like cornflakes, white bread, french fries, and sweetened soda all put undue stress on our arteries. We've explained for the first time how high glycemic carbs can affect the progression of heart disease." During the consumption of foods high in sugar, there appears to be a temporary and sudden dysfunction in the endothelial walls of the arteries.

Endothelial health can be traced back to almost every disorder and disease in the body. It is "the riskiest of the risk factors," says Dr. Shechter, who practices at the Chaim Sheba Medical Center — Tel Hashomer Hospital. There he offers a treatment that can show patients — in real time — if they have a high risk for heart attacks. "Medical tourists" from America regularly visit to take the heart test.

The take-away message? Dr. Shechter says to stick to foods like oatmeal, fruits and vegetables, legumes and nuts, which have a low glycemic index. Exercising every day for at least 30 minutes, he adds, is an extra heart-smart action to take.
From: Science Daily (June 27, 2009)
###

Study finds citrus-derived flavonoid prevents obesity

A flavonoid derived from citrus fruit has shown tremendous promise for preventing weight gain and other signs of metabolic syndrome which can lead to Type 2 Diabetes and increased risk of cardiovascular disease. The study, led by Murray Huff of the Robarts Research Institute at The University of Western Ontario looked at a flavonoid (plant-based bioactive molecule) called naringenin. The findings are published online in the journal *Diabetes*.

In the study one group of mice was fed a high-fat (western) diet to induce the symptoms of metabolic syndrome. A second group was fed the exact same diet and treated with naringenin. Naringenin corrected the elevations in triglyceride and cholesterol, prevented the development of insulin resistance and completely normalized glucose metabolism. The researchers found it worked by genetically reprogramming the liver to burn up excess fat, rather than store it.

"Furthermore, the marked obesity that develops in these mice was completely prevented by naringenin," says Huff, Director of the Vascular Biology Research Group at Robarts and Professor of Medicine and Biochemistry at the Schulich School of Medicine & Dentistry. "What was unique about the study was that the effects were independent of caloric intake, meaning the mice ate exactly the same amount of food and the same amount of fat. There was no suppression of appetite or decreased food intake, which are often the basis of strategies to reduce weight gain and its metabolic consequences."

While grapefruit has long been linked to weight loss diets, the concentrations of the citrus-derived flavonoid being studied are at higher levels than you could get from dietary components. "We are examining the pharmacological properties of naringenin," explains Huff. "The next step is to find out if naringenin prevents heart disease in animal models and to explore the feasibility of clinical trials to determine its safety and efficacy in humans." This study investigated naringenin's preventative properties, but Huff is also investigating whether it can treat obesity and other existing metabolic problems. "These studies show naringenin, through its insulin-like properties, corrects many of the metabolic disturbances linked to insulin resistance and represents a promising therapeutic approach for metabolic syndrome."
From: Eurekalert 13 July 2009
###

Obesity raises risk of complications in pregnancy, study shows

Expectant mothers who are obese are much more likely to suffer from minor complications such as heart burn and chest infections during pregnancy, a study suggests. Research by the University of Edinburgh found that obese mothers-to-be were nearly 10 times more likely to suffer from chest infections, and more than twice as likely to suffer from headaches and heartburn, compared with pregnant women of a healthy weight. Researchers studied the records of more than 650 pregnant women, of whom nearly half were overweight or obese at the beginning of their pregnancy. The study took into account factors such as age and smoking.

Obese pregnant women were three times more likely to have carpal tunnel syndrome, which occurs when an increase in fluid causes swelling in the wrist. The condition can lead to tingling, pain, numbness and lack of coordination in the hands. The study, published in the *British Journal of Obstetrics and Gynaecology*, also found that obese women had a more than three-fold increased risk of suffering from a condition known as symphysis-pubis dysfunction, which affects the pelvic joints and may cause walking difficulties if severe. The costs of treating minor complications in obese women were estimated to be more than three times that of treating women of a healthy body weight.

Dr Rebecca Reynolds, of the Tommy's Centre for Maternal and Fetal Health at the University of Edinburgh: "Although symptoms such as heartburn are common and generally perceived to be benign, they can still have a major impact on the quality of life for pregnant women and can be linked to more serious conditions. What may be termed as minor complications can make a pregnancy much more uncomfortable and are also associated with higher treatment costs."

Around a quarter of pregnant women giving birth are obese. The Tommy's Centre for Maternal and Fetal Health at the University of Edinburgh is investigating the implications of obesity in pregnancy and how this can be addressed to improve both the health of mother and child. Obesity during pregnancy also increases the risk of more serious conditions such as gestational diabetes, pre-eclampsia and the need for a caesarean section. More than one-third of pregnancy-related deaths occur in mothers who are obese.
From: First Science.Com 16 Jul 2009
###

Brain Molecule Reduces Food Intake

Researchers at Imperial College London have identified a new appetite suppressant for promoting weight loss that they say works in rodents and may one day be used to develop an effective anti-obesity treatment. Results of the new study were presented at The Endocrine Society's 91st Annual Meeting in Washington, D.C.

The experimental treatment, prokineticin 2, is a recently discovered signaling molecule that occurs naturally in the part of the brain that helps control hunger. Both lean and obese mice treated with PK2 for 5 days lost almost 5 percent of their body weight, the authors reported.
"This is a greater weight loss than people achieve with current nonsurgical weight loss therapies," said study co-author Waljit Dhillo, a clinical senior lecturer at Imperial College London.

The researchers first dissolved a commercially available form of PK2 (from PeproTech Ltd.) in saline and injected it into the brain of 12 rats, which were allowed to eat as much as they wanted for 24 hours. Compared with 12 control rats that received only saline injections, the treated rats ate much less food; in the first hour alone, their food intake was 86 percent less.

PK2 did not affect movement, behavior or the ability to burn off calories, the authors reported.
To establish whether PK2 could be a potential anti-obesity treatment, the investigators changed the route of drug administration to be similar to the way patients with diabetes inject insulin—into the stomach. For 5 days, 10 lean mice and 10 obese mice received two PK2 injections a day into the abdomen. Again, the treated mice ate much less than did the control mice, which resulted in weight loss of almost 5 percent of their body weight.

"Our research shows that PK2 reduces hunger," Dhillo said. "The results hold the promise that PK2 may be developed as a drug to treat obesity, which could help the millions of people suffering from obesity and its consequences."

Dhillo and co-workers plan to conduct longer-term studies of PK2 in animals before proceeding to human studies. Neekhil Patel, a student at Imperial College London, will present the study findings at the meeting. Other institutions that collaborated with the study were the Wellcome Trust Sanger Institute, Cambridge, U.K.,

and the University of Nottingham and the RenaSci Consultancy, both in Nottingham, U.K. The U.K. Medical Research Council and the National Institute for Health Research helped fund this study, as did an Integrative Mammalian Biology Capacity Building Award.
From: Science Daily June 10, 2009
###

Component of vegetable protein may be linked to lower blood pressure

Study highlights:

- Glutamic acid, an amino acid that is abundant in vegetable protein, as a regular part of the eating pattern may be associated with lower average blood pressure.
- In a large international study, researchers found that the higher the intake of dietary glutamic acid as a percent of total daily protein intake, the lower the blood pressure.
- Sources of vegetable protein include beans, whole grains and tofu.

DALLAS, July 6, 2009 – Consuming an amino acid commonly found in vegetable protein may be associated with lower blood pressure, researchers report in *Circulation: Journal of the American Heart Association.* Researchers found that a 4.72 percent higher dietary intake of the amino acid glutamic acid as a percent of total dietary protein correlated with lower group average systolic blood pressure, lower by 1.5 to 3.0 millimeters of mercury (mm Hg). Group average diastolic blood pressure was lower by 1.0 to 1.6 mm Hg.

Systolic blood pressure is the force when the heart beats; diastolic pressure is the pressure when the heart rests between beats. This average lower blood pressure seems small from an individual perspective. But, on a population scale, it represents a potentially important reduction, said Jeremiah Stamler, M.D., lead author of the study.

“It is estimated that reducing a population’s average systolic blood pressure by 2 mm Hg could cut stroke death rates by 6 percent and reduce mortality from coronary heart disease by 4 percent,” said Stamler, professor emeritus of the Department of Preventive Medicine in the Feinberg School of Medicine at Northwestern University in Chicago, Ill.

Based on American Heart Association 2009 statistics, 6 percent of stroke deaths would be more than 8,600 people and four percent of coronary heart deaths represents about 17,800 lives saved per year. “High blood pressure is a major cardiovascular disease risk factor, and blood pressure tends to rise with age starting early in life so that the majority of the U.S. population age 35 and older is affected by pre-hypertension or hypertension,” he said. “We have a massive public health problem, and trying to address it by the strategy that has prevailed for years — diagnosis and drug treatment — is inadequate. While clinically useful, it fails as a long-term approach for ending this massive problem.”

The only long-term approach is to prevent pre-hypertension and hypertension by improved lifestyle behaviors, Stamler said. This includes maintaining a healthy body weight, having a fruit and vegetable-rich eating pattern and participating in regular physical activity. His previous study, INTERSALT, was instrumental in helping show that high-salt diets contribute to high blood pressure. In the current study, researchers examined dietary amino acids, the building blocks of protein. Glutamic acid is the most common amino acid and accounts for almost a quarter (23 percent) of the protein in vegetable protein and almost one fifth (18 percent) of animal protein, Stamler said.

Researchers analyzed data from the International Study on Macro/Micronutrients and Blood Pressure (INTERMAP), on 4,680 people ages 40–59 in 17 rural and urban populations in China, Japan, the United Kingdom and the United States. INTERMAP is a basic population study aiming to clarify the role of multiple

nutrients in the etiology of unfavorable blood pressure patterns prevailing for most middle-aged and older individuals. Stamler and colleagues analyzed data from eight blood pressure tests, four diet recall surveys and two 24-hour urine collections for each participant.

“Although our research group and others earlier reported an association between higher consumption of vegetable protein and lower blood pressure, as far as we know this is the first paper on the relation of glutamic acid intake to blood pressure,” said Ian J. Brown, Ph.D., co-author of the study and a research associate in the Department of Epidemiology and Public Health at Imperial College London.

Common sources of vegetable protein include beans, whole grains — including whole grain rice, pasta, breads and cereals — and soy products such as tofu. Durum wheat, which is used to make pasta, is also a good source of vegetable protein. Stamler noted that there are no data on the possible effects of glutamic acid supplements and emphasized the importance of “improved habitual food intake for the prevention and control of hypertension, not popping pills.”

Stamler said the INTERMAP Study may help explain on a molecular level why the Dieatary Approaches to Stop Hypertension (DASH) diet lowers blood pressure. The DASH eating pattern, developed by the U.S. National Institutes of Health, is rich in fruits, vegetables and low-fat and nonfat dairy products as well as whole grains, lean poultry, nuts and beans. The pattern is recommended by the American Heart Association and the National Heart, Lung, and Blood Institute, the key sponsor of the INTERMAP study.

“The DASH eating pattern resembles the Mediterranean eating style for the 21st century, including reduced salt intake,” Stamler noted. “Multiple modifications supply multiple nutrients helpful for the prevention and control of high blood pressure, including glutamic acid. Although the current study examined just one element in the dietary mix, amino acids, Stamler said there’s no one “magic bullet.”

From: News Releases of American Heart Association July 6, 2009
###

Fatty Foods -- Not Empty Stomach -- Fire Up Hunger Hormone

New research led by the University of Cincinnati (UC) suggests that the hunger hormone ghrelin is activated by fats from the foods we eat—not those made in the body—in order to optimize nutrient metabolism and promote the storage of body fat. The findings, the study's author says, turn the current model about ghrelin on its head and point to a novel stomach enzyme (GOAT) responsible for the ghrelin activation process that could be targeted in future treatments for metabolic diseases. The laboratory study, led by Matthias Tschöp, MD, UC associate professor of psychiatry and internal medicine, is published online ahead of print on June 5, 2009, in the journal *Nature Medicine.*

Ghrelin is a hormone that was believed to accumulate during periods of fasting and is found in the body in high concentrations just before meals. It is dubbed the "hunger hormone" because it has been shown that administration of pharmacological doses acts in the brain to stimulate hunger and increase food intake in animal models and humans.
The ghrelin hormone is unique in that it requires acylation (the addition of a fatty acid) by a specific enzyme (ghrelin O-acyl transferase, or GOAT) for activation. Originally it was assumed that the fatty acids attached to ghrelin by GOAT were produced by the body during fasting. The new data by Tschöp and his team suggests that the fatty acids needed for ghrelin activation actually come directly from ingested dietary fats. In a departure from an earlier model that was upheld for nearly a decade, Tschöp says, it appears that the ghrelin system is a lipid sensor in the stomach that informs the brain when calories are available—giving the green light to other calorie-consuming processes such as growing.

Tschöp and his team used mouse models to test the effects of over expressing the GOAT enzyme, or "knocking it out." They found that, when exposed to a lipid-rich diet, mice without GOAT accumulated less fat than

normal mice, while those with over-expressed GOAT accumulated more fat mass than normal mice. "When exposed to certain fatty foods, mice with more GOAT gain more fat," says Tschöp. "Mice without GOAT gain less fat since their brain does not receive the 'fats are here, store them' signal."

Tschöp says that although his study can't be immediately extrapolated to humans, recent human studies at the University of Virginia measured (separately) active and inactive ghrelin concentrations. Those studies showed that during fasting, active ghrelin levels were flat, but during the presence of fat from foods, ghrelin levels peaked with meals as previously described. Tschöp says these human studies support the new model for ghrelin. "Our GOAT studies in mice offer an explanation of what could have been happening during the longer fasting periods in these human studies," Tschöp adds. "Without dietary fats, ghrelin peaks remain inactive and don't affect storage of fat.

"We are particularly interested in how ghrelin may be involved in the rapid benefits of gastric bypass surgery," says Tschöp. "This powerful obesity therapy frequently reduces appetite and improves metabolism before substantial weight loss occurs. Intriguingly, this procedure causes food to bypass the stomach and gut sections that contain GOAT/ghrelin cells, which, based on this newly described model, would prevent ghrelin activation."

From: Science Daily June 8, 2009
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Food Science and Nutrition News

Vitamin D Deficiency Widespread and on the Increase

A new report issued by the International Osteoporosis Foundation (IOF) and published in the scientific journal Osteoporosis International1, shows that populations across the globe are suffering from the impact of low levels of vitamin D. The problem is widespread and on the increase, with potentially severe repercussions for overall health and fracture rates. Compiled by IOF's expert working group on nutrition, the report reviews the scope and causes of low vitamin D levels in six regions: Asia, Europe, Latin America, Middle East and Africa, North America and Oceania. Regional reports are available on the IOF website

Vitamin D is mainly produced in the skin upon exposure to sunlight, and, to a lesser extent, is derived from nutritional sources. It plays an important role, through its influence on calcium levels, in the maintenance of organ systems, and is needed for normal bone mineralization and growth. Suboptimal levels of vitamin D may lead to increased risk of osteoporosis and hip fracture and, in severe cases, to the development of rickets, a softening of bones in children that can lead to skeletal fractures and deformity.

Although there is ongoing debate as to what constitutes the optimal level of vitamin D, the report shows that regardless of whether it is defined at 50nmol/L or 75nmol/L, vitamin D status is seriously inadequate in large proportions of the population across the globe. The main risk factors for low vitamin D levels include older age, female sex, lower latitudes, winter season, darker skin pigmentation, less sunlight exposure, dietary habits, and the absence of vitamin D fortification in common foods. Further factors include the increase in urbanization, where people tend to live and work indoors, as well as cultural practices that tend towards sun avoidance and the wearing of traditional clothing that covers the skin. The severity of the problem in Middle East and South Asia arises from the combination of several of these risk factors.

These findings suggest that prevention strategies must be initiated at the national level - especially given the increasing ageing of populations in many regions of the world. National plans of action should encourage safe, limited exposure to sunlight and improved dietary intake of vitamin D, whilst considering fortification of foods as well.
From: Biology News Net June 30, 2009
###

ADA Releases Updated Position Paper on Vegetarian Diets

The American Dietetic Association has released an updated position paper on vegetarian diets that concludes such diets, if well-planned, are healthful and nutritious for adults, infants, children and adolescents and can help prevent and treat chronic diseases including heart disease, cancer, obesity and diabetes. ADA's position, published in the July issue of the *Journal of the American Dietetic Association*, represents the Association's official stance on vegetarian diets: "It is the position of the American Dietetic Association that appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate and may provide health benefits in the prevention and treatment of certain diseases. Well-planned vegetarian diets are appropriate for individuals during all stages of the life-cycle including pregnancy, lactation, infancy, childhood and adolescence and for athletes."

The revised position paper incorporates new topics and additional information on key nutrients for vegetarians, vegetarian diets in the life cycle and the use of vegetarian diets in prevention and treatment of chronic diseases. "Vegetarian diets are appropriate for all stages of the life cycle," according to ADA's position. "There are many reasons for the rising interest in vegetarian diets. The number of vegetarians in the United States is expected to increase over the next decade."

Vegetarian diets are often associated with health advantages including lower blood cholesterol levels, lower risk of heart disease, lower blood pressure levels and lower risk of hypertension and type 2 diabetes, according to ADA's position. "Vegetarians tend to have a lower body mass index and lower overall cancer rates. Vegetarian diets tend to be lower in saturated fat and cholesterol and have higher levels of dietary fiber, magnesium and potassium, vitamins C and E, folate, carotenoids, flavonoids and other phytochemicals. These nutritional differences may explain some of the health advantages of those following a varied, balanced vegetarian diet."

The position paper draws on results from ADA's evidence analysis process and information from the ADA Evidence Analysis Library to show vegetarian diets can be nutritionally adequate in pregnancy and result in positive maternal and infant health outcomes. Additionally, an evidence-based review showed a vegetarian diet is associated with a lower risk of death from ischemic heart disease.

A section in ADA's paper on vegetarian diets and cancer has been significantly expanded to provide details on cancer-protective factors in vegetarian diets. An expanded section on osteoporosis includes roles of fruits, vegetables, soy products, protein, calcium, vitamins D and K and potassium in bone health. "Registered dietitians can provide information about key nutrients, modify vegetarian diets to meet the needs of those with dietary restrictions due to disease or allergies and supply guidelines to meet needs of clients in different areas of the life cycle," the authors said.
From: Bio-Medicine July 1, 2009
###

Confusion Reigns Over Whole-grain Claims In School Lunches

While most nutrition experts agree that school lunches should include more whole-grain products, a new study from the University of Minnesota finds that food-service workers lack understanding and the resources to meet that goal. The study, which involved school food-service directors from across Minnesota, appears in the current issue of the Journal of Child Nutrition and Management. Because they serve so many meals to children each day, school food-service directors have a major influence on students' food choices and in turn their overall health, the authors note.
Most experts recommend at least three servings of whole-grain foods a day, but American children fall far short of that goal, averaging about one serving per day.

The U of M researchers found that while food-service workers are aware of the health benefits of whole-grain foods, they aren't always sure whether a food product meets whole-grain criteria. The directors also cited higher costs and difficulty finding vendors who sold whole-grain products. The latest study is part of an ongoing series in which researchers from the university are measuring awareness of whole grains and testing ways to incorporate them into children's diets, particularly in school nutrition programs. "The goal is to remove confusion surrounding the definition of a whole-grain food and to provide simple standards to follow when ordering whole grain products for school meals," said Len Marquart, the project's lead researcher and an assistant professor in the university's food science and nutrition department. "This will require working together--enhanced communication among vendors, distributors and manufacturers along with key players in government, industry and school foodservice."
From: Science Daily June 8, 2009
###

Omega-3s Benefit Heart Attack Survivors, Healthy Adults, Mothers and Infants

Omega-3 fatty acids (omega-3s) found in seafood and fish oil are again linked to a range of health benefits in the June 2009 *Fats of Life* and *PUFA Newsletter*. New studies show that omega-3s may reduce the risk of heart attack survivors developing premature heartbeats and benefit healthy adults by reducing their level of inflammatory markers. Mothers consuming omega-3s during pregnancy may further benefit from these fatty acids by having less chance of developing depressive disorder or having low birthweight infants.

A groundbreaking study in people with higher intakes of omega-3s who had just experienced a heart attack showed they were less likely to develop premature heartbeats, which can lead to dangerous, uncontrolled heart rhythms. The reduction in premature beats occurred within the high-risk 30 days immediately after a heart attack. It is during this period that heart attack survivors are most likely to develop other heart problems. "These findings, if confirmed in other studies of heart attack survivors, would expand the reasons for making omega-3 intake a regular part of heart attack care and prevention," said Joyce Nettleton, D.Sc., editor of *Fats of Life* and the *PUFA Newsletter*.

Healthy people may also benefit from omega-3 intake. Non-fried fish consumption was associated with lower levels of inflammatory substances in a recent study. Because it was based on adults' usual intakes of fish and omega-3s in the U.S., which has low fish consumption, the findings suggest that even small amounts of non-fried fish in the diet could benefit health.

Similarly, a report from India showed that small amounts of omega-3s can have big results. In India, where rates of low birthweight, preterm delivery and small-for-gestational age infants are high, mothers who consumed as little as 3 to 4g per day of fish in their third trimester had significantly less change of having low birthweight infants. "Even small amounts of fish intake during pregnancy, especially in the last trimester, could make a positive difference to public health," Nettleton said. Other newsletter articles note that fish consumption in the last trimester of pregnancy might also reduce the incidence of mothers having post-birth depression.
From: Bio-Medicine July 8, 2009
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Diet Prescribed To Lower Blood Pressure Also Reduces Women's Risk Of Heart Failure

The DASH diet was initially developed to help patients lower their blood pressure, but a large study led by investigators at Beth Israel Deaconess Medical Center (BIDMC) demonstrates that women who followed the diet also significantly reduced their risk of developing heart failure. The findings offer still more evidence that a diet high in plant foods and low in sugar and saturated fats is good for your cardiac health.

"High blood pressure is always of concern because it has the potential to lead to major adverse events, including strokes, heart attacks and heart failure," explains senior author Emily Levitan, ScD, a research fellow in the Cardiovascular Epidemiology Research Center at BIDMC. She and her coauthors, therefore, hypothesized that the DASH diet (short for Dietary Approaches to Stop Hypertension) would also reduce a woman's risk of heart failure through its blood pressure lowering effects as well as its secondary effects on cholesterol and other heart-disease risk factors. The DASH diet, which has been shown to lower blood pressure in randomized clinical studies, is plentiful in fruits, vegetables, low-fat dairy products and whole grains. "These foods are high in potassium, magnesium, calcium and fiber, moderately high in protein, and low in saturated fat and total fat," explains Levitan.

A life-threatening condition that develops when the heart can no longer pump enough blood to meet the body's needs, heart failure (also known as congestive heart failure) is usually caused by existing cardiac conditions, including high blood pressure and coronary artery disease. Heart failure is the leading cause of hospitalization among patients 65 and older, and is characterized by such symptoms as fatigue and weakness, difficulty walking, rapid or irregular heartbeat, and persistent cough or wheezing.

Levitan analyzed data from women participants in the Swedish Mammography Cohort, in which women aged 48 to 83 who had no evidence of heart failure were invited to participate. In the fall of 1997, 36,019 women completed food frequency questionnaires to determine how closely their diets matched the DASH guidelines. Each participant was given a "score" based on their diet's similarity to the DASH diet. "We then used records from the Swedish national healthcare system to determine whether the women went on to be hospitalized or to die from heart failure," explains Levitan. "We compared women with diets most similar to the DASH diet to

women with diets that were not similar and found that those women whose diets most closely resembled DASH had the lowest risk of heart failure."

Their analysis showed that during the seven-year follow-up, 443 women developed heart failure, including 415 who were hospitalized and 28 women who died of the condition. Compared with the one-quarter of women with the lowest DASH diet scores, the one-quarter of the women with the highest DASH diet scores had a 37 percent lower risk of heart failure after factors such as age, physical activity and smoking were taken into account. More dramatically, the women with DASH scores in the top 10 percent had fully half the rate of heart failure compared with the one-quarter of participants with the lowest scores.

Of particular note, adds Levitan, a woman's diet did not have to precisely mimic the DASH diet in order to be of benefit. "Very few of the women we looked at had diets that shared all aspects of the DASH diet," she adds. "But we found that the closer they were, the lower their risk of heart failure. This suggests that making even moderate adjustments to your diet to include more fruits, vegetables, whole grains and low-fat dairy products, and less salt and sugar and less red meat and processed meats, can help improve cardiac health."
Science Daily May 15, 2009
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Prebiotics set for prosperous future

The value of the European market for products containing prebiotics will almost treble within six years, according to Frost & Sullivan. In a new report, titled 'The European Human Food & Beverage Probiotics Market,' the analyst said the continent's prebiotic products sector was worth €296 million ($421m) in 2008 but that by 2015 it would rack up sales of €767 million ($1.1bn). Volume sales would also rise sharply over the period, from 92,000 tonnes last year to 205,000 tonnes in 2015.

Growth would be driven by the expansion of more established markets for prebiotics, such as dairy, beverages and infant nutrition, and the diversification of prebiotic ingredients into new sectors such as snack products and meat products, said Frost & Sullivan. The increased frequency of published research results detailing the benefits of prebiotics — and effective marketing campaigns communicating these benefits to consumers — would also help sales.

The majority of the market was controlled by manufacturers of fructans (inulin and fructo-oligosaccharide), said Frost & Sullivan. But lactose-derived prebiotics (galacto-oligosaccharide and galacto-fructose) were becoming increasingly important segments. There was also good potential for the nascent segment of resistant starch prebiotics.

Although consumers might find it difficult to distinguish between the messages offered by probiotic and prebiotic products in the market, it was widely accepted that all these products had the same goal of improving digestive health, said Frost & Sullivan. The marketing efforts of large food manufacturing companies had contributed positively to raising awareness in the digestive health sector.

"Prebiotics in food and beverage products are attractive and extremely useful in a wide variety of applications," said Frost & Sullivan industry analyst Deborah Cross. "They have properties for enhancing texture, general fibre provision and, most importantly, their primary market driver is their high functionality, which corresponds with the increasingly health-driven market in Europe and the growing importance of digestive health to consumers."

From: Functional Ingredients June 09, 2009
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Young Adults Not Drinking Enough Milk, Study Finds

Calcium and dairy products play major roles in health maintenance and the prevention of chronic disease. Because peak bone mass is not achieved until the third decade of life, it is particularly important for young adults to consume adequate amounts of calcium, protein and vitamin D found in dairy products to support health and prevent osteoporosis later in life. In a study in the July/August issue of the *Journal of Nutrition Education and Behavior*, researchers report that young people actually reduce their intake of calcium and dairy products as they enter their twenties.

Drawing data from Project EAT (Eating Among Teens), a prospective, population-based study designed to examine determinants of dietary intake and weight status, the responses of over 1,500 young adults (45% male) were analyzed by investigators from the University of Minnesota, Minneapolis. The mean age of participants was 15.9 years at baseline and 20.5 years at follow-up.

During the transition from middle adolescence (high school) to young adulthood (post-high school), females and males respectively reduced their daily calcium intakes by an average of 153 mg and 194 mg. Although 38% of females and 39% of males increased their intake of calcium over 5 years, the majority of the sample reduced their intake of calcium over 5 years. During middle adolescence, more than 72% of females and 55% of males had calcium intakes lower than the recommended level of 1,300 mg/day. Similarly, during young adulthood, 68% of females and 53% of males had calcium intakes lower than the recommended level of 1,000 mg/day. The researchers found that reports of mealtime milk availability, positive health/nutrition attitudes, taste preference for milk, healthful weight control behaviors and peer support for healthful eating when the participants were teenagers were associated with higher calcium intake in young adulthood. Time spent watching television and lactose intolerance during middle adolescence were associated with lower calcium intake in young adulthood.

Writing in the article, Dr. Nicole I. Larson, Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, Minneapolis, and colleagues state, "The findings of this study indicate that future interventions designed to promote improvements in calcium intake should encourage the families of adolescents to serve milk at meals. In addition, interventions targeted to female adolescents should build concern for healthful eating, develop confidence in skills for healthful eating and reduce exposure to television advertisements. Interventions targeted to male adolescents should emphasize opportunities to taste calcium-rich food, the promotion of healthful weight management behaviors and supporting peers to engage in healthful eating behaviors."

From: Science Daily June 16, 2009

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Regulatory and Safety News

FDA awards grants to three states to enhance food and feed safety

The U.S. Food and Drug Administration (FDA) recently enhanced its food and feed protection initiatives with the award of three one-year Food Safety and Security Monitoring grants totaling $1 million to the states of Arkansas, Nebraska, and Wisconsin. The funds support cooperative agreements designed to create a national integrated food safety system through enhanced federal and state collaboration in food emergency response activities. The three states each received $350,000 to fund Food Emergency Response Network (FERN) chemistry laboratories. FERN labs are essential to the FDA's regulatory efforts and the grants may be used for facility upgrades, training in current food testing methodologies, increased laboratory sample analysis capacity, and other activities. In the event of a large-scale event affecting food or food products, the grant recipients may be required to perform selected analyses of food samples collected by the FDA or provided by other government agencies through the FDA.

"We are excited to partner with these states as they perform such critical roles in ensuring food safety," said Margaret A. Hamburg, M.D., Commissioner of Food and Drugs. "The FDA is committed to investing in efforts that will better protect American consumers from food safety and food defense threats."
From: US Food and Drug Administration News Release June 2, 2009
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FDA to study impact of nutrition symbols

The Food and Drug Administration (FDA) has announced that it will conduct an Experimental Study of Nutrition Symbols on Food Packages. The FDA uses the term "nutrition symbols" to refer to symbols used in food labeling that highlight a food's overall nutritional profile or a particular nutritional attribute. Because of the growing popularity of nutrition symbol programs, the FDA held a public hearing in September 2007 and requested public comments responding to specific questions posed by the agency. Following the public hearing, the FDA released a memorandum reviewing the comments it received and outlining its next steps with regard to nutrition symbols. The FDA also has begun collecting consumer research regarding how consumers interpret and use nutrition symbols. Because the FDA does not currently have relevant information about the effects of nutrition symbols on consumers to make fully informed regulatory decisions on their appropriate use, the agency is undertaking its own consumer study.

The proposed experimental study is intended to "assess quantitative consumer reactions to front-of-package nutrition symbols." As part of the agency's continuing efforts to enable consumers to make informed decisions about their nutritional intake and to "construct healthful diets," the study will focus on consumer processing of a selected sample of nutrition symbols in the U.S. marketplace. The study will employ a Web-based survey of 2,400 adults in an online consumer panel. The FDA plans to sample subjects randomly assigned to groups in which they will view and analyze various labels. Based on those variables, researchers will focus on the following consumer reactions: (1) Judgments about a food product in terms of its nutritional attributes, overall healthfulness, health benefits, and other characteristics such as taste; (2) judgments about a label in terms of its credibility in conveying the product's nutritional attributes and helpfulness in product choices; (3) identification of the more nutritious product in a pair of products; and (4) impact of the symbol on the use of the Nutrition Facts label.
From: IFT Newsletter June 3, 2009
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FDA creates Transparency Task Force

The Food and Drug Administration (FDA) has created a Transparency Task Force and announced a public meeting to solicit recommendations on ways in which the FDA can make useful and understandable information more readily available to the public. The Transparency Task Force will be chaired by FDA Principal Deputy Commissioner Joshua Sharfstein and will include the Associate Commissioner for Regulatory Affairs, Chief Scientist, Chief Counsel, and Center Directors. The Transparency Task Force's mission is to:

- Seek public input on transparency issues;
- Recommend ways FDA can better explain its operations while protecting confidential information;
- Identify information FDA should provide about specific operations and activities;
- Identify barriers to providing useful and understandable information;
- Identify tools and new technologies for informing the public;
- Recommend changes to current operations; and
- Recommend legislative or regulatory changes needed to improve transparency.

The task force will submit a written report with its findings and recommendations to FDA Commissioner Margaret Hamburg approximately six months after it convenes. The Commissioner will then confer with Secretary of Health and Human Services Kathleen Sibelius. The public meeting will be held on June 24, at the National Transportation Safety Board Conference Center in Washington, DC. The FDA is requesting those who wish to attend to register electronically at Transparency.Meeting@fda.hhs.gov by June 17. Interested persons may also submit written or electronic comments to the FDA no later than August 7, 2009. The FDA also plans to hold a second public meeting in the fall of 2009.

From: IFT Newsletter June 10, 2009
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EFSA evaluates antibiotic resistance marker genes in GM plants

An EFSA statement has been published that provides a consolidated overview of the use of antibiotic resistance marker genes (ARMG) in genetically modified (GM) plants, including a joint scientific opinion of the GMO and BIOHAZ Panels. The Panels concluded that, according to information currently available, adverse effects on human health and the environment resulting from the transfer of the two antibiotic resistance marker genes, nptII and aadA, from GM plants to bacteria, associated with use of GM plants, are unlikely. Uncertainties in this opinion are due to limitations related, among others, to sampling and detection, as well as challenges in estimating exposure levels and the inability to assign transferable resistance genes to a defined source. Two members of the BIOHAZ Panel expressed minority opinions concerning the possibility of adverse effects of antibiotic resistance marker genes on human health and the environment.

From: European Food Safety Authority News Story 11 June 2009
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Is there a definition for natural foods?

The term “natural” adds a premium to food products and makes them appear fresher, minimally processed, and safer. But consumers and the food industry will have to wait to know exactly what natural does – or does not—mean. Scientific experts clarify the use of the term “natural” on products during the Institute of Food Technologists “Best of Food Thinking” Annual Meeting and Food Expo held Sunday in New Orleans.

Despite the term’s widespread use, the U.S. Food and Drug Administration (FDA) discourages the food industry from using “natural” on labels because of its ambiguity. "Natural may unjustifiably imply that a food is

of superior quality or safety compared to other similar foods", said the FDA's Ritu Nalubola. Neither FDA nor the U.S. Department of Agriculture (USDA) has precise rules for "natural." And the food-and-beverage product industry, represented by the Grocery Manufacturers Association, has no consensus.

In 1991, FDA tried to define the term and, by 1993, gave up. The agency decided to "not restrict the use of 'natural' on products. It is a very complex term," Nalubola said. Today FDA is continuing that practice, originated in 1988. For a product to be called natural, it must be free of artificial or synthetic ingredients or additives, including color, flavor or any ingredient "not normally expected." Hence, lemonade flavored with beet juice cannot be called natural. In addition, any food enhanced with caramel, paprika or color (consider bright orange cheese) cannot be called natural.

FDA will continue to judge products "on a case-by-case basis," said Nalubola.

USDA, which regulates meat, poultry and egg products, is working on a more specific policy, said Daniel Engeljohn, Ph.D., of USDA's Food Safety and Inspection Service. Though not a food safety issue, he said that USDA's policy will be in place by the end of 2008 and address such issues as tenderizing, processing and flavor-enhancing. Until then, he said, products and their claims will be weighed "case by case."

In the grocery industry, disagreement reigns on the term's definition, said Regina Hildwine, senior director of Food Labeling and Standards for the trade organization, Grocery Manufacturing Association. Because such regulatory agencies as FDA and USDA haven't clarified the term, products are subject to the agencies' "best current thinking of what constitutes truthful labeling," Hildwine said. States have authority to set rules on some labeling matters, and a state could drive a future definition, Hildwine said. At this point, she warns, "We don't go too far or we might end up with something not everyone wants."

From: IFT News Media June 30, 2009
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COMING EVENTS

Flavor Symposium 2009
October 08-09, 2009
Organizers: Society of Flavor Chemists
Westin Princeton at Forrestal Village Princeton NJ
Contact e-mail: symposium@flavorchemist.org
website: http://www.flavorchemist.org

Fi-India 2009
October 23/24, 2009
Bombay Exhibition Centre, Goregaon, Mumbai
Contact: Mr. Bipin Sinha, UBM India Pvt. Ltd.
Tel: 22 6612 2600
Email: bipins@ubmindia.com
Website: www.fiindia.ingredientsnetwork.com

Food Pro 2009
Oct 29 – Nov 1, 2009
8th Indian Food Processing & Food Tech Fair
Chennai Trade Centre, Chennai
Confederation of Indian Industry (CII)
98/1 Velachary Main Road, Guindy, Channai 600 032
T: 44 – 42444520 F: 42444510 M: 97899 81146
E: kunal.joshi@cii.in W: www.cii.in

VIV India 2009
November 3-4, 2009
Pragati Maidan, N. Delhi
VNU Exhibitions Europe
Jaarbeursplein 6, NL-3521
AL Utrecht, The Netherlands
T: +31 30 – 295 2700 F: 295 2701
E: info@vnuexhibitions.com
W: www.sites.vnuexhibitions.com

Technofood Moscow
November 24-27, 2009
Crocus Expo, Moscow, Russia
ITE Group Plc
105 Salusbury Road, London NW6 6RG, UK
T: +44 20 7596 5000 F: 7596 5111
E: enquiry@ite-exhibitions.com
W: www.ite-exhibitions.com

Annapoorna: World of Food India
November 25-27, 2009
Bombay Exhibition Centre, Mumbai
Contact: Chandra Shekhar, FICCI
T: 011-2331 6551 M: 9911185378
E: chandra.shekhar@ficci.com W: www.worldoffoodindia.com

Vitafoods International

May 18-20, 2010
Geneva Palexpo, Geneva Switzerland
Organisers: IIR EXHIBITIONS
T: (44) 20 – 7017 7019/7017 7108 F: 7344 3890

International Probiotic Conference

June 15-17, 2010
University City of Kosice, Slovakia
Contact: Organising Secretariat
Komenskeho 2656
02401 Kysucke Nove Mesto, Slovakia
T: +421 918 707371 F: +421 414 000123
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