Editorial

Every year food prices rise and make the common man's life even more difficult. Not just food but other prices have risen but food prices hit the hardest as one can reduce everything else but not food. This year vegetables were on par with fruits with respect to prices. At one point onions were almost as expensive as apples. Most vegetables have been selling at Rs. 80 or 100 per kg. When you go to vegetable vendor nowadays he tells you the price of quarter kilo so as not to scare you too much.

What is the cause for this? Some say that it is due to too much rains last monsoon and weather changes; some say it is because of fuel prices while others say it is because of hoarding by traders. Whatever the reason, it was really distressing when ministers said that they should not be held responsible for this price rise as it had nothing to do with their ministry. A successful politician is probably the one who can convince people that all the good things that take place are due to their efforts whereas the undesirable and bad things are because of some things beyond the control of humans or better due to some foreign hand.

It is distressing to hear that government cannot do anything about it. Sometimes one wonders what is the government there for – just to collect taxes and spend the money in some discretionary manner. Why are there so many controls? We hear about Food Security and Right to Food but we do not see any ground action on these things.

It is heartening to know that prices of processed foods have not risen to that extent. In a way they stabilise the food prices. The processing technology has developed adequately to produce processed foods that retain the nutritional value along with the sensory values like colour, taste, smell or aroma, appearance and texture to a remarkable degree. Frozen foods have the acceptability for several months. Even people have started accepted retort pouch processed foods.

We are not saying that government does not have any role but if it were to work together with food industry to not only produce good quality nutritious processed foods and reduce the losses that are presently take place due to wastage and spoilage in fruits and vegetables, it would go a long way in ensuring food security. Processed foods need not cost premium price. In fact in developed countries, processed foods are quite inexpensive and of high quality. It is the volume that brings in the economy of scale. Consumers also should start using these to some extent. They would realise that these not only are convenient but also are cost effective, considering there are no peels, seeds and inedible portions to throw away. They are available are year around. This has already been experienced in case of some of the spices and a few ingredients. We might see a much greater rise in other products.

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Coming Events

Ninth World Food Technology & Innovation Forum 2011
March 1-2, 2011
Location: Brussels, Belgium
Tel: +44 20 7202 7690
Web: www.wtgevents.com
Email: simon.wright@wtgevents.com

Nutracon
March 9-10, 2011
Location: Anaheim, CA, USA
Contact: New Hope Natural Media
Phone: 866-458-4935
Web: www.nutraconference.com
Email: tradeshows@newhope.com

Vitafoods
May 10-12, 2011
Location: Geneva, Switzerland
Contact: Phil Hawkins
Phone: 44-20-7240-2444
Web: www.vitafoods.eu.com
Email: phil@stormcom.co.com

IFT Annual Meeting & Food Expo
June 11-15, 2011
Location: New Orleans, LA, USA
Contact: The Institute of Food Technologists
Tel: 312-782-8424 **Web:** www.ift.org
Email: info@ift.org

International Scientific Conference on Probiotics & Prebiotics
June 14-16, 2011
Location: Double Tree Hilton Hotel, Univ. City of Kosice, Slovakia
Phone: +421 904 837153 or +431 41 4000123
Website: www.probiotic-conference.net
Email: info@probiotic-conference.net

PFNDAI Bulletin November 2010

A Grain of Salt: Prof. Jagadish Pai

Salt is one of the oldest of seasoning known to mankind. Up until recent decades, it was being used freely in all foods, when physicians realised that people are consuming too much of it. Americans have been consuming 50% more than the recommended intake of sodium according to Institute of Medicine (IOM). In a recent study, it was found that Indians also consume very high levels of salt in their diets. The salt intake of urban south Indian population was found to be between 8 and 10g per day. High salt has been implicated in increase in hypertension. IOM has recommended that US FDA should take salt out of GRAS list and should start reducing the salt contents of various food products.

History of salt

Besides being a seasoning salt has been used for millenniums for food preservation especially for meat. There is evidence of people harvesting salt-laden spring water or lake to extract salt prior to 6000 BC. Salt as well as salted birds and fish were among funereal offerings in Egyptian tombs. History is full of references of salt trade. Salt also became a symbol of protest when Mahatma Gandhi led over 100,000 people on Dandi March in which protestors made salt from sea avoiding paying of salt tax under British rule. This later inspired the Indian independence movement.

Benefits of salt in foods

Since its discovery salt has been used in our foods everywhere in the world. Salt has become an important ingredient for many reasons. Salt not only affects the taste of food, but it also serves as a preservative and is important in food safety. In cheese making it has many functions. It helps milk proteins agglomerate to form curd under acidic conditions. It protects water soluble (whey) proteins during heat treatment. It helps reduce microbial contamination. It plays a role in emulsification of milk proteins with other ingredients to get a smooth texture in cheese.

Secondly it is not salt per say that causes the health problems but the sodium part in it. Just reducing salt is not going to be very effective, if there are many other sodium containing additives and compounds that continue to be in foods. Following table gives the various sodium containing substances that are present or added to food products.

Table 1: Sources of Sodium Other Than Salt in Processed Foods

Ingredient/Additive	Usage
Baking powder	Leavens breads and cakes
Disodium phosphate	Prevents caking of powdered products
Monosodium glutamate	Adds savory flavor to various foods
Sodium alginate	Increases viscosity and emulsifies liquids
Sodium benzoate	Preserves condiments such as salad dressings and sauces
Sodium bicarbonate (baking soda)	Leavens breads and cakes
Sodium hydroxide	Softens and loosens the skin of certain fruits and vegetables
Sodium nitrate	Cures meats and sausages
Sodium nitrite	Cures meats and sausages
Sodium propionate	Inhibits the growth of molds in pasteurized cheeses and baked goods
Sodium sulfite	Preserves dried fruits and bleaches fruits to be artificially colored

Thus it can be seen that there are many functions that sodium-containing ingredients or additives performs in food products that when one tries to reduce sodium these also will have to be considered and alternatives to these may have to be considered.

Also there are many physiological roles that sodium itself plays that when one reduces sodium in diet these may have to be also considered so adverse effects of deficiency of sodium is not felt. Our body needs small amounts of sodium for the following functions:

- Sodium helps to maintain the fluid balance of the body
- It helps in the contraction and relaxation of muscles
- It is necessary in generating electrical impulses in nerves and muscles, and in generating gradients across cells to enable uptake of nutrients
- Sometimes very low intake of sodium can result in muscle cramps

When there is an excess of sodium intake above the requirements, kidneys tend to balance the amount in body by excreting sodium in the urine. There is also loss of sodium through perspiration after strenuous exercise or in extremely warm climates.

It was estimated that Indians consumed fairly high amount of salt the average for adult being around 15g per day. It was advised for a long time that this should be brought down to less than 10g per day. More recent dietary guidelines have recommended even greater reduction in salt intake by Indians in view of high prevalence of hypertension among Indians. Over 7 million deaths have been attributed to hypertension through its relation to cardiovascular diseases and salt is one the important causative factors of high blood pressure. The new guidelines recommended just around 5g salt intake per day for adults.

Sodium intakes of American adults have been over 4g (over 10g salt) for the past couple of decades. Dietary Guidelines of 2005 recommend not more than 2.3g sodium (about 5.75g salt). The Scientific Advisory Committee on Nutrition of UK recommends lower intake of 4g salt per day. A meta-analysis in 2009 found that sodium consumption of individuals in 33 countries ranged from 2.7g to 4.9g per day. So everywhere the consumption is higher than recommended.

Harmful effects

Hypertension (high blood pressure) has become a major cause of death worldwide and is ranked third as a cause of shorter life-span. The World Health Report states that hypertension alone is responsible for about 50% of heart diseases worldwide.

Although kidney tends to excrete excess sodium in the urine and warm conditions allow loss of sodium through perspiration, we tend to consume much more sodium than is necessary. A diet high in sodium raises blood pressure which increases the chances of chances of stroke and heart disease. Association between dietary salt intake and blood pressure has increased and is consistent in various populations across age ranges in adults. In a large scale study it was shown that reducing significantly dietary salt intake in people with high blood pressure, reduced their chances of heart disease by 25% over 10 to 15 years. Some of the other ailments associated with excess salt intake are left ventricular hypertrophy, edema (fluid retention), duodenal and gastric ulcers, heartburn, and osteoporosis among other things.

Although blood pressure can also be reduced by weight reduction, adopting DASH (Dietary Approach to Stop Hypertension diet plan of consuming fruits, vegetables and low fat foods especially low in saturated fats), increasing physical activity, moderation of alcohol consumption and avoiding tobacco, dietary sodium reduction is an important lifestyle intervention for reducing blood pressure. Reducing dietary sodium intake to 2.4g sodium or 6 g salt will reduce systolic blood pressure by about 4 to 9 mm Hg.

This becomes important when epidemiological studies show that hypertension is present in 25% urban and 10% rural population in India so roughly there are 31.5 million hypertensives in rural and 34 million in urban population. Recent estimates are more alarming as total hypertensive population in India is projected to be over 200 million in 2025. Although it is generally recommended that salt or more precisely sodium restriction in diet would be useful in the strategy to lower hypertension.

There are others who believe that although restricting salt consumption is an effective measure of primary prevention of hypertension, it is still debatable whether lowering the salt intake is an important strategy in the treatment of hypertension. They contend that firstly salt restriction produces only small changes in blood pressure. Secondly they also believe that the effects of salt restriction in hypertension are shown only in subjects with salt-sensitive phenotype. In other individuals factors other than sodium intake may be important determinants (such as obesity) of blood pressure. However, many health professionals do not believe this and say that all individuals are sensitive to salt and most adults would benefit from reduction of salt intake although those with high blood pressure should be even more careful.

As mentioned above, in many processed foods, sodium salts may be used as additives for many applications and although salt may be reduced but sodium content may remain quite high if these salts are not substituted. Baking powder for cakes and biscuits contains sodium. Anticaking agent is used to prevent lump formation in many foods and may contribute sodium. MSG is used as flavour enhancer in many foods including soy sauce. Preservatives sodium benzoate, sodium sulphites and metabisulphites, sodium propionate etc. contain sodium. Curing of meat may be done using sodium nitrate and nitrite while thickeners like alginate may contain sodium. Thus it is useful to read labels to find out what other sodium sources are present in foods besides salt. Finally the amounts of sodium through salt in various foods are much higher than those through additives.

Sodium Contents of Different Foods

It is recognised that dietary habits of Indians contribute to their salt intake being higher than some other populations especially due to intake of pickles, papads, salty snacks and chutneys which are popular items in meals. In addition, there are more recent items such as potato chips (wafers), extruded snack items, French fries etc. which contribute additional salt in children's diet. As given in table above, there are many foods that contain sodium compounds other than salt. Since sodium is the causative agent in hypertension, it is necessary to identify foods rich in sodium. Following table gives the sodium contents of different foods.

Table 2: Main Sources of Sodium from Foods

Food	Sodium (g)	Salt (g)	% Contribution
Cereals & cereal products *(e.g. bread, breakfast cereals, biscuits, cakes, pastries)*	0.98	2.50	37.7
Meat & meat products	0.54	1.38	20.8
Other foods *(e.g. soups, pickles, sauces, baked beans)*	0.33	0.84	12.7
Processed vegetables *(including crisps & snacks)*	0.22	0.56	8.5
Milk & cream	0.14	0.36	5.4
Fats & oils	0.12	0.31	4.6
Cheese	0.11	0.28	4.2
Fish	0.07	0.18	2.7
Eggs	0.02	0.05	0.8
Fresh vegetables	0.02	0.05	0.8
Fruit	0.01	0.03	0.4
TOTAL	2.56	6.54	98.6

From: Salt & Health by Scientific Advisory Committee on Nutrition, UK (2003)

Table 3: Sodium Contents of Common Indian Foods

< 25 mg (low)		25 – 50 mg (moderate)	50 – 100 mg (moderately high)	> 100 mg (high)
Amla	Horse gram	Raisins	Cauliflower	Amaranth
Bitter gourd	Ragi	Broad beans	Fenugreek	Bacon
Bottle gourd	Vermicelli	Carrots	Lettuce	Egg
Brinjal	Semolina	Raddish white	Field beans	Lobster
Cabbage	Wheat	Black gram dal	Beetroot	
Lady finger	Maida	Green gram dal	Water melon	
Colocasia	Milk	Red gram dal	Bengal gram dal	
Cucumber	Grapes	Lentil whole	Red gram tender	
French beans	Sweetlime	Bengal gram whole	Liver	
Peas	Papaya	Banana	Prawns	
Onion	Orange	Pineapple	Beef	
Potato	Sapota	Apple	Chicken	
Tomato (ripe)		Mutton		
Yam				

From: J of Ind. Acad. Clin. Medicine Jan-Jun 2009

Strategies of Reducing Salt in Foods

Some of the ways in which one can reduce the intake of salt are listed in Table 4. When one decides to restrict intake of salt, addition of salt to foods while cooking should be restricted. Taste of salt is also subject to getting used to. One can start using higher amounts

in foods and then the person gets used to that and lesser amounts will appear lacking taste. Similarly, when one starts reducing, it should be done gradually reducing slight amounts and after getting used to that further reduction should be attempted. Many have a habit of adding salt at the table to already salted foods. A good example is French fries.

Table 4: Strategies to reduce excessive salt use in dietary practices

1. To avoid excessive intake of salt in cooking
2. To increase intake of foods low in salt (e.g., fruits and vegetables)
3. To avoid foods high in salt (pre-prepared/processed foods)
4. To refrain from adding salt at the table
5. To increase their awareness of the salt content of food choices in restaurants
6. Promote use of traditional food rather than Western or fast food and junk foods which are high not only in salt but also in calories, sugar, and fat content.

From: J of Ind. Acad. Clin. Medicine Jan-Jun 2009

There are some foods that are low in salt and sodium. Fresh fruits and vegetables (except some like amaranth) are naturally low in sodium so they should be good part of the diet. Of course during cooking or processing salt may be included so one should be careful about this.

During processing salt or sodium containing additives may be added for various applications including preservation, taste, flavour enhancement, leavening, providing proper texture, curing etc. (see Table 1). Nowadays many processed foods provide the nutrition information including the sodium content of foods. If not one must read the ingredient list to see whether any sodium containing additives are added. Labelling regulations provide for giving either the name of additive or number, so sometimes one may miss out on this.

There are now some low-sodium salts available in the market which, partly replace sodium with potassium. About 10 to 25% of sodium can be replaced by potassium but higher amounts give undesirable or bitter taste. There are some preparations that use masking technology in order to replace even more of sodium by potassium.

The salty taste can also be enhanced using flavour enhancers. Some examples are mono-sodium glutamate (MSG), inosinate + guanylate, hydrolysed vegetable protein and autolysed yeast extract. They all have the ability to boost flavours as well as salt perception and although they may themselves contain a small amount of sodium, the boosting will result in less sodium in food. MSG may not be acceptable to some consumers.

Use of herbs and spices can also boost overall flavour and use less salt or sodium. There are also suggested applications for acids such as lactic, citric and malic that boost salty taste perception allowing less salt inclusion. Soups contain good amount of salt which is a big flavour driver. Herbs and spices in soups have allowed reduction of sodium in them.

In savoury snacks salt reduction is a big challenge as salty taste is the major flavour driver. Fineness of salt grain can affect salty taste sensing. Finer size is rapidly sensed whereas coarser salt gives slower, lingering saltiness. One company has changed the structure of salt granules making them hollow pyramid shape, providing more surface area and lower bulk density with faster dissolving crystals. This causes a flavour burst allowing reduction in salt amount and maintaining salty flavour intensity that consumers want.

Conclusion

There are many companies that have reduced salt and/or sodium contents of their food products. As salt and sodium containing substances are useful as flavourants or for other functions in food processing, when a company intends to reduce the sodium content, it must assess the impact on the flavour acceptability, safety and the desirable qualities of the food product. People may not accept food products that are less appealing even when they are low sodium. Some amount of salt is acceptable or even necessary in diet for maintaining health, so total avoidance may not be desirable unlike the case of trans fatty acids from partially hydrogenated fats.

A good strategy would be to reduce sodium by various ways including cutting down salt step-wise, using salt substitutes and alternative seasonings, reducing intake of sodium containing food products and/or replacing them with low-sodium alternatives, and increasing consumption of fruits and vegetables.

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Report on Nutrition Week Activity

by Ms. Ummeayman R., Nutritionist, PFNDAI

Nutrition Week Activity was organized by PFNDAI jointly with the Department of Foods Nutrition and Dietetics of Niramala Niketan College of Home Science on Saturday, 4th Sep'10.

The event was sponsored by Abbott India, Hexagon Nutrition, Roquette India and Kellogg's India. Many students' activities were organised such as Nutrition Campaign, Innovative Recipe competition and National Nutrition-week Intercollegiate Quiz competition. There was an overwhelming participation of students from colleges of foods science and nutrition and the students from biochemistry and quality assurance courses also participated. Students had prepared 'High Protein, High Fibre containing Working Lunch for Adults'. The winners were decided not only on the basis of a tasty lunch pack but the healthfulness, innovations in the lunch pack and the student's ability to explain the health benefits of the recipe were also considered. Although this sounds too simple but the judges had a tough time judging the best out of more than 30 working lunch recipes.

Nutrition Campaigns by the students were very artistic and also reflected their varied talents and a much wider awareness among the students about 'Food for Healthy Bones'.
For Nutrition Quiz competition, the students came up with very high spirit of confidence and knowledge relating the subjects of food, science and nutrition. An overwhelming response was seen both among the students and the audience. The student's competitions were judged by, Dr. Jyoti Vora, Ms. Shefali Sharma , Ms. Payal Maheshwari and Ms. Ummeayman R. There were many delegates from industry and academia to encourage the students and to attend the seminar thereafter.

The seminar on 'Newer Ingredients for Healthy Foods' comprised of presentations by eminent speakers from various sectors of industry and academy and each presentation was highly informative.

The presentation 'Nutritional concerns of sugar alternatives for healthy processed-foods' by Dr. Rajeev Thakur (Roquette) gave an understanding of the better sugar alternatives available and what can be their benefits of uses. In developed countries there has been an increasing dietary energy coming from the consumption of sugars and fats and is decreasing from protein. This moving away from protein has lead to the onset of many diet related chronic diseases such as obesity, diabetes, cancer, osteoporosis and dental diseases. To prevent such chronic diseases and lead a healthy life, it has been recommended by the WHO technical series report 916 that in a 2400 Kcal, 10-15% energy should be obtained from proteins, 15-30% from fats and 55-65 % from carbohydrates out of which max. 10% from sugars. Thus the focus of many developing countries is to reduce sugars. Many processed foods items such as bakery products, confectionary products and ice-creams are high in sugars and so this can be the beginners to look for sugar alternatives. The use of sugar alternatives would also give the benefit of making nutritional & functional claims such as LOW GI product, suitable for diabetics, low calorie products, tooth friendly etc. The glucemic response of many products is reduced due to the use of bulk sweeteners and it was found that Maltitol chocolates had least glycemic response as compared to sucrose chocolates and glucose chocolates. Sugars alternatives like maltitol are also beneficial for the tooth health as they do not contribute towards plaque formation due to demineralization of teeth. Although there is a concern towards the laxative effect caused due to consumption of polyols but the facts are that 50g of maltitol per day leads to almost no symptoms. Thus these sugar alternatives would be a welcome step for the calorie conscious.

Dr. Shweta Singh (Abbott Nutrition) in her presentation on 'Role of Medical Nutrition in Glycemic Management of Diabetes', emphasised on the fact that there is an increasing concern towards diabetes as the diabetic population is on growth. Medical nutrition therapy has been one of the vital interventional strategies for the treatment of diabetes. However recently there has been much more emphasis on weight management, glycemic control and maintaining the lipid & lipoprotein profile that minimizes the risk of macro vascular complications.

'Cereal – The Complete Story' by Ms. Madhavi Trivedi, Kellogg was a very informative session with discussion on many myths about cereal products. In her presentation, Ms. Madhavi gave a picture of the nutritional profile of cereals and the importance of a complete whole grain and multigrain diet. The presentation was a complete health management plan with the emphasis on healthy diet being a key to healthy living.

Dr. Subbulakshmi G. (Ex-Director, SNDT) presented the Importance of Immuno –Nutrition. When mechanism of the body that provides immunity is suppressed either due to some infection, weakness due to malnutrition or many times it is deliberately been suppressed for organ transplant , the person is prone to get opportunistic infections. Many disease conditions like AIDS and Tuberculosis are also a direct attack on the body's immune system and lead to weakening the immune mechanism of the person. It is now recognized that nutrition support has a crucial role in maintaining immunological function and in the prevention of muscle wasting during critical illness. However a much bigger question remains 'Does Standard nutrition suffice the purpose' or there is a need for something more' , Immuno-nutrition is a better answer to this .The potential to modulate the activity of the immune system by interventions with specific nutrients is termed Immunonutrition. Immunonutrition has become most closely associated with attempts to improve the clinical course of critically ill and surgical patients, who often require an exogenous supply of nutrients. Most commonly used immunonutrients are "conditionally essential" amino acids such as Glutamine and Arginine, Omega-3 fatty acids

(PUFA-3), Nucleotides and Antioxidants .Immuo-nutritnt is essential as it promotes healing, speeds the recovery time and attenuates metabolic response. It also prevents oxidant stress and favourably modulates immune response

There was a lively discussion that followed all the presentations which showed that audience appreciated and enjoyed the presentations. Dr. Machado P, Principal ,Nirmala Niketan College & Dr. Subbulakshmi gave away the prizes to winning students and encouraged all the students to participate more actively in such future programs as they would be future industry decision makers and would help the India food industry to grow in pace with the global trends .

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Deliciously Frozen Probiotics—Ice Cream and Beyond

By Cindy Hazen

Most Americans would choose ice cream over cultured buttermilk. With friendly bacteria that fortify our digestive system, buttermilk may be a healthier option but ice cream is more satisfying even though we know it provides mostly flavour and calories. Adding probiotic bacteria to ice cream and frozen desserts will allow us to enjoy favourite foods without guilt. However, addition of these microbes needs some knowledge.

Probiotics: It's alive

National Yogurt Association states that when consumed probiotics, the living microorganisms exert health benefits beyond basic nutrition. They need to be viable and so must be introduced after pasteurisation into foods to be effective. Freezing process however does not kill them but just makes them dormant until consumed. It also is a good practice to avoid them to come in contact with concentrated flavours which may damage them. Shear and oxygen exposure during manufacture may also affect their viability. Thus important part of formulation process is finding the best possible way to incorporate probiotics in the manufacturing process that would give maximum cell survival.

As probiotic organisms are quite fragile, they need to be protected from rapid change in extremes of temperature and pH as well as pressure and environmental conditions. In frozen products, there is large shift in temperature from ambient to frozen that may cause large losses if not controlled making such applications cost-prohibitive. Probiotics survive well in ice cream and frozen desserts, but care is needed. Formation of ice crystals in ice cream can damage the bacteria. Slow hardening and heat-shock cycles can affect viability of probiotics. In resale mixes that are frozen for distribution, it is important that freezing process is rapid to avoid ice crystal formation.

The pH of frozen dessert is also important. Very low pH should be avoided. As traditional probiotics tend to be more fragile they require extra care in manufacturing process to increase viability unlike spore-forming probiotics which are sturdier allowing them to be used in difficult applications. In frozen applications Bacillus coagulans spores just remain dormant and are stable throughout the shelf life of the finished product in the spore form which protects it from extremes of temperature, pressure and low pH. Lactic acid bacteria themselves are hardiest of non-spore-formers as they produce a protective polysaccharide layer. As this does not completely envelop the cell, only partial protection is provided.

Federal regulations do not recommend which organisms could be used in frozen desserts or even their viability. There is no standard for frozen dessert. National Yogurt Association say that some frozen yogurt are heat treated in which cultures are deactivated or the cultures have been added but fermentation step has been missed. If these bacteria do not survive processing or are not active in the digestive system to give benefit to the host, they do not meet the definition of probiotics.

Every probiotic strain possesses unique characteristics, and the amount of probiotics added to a product is based on clinical data on that strain which is required to support the health-benefit claims which themselves are strain specific. For example, one strain of B. coagulans provides benefits at 500 million to 2 billion colony-forming units (CFU) per serving. Label declarations are also strain dependent. Content claims are most common.

Structure-function claims need the actual number of probiotic bacteria through the shelf life of the product and require supporting research which should be provided by suppliers. For a product carrying probiotic declaration, manufacturer must test the finished product to ascertain that the required number of viable cells survive to the end of shelf life.

Optimal probiotic formulation

There is no need for specialised stabiliser system when formulating an ice cream or frozen yogurt with probiotics. Any system providing excellent texture and stability is suitable for probiotic ice cream. Success of stabilising system, which reduces ice-crystal size and weeping, is more critical for probiotic-rich frozen desserts. Without control, syneresis causes formation of large crystals. When controlled, smaller crystals give creamier texture but the greater advantage is higher survival of probiotics.

Probiotic-culture base mix adds creaminess and body to low-fat frozen dessert base mix. Dairy base mix helps propagate probiotics and culturing process form a viscous mix which adds body and texture to final product. Flavouring these products with fruits like yumberry and goji berry also complements acidity to the base mix. Mixes with low solids and those high in fructose and glucose should be avoided as these lower molecular weight carbohydrates competes for water and interfere with functionality of stabilisers.

Formulations with higher maltodextrin, corn syrup or polydextrose helps probiotic survival. These carbohydrates increase viscosity especially with higher levels of milk proteins enabling lesser and more effective use of hydrocolloids. Polydextrose is useful because it is a prebiotic fibre that is only partially hydrolysed in intestine. Technically, it is an oligosaccharide, a short chain of sugar molecules which is broken down to low-molecular-weight polydextrose polymers that feed probiotic bacteria. In addition, milk protein and lactose – inherent in frozen yogurt, ice cream and many frozen desserts – provide substrate for growth of probiotic organisms.

Branching out

Frozen yogurt, hard-packed ice cream and soft serve are all worthy applications for probiotics. Although consumer awareness of probiotics is increasing, they still associate probiotics with yogurt. Ice cream and frozen dairy desserts are really good delivery systems for quality probiotics. Consumers are looking for options and simple ways of incorporating probiotics into their daily life without adding new foods and/or habits. Frozen dairy desserts and ice creams allow addition of probiotics in foods they already enjoy and now can enjoy daily with feeling less guilty. Ice cream is not as bad a product health-wise as is portrayed in popular press. Adding probiotics takes an indulgent, relatively healthy product and moves it into the healthy-for-you category.

Sweet Sales

US ice cream and frozen-dessert market reached $24.6 billion in 2009 reports Packaged Facts (Jan 2010). Sales are projected to reach $26.5 billion by 2014. Frozen yogurt has 8% share while ice cream is comprised of 59%. Frozen novelties make up 30%. The trend has taken a turn and now focuses on products with added health-promoting ingredients like probiotics and omega-3 rather than products that have eliminated ingredients.

Condensed from an article in Food product design 08/25/2010

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FOOD SCIENCE & TECHNOLOGY NEWS

6 Food Ingredient Mega Trends

CHICAGO—The Institute of Food Technologists (IFT) recently cited six “mega trends" and market challenges emerging for food product manufacturers and marketers as more consumers look to the food industry for more natural health solutions and increasingly convenient meal options.

Product developers and marketers who focus on weight management, clean labels and naturally functional ingredients are likely to find success in the food market, especially if they formulate, process, and flavor foods in natural ways and offer convenient meal solutions.

IFT noted top ingredients in the popular weight-management market are fibers, low-glycemic sweeteners and conjugated linoleic acid (CLA). Products that focus on metabolism, satiety benefits, body toning and fat-burning are positioned to do well in the food category.

Foods that also tout reduced sodium content are also popular, but this leads to questions of adequate potassium and magnesium intake. Consumers are looking for these minerals as well as vitamin E and whole grains in their foods to help boost heart health.

Consumers also want simple, “clean" labels and products that lack preservatives. According to IFT, organic ingredients will continue to sell well.

Natural, functional foods with healthy ingredients, such as superfoods, phytochemicals, carotenoids and resveratrol, are next on IFT’s list. Consumers wants their food products to be “naturally rich in" these healthy ingredients. Natural sweeteners, especially stevia, are among the hot new naturally functional sweetening agents. Artificial sweeteners are on their way out of consumers’ diets; they instead want natural options.

Free-from foods are entering its second generation, moving from additive- and preservative-free products to also include gluten- and lactose-free, and sales are swelling. IFT said ingredients that provide tasty, safe alternatives to allergens are in high demand. Peas, lentils and chickpeas as well as amaranth, quinoa, millet, sorghum and teff, are popular gluten-free options. Consumers also are avoiding high fructose corn syrup (HFCS), MSG and any artificial ingredients.

Rounding out the list are niche flavors, especially the fifth basic taste, umami. IFT reported nut flavors, including cashews, almonds and pistachios, are moving into drinks, milks and yogurt. Hot spicy ingredients such as chilies are moving into candy, and cooling spice and herb ingredients, such as cinnamon, coriander, anise, ginger and mint, are moving into dairy, ice cream and gums. Plum, coffee, rhubarb, chai, golden kiwi, cloudberry, baobab and coffee berry are among the emerging flavors. Yogurt is enjoying a renaissance with vegetable flavors ranging from cucumber and dill to orange and carrot. Flower flavors are also moving into the global market.

From: Food Product Design September 30, 2010

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Edible coatings slow rot, increase shelf life in blueberries

Researchers at Oregon State University have developed new techniques for handling fresh blueberries—including a method of pre-washing them for market and applying an edible coating—that may extend the shelf life of this popular Oregon crop and open up new markets for its sale.

Edible coatings are being used by scientists in OSU’s College of Agricultural Science to extend quality and prolong storage of two varieties of blueberry, Duke and Elliott. The coatings can also slow decay and water-loss after the fruit is washed.

In two years of trials, fresh blueberries were first washed with chlorinated water then dipped in one of five different edible coatings before being placed in storage containers. The berries were evaluated for quality after 15 days. Results from the study suggest that this technique could be used to develop ready-to-eat blueberries with no reduction in shelf life.

Fresh untreated, unwashed blueberries have a typical shelf life of one to eight weeks depending on several factors, including variety, ripeness at harvest, method of harvest, presence of disease, and storage conditions. Washing the fruit prior to packing and storing can increase the rate at which the fruit deteriorates, said Yanyun Zhao, a professor in OSU’s Department of Food Science and Technology.

The coatings used in the study were: Semperfresh, acid-soluble chitosan, water-soluble chitosan, calcium caseinate, and sodium alginate. Semperfresh is a sucrose ester; chitosan is a derivative of chitin—a natural substance often found in the exoskeletons of insects and crustaceans, and alginate is a polysaccharide commonly found in the cell walls of brown algae.

In other berries, the use of edible coatings has been found to partially control internal gas exchanges within the fruit, delaying fruit post-harvest respiration and to serve as a barrier to water vapor, effectively slowing moisture loss and dehydration.

“Use of appropriate coatings and application methods delays fruit dehydration or wrinkling in washed berries,” said Bernadine Strik, a co-author on the study and a professor in OSU’s Department of Horticulture. “This opens up a whole new possible market sector for pre-washed blueberry fruit. Considering the health benefits of blueberries, this is a positive step for consumers and the industry.”

From: IFT Newsletter October 6, 2010

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Survey: Marketing Contributes to Childhood Obesity

About 1/3 of adults surveyed about various nutrition and health issues rank childhood obesity as a “serious" or “extremely serious" issue. The same survey, conducted by Resonate Networks, Inc., also shows that 1/3 of those surveyed believe corporate marketing plays a role in childhood obesity, and support limiting advertising of high-fat, high-sugar foods and beverages to children. These results, as well as others, are detailed in an article in Marketing Daily.

These same folks support disclosure of nutritional information at fast food restaurants, but do not necessarily support increased taxes on high-fat, high-sugar food products.

The article quotes Resonate CEO Bryan Gernert as say: “Basically, the research shows that anything that people view as potentially obfuscating, rather than enhancing, their information about nutrition will ultimately have negative repercussions for marketers. Consumers respond positively to transparency and educational approaches that help them understand the health impacts of consuming specific foods and beverages."

From: Food Product Design October 1, 2010

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Beating the Heat to Reduce Post-Harvest Waste

For a farmer in a hot country like Sudan, a big harvest can end up being just a big waste. A fresh tomato off the vine will only last about 2 days in the stifling heat, while carrots and okra might last only 4 days. Despite being perfectly capable of producing abundant harvests, without any means to store and preserve crops, farmers in Sudan are at risk for hunger and starvation. They are also losing money that could be made by selling surplus produce at markets if they had a way to keep vegetables longer.

The organization, Practical Action—a development non-profit that uses technology to help people gain access to basic services like clean water, and sanitation and to improve food production and incomes— provides a simple solution to this problem in the form of homemade clay refrigerators.

Practical Action’s clay refrigerators are called zeer pots and can be made out of mud, clay, water, and sand. To make one a farmer uses molds made out of mud to create two pots of different sizes. Once dry, the small pot is fitted into the larger pot and the space between them is filled with sand. By placing this structure on an iron stand so that air can flow underneath and all around, and by adding water to the sand between the pots daily, a farmer can use evaporation to keep the pots—and whatever is inside—cool.

In a zeer pot, tomatoes and carrots can last up to twenty days while okra will last for seventeen days. And this can make a huge difference for a small scale farmer who is trying to feed her family. One farmer, Hawa Abbas, featured in a Practical Action case study, used to regularly expect to lose half her crop to the inescapable heat. But now, “[*zeer pots*] keep our vegetables fresh for 3-4 weeks, depending on the type of crop,” she said. “They are very good in a hot climate such as ours where fruit and vegetables get spoiled in one day.”

From: Nourishing the Planet October 25, 2010

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Saturated Confectionery Markets of the West flourishing its way to India

India, today, is in its ‘sunshine period’ owing to the fast paced economic development in the country. The country’s healthy growth has insulated it from the impact of the global economic turmoil. All these have led to higher consumer spending in the country. As a result, many multinational corporations consider India to be a high growth market, and have set their eyes on not just expanding into the market but also creating presence across various customer and product segments. Food and beverage sector, especially the confectionery market has been the key area of focus for several large multinationals to expand in the country.

In 2009, the Indian confectionery market witnessed the launch of over 200 products in various categories. According to Datamonitor, the Indian confectionery market ranked among top 20 in terms of new product launches in 2009. Sugar confectionery had the highest number of product launches during the year, followed by chocolate which saw a significant increase in sales in the recent years.

With the increasing discretionary incomes of people in urban India , spending on chocolates, which has long been considered a luxury good, has increased significantly over 2005–09. Furthermore, chocolate sales have surpassed the sugar-boiled confectionery sales in India in the last few years, reflecting a trend of increased spending.

For a long time now, Indians have followed the tradition of exchanging sweets during festivals and occasions. In the recent years, chocolates have been replacing sweets on such special occasions in India. “An increasing number of wealthy and well-traveled Indians are demanding Western products, and many now see chocolate as a luxurious, exotic but affordable indulgence.” The year 2009 has witnessed the majority of new confectionery product launches in the last two quarters, which coincides with the Indian festival season,” says Saritha Pingali, Datamonitor Consumer Markets Analyst.

Another marking trend observed in the Indian confectionery market during 2009 was the emerging adult confectionery market, which is still in a nascent stage. “Considering that adults have higher discretionary income to spend on confectionery, manufacturers consider this to be a market which is less sensitive to price changes than the children’s confectionery segment” comments Saritha. However, manufacturers are also cautious of the increasing health consciousness among Indian adults and have launched few products specifically targeted at the health conscious adult consumer segment.

The Indian confectionery market seems to be trending towards health, with most of the claims on the new products launched in 2009 reflecting health and nutrition. ‘Vegetarian’ was the top claim among all the new confectionery products launched in the country in 2009, while claims such as 'no sugar', 'no gluten', 'high fiber' and 'high vitamins' have witnessed healthy growth over 2008. Surprisingly, ‘kids’ as a claim declined in 2009.

This could be attributed to the increasing focus on adult confectionery in the country. In 2009, majority of the top ten flavors of all the new confectionery products launched were fruit-based. Some of the top flavors that saw a significant increase over 2008–09 were: orange, raspberry and caramel however, despite the fact that Indians have started embracing foreign brands, the preference for local flavors remained unaltered. “The trend of targeting the urban Indian consumer is expected to continue along with a focus on rural India , where the country is expected to see a growth in discretionary incomes and consumer spending,” concludes Saritha.
From: Datamonitor Press Release October 13, 2010
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Health, Lifestyle Driving Savory Snacks Market

LONDON—Health-conscious and time-constrained consumers were key factors that propelled the $77 billion U.S. and European savory snacks markets in 2009, up more than 5% from the previous year, according to a new report from market researcher Business Insights.

According to “The Future of Premium, Ethical and Healthy Snacks" report, emerging countries such as Mexico, China and Brazil will play a pivotal role in the development of the savory snacks industry due to time-constrained lifestyles, easy acceptance of ingredients such as rice, corn, tofu and wheat and proliferation of organized retail outlets. Ethnic snacks also will grow in demand backed by an increasing number of travelers and migrates.

The report examines emerging market trends, summarizes novel savory snacks launched between June 2006 and May 2010, analyzes market data on the value growth of the savory snacks market, and analyzes innovation and NPD by region and category.

Food Product Design October 8, 2010
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Illinois Scientists Promote Soy by Currying Favor With Indian Taste Buds

Press Release -- URBANA, IL -- October 19, 2010 -- University of Illinois scientists think they have solved an interesting problem: how to get protein-deficient Indian schoolchildren to consume soy, an inexpensive and complete vegetable protein. What’s more, they’ve joined forces with an Indian foundation that can get the high-protein soy snack they’ve developed into the hands of 1.2 million hungry kids who need it. “Although the country has decidedly vegetarian tastes, the Indian people just don’t care for soy,” said Soo-Yeun Lee, a U of I associate professor of food science and human nutrition.

India is one of the world’s top five soy producers, but the country exports most of its crop, keeping only the oil for domestic

consumption. That's unfortunate because 24 percent of India's population is undernourished, and protein deficiency is an even greater concern. Eating more soy could help to alleviate that problem, the researcher said.

Because Indians are avid snackers, Lee and her U of I colleagues experimented with nine soy snack recipes, running into minor bumps along the way due to the ability of soy protein to bind flavors, which causes flavor fade and makes the soy taste more pronounced.

The extrusion process the food scientists were using also increased the snack's hardness when more protein was added. Those problems solved, Lee and her colleagues moved onto the next phase of the project—consumer taste tests. Seventy-two members of a surrogate Indian population in the Champaign-Urbana area were asked to participate in a sensory panel.

Snacks that were crunchy, salty and/or spicy, and contained umami, cumin, and curry flavors received high marks from participants. Panelists turned thumbs down on snacks with rougher, porous textures and wheat flavor and aroma. The soy snacks were then given to a 62-member sensory panel recruited at the International Society for Krishna Consciousness Temple in Bangalore, India. The final formulation included chickpea flour, a staple in Indian cuisine that provides a preferred texture and flavor, and such spices as cumin and red chili pepper.

The U of I scientists began working with Bangalore's Akshaya Patra Foundation, a non-governmental organization that runs one of the largest school meal programs in the world. The foundation now feeds over 1.2 million underprivileged Indian children a day. "A free school lunch is a powerful incentive for Indian children to attend school. When families are living in poverty, parents often keep their kids at home because they're more valuable there doing chores or selling goods on the streets," Lee said.

Not only that, research shows a correlation between school lunches that are high in protein and increased student performance. Having a protein deficiency at an early age can also cause future medical problems, so providing enough protein for these children who are hungry and getting just one meal per day at school is important, she added. The foundation has now acquired an extruder so they can make the snacks for their school lunch program and, as further testimony of the recipe's likability, sell them in the temple gift shop, she said. "I'd have to say that our attempts to make a soy snack that appealed to Indian tastes were pretty successful. Sensory scientists are important for their ability to make nutritious foods bridge cultural divides," she said.
Soy Tech eNews October 20, 2010

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Improper Glove Use Ups Foodborne Illness Risk

When it comes to foods safety, protective glove use can create a false sense of security, resulting in more high-risk behaviors that can lead to cross-contamination when employees are not adequately trained, according to a new study published in the ***Journal of Food Production***.

Many jurisdictions have made glove use compulsory for food production and preparation, which when used properly used can substantially reduce opportunities for food contamination; however, gloves have limitations and may become a source of contamination if they are punctured or improperly used.

Experiments conducted in clinical and dental settings have revealed pinhole leaks in gloves. Although such loss of glove integrity can lead to contamination of foods and surfaces, in the food industry improper use of gloves is more likely than leakage to lead to food contamination and outbreaks.

According to the findings, wearing jewelry such as rings and artificial nails is discouraged because these items can puncture gloves and allow accumulation of microbial populations under them. Occlusion of the skin during long-term glove use in food operations creates the warm, moist conditions necessary for microbial proliferation and can increase pathogen transfer onto foods through leaks or exposed skin or during glove removal.

From: Food Product Design October 12, 2010
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Muscle building ice cream – hitting Japanese shelves?

Ice cream that encourages muscle growth, wine which turns into a dessert when frozen, and sorbet made from coconut water are just a few of the latest consumer goods identified by Product Launch Analytics which could soon be available in Japan.

Cesar Pereira, Research Manager at Product Launch Analytics said: "This month we've identified a number of exciting innovations in the US which tap into the frugality trend by offering multiple benefits. With many consumers in Japan still under financial pressure, products like an ice cream which can also help build muscle and wine that turns into a dessert could prove popular if launched here. Manufacturers in Japan will therefore be watching carefully to see if these sorts of products are a success in the US, and if they are we may start to see an increase in multifunctional consumer goods in the near future."

• New Pro-Cream Performance Light Ice Cream claims to be the world's first performance ice cream which encourages muscle growth. The ice cream contains vitamins, minerals, fiber as well as whey and egg proteins, and comes in strawberry, vanilla and chocolate flavors.

• BonBlaze Wine turns into a dessert when frozen. It has a similar alcohol content to wine at 12.5%, includes real fruit, and comes in Natural Cranberry and Blueberry variants.

• Another dessert that also doubles as a health supplement is So Delicious Coconut Water Sorbet. The desert comes in hibiscus, lemonade, and mango and raspberry flavor. Although coconut water has been popular as a drink for some time due to its reported health benefits and subsequent adoption by celebrities, its appearance in a dessert could mean that it will start to turn up in many more foods in the coming months.
Datamonitor Press Release October 21, 2010
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Nano Confusion Risks Ill-Informed Consumer Backlash – Research

An overwhelming 90% of the UK population is confused or concerned about whether or not they would purchase food containing man-made nanoparticles, according to new research. The national survey, carried out by BMRB on behalf of business communications consultancy College Hill, has revealed that 38 per cent of householders would be unlikely to purchase such nanoparticle-containing foods, with a further 52 per cent remaining unsure about the advantages or risks.

The research precedes two important nano developments in the food industry: the emergence of a new class of nanostructure created from natural food ingredients*; and the upcoming Novel Foods Regulation EC 258/97. The latter could result in the mandatory pan-EU labelling of all ingredients present in the form of nano-materials, highlighting their presence with the word 'nano' in brackets following the ingredient listing.

Chris Woodcock, managing partner at College Hill and food and drink market specialist, comments: "This degree of confusion and lack of knowledge among consumers, so close to some important new obligatory transparency on nanotechnology in the food industry, is worrying and needs to be addressed. The food industry needs to educate and inform, so we avoid the major risk of partial understanding clouding consumer judgements."

According to Woodcock, with the current low-level of consumer familiarity, the proposed labelling introduction to nanotechnology could be a tough consumer pill to swallow – bringing with it a real danger of misinformation or malformed messaging, which could result in media-fuelled scare stories.

"Whilst still in its infancy, food nanotechnology is an exciting science which has the potential to offer numerous benefits to the food and drink industry. Nanoencapsulation, for example, offers the potential to produce functional foods with small (nanometre length) capsules containing ingredients that are otherwise difficult to incorporate into a mixture. For example, oil droplets containing nano-sized water particles can be used to reduce the fat content of foods such as mayonnaise, cream and chocolate while retaining good sensory properties."

The research has also revealed that, even when offered a choice of options, less than half (44 per cent) of UK consumers were able to accurately define the meaning of nanotechnology as 'a technology that involves using very small particles'.

But it is not just consumers grappling with understanding nanotechnology and its potential benefits for the food & drink industry. Working with nanotechnology specialist, BREC Solutions, College Hill has also produced an electronic 14 page 'Introduction to food and drink nanotechnology' pdf to help non-technical specialists in the industry understand the communications challenges of this technology. Specifically aimed at those working in non-technical roles in the food and drink sector, and with a foreword written Dr Mark Morrison, CEO, Institute of Nanotechnology, the document is available via email free of charge from victoria.cross@collegehill.com

Nanotechnology expert and co-author of the document, Dr Denis Koltsov, Director, BREC Solutions said: "Nanotechnology is a very broad term which unites objects according to size rather than functionality, origin or application so whether it's being used to drive household electronic devices, in hospital monitoring and treating patients or in the food and drink and packaging industries – it all comes under the same heading. It has the potential to be very confusing to those who don't understand what it means – consumers and industry professionals alike – which is why we have written this basic 'Introduction to…' guide.

"Nanotechnology is everywhere but the College Hill research confirms there is a major consumer uncertainty surrounding the science. This needs to be addressed through exemplary, proactive, two-way dialogue, by the nanotechnology community with all of its stakeholders, from government to the general public." Koltsov adds.

Source: Food Ingredients First 07 Oct 2010

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Trans-free Margarines for Baking

Once the link between *trans*-fat consumption and cardiovascular disease was made, it wasn't long before *trans* bans, labeling requirements and consumer demand sent food-product developers back to the bench to reformulate their products without *trans* fatty acids. "We've been at the forefront of the *trans*-fat conversion effort and have been leaders in using palm oil as a *trans*-fat replacement solution," says Jeffrey Fine, director of new products and technology, AarhusKarlshamn USA, Inc. (AAK). One solution is AAK's Cisao line of *trans*-free products, which includes palm-oil-based specialty margarines for baking. "Palm oil is naturally *trans*-free and is an excellent source of the solid fat needed for bakery functionality," Fine says.

The company says the margarines contain zero *trans* and are non-hydrogenated, a distinction that allows manufacturers to offer consumers the cleanest-possible label. "Consumers are confused by the term 'hydrogenated,'" Fine says. "To them, hydrogenated is equivalent to a product with *trans*, so we developed these products to deliver both attributes—zero *trans* and non-hydrogenated. The margarine line, whose name is a play off *cis*, the "good" fatty acid, includes three products: Cisao EX 36, Cisao 82-84 and Cisao 82-85. "There is a strong demand for highly functional margarines to replace hydrogenated soybean oil in puff pastry, croissant and other bakery applications that require a lot of fat functionality," Fine says.

The first, EX 36, is a roll-in margarine designed specifically for puff pastry. "It enables bakers to get the rise and lift they are looking for, and it provides good crumb structure," Fine says. Cisao 82-84 is a no-*trans*, non-hydrogenated margarine designed for croissants and other laminated doughs. "Products made with 82-84 have excellent crumb structure and excellent mouthfeel," Fine notes.

For manufacturers who don't require a targeted, specialty margarine, Cisao 82-85 is a versatile, highly functional, all-purpose margarine suitable for cookies, Danish and other bakery applications. It exhibits good plasticity and contributes to the overall flakiness of baked products. "These are our workhorse industrial margarines," Fine says. "They are a 1:1 replacement for hydrogenated soybean oil, and are designed to be highly functional. They all offer good workability, plasticity and cohesiveness."

Food Product Design October 26, 2010
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20 Spuds a Day Diet Supports the Potato

MOSES LAKE, Wash.— In an effort to remind the public about the nutritional value of potatoes, the Washington State Potato Commission's Executive Director Chris Voigt began a 60-day diet on Oct. 1 consisting of only potatoes and potato products. The 6'2", 195-pound Voigt began his "20 Potatoes a Day Diet" to prove he can remain healthy while eating nothing but the tasty tubers, which are rich in protein, potassium, fiber, vitamin C and other nutrients.

To maintain his body weight, he calculated that he needs the equivalent of 20 averaged-sized potatoes a day, baked, boiled, pan fried and steamed, as well as french fries and plain mashed potatoes made from dehydrated flakes. The diet allows oil for cooking, as well as ketchup, hot sauce, herbs and spices, but no sour cream, butter, chili, cheese, gravy or any other condiment.

Voigt set up a website, **20potatoesaday.com**, which contains facts about potato nutrition, a frequently updated blog and videos of him grocery shopping and surfing in a potato mascot suit, as well as a link to the Facebook page. Voigt is quick to correct misconceptions or answer queries about the nutritional value of potatoes, and claims the inspiration for the potato diet was the government's deletion of the vegetable from the Women, Infants and Children (WIC) program.

From: Food Product Design October 4, 2010

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Black Rice: A New (But Ancient) Superfood

American consumers have the luxury of choosing from a variety of rice that spans from white and brown to Jasmine and Basmati. Soon to be added to that selection will be an even more nutritious variety of rice that has been known to Asian consumers for centuries. Black rice, currently found primarily in specialty food markets, will likely be making its way out into larger consumer markets soon thanks to research presented at a recent meeting of the American Chemical Society (ACS). Black rice, they said, has a high antioxidant content—a distinction that makes it stand apart from other varieties of rice.

Black rice has an incredibly rich history and counts among its strains one variety known as "Imperial Rice" because it was reserved for the Emperor's consumption only. In present day, black rice consumption is more common.

Black rice, as one would imagine, is deep black in color and mutates into a regal purple hue when cooked. The purple color is due to the grain's naturally high anthocyanin content, a trait most typically observed in fruits such as blueberries and blackberries.

"Just a spoonful of black rice bran contains more health promoting anthocyanin antioxidants than are found in a spoonful of blueberries, but with less sugar and more fiber and vitamin E antioxidants," said Dr. Zhimin Xu, associate professor at the Department of Food Science at Louisiana State University Agricultural Center in Baton Rouge, LA, during his presentation at the ACS meeting. "If berries are used to boost health, why not black rice and black rice bran? Especially, black rice bran would be a unique and economical material to increase consumption of health promoting antioxidants."

Like fruits, black rice is rich in anthocyanin antioxidants, substances that show promise for fighting heart disease, cancer and other diseases. Food manufacturers could potentially use black rice bran or the bran extracts to boost the health value of breakfast cereals, beverages, cakes, cookies and other foods, Dr. Xu and his research team suggested.

In an interview with *Nutraceuticals World*, Dr. Xu explained that nutritional potential of black rice captured his attention a few years ago, while he and his colleagues were conducting research on fat-soluble nutraceuticals. "My lab has been working on fat-soluble nutraceuticals, such as gamma-tocotrienol and oryzanol in brown rice bran for many years. Also, my lab is doing several projects related to water-soluble anthocyanins antioxidants in berries and grapes these years," he said. "As these sources are only rich in either fat or water-soluble antioxidants, it led me to think which one source has both types of the antioxidants, which might have synergic health function in preventing chronic diseases. So, black rice bran got my attention. The hypothesis was that the bran still presented a fat-soluble antioxidant while its black color is water-soluble anthocyanins."

Most consumers are already aware that conventional brown rice is nutritionally superior to white rice in the way of fiber and beneficial vitamins because its outer layer (also known as a husk or chaff) and bran layers remain intact during processing. Brown rice is the most widely produced rice variety worldwide.

Dr. Xu explained that the bran of brown rice contains a higher level of gamma-tocotrienol, one of vitamin E compounds, and gamma-oryzanol antioxidants, which are lipid-soluble antioxidants. "Numerous studies showed that these antioxidants can reduce blood levels of low-density lipoprotein (LDL) cholesterol—so called 'bad' cholesterol—and may help fight heart disease," he said.

Dr. Xu and colleagues analyzed samples of black rice bran from rice grown in the southern U.S. In addition, the lipid-soluble antioxidants they found in black rice bran possessed a higher level of anthocyanins antioxidants, which are water-soluble antioxidants. Thus, he concluded, black rice bran may be even healthier than brown rice bran.

“The average anthocyanins content in black rice bran is over 3.5 mg/g,” he said. “The content of vitamin E is between 0.01-0.05% and oryzanol is 0.1-0.3%. The fiber content is 7-11%.”

The team spent two years working on its black rice study prior to presenting their findings to the ACS. They are currently developing a technology to utilize black rice bran as a natural food ingredient, which, in turn, might facilitate its use in different food products. They also plan to secure the rights to the outcome of their work before publishing their research.

The scientists also demonstrated how the pigments in black rice bran extracts can produce a variety of different colors, ranging from pink to black—a phenomenon they said may help provide a healthier alternative to artificial food colorants that manufacturers now add to some foods and beverages, as several studies have linked some artificial colorants to cancer, behavioral problems in children and other health problems.

Black rice is used mainly in Asia for food decoration, noodles, sushi and pudding. Dr. Xu said that farmers are interested in growing black rice in Louisiana and that he would like to see people in the country embrace its use. “The black rice bran can be used for breakfast cereals, baked products, bars and tablets,” he commented.

In China, noodles made from black rice have recently begun to be produced and at least one U.S. bread company—CA-based Food For Life Baking Company Inc.—has also begun producing “Chinese Black Rice” bread.
Reported in Nutraceuticals World October 4, 2010
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Curcumin May Unlock Secret to Colon Cancer

LEICESTER, United Kingdom—Researchers at the University of Leicester are investigating the colorectal cancer-fighting potential of the curcumin, an extract of the common curry spice turmeric. Colon cancer is the third leading cause of cancer deaths in the western world. The research, funded by Hope Against Cancer, will lead to a better understanding of the mechanisms through which curcumin targets resistant cells in tumors. It also may help identify patient populations who are most likely to benefit from curcumin treatment in the future.

Researchers are using actual tissue from tumors extracted from patients undergoing surgery. The aim is use tissue from the colorectal tumors to effectively target chemo-resistant cells using curcumin. “Following treatment for cancer, small populations of cancer cells often remain which are responsible for disease returning. These cells appear to have different properties to the bulk of cells within a tumor, making them resistant to chemotherapy," said Dr. Karen Brown, principal investigator. “Previous laboratory research has shown that curcumin, from turmeric, has not only improved the effectiveness of chemotherapy but has also reduced the number of chemo-resistant cells which has implications in preventing the disease returning."

From: Food Product Design September 29, 2010
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Think saturated fat contributes to heart disease? Think again

Leading scientists re-examine the role of saturated fat in the diet

(Rosemont, IL) Oct. 1 – For the past three decades, saturated fat has been considered a major culprit of cardiovascular disease (CVD) and as a result dietary advice persists in recommending reduced consumption of this macronutrient. However, new evidence shows that saturated fat intake has only a very limited impact on CVD risk -- causing many to rethink the "saturated fat is bad" paradigm.

A series of research articles published in the October issue of *Lipids* provides a snapshot of recent advances in saturated fat and health research, based on science presented at the 100th American Oil Chemists' Society (AOCS) annual meeting in Orlando, Florida (May 2009). During a symposium entitled "Saturated Fats and Health: Facts and Feelings," world-renowned scientists specializing in fat research analyzed the evidence between saturated fat intake and health, and overall agreed upon the need to reduce over-simplification when it came to saturated fat dietary advice.

"The relationship between dietary intake of fats and health is intricate, and variations in factors such as human genetics, life stage and lifestyles can lead to different responses to saturated fat intake," said J. Bruce German, PhD, professor and chemist in the Department

of Food Science and Technology, University of California at Davis. "Although diets inordinately high in fat and saturated fat are associated with increased cardiovascular disease risk in some individuals, assuming that saturated fat at any intake level is harmful is an over-simplification and not supported by scientific evidence."

Professor Philippe Legrand of Agrocampus-INRA in France confirmed this by discussing various roles that different saturated fatty acids play in the body. His main conclusion was that saturated fats can no longer be considered a single group in terms of structure, metabolism and cellular function, and recommendations that group them together with regard to health effects need to be updated.

Effect of Saturated Fat Replacement on CVD Risk

Results from a research review conducted by Dariush Mozaffarian, MD, MPH, Department of Epidemiology and Nutrition at Harvard University School of Public Health, found that the effects of saturated fat intake on CVD risk depend upon simultaneous changes in other nutrients. For example, replacing saturated fat with mono-unsaturated fat yielded uncertain effects on CVD risk, while replacing saturated fat with carbohydrates was found to be ineffective and even harmful especially when refined carbohydrates such as starches or sugars were used in place of fat . Replacing saturated fat with polyunsaturated fat gave a small reduction in CVD risk, but even with optimal replacement the magnitude of the benefit was very small. According to Mozaffarian it would be far better to focus on dietary factors giving much larger benefits for CVD health, such as increasing intake of seafood/omega-3 fatty acids, whole grains, fruits and vegetables, and decreasing intake of trans fats and sodium.

"Carbohydrate intake has been intimately linked to metabolic syndrome, which is a combination of risk factors that can increase CVD risk," said Jeff Volek, PhD, RD, Department of Kinesiology, University of Connecticut. His research showed that very low carbohydrate diets can favorably impact a broad spectrum of metabolic syndrome and cardiovascular risk factors, even in the presence of high saturated fat intake and in the absence of weight loss.

Kiran Musunuru, MD, PhD, MPH. Cardiovascular Research Center and Center for Human Genetic Research, Massachusetts General Hospital, focused on the role of carbohydrates and fats on atherogenic dyslipidemia – a new marker for CVD risk often seen in patients with obesity, metabolic syndrome, insulin resistance and type 2 diabetes. He showed that low-carbohydrate diets appear to have beneficial lipoprotein effects in individuals with atherogenic dyslipidemia, compared to high-carbohydrate diets, whereas the content of saturated fat in the diet has no significant effect.

Full-Fat Dairy: An Unnecessary Target?

As long as saturated fat targets remain firmly rooted in dietary advice, nutrient-rich foods that contribute saturated fat to the diet, like full-fat dairy products, will continue to be unduly criticized regardless of their health benefits.

A recent meta-analysis of epidemiological and intervention studies of milk fat conducted by Peter Elwood, DSc, MD, FRCP, FFPHM, DUniv, Hon DSc, Honorary Professor at the School of Medicine, Cardiff University, found that milk and dairy consumption actually was associated with a decrease in CVD risk .

"It is clear that we have barely scratched the surface in our understanding about the biological effects of saturated fatty acids," said Cindy Schweitzer, PhD, Technical Director, Global Dairy Platform. "Scientific meetings where researchers from different disciplines within the field of nutrition share information are extremely important to identify both the gaps in our knowledge and the studies that are needed to answer the important questions about diet and health."

All of these recent research advances add to the growing body of science re-assessing the role of saturated fat in the diet. Whether it's nutrient replacement or better understanding the role certain foods can play in CVD risk, saturated fat is definitely not be as bad as once thought.

From: Eurekalert October 1, 2010

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The gut-brain connection

Have you ever had a “gut-wrenching” experience? Do certain situations make you “feel nauseous”? Have you ever felt “butterflies” in your stomach? We use these expressions for a reason. The gastrointestinal tract is sensitive to emotion. Anger, anxiety, sadness, elation—all of these feelings (and others) can trigger symptoms in the gut.

The brain has a direct effect on the stomach. For example, the very thought of eating can release the stomach’s juices before food gets there. This connection goes both ways. A troubled intestine can send signals to the brain, just as a troubled brain can send signals to

the gut. Therefore, a patient's distressed gut can be as much the cause as the product of anxiety, stress, or depression. That's because the brain and the gastrointestinal (GI) system are intimately connected — so intimately that they should be viewed as one system, rather than two.

This is especially true in cases where a person experiences gastrointestinal upset with no obvious physical cause. For such functional GI disorders, trying to heal a distressed gut without considering the impact of stress and emotion is like trying to improve an employee's poor job performance without considering his manager and work environment.

Stress and the functional GI disorders

Given how closely the gut and brain interact, it becomes easier to understand why you might feel nauseated before giving a presentation, or feel intestinal pain during times of stress. That doesn't mean, however, that functional gastrointestinal illnesses are imagined or "all in your head." Psychology combines with physical factors to cause pain and other bowel symptoms. Psychosocial factors influence the actual physiology of the gut, as well as the modulation of symptoms. In other words, stress (or depression or other psychological factors) can affect movement and contractions of the GI tract, cause inflammation, or make you more susceptible to infection.

In addition, research suggests that some people with functional GI disorders perceive pain more acutely than other people do because their brains do not properly regulate pain signals from the GI tract. Stress can make the existing pain seem even worse.

These observations suggest that at least some patients with functional GI conditions might find relief with therapy to reduce stress or treat anxiety or depression. And sure enough, a review of 13 studies showed that patients who tried psychologically based approaches had greater improvement in their symptoms compared with patients who received conventional medical treatment.

Is stress causing your symptoms?

When evaluating whether your gastrointestinal symptoms — such as heartburn, abdominal cramps, or loose stools — are related to stress, watch for these other common symptoms of stress and report them to your clinician as well.

Physical symptoms

- Stiff or tense muscles, especially in the neck and shoulders
- Headaches
- Sleep problems
- Shakiness or tremors
- Recent loss of interest in sex
- Weight loss or gain
- Restlessness

Behavioral symptoms

- Procrastination
- Grinding teeth
- Difficulty completing work assignments
- Changes in the amount of alcohol or food you consume
- Taking up smoking, or smoking more than usual
- Increased desire to be with or withdraw from others
- Rumination (frequent talking or brooding about stressful situations)

Emotional symptoms

- Crying
- Overwhelming sense of tension or pressure
- Trouble relaxing
- Nervousness
- Quick temper
- Depression
- Poor concentration
- Trouble remembering things

- Loss of sense of humor
- Indecisiveness

From: Health Beat: Harvard Medical School, October 5, 2010
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CRN Underscores Importance of DHA Consumption during Pregnancy

Oct 21 2010 --- In response to a study regarding fish oil use during pregnancy published in the October 19 issue of the Journal of the American Medical Association (JAMA), the Council for Responsible Nutrition (CRN), the leading trade association for the dietary supplement industry, reminds pregnant and lactating women of the undisputed importance of consuming the recommended amounts of docosahexaenoic acid (DHA) throughout pregnancy. This can be done by eating two servings of fatty fish, such as sardines or anchovies, per week, or taking fish oil supplements (containing 200-300 mg/DHA, according to the Institute of Medicine) daily. While the benefits of DHA for a healthy pregnancy are well-established, more research is necessary to determine the effect of DHA on incidence of post-partum depression or neurocognitive development of infants.

"A large body of scientific evidence has established a strong relationship between the DHA status of mothers and infants and a variety of important pregnancy-related outcomes, including infant development," said Duffy MacKay, N.D., vice president, scientific & regulatory affairs, CRN. "Unfortunately in this trial, we have no idea of the DHA status of the mothers at the beginning of pregnancy or when they were evaluated for depression. Further we have no idea of the DHA status of the infants at 18 months when they were evaluated for neurocognitive outcomes. Without measurements of DHA status, it is difficult to draw conclusions from the study and certainly should not provide definitive advice to consumers."

There are many established variables that would impact individual DHA status for the mothers and children of both the supplemented and control group in this study, including differences in the ability to synthesize DHA from other fatty acids, the rate of maternal to fetal transfer of DHA, the status of other nutrients required to synthesize DHA, as well as other dietary sources of DHA not controlled for.

Dr. MacKay continued that the timeliness of the dosing may have had an impact. "Supplementation occurred from mid-term to delivery-we know that maternal DHA status returns to below pre-pregnancy levels within a few weeks from delivery. A mother in the treatment group who started the trial with low DHA status would have returned to pre-pregnancy status by the time she was evaluated for depression at six weeks and six months post delivery. We may have seen different results if these women took fish oil consistently leading up to, during and after pregnancy, or if we were able to stratify the results based on DHA status."

This applies to the findings for the infants, as well, as there is no information about what they were given in the eighteen month period following birth-some infants in the control group may have received DHA through breast milk if the mother was eating fish or taking fish oil supplements, or through DHA-enriched formula.

"Essentially, DHA status needs to be adequate throughout pregnancy for women and their infants to receive the many established benefits," continued Dr. MacKay. "We must also remember that both depression and childhood development are impacted by many different variables and maintaining good nutrition is just one important preventive step mothers can take to achieve the best outcomes. Taking fish oil has so many benefits; although this study did not prove that DHA dramatically impacted these complicated issues under these specific conditions, it's still widely known to be important for pregnant women and their offspring."

The DHA to Optimize Mother Infant Outcome (DOMInO) trial was conducted in five Australian maternity hospitals of 2,399 pregnant women who were less
than 21 weeks' gestation to determine if taking fish oil provided 1) reduced risk of depressive symptoms in the postnatal period, and 2) improved developmental outcomes in the offspring.

Secondary study findings showed that the women supplemented with DHA had lower incidence of preterm birth and lower incidence of low birth weight offspring, which is associated with a variety of positive long-term outcomes, including better cognitive development. Aside from its heart benefits, fish oil is also important for mothers-to-be as it is known to reduce inflammation and promote brain, skin, bone and eye health.

"As the accompanying editorial acknowledges, taking fish oil can contribute to an overall healthy pregnancy. We encourage pregnant and lactating women, and all women of childbearing age to talk with their doctors and make sure they are receiving adequate amounts of DHA," said Dr. MacKay.

"Additionally, these women should take 400 mcg of folic acid to help prevent neural tube birth defects. There are many things women

can do to help optimize their health and wellness during pregnancy-and at the end of the day all of this translates into better health for their baby."

Nutrition Horizon October 21, 2010
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Eating More Whole -- Not Refined -- Grains Linked to Lower Levels of Dangerous Type of Fat: New Study

Press Release -- October 20, 2010 -- People who consume several servings of whole grains per day while limiting daily intake of refined grains appear to have less of a type of fat tissue thought to play a key role in triggering cardiovascular disease and type 2 diabetes, a new study suggests. Researchers at the Jean Mayer USDA Human Nutrition Researcher Center on Aging (USDA HNRCA) at Tufts University observed lower volumes of visceral adipose tissue (VAT) in people who chose to eat mostly whole grains instead of refined grains.

“VAT volume was approximately 10 % lower in adults who reported eating three or more daily servings of whole grains and who limited their intake of refined grains to less than one serving per day,” says first author Nicola McKeown, PhD, a scientist with the Nutritional Epidemiology Program at the USDA HNRCA. “For example, a slice of 100% whole wheat bread or a half cup of oatmeal constituted one serving of whole grains and a slice of white bread or a half cup of white rice represented a serving of refined grains.”

McKeown and colleagues, including senior author Caroline S. Fox, MD, MPH, medical officer at The Framingham Heart Study of the National Heart Lung and Blood Institute (NHLBI), examined diet questionnaires submitted by 2,834 men and women enrolled in The Framingham Heart Offspring and Third Generation study cohorts. The participants, ages 32 to 83, underwent multidetector-computed tomography (MDCT) scans, to determine VAT and subcutaneous adipose tissue (SAT) volumes.

Visceral fat surrounds the intra-abdominal organs while subcutaneous fat is found just beneath the skin. “Prior research suggests visceral fat is more closely tied to the development of metabolic syndrome, a cluster of risk factors including hypertension, unhealthy cholesterol levels and insulin resistance that can develop into cardiovascular disease or type 2 diabetes,” explains co-author Paul Jacques, DSc, director of the Nutritional Epidemiology Program at the USDA HNRCA and a professor at the Friedman School of Nutrition Science and Policy at Tufts. “Not surprisingly, when we compared the relationship of both visceral fat tissue and subcutaneous fat tissue to whole and refined grain intake, we saw a more striking association with visceral fat. The association persisted after we accounted for other lifestyle factors such as smoking, alcohol intake, fruit and vegetable intake, percentage of calories from fat and physical activity.”

Published online September 29 by The American Journal of Clinical Nutrition, the present study builds on prior research that associates greater whole grain intake with reduced risk of metabolic syndrome and insulin resistance. “However, because these studies are observational, future research that specifically investigates whole grain intake and body fat distribution in a larger, more diverse study population is needed to identify the mechanism that is driving this relationship,” Jacques adds.

Additionally, in the present study, the authors observed that participants who consumed, on average, three daily servings of whole grains but continued to eat many refined grains did not demonstrate lower VAT volume. “Whole grain consumption did not appear to improve VAT volume if refined grain intake exceeded four or more servings per day,” says McKeown, who is also an assistant professor at the Friedman School. “This result implies that it is important to make substitutions in the diet, rather than simply adding whole grain foods. For example, choosing to cook with brown rice instead of white or making a sandwich with whole grain bread instead of white bread.”

This study is funded by the National Heart Lung and Blood Institute (NHLBI), the USDA, and a research grant from the General Mills Bell Institute of Health and Nutrition.

About Tufts University School of Nutrition
The Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy at Tufts University is the only independent school of nutrition in the United States. The school's eight degree programs which focus on questions relating to famine, hunger, poverty, and communications, are renowned for the application of scientific research to national and international policy. For two decades, the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University has studied the relationship between good nutrition and good health in aging populations. Tufts research scientists work with federal agencies to establish the USDA Dietary Guidelines, the Dietary Reference Intakes, and other significant public policies.
Soya Tech eNews October 21, 2010
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Fish-filled diet may cut prostate cancer mortality

According to *Reuters Health*, a study published in the *American Journal of Clinical Nutrition* shows that eating lots of fish may not protect men from developing prostate cancer, but it could reduce their risk of dying from the disease.

While fish is known to have many health benefits, including cutting the risk of heart disease and stroke, there is a question of whether it could protect against prostate cancer. The researchers analyzed 31 studies including hundreds of thousands of patients. Seventeen of the studies were case-control, meaning they compared eating patterns among people with prostate cancer ("cases") and matched controls without the disease. The remaining 14 studies were cohort studies, which followed men over time and compared diets of those who developed prostate cancer to the diets of the men who remained free from the disease.

Overall, the researchers found no link between eating lots of fish and men's risk of developing prostate cancer. But they did find that men who ate more fish were 44% less likely to develop metastatic prostate cancer, meaning disease that had spread beyond the prostate gland. Higher fish consumption also was associated with a 63% lower risk of dying from prostate cancer.

Given that the studies included in their analysis used a number of different measurements of fish intake, the researcher said, it's impossible to say how much fish one would need to eat in order to get a protective effect. It's possible that fish may reduce prostate cancer mortality by reducing men's likelihood of developing metastatic disease. The researchers suggest that the anti-inflammatory effect of fish oils could help fight cancer progression.

From: IFT Newsletter October 13, 2010

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In a balanced diet, sweeteners may not contribute to obesity

A new study, presented on Oct. 9 at the Obesity Society's 28th Annual Scientific Meeting, shows that fructose-containing sweeteners (sugar, high fructose corn syrup) do not uniquely contribute to obesity when consumed as part of a healthy weight maintenance diet. The double-blind study also found that high fructose corn syrup (HFCS) no more contributes to caloric intake than table sugar (sucrose).

In the study, overweight or obese adults were placed on a 10-week eucaloric diet (an eucaloric diet provides your body with just the right number of calories necessary to maintain current body weight) that incorporated either high fructose corn syrup or sucrose-sweetened, low-fat milk. Participants' consumption of low-fat milk accounted for 10–20% of the daily allotted calories, representing typical levels of sweetener consumption. Study participants did not experience a change in body weight, percent of body fat, fat-mass, or percent of abdominal body fat. Additionally, there were no statistical differences between people given high fructose corn syrup and those given sucrose.

The absence of any statistically significant differences between the two groups suggests that: when consumed as part of a weight-stable diet, fructose does not promote weight gain or accumulation of total or abdominal fat; and there are no differences between sucrose and HFCS in these measures at typical levels of sweetener consumption.

From: IFT Newsletter October 13, 2010

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Multivitamins may protect women against heart disease, study suggests

- Women without cardiovascular disease who take multivitamins may have a lower chance of suffering a heart attack, according to new research undertaken in Sweden. Researchers at the Karolinska Institutet in Stockholm observed 31,671 women with no history of heart disease and 2,262 women who did have cardiovascular disease for about 10 years. The women ranged in age from 49 to 83 at the study's outset, and about 60% of women in each of the two groups used some type of dietary supplement.

During the observed period, 932 heart attacks occurred among the women without heart disease. Among the women in this group who did not take any dietary supplements, 3.4% had heart attacks, compared with 2.6% of the women who took multivitamins. This translated to a 27% lower heart attack risk with vitamins. Taking a multivitamin for less than five years reduced heart attack risk by 18% compared with non-users of supplements, while taking vitamins for 10 or more years cut risk by 41%.

But vitamin pills seemed to have less of an effect in women who already had heart disease, the researchers found. A total of 269 of these women had a heart attack over the study period. This sub-group was made up of 13% of the non-supplement users and 14% of women who took multivitamins, which meant there was no significant statistical difference one way or the other.

Susanne Rautiainen, who led the study, said the results didn't definitively settle the question of whether it was the vitamin pills that were protective. "It is very important to keep in mind that multivitamin users tend be healthier in general," she told Reuters. "They usually smoke less, are more physically active and have a healthier diet. Even if we have controlled for many of those factors that are associated with a healthy behavior we cannot exclude the possibility that we might measure a healthy lifestyle via multivitamin use."

Functional Ingredients October 26, 2010

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Potatoes No Longer Shunned in Diets

SAN DIEGO—Long shunned from traditional diets, potatoes have been found to be a part of a weight-loss program when prepared in a healthful manner, according to new research presented Oct. 12 during the 2010 Annual Scientific Meeting of the Obesity Society.

Researchers at the University of California, Davis and the National Center for Food Safety and Technology, Illinois Institute of Technology studied 86 overweight men and women over 12 weeks to measure the effects of a reduced-calorie modified glycemic index (GI) diet with the addition of potatoes.

Three groups with randomly selected persons were formed, each having a diet that included five to seven servings of potatoes per week. Results showed that all three groups lost weight.

One group was given a list of foods with a low-glycemic index (LGI) to include in their diet daily; the second group was given a list of foods with a high-glycemic index (HGI) to include in their diet daily; the control group was allowed to choose their daily meals and caloric intake on their own, but were encouraged to adhere to the U.S. dietary guidelines and the food guide pyramid. The only requirement of the third group was like the other two groups they had to include five to seven servings of potatoes each week. Both groups reduced their daily caloric intake by 500 calories and consumed five to seven servings of potatoes each week. All participants were guided and monitored for compliance by a dietitian to only eat foods on their lists or like foods along with the provided potatoes.

All subjects were provided recipes and counseled for successful dietary adherence. The results indicated that all three groups lost weight and there was no significant difference in weight lost between the low and high glycemic index groups.

One medium-size (5.3 ounce) skin-on potato contains just 110 calories per serving, boasts more potassium (620g) than a banana, provides almost half the daily value of vitamin C (45 percent), and contains no fat, sodium or cholesterol.

“The results of this study confirm what health professionals and nutrition experts have said for years; when it comes to weight loss, it is not about eliminating a certain food or food groups, rather, it is reducing calories that count," said lead researcher Dr. Britt Burton-Freeman, PhD, MS. “There is no evidence that potatoes, when prepared in a healthful manner, contribute to weight gain. In fact, we are seeing that they can be part of a weight-loss program."

Food product Design October 13, 2010
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Research Confirms Safety and Importance of Vitamin D

Consumers should feel confident that the vitamin D intake levels needed to achieve the numerous health benefits demonstrated by growing scientific literature does not present a health risk, according to the Council for Responsible Nutrition (CRN), Washington, D.C. Andrew Shao, PhD, senior vice president, Scientific and Regulatory Affairs, reached this conclusion based on a benefit-risk assessment published in the July issue of *Osteoporosis International*, of which he was a co-author along with his CRN colleague John Hathcock, PhD, senior vice president, Scientific and International Affairs, and academic researchers from Harvard University, Tufts University and the University of Zurich (Switzerland).

In recent years, research has pointed to benefits from vitamin D beyond bone health and at doses considerably higher than what is currently recommended by the Institute of Medicine (IOM). This analysis compared the benefits of supplemental vitamin D as measured by the incidence of falls, fractures, cardiovascular outcomes and colon cancer with the potential risk of adverse effects as measured by elevated blood calcium. The authors concluded the vitamin D intake needed for optimal benefit is far from that which poses a risk.

To assess benefit, the authors based their analysis on published double-blind randomized control trials (RCTs) that examined the effect of supplemental vitamin D on fall and fracture risk. The researchers found that optimal benefits were observed at a mean serum

25(OH)D level—the body's marker of vitamin D nutritional status—between 75 and 110 nmol/l (30-44 ng/ml), resulting from a vitamin D dose of about 1000 IU per day. The authors also assessed published cohort data on cardiovascular outcomes and colorectal cancer risk, and found optimal benefit at similar serum 25(OH)D levels.

To assess risk, the authors examined data from these same studies as well as additional trials involving supplementation with high doses of vitamin D. At these optimal and even much higher levels, the authors observed no increase in risk for elevated blood calcium, consistent with findings from a previous analysis concluding that up to 10,000 IU/day can be consumed without risk for adverse effects.

"Over the years, a large body of research has accrued on both the benefits and potential risks of vitamin D, but these analyses on efficacy and safety have been conducted separately. This combined benefit-risk analysis allows for the comparison of the efficacy and safety of vitamin D in a side-by-side manner," according to Dr. Shao. "It is clear from our present and past analyses that optimal blood levels of vitamin D achieved with oral doses of up to 4000 IU daily are associated with little, if any, risk."

With the IOM currently reviewing the scientific literature to revise the Dietary Reference Intakes (DRIs) for vitamin D to more closely match the updated science, this type of published analysis should be useful.

"The IOM recommendations will be released soon and we trust they will take this latest analysis into consideration," said Dr. Shao. "We're so much farther along scientifically than where we were when the current DRIs were published more than 13 years ago. We now know much more about the benefits of vitamin D, and we know there is a wide safety margin between the dose that is beneficial and where risk for adverse effects begins in normal healthy adults. The next step is to get more useful recommendations to the general public."
Nutraceuticals World October 15, 2010
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Japanese researchers find that electricity and high frequency sound waves can dramatically boost a potato's antioxidant content.

It may be a tasty and versatile food staple, but the common potato is not exactly renowned for its antioxidant content; however "electrifying" research conducted by Japanese scientists may rewrite the nutritional reputation of the potato, raising it from common carb to antioxidant super spud.

In research presented at a meeting of the American Chemical Society, researchers from the Obihiro University of Agriculture and Veterinary Medicine in Hokkaido, Japan, explained that two inexpensive methods—delivering an electric shock or a zap of high frequency sound waves—effectively increased the amount of antioxidants in potatoes by 50%.

The ultrasound treatment consisted of immersing whole potatoes in water and subjecting them to ultrasound for five or 10 minutes. For the electrical treatment, the scientists immersed potatoes in a salt solution for 10 seconds and subsequently treated the spuds with a small electrical charge for 10, 20, and 30 minutes. The study team then measured antioxidant activity and the phenolic content and concluded that the stresses increased the amount of these compounds. The five minutes of ultrasound, for instance, increased polyphenol levels by 1.2 times and other antioxidants by about 1.6 times.

"We found that treating the potatoes with ultrasound or electricity for five to 30 minutes increased the amounts of antioxidants—including phenols and chlorogenic acid—by as much as 50%," commented Kazunori Hironaka, PhD, the lead researcher and an associate professor in the university's department of food science. "Antioxidants found in fruits and vegetables are considered to be of nutritional importance in the prevention of chronic diseases, such as cardiovascular disease, various cancers, diabetes and neurological diseases."

Dr. Hironaka told *Nutraceuticals World* that he has been researching chemical and physical properties of potatoes for many years, paying special attention to how stresses like drought or bruising could stimulate the accumulation of beneficial phenolic compounds. "In general, wounding increases polyphenols," he said.

The introduction of stress via electric shock and ultrasound arose out of intuition. "We found that there hasn't been any research on the healthful effects of using mechanical processes to stress vegetables. So we decided on this study to evaluate the effect of ultrasound and electric treatments on polyphenols and other antioxidants in potatoes," he said. "I think that these treatments are useful for enriching potato antioxidant activity with non-destructive and short-time benefits."

Why potatoes? The answer is one of local resourcefulness. "My university is surrounded by potatoes," Dr. Hironaka said. "And, I had been researching potato physiology (low-temperature sweetening) and utilization for many years, so I chose potatoes naturally."

Dr. Hironaka postulated that the process could have widespread commercial application, due to consumer interest in functional foods that may have health benefits beyond those of traditional nutrition, which promote overall good health or reduce the risk of health conditions or specific diseases.

Though his experiment with potatoes was a first, Dr. Hironaka said it will not be the last. He said other fruits and vegetables show similar potential when it comes to having their antioxidants boosted with either electricity or high frequency sound waves. “Stress-sensitive fruits/vegetables seem to be effective, for instance, banana, peach, grape and apple,” he said.

Dr. Hironaka is currently in the process of formally writing the research for publication. He said it will be contributed to "Journal of Agriculture and Food Chemistry" or "Food Chemistry" by the end of this month.
Nutraceuticals World October 21, 2010
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Carbohydrate Claims Can Mislead Consumers, Study Finds

Food manufacturers advertise a variety of foods on grocery store shelves by using nutrient claims on the front of packaging. A study in the September/October issue of the Journal of Nutrition Education and Behavior evaluates how consumers are interpreting certain carbohydrate-related content claims and the effects of claims on consumer perceptions of food products. Findings from this study reveal that consumers misinterpret low carbohydrate claims to have health benefits and weight loss qualities beyond their nutrition facts.

In the early 2000s, low-carbohydrate claims gained huge popularity in response to such books as Dr. Atkin's New Diet Revolution and The South Beach Diet. In a study published in AC Nielsen Consumer Insights, it was noted that there was a 516% sales increase in low-carbohydrate food products from 2001 to 2005 showing that front of package claims can play a large part in consumer decisions.

Existing research suggests that consumers are less likely to turn to the back of a package to look at the Nutrition Facts panel when there is a claim on the front of the package. In the new study, researchers at the United States Food and Drug Administration, Center for Food Safety and Applied Nutrition sought to determine whether low-carbohydrate claims might lead consumers to perceive products to have benefits that are not necessarily related to being low in carbohydrate. Using an online questionnaire, 4,320 consumer panelists rated products for their perceived healthfulness, helpfulness for weight management, and caloric content based on front-of-package-only conditions (nutrition claims versus no nutrition claims) and availability of Nutrition Facts panels.

This study documents that in the absence of Nutrition Facts panels, "low-carbohydrate claims led to more favorable perceptions about products' helpfulness for weight management, healthfulness, and caloric content. Because an individual packaged food product's usefulness for weight management as part of an overall diet, its healthfulness, and total calorie content are not dependent solely on the amount of total carbohydrate it contains, the study demonstrated that consumers could misattribute benefits to products that claim to be low in carbohydrate."

However, the researchers found that when the Nutrition Facts panels are available "participants' perceptions became more consistent with the nutrition profile of the products…By showing the claims and the NF [nutrition facts] side-by-side, both pieces of information were equally accessible to participants as they answered the study questions. The presence of the NF, however, allowed participants to use this more diagnostic information to judge the product."

One limitation mentioned in this study by Dr. Judith Labiner-Wolfe, former consumer science specialist at the United States Food and Drug Administration (now an evaluation specialist at the United States Department of Health and Human Services' Office on Women's Health) and colleagues is that "the online venue for viewing the stimuli and answering the study questions may have fewer distractions than situations in which consumers make real product judgments, such as in a busy grocery store. Therefore, this study may overestimate the effect of the Nutrition Facts panel. Findings from this research are consistent with previous experimental studies that found participants misattribute health benefits to products with claims and that nutrition information has an independent effect on perceptions." The authors' state, "although exposure to the Nutrition Facts has the potential for mitigating inappropriate benefits attributed to products claiming to be low carbohydrate, previous consumer research suggests that when a food product carries a front-of-package claim, consumers are less likely to turn the package over to look at the Nutrition Facts panel."

Within the article, the researchers emphasize the important role nutrition educators have in helping consumers better understand the limited meaning of front- of- package claims and to further emphasize the importance of using the Nutrition Facts panel when making food choices.

Science Daily (Oct. 11, 2010)
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Mobile Phone Game Trains Players to Make Healthier Diet Selections

With Halloween and the holiday season fast approaching, many people will be watching their waistlines as they're tempted by a cornucopia of sugary and savory foods. Meanwhile a Georgia Tech College of Computing Ph.D. candidate has shown that playing health-related video games on a mobile device can help adults learn to live more healthfully by making smart diet choices.

The finding is published in the paper, "Let's Play! Mobile Health Games for Adults," recently presented at Ubicomp 2010 in Copenhagen, Denmark.

OrderUP! is a different take on the recent trend of health-related gaming that includes "exergames," in which players get a genuine workout while playing. OrderUP! instead seeks to educate players about how to make healthy eating choices in situations nearly everyone encounters regularly in their lives. By casting players as virtual restaurant servers, Order UP! forces players to make healthy -- and fast -- menu decisions for a group of demanding, impatient customers. The research was supported by Humana, Microsoft and Nokia.

"Even a single-player casual game can potentially have affects beyond those who play it," said Beki Grinter, the project's principal investigator and associate professor in Georgia Tech's School of Interactive Computing. "The most important finding from the OrderUP! project was how the game was integrated into conversations players had with other players and non-players about things that they had learned, particularly things that confronted their assumptions about healthy choices."

The game works like this: One at a time, 10 virtual "customers" approach the counter with three possible food choices; for example, the choices could be a fried chicken thigh, a jerk chicken breast or gumbo. They're then asked to make the healthiest choice, with only a few moments to pick before the customer gets impatient and leaves. Players start with 1,000 health points, and as they make unhealthy choices for their customers (or as the customers get tired of waiting and leave) their health points drop. The object of the game is to continue serving food as long as possible.

"All health games, or any kind of 'serious' game with a purpose beyond entertainment, always have the challenge of making the game fun versus getting across the information you want to get across," said the game's creator, Andrea Grimes Parker, a Ph.D. student in Human-Centered Computing in Georgia Tech's School of Interactive Computing. "Our participants said [OrderUP!] led them to have discussions about nutrition. People would ask them about the game, and that led them to start comparing food choices and information."

To gauge the game's effectiveness, Parker and her colleagues measured participants' health behaviors using the Transtheoretical Model (TTM), a well-established health behavior theory. TTM helped them characterize and measure four processes of change participants displayed: consciousness raising, self-reevaluation, engaging in helping relationships, and counter-conditioning.

The researchers tested OrderUP! with a group of 12 African American participants over varied ages, with the youngest in the 18-to-24 range and the oldest over 60. All participants were given Nokia N95 devices with OrderUP! preloaded and asked to play the game at least once a week for the three-week duration of the study. Participants played much more than that, indicating the game's strong entertainment value in addition to being a learning tool.

"Our focus on African Americans from the very beginning of the project ensured that we could design with contextually relevant motifs, with [relevant] data and personas -- which made the game more engaging and relatable for the intended users," said Vasudhara Kantroo, a 2010 master's graduate in human-computer interaction who worked on OrderUP!

"We found that, after playing OrderUP! for just three weeks, we saw people engage in behaviors and thinking consistent with the processes of change identified by the TTM," Parker said. "In particular, we found that people learned how to make healthier choices when eating out, reassessed the healthiness of their current eating habits, began having productive conversations about healthy eating with people in their social network and, finally, actually started introducing healthier foods into their diet."

Parker and her colleagues researched all nutrition data while designing the game, but in the interest of quick and engaging play, had kept nearly all that data out of the playing experience. "One finding that was a bit surprising was just how much people translated what they saw in the game to their own lives. Another surprise was that players wanted more detailed information about nutrition values," Parker said.

"[Our findings] suggest various lines of direction," Grinter continued. "What other technological interventions could be made that would be engaging and surprising enough that they would create conversation? What else might be done that, while focused on individuals, could have outcomes that draw in social networks. How are they drawn in? What, if any, are the lasting implications of that?"

OrderUP! fits into a larger research profile within the College of Computing of trying to determine how the ubiquity of mobile devices can be leveraged to improve users' health. For example, other projects have examined using mobile phones to help manage diabetes, as a means to access electronic health records, or simply as a way to quickly access health and nutrition information. The idea is rapidly gaining currency. First lady Michelle Obama's initiative to fight childhood obesity recently held a contest, "Apps for Healthy Kids," that awarded prizes to software developers, game designers and students for the best kid-targeted apps that promote healthier lifestyles.

"There's a wide open design space associated with mobile gaming," Grinter said. "Andrea's work is a part of understanding that space."

Future development of OrderUP! will include a longer study to measure player behavior change over an extended period of time, as well as an expanded game with more levels, more food choices and more nutritional information available to the player.

Science Daily (Oct. 12, 2010)
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Right Food Effectively Protects Against Risk for Diabetes, Cardiovascular Disease and Cognitive Decline, Study Finds

For the first time, researchers in Sweden have found out what effect multiple, rather than just single, foods with anti-inflammatory effects have on healthy individuals. The results of a diet study show that bad cholesterol was reduced by 33 per cent, blood lipids by 14 per cent, blood pressure by 8 per cent and a risk marker for blood clots by 26 per cent. A marker of inflammation in the body was also greatly reduced, while memory and cognitive function were improved.

"The results have exceeded our expectations! I would like to claim that there has been no previous study with similar effects on healthy subjects," says Inger Björck, professor of food-related nutrition at Lund University and head of the University's Antidiabetic Food Centre.

Forty-four healthy, overweight people between the ages of 50 and 75 took part in the diet study. For four weeks they ate foods which are presumed to reduce low-grade inflammation in the body, a condition which in turn triggers metabolic syndrome and thus obesity, type 2 diabetes and cardiovascular disease.

The test diet was high in antioxidants, low-GI foods (i.e. slow release carbohydrates), omega fatty acids, wholegrain products, probiotics and viscous dietary fibre. Examples of foods eaten were oily fish, barley, soy protein, blueberries, almonds, cinnamon, vinegar and a certain type of wholegrain bread. Some of the products in the food portfolio are not yet available in the shops, but were developed specifically for the study.

"Our purpose was to find out which preventive effect can be obtained on established risk markers by combining food concepts with an expected positive impact on inflammation."

Inger Björck believes that the study may have a broader impact on society. "We hope that these results on healthy subjects will inspire more intense preventive efforts in society."

It is not possible to tell precisely which food factors have greater or lesser impact on the research results.

"That's the point. We believe in the idea of combined effects. Drug or specific products with health claims affect only one or maybe a couple of risk factors. By a combination of food you can in a simple and striking way affect many risk parameters simultaneously," explains Inger Björck.

Science Daily (Oct. 17, 2010)
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Sodas Sweetened with HFCS Deliver Unexpected Jolt of Unhealthy Fructose

While soda reigns as the single largest contributor to America's rapidly expanding waistlines, research released shows that the high fructose corn syrup (HFCS) used to sweeten America's most popular beverages is delivering a megadose of fructose (a sweeter and

more harmful form of sugar), far higher than previously thought.

Researchers at the Childhood Obesity Research Center at the University of Southern California's Keck School of Medicine analyzed the sugar profiles of 23 popular sodas and discovered surprising information about the amount of fructose in the drinks. Contrary to prevailing assumptions, the findings show that the HFCS (a mixture of glucose and fructose produced from corn) in popular sodas may be as high as 65 percent fructose, nearly 20 percent higher than commonly assumed.

"The elevated fructose levels in the sodas most Americans drink are of particular concern because of the negative effects fructose has on the body," explained study author Dr. Michael Goran. "Unlike glucose (the smaller component of HFCS), over consumption of fructose is directly responsible for a broad spectrum of negative health effects."

The weight gain caused by sugary sodas can dramatically increase the risk for type 2 diabetes and cardiovascular disease. But, as Goran points out, because the body processes fructose differently than glucose, consuming large amounts of fructose greatly exacerbates the risk for those diseases by also causing fatty liver disease, insulin resistance, increased triglyceride levels and an acute rise in blood pressure.

The average American drinks over 50 gallons of soda a year, ingesting about 34 pounds of sugar. Over the past 30 years, the jump in consumption of soda accounts for 43 percent of the per capita increase in daily caloric intake, making it the prime driver behind the obesity epidemic.

"Given the huge amount of soda Americans consume, it's important that we have a more exact understanding of what we're drinking, including specific label information on the types of sugars. The lack of information -- or perhaps even misinformation -- we have had about the fructose levels in HFCS-sweetened beverages means that soda drinkers may be gambling with their health even more than we have previously thought," said Dr. Harold Goldstein of the California Center for Public Health Advocacy.

The study also raises questions about the accuracy of nutrition label reporting by manufacturers. When testing the Mexican Coca-Cola that lists "sugar" on the ingredient list, for instance, the researchers did not detect any sucrose (traditional sugar) but rather found near equal amounts of fructose and glucose, results which suggest the use of HFCS

Source: Nutrition Horizon Oct 28 2010

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REGULATORY & SAFETY NEWS

EFSA concludes chewing sugar-free gum can lessen incidence of cavities

Following an application from Wrigley GmbH, the European Food Safety Authority's (EFSA) Panel on Dietetic Products, Nutrition, and Allergies was asked to deliver an opinion on the scientific substantiation of a health claim related to sugar-free chewing gum and neutralization of plaque acids, which reduces the risk of dental caries.

The claimed effect is "sugar-free chewing gum neutralizes plaque acids, which reduces the risk of dental caries." The target population is the general population. Wrigley identified a total of 47 publications, which included 31 human intervention studies, one human observational study, one meta-analysis, one systematic review, eight other review publications, and five guidelines/consensus opinions.

A total of 18 studies, which reported on plaque acid neutralization, were provided by the applicant. In these studies, pH was measured in tooth biofilms *in vivo* after different types of sucrose challenges and with or without subsequent chewing of sugar-free gums. The pH was monitored using either the microelectrode method or intra-orally mounted electrodes. The outcome measures varied, but most studies reported a rise in the minimum plaque pH after a carbohydrate challenge when sugar-free gum was chewed in comparison to no gum, and/or a reduction in the area of the plaque pH curve below a fixed pH, such as resting pH, or a given value such as pH 5.5. The effects did not differ for gums with different types of polyols, but protection was greater if chewing was introduced soon after sugar intake. Similar results were obtained in healthy adults and children and adults with reduced saliva secretion capacity. Thus, there is a consistency among the studies that chewing sugar-free gum leads to rapid neutralization of plaque pH in adults and children.

The Panel concluded that a cause and effect relationship has been established between the consumption of sugar-free chewing gum and plaque acid neutralization and a reduction in incidence of caries. Plaque acid production may contribute to increased risk of caries. The Panel considers that, in order to obtain the claimed effect, 2–3 g of sugar-free chewing gum should be chewed for 20 min at least three times per day after meals. This quantity and pattern of use of chewing gum can easily be included within a balanced diet.

From: IFT Newsletter October 5, 2010

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Lucerne Recalls Bread in 12 States Over Allergens

WASHINGTON—Lucerne Foods, headquartered in Pleasanton, Calif., on Oct. 4 announced a recall of Oregon Bread's Western Hazelnut Bread (white bread only) sold at Safeway and WinCo stores in 12 states due to the presence of three undeclared tree nuts, cashews, almonds and Brazil nuts, announced the U.S. Food and Drug Administration (FDA).

The recall involves white bread products with the UPC code 3945500371 and "best before" dates of Sept. 6, 2010 through Oct. 11, 2010. The products were sold at Safeway stores in California, Colorado, Idaho, Montana, Nebraska, New Mexico, Nevada, Oregon, South Dakota, Washington and Wyoming. The products were sold at WinCo stores in California, Idaho, Oregon, Nevada, Utah and Washington.

From: Food Product Design October 5, 2010

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WTO says U.S. ban on Chinese poultry is illegal

According to the *Associated Press*, a three-member panel of the World Trade Organization on Sept. 29 declared that an American ban on Chinese poultry is illegal. The WTO said the United States was violating a number of its trade obligations by preventing Chinese chicken parts from entering the U.S. market, ruling against a measure in last year's U.S. federal spending bill.

The law extended a five-year U.S. ban on Chinese chicken declared after a 2004 outbreak of bird flu. The Obama administration has handled a number of cases it inherited from President George W. Bush's tenure, but the poultry case represented the first WTO complaint launched specifically against legislation signed by Obama.

The Office of the U.S. Trade Representative acknowledged the defeat but said the restrictions in question were soon expiring and would be replaced by better conditions for Chinese poultry. "The United States had explained that the temporary funding restriction was justified under WTO rules," spokeswoman Nefeterius McPherson said. "The panel, however, found otherwise."

Beijing and Washington banned each others' poultry in 2004 following an outbreak of bird flu. But China lifted the ban after a few months and has imported more than 4 million tons of U.S. poultry since 2004—mostly feet and other parts of birds that are popular in China but not elsewhere. The United States refuses to do the same.

"While urging its trading partners to further open markets, the United States has adopted more restrictive and protectionist practices in its domestic market," Chinese Ambassador Sun Zhenyu noted at a WTO meeting Sept. 29.

Sun said American industrial subsidies, stimulus plans, bailouts, national security exemptions, and "Buy American" or "Hire American" provisions "go against the commitment to opposing trade protectionism made by the United States at various multilateral forums, contradict its own preaching of free-trade spirit, and have negatively affected international trade."

From: IFT Newsletter October 5, 2010
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Negative Economic Impact of Claims Regulation on EU Supplements Likely to be Huge – Study

The economic impact of the European Regulation on Nutrition and Health Claims on the EU food supplement sector and market will be highly negative, according to the findings of a new impact assessment study. While companies operating in the European vitamins and minerals space (50-55% share of the EU market for supplements), which has had many 'general function' claims approved so far should be limited, companies operating in the rest of the supplements market (i.e. other substances) believe that they will suffer dramatically from negative opinions on claims, particularly SMEs. There is an expectation from industry that the 'other substances' part of the EU market for food supplements may decrease in size by about 25% (EUR645 million at the ex-production facility level or EUR1,031 million at retail level) and result in a 30% loss of gross profitability (EUR242 million).

Speaking at the European Health Claims Alliance (EHCA) Health Claims Conference in Brussels yesterday, Graham Brookes, an independent consultant and analyst presented the findings of an industry survey (April-July 2010), commissioned by the EHCA. Respondents accounted for nearly 18% of the EU food supplements sales and 25% of 'other substances' sales and was therefore 'reasonably representative'of the EU market for food supplements, which was worth EUR8.2-8.6bn in 2009 at retail level.

Additional costs associated with, for example, stock and packaging write offs and changes, would likely add EUR291 million resulting in short term losses equal to two-thirds of the annual gross profits in the 'other substances' market and 41% of total gross profits in the broader market, including vitamins and minerals. Employment generation is expected to fall by about 13,300 full time equivalents, equal to 18% of total employment in the "other substances" part of the sector (excluding employment impacts in the retail sector e.g. small nutrition shops).

"Our study looked at the impact of the European Health Claims Regulation on supplements to date, but because the vast majority of the opinions on claims made by EFSA so far haven't been made legal opinions yet, the impact to date has been limited. This is because most companies that sell products with health claims for which opinions have been made,choose to not make changes until a final decision has been made legal," Brookes told ***FoodIngredientsFirst***.

"It is more convenient from the point of cost to make all changes at once if necessary, as well as because of competition issues. If you are selling a product with a health claim and no longer use it and somebody sells a similar product with a health claim that hasn't yet had an opinion, you are essentially losing out because of the importance of health claims in the decison making process of consumers," he added.

John Redman, Group Managing Director of Merck Consumer Health Care UK and Chairman of the Health Food Manufacturer's Association (HFMA) from 2006 to 2010 was not surprised by the study results, with similarly negative results reported in a previous HFMA study in the UK [loss of one third of the market in 'other substances']. Redman welcomed the revised approach on Health Claims that was announced by the European Commission on Monday, but noted that from many respects "nothing has changed". "As EFSA continues to work on traunches 3 and 4 the distortion on the market remains," he added.

Basil Mathioudakis Head of Unit: Food Law, nutrition and labeling at DG SANCO at the European Commission, who spoke at the event, was adamant that health claims should be based on sound science. When asked by ***FoodIngredientsFirst*** afterwards to respond to the industry concerns about the Health Claims Regulation stifling innovation in the food sector, he said, "We take the issue seriously. But we want real innovation and we do not think that innovation can be built on misleading claims. Therefore, yes innovation, but there should also be the scientific basis for what is put there."

From: Food Ingredients First 01 Oct 2010

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EFSA OKs Health Claims for DHA, Vitamin E

MONHEIM, Germany—**Cognis Nutrition & Health** announced that the European Food Safety Authority's (EFSA) most recent health claim opinion included positive opinions on DHA and vitamin E claims submitted by Cognis. The health claims in relation to the company's CLA does not appear to have been evaluated yet.

According to Cognis, there were three positive opinions on health claims concerning DHA – claims relating to normal brain function, normal vision, and maintaining normal (fasting) blood concentrations of triglycerides were all upheld – and various health claims for Vitamin E were also approved, relating to its ability to protect DNA, proteins and lipids against oxidative damage.

While the EFSA panel rejected some health claims relating to conjugated linoleic acid (CLA), it did not give any specific opinion about the relationship between CLA and body fat reduction.

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The Artificial Food Dye Blues

In 2008 the Center for Science in the Public Interest (CSPI) in Washington, DC, petitioned the Food and Drug Administration (FDA) to ban artificial food dyes because of their connection to behavioral problems in children. Two years later a new CSPI report, *Food Dyes: A Rainbow of Risks*, further concludes that the nine artificial dyes approved in the United States likely are carcinogenic, cause hypersensitivity reactions and behavioral problems, or are inadequately tested.

Artificial dyes derived from petroleum are found in thousands of foods. In particular breakfast cereals, candy, snacks, beverages, vitamins, and other products aimed at children are colored with dyes. Even some fresh oranges are dipped in dye to brighten them and provide uniform color, says Michael Jacobson, executive director at CSPI.
According to the International Association of Color Manufacturers, a trade association for food dye makers and users, artificial color additives enhance and correct natural colors and "provide a colorful identity to foods that would otherwise be virtually colorless," as well as compensating for natural color loss during storage and providing a way to quickly identify pharmaceuticals and dietary supplements. Food dye consumption per person has increased fivefold in the United States since 1955, with three dyes—Red 40, Yellow 5, and Yellow 6—accounting for 90% of the dyes used in foods.

For its report CSPI reviewed published studies and "found some surprises," says Jacobson. For example, most chemical carcinogenicity studies use relatively small numbers of animals, do not include *in utero* exposures, and last two years, the rodent equivalent of about 65 human years. Because cancers may not show up until a rodent's third year of life, corresponding to the time when cancers also are more likely to appear in humans, the two-year time frame for standard bioassays may reduce the likelihood a carcinogenic chemical will be identified, says James Huff, associate director for chemical carcinogenesis at the National Institute of Environmental Health Sciences.

Red 40, Yellow 5, and Yellow 6 contain benzidene, a human and animal carcinogen permitted in low, presumably safe levels in dyes.[2] The FDA calculated in 1985 that ingestion of free benzidine raises the cancer risk to just under the "concern" threshold (1 cancer in 1 million people). Bound benzidene also has been detected in dyes in much greater amounts than free benzidene, but routine FDA tests measure only free contaminants, overlooking the bound moiety. Intestinal enzymes release bound benzidene, "so we could be exposed to vastly greater amounts of carcinogens than FDA's routine tests indicate," says Jacobson—especially considering today's children are exposed to multiple dyes and flavoring agents and other added chemicals in foods.

FDA policy is not to comment on topics that are currently under review. This includes CSPI's open 2008 petition, whose docket of evidence now includes the new report. Ira R. Allen of the FDA Office of Public Affairs did say, "We appreciate the report from CSPI and are reviewing it. We take our commitment to protecting children seriously." In a statement released after the publication of *A Rainbow of Risks*, the Inter-national Association of Color Man-u-facturers highlighted its adherence to current FDA protocols, noting, "The FDA has repeatedly stated that these colors are safe based on the available safety data."

Food manufacturers still use plant-based colorings in some countries. For example, in the United Kingdom Fanta orange soda is colored with pumpkin and carrot extracts while the U.S. version uses Red 40 and Yellow 6. McDonald's strawberry sundaes are colored only with strawberries in Britain, but Red 40 is used in the United States. With many U.S. consumers desiring fewer synthetic additives, "companies may be better off switching to [plant-based colors]," Jacobson says.

"Natural alternatives may present less of a risk, but I still would like to see their toxic potential assayed before we give them to kids," says Bernard Weiss, a professor of environmental medicine at the University of Rochester. Weiss argued 30 years ago there was evidence linking artificial food dyes to behavioral problems in children. Yet the FDA still does not require manufacturers to test dyes for developmental neurotoxicity. "Their inaction amounts to approval of an ongoing experiment with children," Weiss says.

Meanwhile, in Europe, as of July 2010 most foods that contain artificial dyes must carry labels warning they may cause hyperactivity in children. Jacobson says, “This warning may be the death knell for [artificial] food dyes in Europe, especially for foods commonly eaten by children.”
From: Environmental Health Perspectives October 1, 2010
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FDA Finds Prescription Drug in Beauty Capsules

FDA has warned that Slimming Beauty Bitter Orange Slimming capsules contain the active pharmaceutical ingredient sibutramine, a prescription-only drug that is a stimulant. Sibutramine is not listed on the product label and could harm consumers, especially those with cardiovascular conditions.

FDA lab tests reveal the product contains excessive amounts of sibutramine that may be dangerous to people who have a history of cardiovascular disease, because it can lead to elevated blood pressure, stroke and heart attack.

Consumers who are otherwise healthy and who take the amount of sibutramine found in Slimming Beauty capsules can experience anxiety, nausea, heart palpitations, a racing heart, insomnia and elevated blood pressure. Sibutramine also may interact with other medications and can cause serious side effects.

Sibutramine is a powerful stimulant that should not be used without a prescription due to the safety risks associated with it.

Slimming Beauty is being sold over the Internet by Beautiful Health Inc., formerly LL Health and Beauty. Slimming Beauty sample packets also have been distributed by individuals at community events. The product and the sample packets are falsely labeled as “100% Herbal.” The sample packet label is misleading because it indicates it is a natural vitamin and calcium capsule for use in children as young as 2 years old.

FDA has determined that Slimming Beauty sample packets were distributed at the 40th Annual Mexican Independence Day Parade in Chicago, on Sept. 12, 2010. The agency is aware of several reports of serious side effects from the use of this product including elevated blood pressure, headaches, vomiting and insomnia.
Nutraceuticals World October 11, 2010

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Food ingredients firms 'must take allergies seriously'

Food allergies must be taken seriously, according to a Canadian Health Association. Speaking to Montreal Gazette, Stephanie Pernice, health and nutrition coordinator for the Association quebecoise des allergies alimentaires, said that food allergies are on the rise and as such food firms must adapt their products. She said that the most common allergies include peanuts, wheat, shellfish, cow's milk, corn, nuts, eggs, fish, sesame and soy.

Ms Pernice said that it is a misconception that people can tolerate a small amount of foods they are allergic to. "It's clear that food allergies are not a whim," Ms Pernice told the news provider. "They can be fatal." It is estimated that around six to eight per cent of youngsters and four per cent of adults in Canada suffer from a food allergy of some sort.

Recent research conducted in the US highlighted that in the last ten years there has been an 18 percent increase in children with food allergies.

Ingredients Network.Com 18 October 2010
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