Editorial

Indian economy is growing by leaps and bounds and we see many changes. People have started using less physical efforts as cars, elevators and escalators, electronic gadgets that save efforts and time, and many others are giving a lot of relief from physical activities. Instead of playing sports like cricket, badminton and football, young people are now spending time with electronic versions of these. Rather than taking a walk in the gardens, people are creating such atmosphere at home as also the gardens are disappearing and roads to go there are extremely hazardous due to repairs and traffic. Going to temple is now possible by switching on TV and one can see the holy images live on the screen without going there.

This has made our going out less and less so we get less sunshine vitamin even though we have plenty of sunshine in our country. Even those who go out use sunscreen lotions so the UV rays will not cause damage to the skin and make it dark. This again obstructs with sunshine vitamin being produced in our body.

In urban areas one more phenomenon of wealth is becoming apparent and that is towers. Many smaller buildings and chawls are now being redeveloped into huge towers that would only make the matters worse as we might see the sun only around noon time while all the other times we will be in shadows of these huge towers.

The WHO Expert Committee recognised this problem of people getting lesser exposure to sunlight so they have recommended an increase of vitamin D RDA from 100 units to 200 units. This need for getting this vitamin from dietary and supplement sources has been recognised in western countries long ago. There is mandatory fortification of milk and vegetable oils by vitamin D and slowly we may have to think of similar solutions here also.

ICMR makes no specific recommendations for different groups except when the exposure to sunlight is minimal which requires 400 units per day through diet.

One of the common sources of dietary vitamin D is fish oils and pregnant and lactating women as well as children were advised cod liver oil to counteract any deficiency due to this vitamin. However, vegetarianism may have some difficulty with this supplement. In fact most rich sources are animal origin like fish, animal liver, eggs etc.

Mushrooms may be a great source of vegetarian vitamin D if they are UV irradiated. They can form vitamin D when exposed to UV rays. There are many foods and food supplements that are now fortified with various vitamins and minerals including vitamin D. This would ensure adequate intake of this very essential vitamin.

Otherwise for vegetarians the best and cheapest source would be spending some time outdoors in the sun. About 5 to 10 min every day would be enough if sunlight is bright but if there is smog, cloud etc. to reduce the sunlight intensity, then longer exposure may be needed. Darker skin also needs more time.

Let us hope that people not only get enough of vitamin D through sunshine but also some much needed physical activity that would also control obesity. With season's greetings

Prof. Jagadish S. Pai
Executive Director
executivedirector@pfndai.org

Natural Foods: Prof. Jagadish S. Pai

Many food products are appearing in the market with the term “natural” used to signify freshness, lack of processing, absence of chemical additives and above all safety. Whether a fruit artificially ripened would be called natural or a fruit juice prepared without any added colours, flavours, preservatives and other additives as well as without any sugar added is called natural if it were canned would cause a lot of debate not only among consumers but even among regulators in many countries.

Consumers are attracted to the label ‘natural’ for many reasons. One reason is that they feel that foods existing in nature have been consumed for many centuries or millenniums so they must be safe. Secondly, there is also a fear about some of the additives that are used in food products whether it is for preservation of the product from spoiling or colouring it to attract consumers or making a good emulsion without separation or to keep the powder flowing without becoming lumpy. All these additives have functions but in many formulated products one sees a long list of additives that consumers are a little hesitant about. Some of these additives like cyclamate, metanil yellow were subsequently banned which further makes them wonder. Thirdly, consumers also probably feel that due to processing and/or adding various additives, the food may not be as nutritious although sensory attributes may give impressions of being so. Resurgence of whole grain products in comparison with the refined products has strengthened this fear to some extent.

There are some countries in which the term natural is defined whereas the US Food & Drug Administration (FDA) gave up efforts to define it some years ago. There are more precise definitions for organic foods as those that are produced using environmentally sound methods not involving pesticides and chemical fertilisers, do not contain GMO and are not processed using irradiation, industrial solvents and/or chemical additives. There are also certifying bodies for organic foods but such is not the case with natural foods, which are vaguely defined and the US FDA discourages food industry from using ‘natural’ on labels because of its ambiguity. A discussion on technical and regulatory aspects would certainly be beneficial.

Flavourants and Flavourings

Before discussing foods, it would be easier to deal with flavours as it is possible to see the differences here between natural and others. Many spices have been used for flavouring foods and include black pepper, garlic, cinnamon etc. For convenience spice powders have been used or even some of the extracted and isolated substances from spices or other natural flavour substances are used. Examples of latter would be menthol from peppermint oil or capsaicin from chilli peppers. All these substances are natural flavouring substances. Thus natural flavouring substances are obtained from plant or animal raw materials by physical, microbial or enzymatic processes used as such or processed for human consumption.

There are many chemicals found in nature that could be easily chemically synthesised for commercial application and an example is vanillin. This substance is present in vanilla flavour obtained from vanilla beans. So if vanilla extract is prepared from vanilla beans and used it is a natural flavourant, but if vanilla is chemically synthesised and used it is nature-identical. These are chemically and to our senses of smell and taste, identical to the natural substance.

The artificial flavours are such that they are not found in nature and are chemically synthesised and most often are many times stronger than the natural substances and an example is ethyl vanillin which is several times stronger than natural vanillin.

Natural Foods Definitions

When it comes to foods it is more complex and simple distinction cannot be made. In ancient times, it was easier as all food was consumed just after gathering or hunting as such. However, when fire was discovered people started cooking. More complex foods were being prepared and some had no resemblances to the original ingredients e.g. bread is prepared from wheat flour, while cakes may be prepared from many ingredients including wheat, eggs, fruits, butter, sugar, chocolate etc.

US Department of Agriculture defines natural meat or poultry product as that containing no artificial ingredient or added colour and is only minimally processed. Minimal processing means that the product was processed in a manner that does not fundamentally alter the produce. It is necessary that the label must include a statement explaining the meaning of the term natural (such as “no artificial ingredients; minimally processed.”)

US FDA on the other hand feels that using “natural” on labels is ambiguous and that natural may unjustifiably imply that a food is of superior quality or safety compared to other similar foods. For a product to be called natural, it must be free of artificial or synthetic ingredients or additives, including colour, flavour or any ingredient “not normally expected”. Hence, as per FDA, lemonade flavoured with beet juice cannot be called natural or any food enhanced with caramel or paprika colour cannot be called natural. Although US FDA does not give a definition, it continues to regulate product labelled ‘natural’ on case-by-case basis.

On the other hand, Canadian Food Inspection Agency describes natural foods and ingredients. Those that have been processed such that significantly altered their original physical, chemical or biological state should not be described as “natural” which also includes such changes as removal of caffeine.

It also states that a natural food or ingredient is not expected to contain an added vitamin, mineral nutrient, artificial flavour or food additive although some of these may be derived from natural sources through natural ingredients. Also it should not have any constituent or fraction thereof removed or significantly changes except the removal of water. It gives a list of processes that minimally or maximally affect the natural character. Thus various physical processes including heating processes including baking, blanching, boiling, canning, cooking, frying, microwaving, pasteurising, sterilising, parboiling, roasting etc. minimally after the natural character while hydrogenation, bleaching or curing where chemical additions are there will maximally affect the natural character. Natural substances may be added for flavour and taste.

European Regulations

Food Standards Agency of UK has given criteria for using various terms such as fresh, pure, natural etc. on food labels for marketing purposes. The term “natural” means the product is comprised of natural ingredients which are produced by nature, not the work of man or interfered with by man. It forbids use of chemicals to change ingredients composition or being the products of new technology including additives and flavourings that are product of chemical industry or extracted by chemical processes.

Giving examples of dairy products, the term signifies that the products are made only from milk using only associated fermentation cultures free from other ingredients or additives like preservatives, flavourings, colours etc. Some of the processes including traditional cooking processes like baking, roasting or blanching and traditional methods of dehydration, smoking without chemicals, physical sieving and washing with water are examples of acceptable processes for natural foods. Fermentation itself is natural process but subsequent processes should also be appropriate.

Processes like freezing, concentration, pasteurisation and sterilisation as per FSA do not accord with current consumer expectations of natural foods. However, the products may be labelled as “pasteurised natural lemon juice” or “frozen natural orange juice” if the raw materials are “natural”.

Some of the other processes like enzymatic treatment, solvent extraction, carbon filtration or ion exchange purification etc. are considered no in line with current consumer expectation of “natural”. Foods prepared from many ingredients may not be described as natural but as “made from natural ingredients” if all ingredients satisfy the criteria.

FSA also states that claims such as “natural goodness”, “naturally better” or “nature’s way” are confusing and ambiguous and should not be used as they are likely to be misleading if applied to products not meeting the ‘natural criteria’.

Other European countries have no such definition for foods. EU also does not define natural foods but there are criteria for flavouring substances as given above namely the natural, nature-identical and artificial.

Others

Codex also has guidelines for flavouring substances and allows labelling of natural, nature-identical and artificial flavouring substances. It has also standards for Natural Mineral Water which are obtained from natural or drilled underground sources. It could be naturally carbonated, non-carbonated, decarbonated, fortified with carbon dioxide or carbonated natural mineral water. It allows treatments like separation from unstable constituents like compounds containing iron, manganese, sulphur or arsenic by decantation or filtration accelerated by previous aeration. It also gives maximum levels for toxic elements and microbiological standards.

Indian food laws have also taken similar standards for flavouring substances and for mineral water. They have also given standards for some of the natural foods and ingredients including milk, wheat and other grains, various spices among other things. However, there is no formal definition of what is natural.

Conclusion

Every one prefers natural foods in the sense that there are no man-made substances or chemicals added to them. However, to suggest that only natural is safe and anything other than that is unsafe is not only exaggerated but promotes unfair marketing practices. Not only some exaggerated and untested claims for natural foods are made but also use of ingredients or additives as

well as processes that may exclude these foods from the term “natural” as commonly understood by consumers. Some of the agricultural practices like the use of chemical fertilisers may cause a debate about the crops being natural or not.

Our expectations of what is natural are changing. In the US for example, labelling chicken meat with saline injected up to 25% of its weight is considered “all natural” by USDA although consumer bodies are protesting. Many of the traditional processes are also getting accepted in the definition of natural so although the food may not exist naturally in that form it is still allowed to be labelled natural. Thus in future we may have not only natural ice cream, natural potato and corn chips, and natural peanut butter, which are all available in the US, but many others which are difficult to imagine today.

As people get used to newer ingredients and processes, the expectation of what is traditional also changes. The things that are considered traditional were not so say about thousand years ago. And may be what is not considered natural today may get accepted as so after another thousand years.

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Stealth Fibre Fortification

Dietary fibre has some ambiguity in food formulation in spite of having valid definition. Regulators are not adopting them for creating rules and regulations for qualifying an ingredient as fibre. Codex has clearly defined fibre which includes a wide variety of fibres which is supported by data. Codex definition necessitates that dietary fibre provide proof that it delivers health benefits. Institute of Medicine definition also requires proof, however, it is not yet adopted by FDA. Many ingredients are claimed to be dietary fibre at present, but manufacturers will be forced to demonstrate their benefits and this will prevent non-qualified ingredients from claims of fibre.

Different fibres have been shown to provide various benefits including protection against heart disease, functioning as laxative, enhancing immune system, regulating blood sugar and lipid levels, provide satiety, improving mineral absorption, and preventing cancer. It is not surprising that as consumer awareness is increasing about these benefits, they are trying to look beyond the common sources fibre like fruits, vegetables and whole grain, to designer foods delivering extra boost through addition of fibre ingredients. Also unlike previously, they do not want the taste and sensory attributes to change due to fibre addition. They want fibre-fortified foods in addition to fibre coming through whole foods.

No more barking

In early days of fibre fortification, only insoluble fibre ingredients like cellulose were available as very little about soluble fibre extraction, purification and production was known. Unfortunately early insoluble fibre ingredients had eating characteristics of tree bark which was passed on to the applications. Grain-based foods were commonly enriched with fibre and it was more acceptable there by consumers than in more delicate systems like beverage and dairy.

Insoluble fibres provide water binding and bulk to diets, reducing colonic problems. Unfortunately these are crude and tend to affect sensory properties of fortified foods adversely.

Nonviscous solubility

Early soluble fibres that were commercially available like beta-glucan, gums, pectin and psyllium are viscous in solution. They can replace some solids like fat and sugar in certain applications, reducing calories along with benefits of soluble fibre. These benefits include helping eliminate cholesterol reducing blood cholesterol levels and preventing high increase in blood sugar. Although some products requiring more body can use these, increase in viscosity is not always desirable.

Research has identified some non-viscous soluble fibres such as inulin and fructose oligosaccharide (FOS) which do not have the same health benefits like viscous soluble fibres but have been shown to allow higher calcium absorption and also promote growth of probiotics to act as prebiotics.

Non-viscous soluble fibres can be added to any application without being detected by consumer even at high enough levels to claim “excellent source of fibre” even in products which are not expected to find fibre including salads and dressing or clear beverages.

Practically invisible

Invisible fibre does not affect flavour, colour or performance of food when added and consumer won't distinguish it from food without it. Inulin and FOS vary in degree of polymerisation with inulin having 10 to 20 units of fructose whereas FOS about 4. Chain length determines functionality like sweetness and prebiotic ability. They are regarded as natural food ingredients under GRAS and common sources are agave, beets, cane sugar, chicory root, garlic, Jerusalem artichoke and onion.

Their solubility allows their easy incorporation in all types of foods from fluid, frozen and cultured dairy products to bars, breads and breakfast cereals. FOS-enriched inulin not only improves creaminess of dairy products but enhances calcium absorption for bone health. Inulin and FOS contribute partial sweetness to baked goods allowing 50% reduction in sugar calories. They also have flavour masking benefit rounding out flavour and remove off notes associated with high-intensity sweeteners.

Another new fibre is soluble corn fibre that is 90% soluble dietary fibre containing 1.6 calories per gram. In foods, it maintains functionality of standard maltodextrin. It has no colour, odour and taste. It adds minimal viscosity and soluble up to 70% in water making it suitable for any application. The fibre does not break down under acidic conditions or heat treatments. It is considered GRAS and can be labelled as maltodextrin or digestion-resistant maltodextrin and can be added to yogurt, ice cream and all types of beverages. Consumers appreciate simplicity of consuming nutrients like fibre and would like flavoured water or clear juice beverages to have no particulates and leave substances in mouth. Dairy based drinks and meals are more complex but are expected to have smooth mouthfeel which is provided by corn fibre.

Digestion resistant maltodextrin is also insoluble but fermented in intestine so a prebiotic. Some resistant starches have unique benefits including not being detected in applications. An emerging invisible fibre for foods and beverages is alpha-cyclodextrin. It is a natural, starch-derived oligosaccharide and is fermentable soluble fibre. It has GRAS status and forms clear, low-viscosity solutions. Another is galacto-oligosaccharide a derivative from lactose, milk sugar. This prebiotic fibre functions as bulking agent in gut and is fermented in the colon.

Another invisible fibre, which has been available for a decade and is finally getting developer's attention is larch arabinogalactan. It is a long, highly branched, non-starch polysaccharide with galactan backbone and side-chains of galactose and arabinose. It is obtained from larch wood chips by steam heating and evaporation of the extract requiring no harsh chemicals so the product remains pure and structurally unaltered. This fibre is self-affirmed GRAS and dissolves in hot and cold water with stability at wide range of temperatures and pH providing various applications with low viscosity and minimal mouthfeel and aftertaste. It improves dough-handling characteristics, helps retain moisture in finished products assisting in shelf life. It provides finer and uniform grain with better taste and aroma of baked goods like tortillas.

There are many fibre ingredients in market and some with particular benefits shown by scientific substantiation. It makes sense to add those that not only do not change sensory properties but also adds health benefits.

Here Come the Novel Fibres

Institute of Medicine recommends that people of all ages consume 14 grams of fibre per every 1000 calories. To meet this need for more fibre, food industry has been introducing more fibre-fortified products fostering competitiveness in this category. Although conventional insoluble fibres have represented bulk of fibre food-ingredient market in recent years, novel fibres like polydextrose, inulin, fructooligosaccharide, galactooligosaccharide, resistant starch, soluble corn fibre and resistant corn dextrin represent the greatest growth potential into the future. Novel-fibre food ingredient category will increase its share by over 750%, jumping 35 percentage points from almost 5% share in 2004 to 39% in 2014.

Condensed from article by Donna Berry in Food Product Design December 2010

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Food Safety: The Butterfly Effect

The “Butterfly Effect" describes how a very small incident can have a very big, disproportionate and unexpected effect on something else—something so far removed from the beginning of the event chain that the cause appears to be unrelated to the effect.

In the world of food production, processing and handling, examples of the Butterfly Effect abound, especially when tied to issues of food safety. A single action (i.e., not washing one’s hands) or a sole ingredient, say peanut butter used in thousands of further-processed products, might serve as the vehicle for harmful microorganisms that sicken hundreds in numerous states, or even in other countries. The food industry has evolved to more centralized food processing, which provides a multitude of business and quality benefits. But now, when a failure in food safety systems occurs, more people become ill, outbreaks occur over a wider geographic range, and more product is involved in resulting recalls than ever before.

Product developers have a unique opportunity to make a positive impact on food safety early in the manufacturing process. Here are a few factors that directly impact the safety of today’s food supply.

Consider the source

Sourcing of ingredients and commodities outside of the United States has skyrocketed over the past two decades. Because the world’s population is projected to grow to more than 7.8 billion people by the year 2025, and an estimated 20 million acres of farmland is lost annually around the world due to growing populations and urbanization, producing our food necessitates more large-scale farming and ranching practices that, in turn, put pressure on the environment. For example, about 130 times more animal waste is produced than human waste—roughly 5 tons for every U.S. citizen—and animal waste and manure have been the source of foodborne contamination in the past.

This may seem far-removed from product development, but consider this: When you choose an ingredient, you may not have control over how much manure is produced, but you can choose suppliers whose operations consider that factor and have systems in place to mitigate potential contamination.

Consider the consumer

Demographic changes, such as international migration and aging of the population, impact the safety of our food supply. Changing ethnicity patterns also result in changing food preferences and preparation practices that can result in food-safety issues. Other segments of the population, including pregnant women, neonates and the immuno-compromised, are vulnerable, as well. Overall, at any given time, 20% to 25% of the population is at increased risk for foodborne disease.

By choosing food components with lower risk profiles, product developers can have a critical impact on public health. Formulating products that take into consideration the sensitivities and cultural food-handling habits of a changing, growing population can also help mitigate food-safety risk down the road.

Consider the science

The trend toward consumption of organic, natural and minimally processed foods has led to increased food-safety challenges as barriers to harmful pathogens are reduced or nonexistent. Also, foodborne pathogens have evolved a variety of strategies to ensure their survival, such as acid resistance in E. coli O157:H7. Seasonality has been described for a number of foodborne pathogens, and the distribution of outbreaks has been influenced by El Niño weather pattern changes.

Staying on top of developments in food science can go a long way in helping make effective formulation and processing choices. For example, if you know that cinnamon has antimicrobial properties against E. coli in certain types of products, you might choose it over another spice when formulating a new minimally processed product that is at risk for E. coli contamination. We can’t always know what impact our day-to-day decisions will have farther down the line, but we do know that a small event can have a big impact.

An article by Paul A. Hall from Food Product Design December 16, 2010

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Research in Health & Nutrition

Not All Infant Formulas are Alike, Differential Effects on Weight Gain

New findings from the Monell Center reveal that weight gain of formula-fed infants is influenced by the type of formula the infant is consuming. The findings have implications related to the infant's risk for the development of obesity, diabetes and other diseases later in life. "Events early in life have long-term consequences on health and one of the most significant influences is early growth rate," said study lead author Julie Mennella, Ph.D., a developmental psychobiologist at Monell. "We already know that formula-fed babies gain more weight than breast-fed babies. But we didn't know whether this was true for all types of formula."

While most infant formulas are cow's milk-based, other choices include soy-based and protein hydrolysate-based formulas. Protein hydrolysate formulas contain pre-digested proteins and typically are fed to infants who cannot tolerate the intact proteins in other formulas. In adults, pre-digested proteins are believed to act in the intestine to initiate the end of a meal, thus leading to smaller meals and intake of fewer calories. Based on this, the authors hypothesized that infants who were feeding protein hydrolysate formulas would eat less and have an altered growth pattern relative to infants feeding cow's milk-based formula.

In the study, published online in the journal Pediatrics, infants whose parents had already decided to bottle-feed were randomly assigned at two weeks of age to feed either a cow's milk-based formula (35 infants) or a protein hydrolysate formula (24 infants) for seven months. Both formulas contained the same amount of calories, but the hydrolysate formula had more protein, including greater amounts of small peptides and free amino acids. Infants were weighed once each month in the laboratory, where they also were videotaped consuming a meal of the assigned formula. The meal continued until the infant signaled that s/he was full.

Over the seven months of the study, the protein hydrolysate infants gained weight at a slower rate than infants fed cow milk formula. Linear growth, or length, did not differ between the two groups, demonstrating that the differences in growth were specifically attributable to weight. "All formulas are not alike," said Mennella. "These two formulas have the same amount of calories, but differ considerably in terms of how they influence infant growth."

When the data were compared to national norms for breast-fed infants, the rate of weight gain of protein hydrolysate infants was comparable to the breast milk standards; in contrast, infants fed cow's milk formula gained weight at a greater rate than the same breast milk standards. Analysis of the laboratory meal revealed the infants fed the protein hydrolysate formula consumed less formula during the meal.

"One of the reasons the protein hydrolysate infants had similar growth patterns to breast-fed infants, who are the gold standard, is that they consumed less formula during a feed as compared to infants fed cow's milk formula" said Mennella. "The next question to ask is: Why do infants on cow's milk formula overfeed?"

The findings highlight the need to understand the long-term influences of infant formula composition on feeding behavior, growth, and metabolic health. Future studies will utilize measures of energy metabolism and expenditure to examine how the individual formulas influence growth, and how each differs from breastfeeding.

Nutrition Horizon 12/28/2010 ---

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Newborns with Low Vitamin D Levels at Increased Risk for Respiratory Infections

The vitamin D levels of newborn babies appear to predict their risk of respiratory infections during infancy and the occurrence of wheezing during early childhood, but not the risk of developing asthma. Results of a study in the January 2011 issue of Pediatrics support the theory that widespread vitamin D deficiency contributes to risk of infections.

"Our data suggest that the association between vitamin D and wheezing, which can be a symptom of many respiratory diseases and not just asthma, is largely due to respiratory infections," says Carlos Camargo, MD, DrPH, of the Massachusetts General Hospital (MGH), who led the study. "Acute respiratory infections are a major health problem in children. For example, bronchiolitis – a viral illness that affects small airway passages in the lungs – is the leading cause of hospitalization in U.S.

infants."

Although vitamin D is commonly associated with its role in developing and maintaining strong bones, recent evidence suggests that it is also critical to the immune system. Vitamin D is produced by the body in response to sunlight, and achieving adequate levels in winter can be challenging, especially in regions with significant seasonal variation in sunlight. Previous studies by Camargo's team found that children of women who took vitamin D supplements during pregnancy were less likely to develop wheezing during childhood. The current study was designed to examine the relationship between the actual blood levels of vitamin D of newborns and the risk of respiratory infection, wheezing and asthma.

The researchers analyzed data from the New Zealand Asthma and Allergy Cohort Study, which followed more than 1,000 children in the cities of Wellington and Christchurch. Midwives or study nurses gathered a range of measures, including samples of umbilical cord blood, from newborns whose mothers enrolled them in the study. The mothers subsequently answered questionnaires – which among other items asked about respiratory and other infectious diseases, the incidence of wheezing, and any diagnosis of asthma – 3 and 15 months later and then annually until the children were 5 years old. The cord blood samples were analyzed for levels of 25-hydroxyvitamin D (25OHD) – considered to be the best measure of vitamin D status.

Cord blood samples were available from 922 newborns in the study cohort, and more than 20 percent of them had 25OHD levels less than 25 nmol/L, which is considered very low. The average level of 44 nmol/L would still be considered deficient – some believe that the target level for most individuals should be as high as 100 nmol/L – and lower levels were more common among children born in winter, of lower socioeconomic status and with familial histories of asthma and smoking. By the age of 3 month, infants with 25OHD levels below 25 nmol/L were twice as like to have developed respiratory infections as those with levels of 75 nmol/L or higher.

Survey results covering the first five years of the participants' lives showed that, the lower the neonatal 25OHD level, the higher the cumulative risk of wheezing during that period. But no significant association was seen between 25OHD levels and a physician diagnosis of asthma at age 5 years. Some previous studies had suggested that particularly high levels of vitamin D might increase the risk for allergies, but no such association was seen among study participants with the highest 25OHD levels. Camargo notes that very few children in this study took supplements; their vitamin D status was determined primarily by exposure to sunlight.

An associate professor of Medicine at Harvard Medical School, Camargo notes that the study results do not mean that vitamin D levels are unimportant for people with asthma. "There's a likely difference here between what causes asthma and what causes existing asthma to get worse. Since respiratory infections are the most common cause of asthma exacerbations, vitamin D supplements may help to prevent those events, particularly during the fall and winter when vitamin D levels decline and exacerbations are more common. That idea needs to be tested in a randomized clinical trial, which we hope to do next year."

Nutrition Horizon 12/27/2010 ---

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‘Starvation Hormone’ Levels May Predict Disease Risk

Food Product Design December 28, 2010

Researchers at the UT Southwestern Medical Center have discovered how the “starvation hormone" adiponectin works, which ultimately could lead to new treatments for a conditions such as cancer, diabetes, heart disease and obesity. Researchers used models of inducible cell suicide in both pancreatic beta cells, which produce insulin, and cardiomyocytes, which are specific muscle cells located in a part of the heart known as the myocardium, to determine how the single hormone could exert different influences.

“Until now, there wasn’t really an obvious connection between all these different phenomena," said senior author Dr. Philipp Scherer. “This paper shows that the common theme among all these different activities relies on adiponectin’s interaction with a specific subset of lipids known as ceramides."

Ceramides are known to promote cell suicide, or apoptosis. High levels of ceramides have been shown to promote diabetes by sabotaging signaling pathways induced by insulin and killing beta cells. When the researchers introduced adiponectin into cells, they found that the hormone triggers the conversion of ceramides from a destructive force into one that helps cells survive and

inhibits cell death. Adiponectin controls sensitivity to insulin and is known to play an integral role in metabolism and obesity. Prior research has shown that when adiponectin levels are high, the body stores excess fat in adipocytes, or fat cells, to protect against possible starvation during lean times. These fat deposits lie primarily in the subcutaneous tissue.

However, adiponectin levels decline as a person accumulates more fat. Once adiponectin levels start dropping, the body begins storing fat in dangerous places such as the heart, liver and muscle tissues where it can cause inflammation and pave the way for heart disease. Researchers think adiponectin levels could be a good predictor of whether someone is at risk of developing diabetes, heart disease or cancer.

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Ancient Humans Ate Grains, Vegetables

Food Product Design December 28, 2010

New research published in the Proceedings of the National Academy of Sciences suggests Neanderthals cooked and ate a wide variety of grains and vegetables as part of a more sophisticated, diverse diet similar to early modern humans. The findings debunk the theory that Neanderthals' extinction was caused in part by a deficient diet that consisted mostly of meat.

Researchers from George Washington University and the Smithsonian Institution discovered starch granules in dental calculus, which forms when plaque buildup hardens, on the fossilized teeth of Neanderthal skeletons excavated from Shanidar Cave in Iraq and Spy Cave in Belgium. Starch granules are abundant in most human plant foods, but were not known to survive on fossil teeth this old until this study. The discovery of starch granules provides direct evidence that they made sophisticated, thoughtful food choices and ate more nutrient-rich plants, for example date palms, legumes and grains such as barley. The researchers also determined from alterations they observed in the starch granules that Neanderthals prepared and cooked starch-rich foods to make them taste better and easier to digest.

"Neanderthals are often portrayed as very backwards or primitive," said Amanda Henry, lead researcher. "Now we are beginning to understand that they had some quite advanced technologies and behaviors."

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Healthy Diet Linked to Longevity in Older Adults

Food Product Design December 22, 2010

Older adults who eat a low-fat diet rich in fruits, vegetables, dairy, whole grains, poultry and fish lower their risk of dying over 10 years, according to a new study published in the *Journal of the American Dietetic Association*. The study compared the diets of 2,500 U.S. adults aged 70 to 79 who were divided into six different groups according to how often they ate certain foods—healthy foods; high-fat dairy products; meat, fried foods and alcohol; breakfast cereal; refined grains; and sweets and desserts.

The "healthy foods" cluster was characterized by relatively higher intake of low-fat dairy products, fruit, whole grains, poultry, fish, and vegetables, and lower consumption of meat, fried foods, sweets, high-calorie drinks, and added fat. The "high fat dairy products" cluster had higher intake of foods such as ice cream, cheese, and 2% and whole milk and yogurt, and lower intake of poultry, low-fat dairy products, rice and pasta.

The study evaluated participants' quality of life and nutritional status, through detailed biochemical measures, according to their dietary patterns. After controlling for gender, age, race, clinical site, education, physical activity, smoking, and total calorie intake, the "high-fat dairy products" cluster had a 40-percent higher risk of mortality than the "healthy foods" cluster. The "sweets and desserts" cluster had a 37-percnet higher risk. No significant differences in risk of mortality were seen between the "healthy foods" cluster and the "breakfast cereal" or "refined grains" clusters.

"The results of this study suggest that older adults who follow a dietary pattern consistent with current guidelines to consume relatively high amounts of vegetables, fruit, whole grains, low-fat dairy products, poultry and fish, may have a lower risk of mortality," said lead author Amy L. Anderson, Ph.D., Department of Nutrition and Food Science, University of Maryland. "Because a substantial percentage of older adults in this study followed the 'healthy foods' dietary pattern, adherence to such a

diet appears a feasible and realistic recommendation for potentially improved survival and quality of life in the growing older adult population."

Foods That Make You Happier, Sexier, Smarter

Want to feel happier, sexier, and smarter? In addition to their life-sustaining functions, certain nutrients in food act as precursors to chemicals in your brain which influence your mood.

Happy Foods
In order to get happy, the first thing to do is make sure you are not deficient in any specific nutrient. Certain deficiency states may make you feel more depressed than you otherwise would. In particular, deficiencies of folic acid and selenium have both been linked to depression in clinical studies.

To ensure adequate intakes are being met, be sure to ingest at least 200 to 400 micrograms (mcg) of folic acid daily. The folic acid is easily obtained when fortified breakfast cereals and enriched grains are consumed. Be sure to include one Brazil nut, or a handful of sunflower seeds, to get the recommended amount of selenium you need each day.

Improve your mood and relax a little with foods that boost the level of serotonin in your brain. Eating carbohydrate-rich foods like whole grain bread, rice and pasta stimulates the release of insulin into your bloodstream which clears away all other amino acids except for tryptophan. Without competition from other amino acids, tryptophan readily crosses the blood brain barrier and is converted into serotonin, which leads to increased feelings of pleasure and relaxation. It has also been shown to reduce pain and suppress appetite.

Other essential nutrients to include are omega-3 fatty acids. These may be obtained through dietary sources like salmon, flax and tofu, or through supplementation. A wealth of available research suggests a role for fish oils in treating depression and other mood disorders. One study found that 4 grams of omega-3 fatty acids (1600 mg EPA and 800 mg DHA) reduced depressive symptoms and elevated mood compared to placebo.

Sexy Foods
Looking for another reason to enjoy chocolate? Go ahead and indulge. Chocolate contains phenylethylamine, a chemical associated with feelings of love and attraction. Combine your endorphin-enhancing chocolate with arginine-rich nuts. L-arginine is an amino acid that has been shown to enhance blood flow to desired areas. Peanuts, almonds, walnuts and cashews are all excellent sources of l-arginine. Even better, treat yourself to some chocolate-covered nuts for the combined benefit. Wash it all down with a glass – not the bottle – of resveratrol-rich Cabernet Sauvignon or Pinot Noir. The goal is to get in the mood, not fall asleep!

Smart Foods
Boost your level of alertness and ability to learn by consuming lean protein sources like fish, chicken, eggs, dried peas and beans. Protein contains amino acids, such as tyrosine, that lead to the production of epinephrine, norepinephrine, and dopamine. These neurotransmitters are directly associated with increased alertness and energy.

Protein sources like eggs, meat and milk are also excellent sources of the memory vitamin choline. Choline is the precursor to the neurotransmitter acetylcholine, which is specifically involved in learning and short-term memory. Experts believe exposure to choline during early development can increase memory capability. Research has also shown that an inadequate supply of acetylcholine in the brain leads to the breakdown of memory function, as seen in Alzheimer's disease.

Finally, get the day started right with a cup or two of green tea. Tea contains the non-protein amino acid, l-theanine, which is found in highest levels in green tea leaves. A recent study found that when 100mg l-theanine and 50mg caffeine were given to subjects, they experienced improved performance in speed and accuracy when doing cognitively demanding tasks compared to those who received a placebo. Whether your goal is to feel happier, sexier or smarter, avoiding excessive amounts of sugar, caffeine and alcohol, and including antioxidant-rich fruits and vegetables, fatty fish, and whole grains are fundamental. Happy eating!

From: Diet.com by Lisa Davis January 3, 2011
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Omega 3s Linked to Numerous Health Benefits

Omega 3 fatty acids from seafood may reduce inflammation, symptoms of gum disease and risk of abnormal heartbeats early after cardiac surgery. One type of omega 3, DHA (docosahexaenoic acid), may also have lasting benefits in visual function for years in children whose mothers consume sufficient prenatal DHA. The December 2010 *PUFA Newsletter* and *Fats of Life* e-newsletters for health professionals and consumers, respectively, report on these new findings.

Osteoarthritis, a degenerative joint disease in which cartilage connecting bones (i.e., knees, hips and spine) deteriorates, loses its ability to cushion joints and becomes inflamed. Omega 3 fatty acids, namely DHA and EPA (eicosapentaenoic acid), may reduce disease symptoms and cartilage degeneration based on results from a U.K. study, which looked at the effect of omega 3s in cultured, stressed cartilage tissue. When low levels of EPA and DHA were separately added to the tissue, the release of a protein associated with cartilage breakdown decreased along with inflammatory substances. "This research demonstrates the potential of omega 3s to reduce some of the damage and perhaps ease the pain that goes with osteoarthritis," said Joyce Nettleton, editor of the *PUFA Newsletter* and *Fats of Life*.

Omega 3s may also be helpful with periodontitis, a chronic inflammatory condition that destroys gum tissue and bone if untreated. A recent U.S.-Egyptian study was the first to demonstrate that omega 3s are linked to reduced inflammation and improved symptoms in people with advanced periodontal disease. EPA and DHA (900 mg/day) plus low-dose aspirin led to improvements beyond other treatments.

In another study, patients undergoing different types of cardiac surgery who had no history of atrial fibrillation (abnormal heartbeats) or a pacemaker were given seafood omega 3s days prior to surgery. Nearly half (46%) were less likely to develop atrial fibrillation immediately after surgery than those not given any intervention.

Researchers in Nunavik, Quebec investigated the effect of maternal omega 3 intake on childhood visual function. Results showed that higher fetal exposure to DHA, which is concentrated in the retina of the eye, enhanced children's visual function up to 13 years later. "DHA in maternal prenatal nutrition may have long-lasting effects in children," Nettleton concluded.
Nutraceuticals World December 30, 2010
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High Red Meat Diet Linked to Stroke Risk

January 4, 2011 Food Product Design

Women who eat a daily diet high in red meat and processed meat may increase their risk of cerebral infarction 42 percent more than women who eat less, according to a study published in the journal *Stroke*. Researchers at Karolinska Institutet followed 34,670 women without cardiovascular disease and cancer at baseline. Participants completed a self-administered questionnaire on diet and other risk factors for cardiovascular diseases in 1997. Cox proportional hazards models were used to estimate multivariable-adjusted relative risks (RR) and 95% CI.

During a mean follow-up of 10.4 years, there were 1,680 incident cases of stroke, comprising 1310 cerebral infarction, 154 intracerebral hemorrhage, 79 subarachnoid hemorrhage and 137 unspecified stroke. Total red meat and processed meat consumption was associated with a statistically significant increased risk of cerebral infarction, but not of total stroke, intracerebral hemorrhage or subarachnoid hemorrhage. The multivariable RR of cerebral infarction for the highest versus the lowest quintile of consumption were 1.22 (95% CI, 1.01–1.46) for red meat and 1.24 (95% CI, 1.04–1.49) for processed meat. Fresh meat consumption was not associated with total stroke or with any stroke subtype.

Chinese Herb May Fight Obesity

January 4, 2011 Food Product Design

Researchers in South Dakota began clinical trials last month to determine how well an anti-obesity compound derived from a Chinese herb works in humans. The researchers suggest the compound may be useful for reducing obesity associated with anti-pyschotic medications. Previously, the researchers showed the compound—AIHBG-10—can stop the development of fat cells and to change the gene expression in the cells in animals and prevent them developing from a pre-fat cell to a fat cell. A second clinical trial beginning in early 2011 will use the anti-obesity compound in individuals who are being treated with anti-psychotic drugs in order to determine how well it reduces the weight gains associated with such treatments.

Almonds and Chocolate—The Perfect Pair

December 29, 2010 Food Product Design

Global demand for chocolate is on the rise. In the past decade alone, the number of new chocolate product introductions around the world has more than doubled. Chocolate products with nuts accounted for approximately one-quarter of new chocolate product introductions, with more than one-third of those including almonds specifically, according to the 2009 Mintel Global New Products Database. This suggests that consumer demand for chocolate products with almonds is also on the rise.

To better understand consumers' attitudes, awareness and chocolate consumption, the Almond Board of California recently commissioned the Global Chocolate Study, a quantitative chocolate study in North America and key markets in Asia and Europe, conducted by Sterling-Rice Group.

According to the results, roughly 70% of survey respondents are more likely to buy a chocolate product with almonds over a chocolate product without almonds. Further, when tasked with describing their ideal chocolate bar, participants around the world chose almonds as the No. 1 ingredient for inclusion. In seven of the eight regions surveyed, almonds were either the first or second nut selected for inclusion in respondents' ideal chocolate product. Almonds were also voted the nut that fits best with both milk and dark chocolate, and outperformed other nuts on some of the most-important attribute rankings, including "tastes best," "high quality" and "satisfying."

Participants who chose to include almonds in their ideal chocolate product were also more likely to describe their creation as "tastes good," "high-quality" and "nutritious," and noted that their concept would fit a variety of moods, including "relaxed," "carefree," "romantic" and "celebratory."

"Consumers recognize almonds as an ingredient that is both wholesome and delicious, so it's easy to understand why they want to see more almonds in their chocolate products," says Stacey Humble, director, North America marketing and global strategic initiatives. "Almonds' distinct buttery flavor and crunchy texture are an ideal match for the smooth, creamy nature of chocolate."

The global chocolate study also revealed that, while only 13% of consumers are currently eating chocolate products with almonds, 41% report wanting to see more. This finding suggests enormous opportunity for confectionery manufacturers to leverage almonds' desirable flavor and versatility, and develop chocolate products that satisfy that global sweet tooth.

Scientific evidence suggests, but does not prove, that eating 1.5 oz. per day of most nuts, such as almonds, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. In addition, U.S. Dietary Guidelines recommend that the majority of your fat intake be unsaturated. One serving of almonds (28 grams) has 13 grams of unsaturated fat and only 1 gram of saturated fat.

"Almonds have unique universal appeal, are available in more forms than almost any other tree nut and have remained a reliable ingredient that manufacturers can count on year over year," says Humble.

Britain unveils industry-backed healthy-eating plan

The British government unveiled a 250 million pound ($390 million) industry-financed plan to promote good eating on Sunday under which millions of people will receive vouchers offering discounts on healthy foods. The coalition government is promoting the scheme as part of its Change4Life programme, aimed at combating Britain's high obesity rate by encouraging people to eat healthier food and exercise more. But some experts have accused food manufacturers of using it to enhance their image.

Millions in England will get 50 pounds' worth of vouchers offering discounts on foods such as low-fat yogurts, wholegrain rice, frozen vegetables, fruit and alcohol-free lager. The News of the World weekly, owned by Rupert Murdoch's News Corp, will distribute three million books of vouchers; Asda, the British arm of U.S. retailer Wal-Mart, will hand out a million; and community groups a further million.

The vouchers offer discounts on products from food companies including Kellogg, Unilever, Nestle, Mars, baker Warburtons and frozen food brand Bird's Eye as well as some Asda own-brand goods and trainers from sportswear retailer JJB Sports.

Health Secretary Andrew Lansley said the scheme was a "great example of how government, the media, industry and retailers can work together to help families to be healthy."

But Tim Lang, professor of food policy at London's City University, questioned the food companies' motives. "Is it a public health strategy? No, it is a corporate brand protection strategy," he told the BBC.

Tam Fry, a board member of the National Obesity Forum, set up by doctors to highlight the health consequences of obesity, called the programme a step in the right direction but said it was too short-term to change people's mindset about food.

The Change4Life campaign was originally launched in 2009 by the previous Labour government, which said that if the plan failed to reduce obesity within three years it might look at regulating the food industry. The eight-month-old Conservative-Liberal Democrat coalition has pledged to stop lecturing people and instead nudge them toward a healthier lifestyle.

Reuter, Jan 2 2011

Environment may affect salt perception, liking

A study published in the *Journal of Food Science* shows that liking of a salty food may differ depending on the environment. Excessive sodium intake has been linked to development of hypertension and related pathologies. In this study, the researchers assessed if the sodium chloride (NaCl) concentration in a prototypical food influences the liking and intake of that food.

In study one, detection and recognition thresholds for NaCl were assessed, and perceived salt intensity and liking for hash browns of varying sodium concentrations (40 mg, 120 mg, 170 mg, and 220 mg Na/100 g) were compared in a lab setting. In study two, detection and recognition thresholds for NaCl were assessed in a lab setting, and lunches consisting of hash browns, basic salad, and beverages were consumed freely in a dining setting on four separate occasions. Intake and liking ratings for hash browns were recorded after the lunch.

The researchers found that in both studies, detection and recognition thresholds for NaCl were not associated with perceived saltiness, liking, or intake of hash browns. Liking and perceived salt taste intensity of hash browns were correlated, and in study one the 220 mg sodium hash brown was most liked. In the second study, there was no association between Na concentration and liking or consumption of hash browns. In fact, liking of hash browns was influenced by whether testing was in a lab or dining room environment. In a dining room environment, large decreases (> 50%) of sodium content of food were achievable with only minor decrease in liking and no effect on consumption of the food.

IFT Newsletter January 5, 2011

Protective Properties of Green Tea Uncovered

Regularly drinking green tea could protect the brain against developing Alzheimer's and other forms of dementia, according to latest research by scientists at Newcastle University. The study, published in the academic journal Phytomedicine, also suggests this ancient Chinese remedy could play a vital role in protecting the body against cancer.

Led by Dr Ed Okello, the Newcastle team wanted to know if the protective properties of green tea – which have previously been shown to be present in the undigested, freshly brewed form of the drink – were still active once the tea had been digested. Digestion is a vital process which provides our bodies with the nutrients we need to survive. But, says Dr Okello, it also means that just because the food we put into our mouths is generally accepted to contain health-boosting properties, we can't assume these compounds will ever be absorbed by the body.

"What was really exciting about this study was that we found when green tea is digested by enzymes in the gut, the resulting chemicals are actually more effective against key triggers of Alzheimer's development than the undigested form of the tea," explains Dr Okello, based in the School of Agriculture, Food and Rural Development at Newcastle University. "In addition to this, we also found the digested compounds had anti-cancer properties, significantly slowing down the growth of the tumour cells which we were using in our experiments."

As part of the research, the Newcastle team worked in collaboration with Dr Gordon McDougall of the Plant Products and Food Quality Group at the Scottish Crop Research Institute in Dundee, who developed technology which simulates the human digestive system. It is this which made it possible for the team to analyse the protective properties of the products of digestion.

Two compounds are known to play a significant role in the development of Alzheimer's disease – hydrogen peroxide and a protein known as beta-amyloid.

Previous studies have shown that compounds known as polyphenols, present in black and green tea, possess neuroprotective properties, binding with the toxic compounds and protecting the brain cells. When ingested, the polyphenols are broken down to produce a mix of compounds and it was these the Newcastle team tested in their latest research. "It's one of the reasons why we have to be so careful when we make claims about the health benefits of various foods and supplements," explains Dr Okello. "There are certain chemicals we know to be beneficial and we can identify foods which are rich in them but what happens during the digestion process is crucial to whether these foods are actually doing us any good."

Carrying out the experiments in the lab using a tumour cell model, they exposed the cells to varying concentrations of the different toxins and the digested green tea compounds. Dr Okello explained: "The digested chemicals protected the cells, preventing the toxins from destroying the cells. We also saw them affecting the cancer cells, significantly slowing down their growth. Green tea has been used in Traditional Chinese medicine for centuries and what we have here provides the scientific evidence why it may be effective against some of the key diseases we face today."

The next step is to discover whether the beneficial compounds are produced during digestion after healthy human volunteers consume tea polyphenols. The team has already received funding from the Biotechnology and Biological Sciences Research Council (BBSRC) to take this forward. Dr Okello adds: "There are obviously many factors which together have an influence on diseases such as cancer and dementia - a good diet, plenty of exercise and a healthy lifestyle are all important."

Nutrition Horizon 1/6/2011 ---

Adopting Healthy Habits in Youth Associated with More Favourable Cholesterol Levels in Adulthood

Lifestyle changes between childhood and adulthood appear associated with whether an individual will maintain, improve or develop high-risk cholesterol levels, according to a report in the January issue of Archives of Pediatrics & Adolescent Medicine, one of the JAMA/Archives journals.

Over the past 25 years, several studies have assessed whether cholesterol and triglyceride levels in youth carry through to adulthood, according to background information in the article. "Although these studies found that youth levels correlate well with adult levels, they have shown that a substantial proportion of youth with high-risk levels will not have high-risk levels in adulthood and that a substantial proportion of adults with high-risk levels had normal levels as youth," the authors write. "That is, there exists a reasonable amount of instability in the classification of blood lipid and lipoprotein levels as youth."

Costan G. Magnussen, Ph.D., of University of Tasmania, Hobart, Australia, and University of Turku, Finland, and colleagues studied 539 young adults. Participants had their cholesterol and triglyceride levels measured in 1985 when they were age 9, 12 or 15, and again at a follow-up between 2004 and 2006 (an average of 20 years later). High-risk levels were defined as a total cholesterol level of 240 milligrams per deciliter or higher, an LDL or "bad" cholesterol level of 160 milligrams per deciliter or higher, an HDL or "good" cholesterol level of less than 40 milligrams per deciliter or a triglyceride level of 200 milligrams per deciliter or higher. In addition, their height, weight, waist circumference, skin-fold thickness, smoking behaviors, cardiorespiratory fitness and socioeconomic factors were recorded at both time points.

"Using established cut points, we found that substantial proportions of individuals with high-risk blood lipid and lipoprotein levels at baseline no longer had high-risk levels at follow-up," the authors write. Those who did remain high-risk gained more body fat and were more likely to begin or continue smoking during the follow-up period.

Participants who had low-risk profiles in youth but became high-risk as adults also had greater increases in body fat, were less likely to improve their socioeconomic conditions and became less fit between measurements than did those who remained low-risk.

When looking only at high-density lipoprotein levels (HDL, or "good" cholesterol), the authors found that participants who did not improve any lifestyle factors between youth and adulthood had more than double the prevalence of low HDL levels than the study average (26.2 percent vs. 11.9 percent). Conversely, those who had improved at least two lifestyle factors had a prevalence of low HDL less than one-fourth that of the study average.

"Our findings are important for two reasons. First, they suggest that beneficial changes in modifiable risk factors (smoking and adiposity) in the time between youth and adulthood have the potential to shift those with high-risk blood lipid and lipoprotein

levels in youth to low-risk levels in adulthood. Second, they emphasize that preventive programs aimed at those who do not have high-risk blood lipid and lipoprotein levels in youth are equally important if the proportion of adults with high-risk levels is to be reduced."

Nutrition Horizon 1/4/2011 ---

Grape Ingredient Resveratrol Increases Beneficial Fat Hormone

Resveratrol, a compound in grapes, displays antioxidant and other positive properties. In a study published this week, researchers at the UT Health Science Centre San Antonio describe a novel way in which resveratrol exerts these beneficial health effects. Resveratrol stimulates the expression of adiponectin, a hormone derived from cells that manufacture and store fat, the team found. Adiponectin has a wide range of beneficial effects on obesity-related medical complications, said senior author Feng Liu, Ph.D., professor of pharmacology and member of the Barshop Institute of Longevity and Aging Studies at the Health Science Centre. Both adiponectin and resveratrol display anti-obesity, anti-insulin resistance and anti-aging properties.

"Results from these studies should be of interest to those who are obese, diabetic and growing older," Dr. Liu said. "The findings should also provide important information on the development of novel therapeutic drugs for the treatment of these diseases." The researchers confirmed the finding in cells and animal models. The study is in the Jan. 7 issue of the Journal of Biological Chemistry.

Previous studies: In July 2009 in the journal Nature, the Barshop Institute and collaborators reported that the compound rapamycin extended life in mice. Rapamycin, like resveratrol, is under scrutiny for its beneficial health effects.In 2010, Dr. Liu and colleagues announced that resveratrol inhibits activity of the mammalian target of rapamycin (mTOR). This discovery was included in the prestigious Faculty of 1000 (F1000), a service that identifies and evaluates the most important articles in biology and medical research publications. The selection process involves a peer-nominated global "faculty" of the world's leading scientists and clinicians who rate the best of the articles they read and explain their importance.

Nutrition Horizon 1/10/2011 ---

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Plant Sterol-Fortified Spreads Not as Effective as Claimed in Reducing Cholesterol: New Australian Study

A study has found that margarines and spreads that advertise an ability to reduce cholesterol levels in consumers are not as effective as they claim to be. They claim they can reduce cholesterol levels by up to 15 percent through the addition of plant-based sterol and stanol esters, which compete with cholesterol in the body and inhibit its reabsorption.

But the author of the paper, Sheila Doggrell, a Queensland biomedical writer and pharmacologist, has cast doubts to their claims, and said that the products are not necessary at all. She argues that this figure represents only the very top of the cholesterol-reducing capabilities of these products and that under normal consumption conditions they are unlikely to achieve reductions of above 1.3 to 3.8 percent.

Under the same conditions, prescription treatments for abnormally high cholesterol were shown to reduce the cholesterol levels of participants by more than 20 percent. "If you have a problem with high cholesterol you are wasting your money paying extra for cholesterol-reducing products," the *Sydney Morning Herald* quoted her as saying.

Dr Doggrell's advice is that the margarines and spreads on the market are simply not effective enough to make any difference to someone who has been diagnosed with abnormally high levels of cholesterol, and that the products provide no benefit to those whose cholesterol falls within the normal range. High cholesterol is a main cause of cardiovascular disease, the leading cause of death in Australia.

SoyTech eNews January 21, 2011

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Fruits, Veggies Reduce Arthritis Risk

January 7, 2011 Food Product Design

Individuals who consume a diet rich in fruits and vegetables may reduce their risk of hip osteoarthritis (OA), according to a new study published in *BMC Musculoskeletal Disorders*. The findings also suggest garlic has a protective effect. Researchers at King's College London conducted a cross-sectional study in a large population-based volunteer cohort of twins, determining OA using plain radiographs and adjusting for age, BMI and physical activity. They also conducted in vitro studies examining the effects of allium-derived compounds on the expression of matrix-degrading proteases (MMPs) in SW1353 chondrosarcoma cells.

The dietary analysis (food questionnaires) revealed a specific pattern of dietary intake, that high in fruit and vegetables, showing an inverse association with hip OA ($p=0.022$); consumption of non-citrus fruit ($p=0.015$) and garlic alliums ($p=0.029$) had the strongest protective effect—alliums contain diallyl disulphide, which was shown to inhibit cytokine-induced MMP expression.

They concluded the data show a diet high in fruits and vegetables have a protective effect against radiographic OA, independent of lifestyle factors such as BMI. They further reported the action of garlic compounds on MMPs represents a possible mechanism of action.

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Curcumin may relieve pain, inflammation for osteoarthritis patients

A study published in *Alternative Medicine Review* shows that *Meriva*, an Indena proprietary formulation of curcumin with soy phospholipids, has been shown to relieve pain and increase mobility in patients with osteoarthritis as well as reduce a series of inflammatory markers. In the study, 100 patients with X-ray confirmed osteoarthritis (OA) were divided in two groups. The first one was managed using the "best available treatment" and the second group used the best available treatment plus *Meriva*, at a dosage corresponding to 200 mg curcumin/day.

The results showed that the *Meriva*-treated group had a statistically significant reduction in all primary clinical end-points, the Western Ontario and McMaster Universities (WOMAC) score, the Karnofsky Performance Scale, and the treadmill walking performance test. These results were complemented by the evaluation of a series of inflammatory markers, soluble vascular cell adhesion molecule (sVCAM)-1, and erythrocyte sedimentation rate [ESR]), which also showed a marked reduction in the *Meriva* treated group, while no significant variation was observed in the "best available treatment" group.

Commenting on the results of the study, Giovanni Appendino, Professor of Organic Chemistry at the University of Eastern Piedmont and Indena Scientific Advisor, said "this study represents the most ambitious attempt, to date, to evaluate the clinical efficacy and safety of curcumin as an anti-inflammatory agent. Although no direct comparison study of *Meriva* versus NSAIDs (nonsteroidal anti-inflammatory drugs) has been conducted, the decreased use of these drugs observed in the treatment group provides a rationale for evaluating whether the biochemical improvement in the inflammatory status associated with *Meriva* could eventually translate to a phase out of NSAIDs use, at least for mild-to-moderate OA."

IFT Newsletter January 12, 2011
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Added sugar may raise risk for heart disease in teens

A study published in *Circulation* shows that added sugar could increase the risk for heart disease in teenagers. The study merged a 24-hr dietary recall by 2,157 teens participating in the National Health and Nutrition Survey (NHANES) between 1999 and 2004 with data from the U.S. Department of Agriculture on added sugar content in foods.

The teens' average daily consumption of added sugar was three to five times higher that the limit deemed acceptable by the American Heart Association, which considers a "prudent upper limit" to be about 100 calories, or 6 teaspoons, for most women and 150 calories, or 9 teaspoons, for most men. When the researchers examined data on cholesterol levels and other heart disease risk factors among the teens in relation to their added sugar consumption, they found that those who ate the most added sugar (30% or more of total calories) had LDL cholesterol levels that were 9% higher, triglyceride levels that were 10% higher, and HDL levels that were 9% lower than those who ate the least added sugar (less than 10% of total calories). In addition, overweight and obese teens that ate the most sugar also had the most insulin resistance.

The researchers concluded that “consumption of added sugars among U.S. adolescents is positively associated with multiple measures known to increase cardiovascular disease risk.” It should be noted that more direct research is needed to understand the role of added sugars in cardiovascular disease.

IFT Newsletter January 12, 2011
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Non-Fermented Soyfoods Reduce Gastric Cancer Risk While Fermented Soyfoods Do Not: Korean Study

New investigation results, 'Fermented and non-fermented soy food consumption and gastric cancer in Japanese and Korean populations: a meta-analysis of observational studies,' are detailed in a study published in *Cancer Science*. "Soy food is known to contribute greatly to a reduction in the risk of gastric cancer (GC). However, both Japanese and Korean populations have high incidence rates of GC despite the consumption of a wide variety of soy foods," scientists in Korea report (see also Gastric Cancer).

"One primary reason is that they consume fermented rather than non-fermented soy foods. In order to assess the varying effects of fermented and non-fermented soy intake on GC risk in these populations, we conducted a meta-analysis of published reports. Twenty studies assessing the effect of the consumption of fermented soy food on GC risk were included, and 17 studies assessing the effect of the consumption of non-fermented soy food on GC risk were included. We found that a high intake of fermented soy foods was significantly associated with an increased risk of GC (odds ratio [OR]=1.22, 95% confidence interval [CI]=1.02-1.44, I(2)=71.48), whereas an increased intake of non-fermented soy foods was significantly associated with a decreased risk of GC (overall summary OR=0.64, 95% CI=0.54-0.77, I(2)=64.27)," wrote J. Kim and colleagues, National Cancer Center.

The researchers concluded: "These findings show that a high level of consumption of non-fermented soy foods, rather than fermented soy foods, is important in reducing GC risk."
SoyaTech eNews January 6. 2011
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Soy Protein Does Reduce Cholesterol When Added to the Diet, Confirms New Canadian Study

Current study results from the report, 'Soy protein reduces serum cholesterol by both intrinsic and food displacement mechanisms,' have been published. "The apparently smaller LDL cholesterol (LDL-C)-lowering effect of soy in recent studies has prompted the U.S. FDA to reexamine the heart health claim previously allowed for soy products," scientists writing in the *Journal of Nutrition* report (see also Life Science).

"We therefore attempted to estimate the intrinsic and extrinsic (displacement) potential of soy in reducing LDL-C to determine whether the heart health claim for soy continues to be justified. The intrinsic effect of soy was derived from a meta-analysis using soy studies (20-133 g/d soy protein) included in the recent AHA Soy Advisory. The extrinsic effect of soy in displacing foods higher in saturated fat and cholesterol was estimated using predictive equations for LDL-C and NHANES III population survey data with the substitution of 13-58 g/d soy protein for animal protein foods. The meta-analysis of the AHA Soy Advisory data gave a mean LDL-C reduction of 0.17 mmol/L (n=22; $p<0.0001$) or 4.3% for soy, which was confirmed in 11 studies reporting balanced macronutrient profiles. The estimated displacement value of soy (13-58 g/d) using NHANES III population survey data was a 3.6-6.0% reduction in LDL-C due to displacement of saturated fats and cholesterol from animal foods. The LDL-C reduction attributable to the combined intrinsic and extrinsic effects of soy protein foods ranged from 7.9 to 10.3%," wrote D.J. Jenkins and colleagues, St. Michael's Hospital, Department of Medicine.

The researchers concluded: "Thus, soy remains one of a few food components that reduces serum cholesterol (>4%) when added to the diet."
SoyTech eNews January 7, 2011
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New Method for Determining Biobased Content of Food Ingredients to Be Added to Food Chemicals Codex

The United States Pharmacopeial Convention issued the following news release: With increasing demand from manufacturers and consumers to reduce the environmental impact of their products and utilize ingredients derived from natural (e.g., plant or animal) sources versus synthetic ones, a new method for determining the bio-based content of food ingredients will be among the latest additions to the Food Chemicals Codex (FCC) compendium. The new method, which also has application in

counterfeit detection, will be included as an appendix in the FCC and is currently published in the latest edition of the FCC Forum along with a host of proposed standards that will help assure the quality of popular and emerging ingredients used in functional foods, infant formulas, and as sweeteners and antioxidants.

The FCC Forum is the free-access vehicle through which the U.S. Pharmacopeial Convention (USP) -- the organization that publishes the FCC -- accepts comments on proposed FCC standards. Food manufacturers and all other interested parties are invited and encouraged to provide feedback on the latest proposed standards available on the FCC Forum before they become effective during a 90-day comment period, which closes March 31, 2011. The FCC Forum is accessible at www.usp.org/fcc/fccForum.html.

The new FCC method for bio-based contents is a way to determine the amount of a food ingredient derived from renewable carbon sources such as those that are plant or animal-based versus petroleum-based raw materials commonly used to produce many food additives such as petroleum wax and mineral oil. The method uses carbon isotope signatures, which is the most accurate way to make such quantitative determinations. Results from this new FCC method would allow a manufacturer to label the percentage of a food ingredient that is bio-based--something not commonly done today but useful to companies seeking to instil confidence in consumers that may be sceptical of such claims. Besides its application for determining bio-based content, this technique can also be used for counterfeit detection. For example, the new FCC method would be able to detect the fraudulent addition of even small amounts of synthetically produced vanilla to a natural vanilla extract something that other anti-counterfeiting methods are not sensitive enough to do. USP intends to expand the FCC appendix on authenticity methods in the future to include additional procedures for detecting counterfeit food ingredients and is encouraging industry to submit useful methods for consideration.

In addition to the new FCC method, highlights of the latest FCC Forum include proposed standards for:

ARA, Infant Formula Ingredients--Arachidonic Acid (ARA) from Fungal (Mortierella alpina) Oil, a source of Omega 6 fatty acids, is an ingredient approved for use in infant formulas. Also proposed is a standard for Ferrous Ammonium Phosphate, a source of iron used in infant formulas and other foods. Monk Fruit Extract--A plant-based natural sweetener widely used in China and more recently in the United States as a flavor enhancer in a variety of food products as well as a table-top sweetener, Monk Fruit Extract is of growing industry interest, particularly in the "health food" category.

Krill Oil--Used in products including beverages, cereals, cheeses, fruit juices and milk products, this source of Omega 3 fatty acids (Docosahexaenoic Acid and Eicosapentaenoic Acid) is gaining in popularity as an alternative to fish oil because of a purported reduced likelihood that it contains heavy metals as well as its lack of a fishy aftertaste. Krill oil is considered a functional as well as a sustainable food ingredient, and it contains astaxanthin, an antioxidant.

International Ingredients--Two cyclamates--non-caloric sweeteners--that are approved for use in foods and beverages around the world, but not in the United States, are in the new FCC Forum. As an international food compendium, the FCC incorporates ingredients that are regulatory approved and marketed for use in countries worldwide. Also in the latest FCC Forum is a revised standard for Sodium Chloride, or table salt, which was modified at the request of Health Canada. FCC is recognized in law in Canada and USP works closely with the agency to develop specifications to suit its needs as a regulatory body. Other proposed new standards include Yeast Beta Glucan, an ingredient with prebiotic properties, and L-Theanine, used as a dietary supplement and food ingredient in fruit juices, sports drinks, teas, and other beverages and foods--both of which are marketed as enhancing human health and considered functional foods in the United States.

"With this latest FCC Forum, USP is advancing the goal of making the Food Chemicals Codex a useful resource to food manufacturers by providing world-class methods and emphasizing ingredients that are innovative, in demand and widely used," said James Griffiths, Ph.D., vice president of food, dietary supplement and excipient standards for USP. "These standards are designed to help ensure the identity, purity and consistency of ingredients--which cannot be taken for granted as ingredients are sourced from suppliers large and small, from almost every corner of the globe. As we seek to make this a helpful resource for industry, we ask that manufacturers review these standards and provide us with their valuable feedback. We are also always interested in working with industry to develop new standards for inclusion in future editions of the Food Chemicals Codex."

SoyTech eNews January 3, 2011
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Big Breakfast Not Shown to Help Weight Loss

Does eating a big breakfast help weight loss or is it better to skip breakfast altogether? Available information is confusing but new research published in BioMed Central’s open access journal Nutrition Journal clears a path through these apparently

contradictory reports.

Dr Volker Schusdziarra, from the Else-Kröner-Fresenius Center of Nutritional Medicine, conducted a study on over 300 people who were asked to keep a journal of what they usually ate. Within the group sometimes people ate a big breakfast, sometimes small, and sometimes skipped it all together.

Schusdziarra said that “the results of the study showed that people ate the same at lunch and dinner, regardless of what they had for breakfast”, this means that a big breakfast (on average 400kcal greater than a small breakfast) resulted in a total increase in calories eaten over the day of about 400kcal. The only difference seen was the skipping of a mid morning snack when someone ate a really big breakfast, however this was not enough to offset the extra calories they had already eaten.

The group addressed previous research, which suggests that eating a big breakfast reduces total calorie intake over the day, and showed that this data is misleading. This earlier research only looked at the ratio of breakfast calories to daily calories and in Schusdziarra’s study this ratio seems to be most affected by people eating less during the day. In other words their breakfast was proportionally, but not absolutely, bigger.

So it seems that there is no magic and that, unfortunately, in the fight for weight-loss, eating a large breakfast must be counteracted by eating substantially less during the rest of the day. In order to lose weight sensibly NHS guidelines suggest restricting calorie intake, cutting down on saturated fat and sugar, and eating 5-a-day fruit and veg.

Nutrition Horizon 1/17/2011

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Fruit and Vegetable Concentrate Decreases Number of Days with Severe Cold Symptoms

Researchers at Charité - University Medicine Berlin were the first to show that a specific food supplement made from fruit and vegetable juice concentrates significantly reduced the number of days with severe cold symptoms. The report published in the British Journal of Nutrition sees the potential benefits of the product in a reduced number of sick days and correspondingly lower expenditure on cold medicines.

Researchers from the institute of Social Medicine, Epidemiology and Health Economics, in cooperation with more than 500 employees of the Charité, as test participants, carried out an 8-month study on the effects of the preparation “Juice Plus+” , from the US-American supplier NSA from Collierville, Tennessee. In a randomized double-blind study, half the subjects took the drug daily, while the other half received a placebo. After just two months the results showed: The number of colds in both groups was equal. However, in the group that received the drug, the colds were much milder. As a result, there was a decrease of moderate and severe cold symptoms of about 20 percent.

The question of whether the product is suitable for prolonged use, to reduce the severity of symptoms and the incidence of colds further, could be the subject of future studies of “Juice Plus+” according to the authors. Also unclear is the specific mode of action of the preparation. "The results of the study are certainly encouraging because they show that certain dietary supplements may mitigate the burdens and consequences of the common cold," said Prof. Stefan Willich, Director of the Institute for Social Medicine, Epidemiology and Health Economics of Charité and head of the study.

The neutrality of the study was ensured by the fact that as a sponsor of the study, no study data were transmitted to the manufacturer of the preparation and they were also not involved in the interpretation of the study results.

Nutrition Horizon 1/18/2011

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Kids with Nut Allergies Likely to Have Sesame Allergy

January 17, 2011 **Food Product Design**

Children with histories of both peanut and tree nut allergies are more likely to have a history of sesame allergy, according to a study published in ***Pediatric Allergy and Immunology***. The findings also suggest kids with a sensitization or allergy to peanuts or tree nuts are not likely to be sensitive or allergy to coconut.

Researchers at the Children's Hospital Boston performed a retrospective chart review of children who underwent skin prick testing (SPT) to sesame and coconut and identified 191 children who underwent SPT to sesame and 40 to coconut. Sensitization to sesame was more likely in children with positive SPT to peanuts (odds ratio [OR] = 6.7, 95% confidence interval [CI] [2.7–16.8], $p < 0.001$) and tree nuts (OR = 10.5, 95% CI [4.0–27.7], $p < 0.001$).

Children with histories of both peanut and tree nut reaction were more likely to have a history of sesame reaction (OR = 10.2, 95% CI [2.7–38.7], $p < 0.001$). Children with sensitization or allergy to peanuts or tree nuts were not more likely to be sensitized or allergic to coconut.

Food Science & Industry News

Global Instant Noodles Market to Reach 139.2 Billion Packs by 2015 According to Analysts

With the overwhelming pace of modern man’s busy lifestyles, set by increased working time, heavier traffic, growing importance given to workouts and healthy existence, people have an ever dwindling free time at their disposal and thereby demand more convenience foods and ready meals. Against this backdrop of an era characterized by the growing desire for minimal cooking efforts, reduced labor time and liberation from extensive time consuming cooking, the future for instant noodles stands palpably clear. Harried lifestyles brought upon by the growing number of women working, has triggered a shift in cooking habits away from conventional time consuming preparation of fresh foods to easy precooked, easy to prepare meals. With consumers having less time to cook meals at home and with the contemporary mom no longer cooking, the task of preparing foods is transferred to the food processor.

Increasing number of nuclear families, rise in disposable incomes, young singles with little or no cooking skills, enhanced awareness of healthful diets and increased interest in ethnic and international foods, represent additional factors that are expected to have a bearing on eating and food preparation habits. As the next generation of convenient ready and easy to prepare foods hit the market, instant noodles, as a product category, banking on its strength of convenience are poised to encounter days of plenty in the upcoming years. Instant noodles are finely tuned to fit into the consumers’ ever-dwindling cooking time schedules. The trend of cooking meals in just a few minutes is gaining momentum not only among individual consumers but also among institutions and public food outlets. Even restaurants and fast food joints are turning to convenience food to meet the ever-busy consumers demand for quick service and quality food.

Global recession had a major impact on virtually all industries, but some segments fared better than others. Decline in sales of fast food products was relatively less when compared to durables during the years 2008 and 2009. Instant noodles market across the globe was minimally affected by the recent slump in macro economy. Demand for noodles stood positive across several geographies including the matured as well as developing nations. Recession has in fact proved to be a boon in certain regional markets, as instant noodles are considered cost-effective alternative for cutting down the cost of living during tiring times. Today, instant noodles have become an integral part of the individuals’ diet plan.

Asia-Pacific represents the largest regional market for instant noodles worldwide, as stated by the new market research report on Instant Noodles. The region is portended to continue its dominance over the coming years. The United States trails Asia-Pacific in terms of sales of instant noodles. Growth-wise, Middle East/Africa is projected to be the fastest growing regional market for instant noodles, with a CAGR of more than 13% over the analysis period.

Disposable income and purchasing power parity of consumers in various regions across the globe represent major economic factors that influence the demand for and consumption of instant noodles. Typically, consumers with higher disposable income consume higher amounts of instant noodles. Demand in the future will stem from countries presently not ranked among the top consuming countries worldwide. Driving forces will include product characteristics such as lesser cooking time, anytime-anywhere consumption, affordability, hygiene, safety and nutrition. Innovation in flavors will however represent a key factor, kindling consumer interest. Given the unimaginable variety in satisfying flavors, instant noodles add a new dimension to traditional meals all over the world.

Although widely consumed, instant noodles, as a product category, have been forced to confront health issues just like any other packaged food product. Few of the controversial health issues pertaining to instant noodles include among others its high fat content. Moreover use of partially hydrogenated vegetable oils (PHVO), which are rich in trans-fatty acids present potent health issues related to obesity. The use of Monosodium Glutamate (MSG), an artificial additive, has also been a controversial issue. The excessive use of this synthetic additive according to research studies poses potential health hazards, and hence brings instant noodles directly under the microscope.

Food Ingredients First 1/4/2011 ---

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Lupin Proteins Aid Low-Fat Products

January 3, 2011 Food Product Design

New research out of Germany has found lupin seeds yield a creamy protein suspension suitable for the production of low-fat sausage products. The findings suggest sustainable vegetable ingredients one day could replace animal raw materials. According to researchers at Fraunhofer Institute for Process Engineering and Packaging IVV, plant-based food ingredients can be expected to play a particularly important role as a substitute for raw materials derived from animals.

Dr. Ing. Peter Eisner presented a “milk substitute" made from lupin proteins and suitable as a basis for foods such as ice cream or cheese. It contains no lactose, has a neutral flavor, is cholesterol-free and rich in polyunsaturated fatty acids. Lupin seeds are also the basic ingredient in a new vegetable protein isolate with fat-like properties that has been developed by IVV researcher Daniela Sussmann. A special production method applied to the lupin seed yields a highly viscous protein suspension with a very creamy consistency. “The microscopic structure of this product resembles that of the fat particles in sausage meat. So you can use it to produce low-fat sausage products that taste just as good as the original," she said.

In sensory tests she investigated whether adding lupin protein could improve the juicy and creamy impression of a low-fat sausage recipe. “By adding 10 percent protein isolate, we were able to markedly improve the fat-like impression of low-fat liverwurst," she said.

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Bakery Products Market to Reach $410 Billion by 2015

Nutraceuticals World January 10, 2011
The global baking industry is currently facing opportunities as well as challenges created by the economic crisis, according to a new report from Global Industry Analysts, Inc. The still volatile financial scenario is changing the way bakers approach their businesses.

On the consumption front, similar to the U.S., the bakery industry in Europe is witnessing a decline in traditional bakery products. However, the decrease in demand is being offset by rising purchase of bite-sized sweet goods, on-the-go breads, between-meal snacks, easy-to-carry sandwiches and other products. There is an increase in the number of on-the-go bakery product introductions and new flavours to meet the requirements of the extremely mobile population of today.

With consumer preferences undergoing tremendous changes, bakers are literally on their toes suiting the product rollouts to dynamic consumer preferences. Meeting the demands of the fast paced consumer lifestyles are single-serve, small-size bakery products, leading to an increasing demand for breads and rolls, donuts and pastries.

There has also been a noticeable shift toward natural and healthy bakery products comprising of vitamins, whole grains and fibers. Bakers introduced organic baked goods, breakfast cereals, breads and biscuits, enriched with nutritional and natural ingredients in single-serve and portable packaging. Private label products gained considerable importance in retailing strategy of savory snacks, in spite of the disadvantage of ownership and management of inventory. In recent years, however, the bakery industry has been plagued with high costs of production and increase in raw material costs in real terms in many markets. Intense price pressure is another feature of the bakery products marketplace in many developed markets of the world.

Several companies eliminated preservatives and artificial flavors in their products in a bid toward image changeover as makers of healthier and natural bakery products. About 35% of the global cereal product launches in the year 2009 claimed to be functional cereals with health benefits. The market for breakfast products in the U.K. sailed past the recession with ease, and the country witnessed an increase in the number of bakery businesses during the period. Baking industry in the U.S. remained moderately unaffected by the economic crisis. Bakers did however, experience decline in sales in private labels, particularly for products that were not promoted.

The global market for bakery products is being increasingly consolidated through the penetration of major multinational food companies. As a result, international brands like Oreos of Nabisco are expected to explore into hitherto unexplored territories.

With the tumbling of the global economy in the year 2009, an increasing number of consumers are pinching pennies and looking for low prices that would allow them to stretch their finances The recession resulted in price increase of bakery raw materials in the last few years.

Europe, driven by Germany, France, Italy, Spain, Finland and Sweden among others constitutes the largest regional market worldwide, as stated by the new market research report on Bakery Products. The United States and Latin America trail behind as the next important market in terms of overall size. However, with respect to long term growth potential, the Asia-Pacific market is projected to take the lead, expanding at the highest CAGR of more than 5.0% through 2015. The segment Bread/Rolls represents the largest and most popular bakery product, while the Morning Goods segment is likely to emerge as the fastest growing market over the assessment period 2007-2015.
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Herbal Supplements to Reach $93 Billion

Nutraceuticals World Breaking News January 14, 2011
The global herbal supplements and remedies market exhibited robust growth over the decade, with little or apparently no significant decline on account of the worldwide recession, according to a report from Global Industry Analysts, Inc. In fact, the world market exhibited steady growth for the crisis-ridden period of 2008-2009 and beyond. The importance of healthy diet and good lifestyle reigns in the minds of the consumer, which could not be dampened even by the financial meltdown witnessed in almost every other product segment worldwide.

The recession may have actually prompted increased preference for dietary supplements. Escalating prices, tighter budgets and high healthcare and lifestyle costs have actually driven consumers toward the more economical, healthier and safer option of alternative medicine and dietary supplements for relief from physical and mental disorders.

In the U.S. alone, the sales of vitamins and supplements at the retail level recorded a significant increase of more than 10% in 2008, as compared to the previous year. Recession in the European economy and the increased capital requirements for registration under EU regulation of companies expanded the resources of small companies and provided opportunities for acquisitions in herbal supplements' market.

Europe represents the largest regional market, as stated by the new market research report on Herbal Supplements and Remedies, accounting for the single largest share of the world market. Asia-Pacific and Japan make up the other important markets for herbal supplements on a global basis. In terms of growth rate, the Asia-Pacific market, led largely by China and India, is set to pave the way with the highest CAGR of 10.7% through 2015.

Multi-herbs dominate as the largest segment, capturing a significant share of the overall herbal supplements and remedies market worldwide. The segment is also forecast to race ahead of the other markets at the fastest compounded growth rate of 9% over the analysis period. Soy and Specialty Herbs are also expected to display strong growth potential in the future.
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Health, Naturalness & Energy Drive Beverage Launches

Nutraceuticals World Breaking News January 13, 2011
Rising consumer interest in health and naturalness is being strongly reflected in new product activity in the global soft drinks market. According to Innova Market Insights, 60% of soft drinks launches recorded globally in 2010 had a health positioning of some sort. This was primarily in terms of “passive health” [food minus], although more than 20% of products were launched with an active health [food plus] message of some kind.

“Interest in health is clearly not the only factor driving soft drinks product activity, but it has become highly significant in indicating potential future market directions, both globally and regionally,” said LuAnn Williams, head of research at Innova Market Insights. “While hydration and refreshment remain key to the market, many traditional soft drinks categories such as carbonates, are maturing, and there is rising interest in newer, often higher-value-added lines offering additional benefits, which increasingly seem to include healthier options.”

The most popular health-related claims recorded by Innova Market Insights during 2010 were undoubtedly concerned with

naturalness and freedom from artificial additives and preservatives. This encompassed a wide range of products, led by juices and water, which tend to be seen as inherently fairly natural. More than 20% of launches recorded by Innova Market Insights were marketed as free from additives and preservatives, while well over 10% were marketed as natural. Combining the two categories resulted in nearly one-third of total soft drinks launches using either one or both claims.

The more traditional health-related area of low-calorie or diet drinks also continued to receive considerable attention, with reduced-sugar, sugar-free and no-added-sugar lines taking second place overall in terms of health claims, ahead of low-calorie products. More than one-fifth of launches were positioned as either low-calorie or sugar-free/reduced-sugar/no-added sugar or both. The next place, but at a distance, went to drinks marketed as containing antioxidants, used on about 6% of the 2010 drinks launches recorded by Innova Market Insights; just under half of which were juices and juice drinks.

In terms of active health claims, energy and alertness featured as the leading claim, reflecting the ongoing growth of the energy drinks market. Drinks using energy and alertness claims accounted for more than 40% of soft drinks using any active health claims and more than 8% of soft drinks launches as a whole. This type of claim overtook vitamin and mineral fortification at the head of the active health claims ranking for the first time in 2010, while sports/recovery claims remained in third place at a distance, but still seeing increased use overall through the year.
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Vancouver Mulls Nutritional Standards for Street Food Vendors

January 17, 2011 **Food Product Design**

Vancouver may become the first city in Canada to implement minimum nutritional standards for new street food vendors. As reported by the ***Vancouver Sun***, a newly released City of Vancouver staff report recommended the city council restrict approving new street vendors to operations which meet “minimum nutritional standards as defined by provincial health professionals."

The report cited a successful June 2010 pilot program that added 17 new food vendors that were required to provide “more nutritious and diverse" options than hot dogs and packaged foods. Fourteen of the 17 new vendors still are in operation and three are expected to back in business in early 2011.

The report recommends the city council expand the number of street food vendors by 60 over the next four years to a total of 140. The expansion would include 20 new licenses for mobile vendors—similar to ice cream trucks or bicycles—offering a range of non-prepackaged foods. "Our goal is to provide more diverse, healthier food options on the street," said Deputy City Manager Sadhu Johnston. "It's not just about providing healthy foods, it's about diversity, improved food access and affordability."

Packaging Containing Nanoparticles Protects Against Food Spoilage

Scientists are reporting development and successful lab tests of "killer paper," a material intended for use as a new food packaging material that helps preserve foods by fighting the bacteria that cause spoilage. The paper, described in ACS' journal, Langmuir, contains a coating of silver nanoparticles, which are powerful anti-bacterial agents.

Aharon Gedanken and colleagues note that silver already finds wide use as a bacteria fighter in certain medicinal ointments, kitchen and bathroom surfaces, and even odor-resistant socks. Recently, scientists have been exploring the use of silver nanoparticles each 1/50,000 the width of a human hair as germ-fighting coatings for plastics, fabrics, and metals. Nanoparticles, which have a longer-lasting effect than larger silver particles, could help overcome the growing problem of antibiotic resistance, in which bacteria develop the ability to shrug-off existing antibiotics. Paper coated with silver nanoparticles could provide an alternative to common food preservation methods such as radiation, heat treatment, and low temperature storage, they note. However, producing "killer paper" suitable for commercial use has proven difficult.

The scientists describe development of an effective, long-lasting method for depositing silver nanoparticles on the surface of paper that involves ultrasound, or the use of high frequency sound waves. The coated paper showed potent antibacterial activity against E. coli and S. aureus, two causes of bacterial food poisoning, killing all of the bacteria in just three hours. This suggests its potential application as a food packaging material for promoting longer shelf life, they note.

Food Ingredients First 1/20/2011

Meat-Free: Vegetarian Foods Improve Results in the UK by Dropping the Label

Vegetarian food has come a long way since the nut cutlet and the lentil burger. But now it has run into a new problem - the name. Supermarkets are dropping the prominent use of the word "vegetarian" from meat-free dishes because they fear it puts off today's generation of health-conscious eaters. Worse still for those committed to the cause, "meat-free" dishes are being sold in the same aisles as meals made with meat. Retail analysts said stores were trying to distance themselves from the "negative or outdated connotations" of vegetarianism.

Marks & Spencer is the latest store to launch a range of ready meals suitable for vegetarians but sold alongside staples such as chicken curry or pork medallions. Rather than being prominently displayed, the word "vegetarian" is confined to small writing on the corner of the packaging. "Certain customers would not shop in a vegetarian section as they are not vegetarian, in the same way that the average customer would not shop for gluten or wheat-free goods unless they had an intolerance," said Lesley Anderson, health meals developer for M&S. "Vegetarians are only about 6 per cent of the market, so we want to open it out to the whole population."

The high cost of meat and the health benefits from eating more vegetables have pushed up annual sales of meat-free ready meals such as risotto or bean burgers by a fifth over the past five years. Research by Mintel shows that the number of consumers calling themselves "vegetarian" has for the past five years been about 6 per cent of the overall food market. However, the number who agree with the statement "I eat meat-free foods" is about 60 per cent.

Kiti Soininen, senior food and drink analyst at Mintel, said: "The top reasons why people choose meat-free are for variety, because they are healthier, it is a lighter meal or because it looks tasty. Ethical reasons are low. It is denying yourself something to be vegetarian, whereas being meat-free has more positive connotations."

SoyTech eNews January 17, 2011

People want food ingredients with a 'wellness factor'

19 January 2011 Ingredients Network.Com
Consumers are increasingly attracted to foods which contain "wellness ingredients", according to research from the Centre for Culinary Development (CCD).

The Wellness Ingredients: Culinary Trend Mapping Report highlighted that ingredients such as spices which are thought to have "healing properties", such as hemp, fermented foods, sprouted foods, grass fed meat and dairy products and agave nectar are all proving popular with consumers.

"American consumers are more engaged than ever in managing their health through food in hopes of curing what ails them or preventing ailments to which they are susceptible," says Kimberly Egan, chief executive officer of CCD. "Many of these curative foods have roots in ancient times, and have been consumed by cultures around the world for centuries." It was recently highlighted, by research from Newcastle University in the UK, that drinking organic milk is healthier than the alternative as it contains fewer polyunsaturated fatty acids due to the diet the cows eat.

Healthy Eating, Made Easy' with New DIG Campaign

Australian shoppers will be able formulate a balanced diet and make healthier food choices following the launch of a new Daily Intake Guide (DIG) consumer education campaign by the Australian Food and Grocery Council today (31 January). The new Healthy Eating, Made Easy campaign for DIG front-of-pack food labelling an easy-to-follow tool to give people information to formulate a daily eating plan according to their individual needs and activity levels – coincides with Health Weight Week (January 23 – 30).

As part of the next phase in AFGC's ongoing awareness-raising of DIG over the past four years, the new DIG campaign features a Community Service Announcement (CSA) television advert and an updated website www.mydailyintake.net, which includes a range of useful consumer information.

DIG front-of-pack labels outline the amount of energy, fat, saturated fat, sugar and salt in a standard portion of the food and how that translates to average daily intake. Industry research shows DIG front-of-pack labelling currently appears on more than 4000 food and beverage products.

AFGC Chief Executive Kate Carnell said DIG was ideal way for people and families to formulate a daily eating plan according to their individual needs and activity levels. “DIG is a highly effective tool for families or individuals as it provides easy-to-understand, scientific information to help people make informed and personalised choices to enjoy a healthy and balanced diet,” Ms Carnell said.

DIG also shows you how to distribute your energy intake over a day. It's based on 3 meals plus 2 smaller in-between meal snacks. For example, it recommends consuming 20 per cent of your daily energy for breakfast, 20 per cent for lunch, 40 per cent for dinner and 20 per cent on mid-morning and afternoon snacks. (These recommendations are based on new scientific research).

“When choosing foods and drinks, you can use DIG thumbnails to easily balance your energy intake during the entire day,” Ms Carnell said. AFGC and its retail partners will be rolling out user-friendly consumer education material in retail stores and in magazines to ensure consumers know how to use the nutritional information to put together a balance diet.

Food Ingredients First 1/31/2011

Regulatory & Safety News

Salt reduction 'reduces serious threats of diabetes'

Salt reduction is the key to reducing the risk of serious threats to diabetics' health, according to a review of previous studies. In the Cochrane review, researchers evaluated the results of 13 studies, with 254 adults who suffered from either type 1 or type 2 diabetes. Participants' daily salt intake was monitored over the course of a week to see how it would affect their blood pressure.

Lead reviewer Rebecca Suckling said: "We were surprised to find so few studies of modest, practical salt reduction in diabetes where patients are at high cardiovascular risk and stand much to gain from interventions that reduce blood pressure." She added there was consistently a reduction in blood pressure where people consumed less salt.

Recently, a study by researchers at the University of Queensland in Australia suggested mandatory salt reduction rules could cut the risk of heart disease by around a fifth.
IngredientsNetwork.com 09 December 2010

Kefir Increases H. pylori Therapy Effectiveness

December 29, 2010 Food Product Design

Kefir, a probiotic-containing fermented milk, may help increase the effectiveness of triple therapy used to treat a *Helicobacter pylori* (H. pylori) infection, according to a new study published online ahead of print Dec. 27 in the Journal of Medical Food.

Researchers at Uludag University Medical School conducted a double-blind study that involved 82 consecutive patients with symptoms of dyspepsia and *H. pylori* infection confirmed via the urea breath test. Twice daily for 14 days patients were given triple therapy—lansoprazole (30 mg), amoxicillin (1,000 mg), and clarithromycin (500 mg) —with either 250 mL of kefir twice daily (n=46) or 250 mL of milk containing placebo (n=36). Side effects were determined using a standard questionnaire form at 15 days after the start of treatment; patients returned for urea breath tests 45 days after beginning treatment. Eradication of *H. pylori* bacteria was significantly higher in patients taking both triple therapy and kefir (78.2 percent), compared to those taking triple therapy and placebo (50 percent). Those in the kefir group also experienced significantly less severe and less frequent side effects than did those in the placebo group. The researchers concluded “a 14-day regimen of triple therapy with kefir is more effective in achieving *H. pylori* eradication than is triple therapy alone."

USDA scientists produce palatable gluten-free bread

A process to produce high-quality, gluten-free bread has been developed by U.S. Department of Agriculture (USDA) scientists in Manhattan, Kan. Millions of Americans affected by celiac disease are unable to digest gluten, a protein in flour from grains such as wheat, barley, and rye. Chemists Scott Bean and Tilman Schober at the Agricultural Research Service (ARS) Grain Quality and Structure Research Unit found that by removing a certain amount of fat from a corn protein called zein they were able to produce dough more similar to wheat dough, and free-standing, hearth-type rolls that resemble wheat rolls.

Bean and Schober had some success developing gluten-free pan bread from other grains, but they couldn't make free-standing rolls because the rolls spread out too much. According to Bean, the bread was considered lower in quality than comparable wheat bread. Gluten-free grains include corn, sorghum, and rice. In previous studies, Bean and Schober found that zein—a readily available byproduct from corn wet milling and ethanol production—could be used to make dough that was more similar to wheat dough. The dough still didn't meet their standards, though, because it lacked strength, and the rolls produced from it were too flat.

Bean and Schober discovered that removing more of the fat from the zein protein's surface allowed the proteins to stick to each other much like wheat proteins do, giving the zein-based dough the same elastic properties as wheat dough. According to Bean, while the experiment made more acceptable dough, sorghum may prove to be a better grain to use since it is a gluten-free grain. Bean used corn as an intermediate step toward achieving the ideal in gluten-free breads: a wheat-like dough using non-wheat proteins, resulting in products with a fluffy, light texture. The research results were published in the *Journal of Cereal Science* and in *Agricultural Research* magazine.

IFT Newsletter January 5, 2011

FDA to investigate food dyes' effect on youth

Acting on research that claims food dyes may trigger behavioral problems in children, the U.S. Food and Drug Administration (FDA) has scheduled a March meeting. The Center for Science in the Public Interest (CSPI) is asking the agency for a synthetic food dye ban and to place warnings on products until the colors are removed.

According to the *Los Angeles Times*, today there are nine synthetic hues approved for use in food—meaning they've been certified by the FDA. They are used primarily to help restore the color washed away by industrial processing, even out natural variations, and make foods look more appealing. Manufacturers also can use dyes made from plant, animal, or mineral sources such as beets, caramel color, or grape color extract, but the petroleum-based colors are cheaper and can be more consistent.

In 2007, researchers at the University of Southampton reported in *The Lancet* that hyperactive behavior increased in two groups of children—age 3 and ages 8 and 9—when they consumed two different mixtures of synthetic colors, plus a preservative.

Unlike previous studies, the Southampton research found the effect in children from the general population, not just those whose parents suspected they were sensitive to food dyes. And the study didn't just rely on parental ratings of their children's behavior, which can be subject to bias; it also used ratings generated by teachers, researchers, and computers.

The British Food Standards Agency, which commissioned the trial, subsequently advised concerned parents to reduce or eliminate six colorings from their children's diets. A committee of the European Parliament then voted to ban all synthetic dyes from foods consumed by babies and small children.

The FDA still maintains there's "no evidence" of a link between dyes and hyperactivity. When it reviewed the Southampton study, the agency "found no information to suggest that the behavioral changes noted were adverse, detrimental, or maladaptive." One of the study's shortcomings, the FDA said, was that it used a mixture of color additives and the preservative sodium benzoate, making it impossible to know which individual additive was responsible for the effect. The researchers, who have been invited to the March FDA panel, acknowledged that more studies are needed but disagree with the FDA's view that the effects were insufficient to warrant action.

IFT Newsletter January 5, 2011

US Front of Pack Labelling Changed Some Purchase Intent Scores by More Than 25% – Consumer Study

The FDA is expected to make a recommendation regarding the necessity of labelling items like fat and sodium on the front of food and beverage packages this year. To better understand shoppers' views on this, HealthFocus International has conducted a study of over 1000 U.S. shoppers to ask them their opinion on the necessity of front of pack labelling, what they would like to see labelled (e.g., fat, saturated fat, calories, sodium, vitamins, etc.) and how much they feel this labelling will affect their purchasing behaviour.

The study also looks at 25 major brands and explores changes in purchase intent for each brand with and without front of pack labels. Both "better for you" and "indulgent" categories showed interesting results. For example: purchase intent for products like frozen pizza dropped with the front of pack label while the purchase intent for some cookie brands went up. Purchase intent for pasta dropped with the front of pack information while some canned soup brands rose.

Forty-three percent of shoppers say that it's unlikely that FOP labelling will impact their food choices but some purchase intent scores changed by more than 25%.

Food Ingredients First 1/12/2011 ---

New Rapid Test Developed to Detect Toxins in Shellfish

January 11, 2011 Food Product Design

Scientists at Queens University have developed a new rapid test that ensures shellfish are free of paralytic shellfish poisons, which paralyze anyone who consumes them and kills around 25 percent of those who are poisoned. The new test slashes testing time to 30 minutes from 48 hours by using new biosensor technology and provides a much more reliable result. It works by using unique "detector proteins" to find minute amounts of toxins present in mussels, oysters, cockles and scallops.

"The test will not only make shellfish safer to eat, but it will also have a significant impact on global aquaculture industries as they struggle to deal with the rising problems of toxins caused by climate change," said project leader Professor Chris Elliott, Director of the Institute of Agri-Food and Land Use at Queen's School of Biological Sciences. The test has been developed as part of a €10 million BioCop research project led by Queen's and involving 32 international research partners and the European Commission.

Smart Packaging Alerts Consumers about Food Spoilage

January 10, 2011 Food Product Design

Researchers at the University of Strathclyde are developing "smart packaging" that alerts consumers to spoiled foods by changing color when the food is past its prime. An estimated 8.3 million tons of household food are wasted in the United Kingdom each year.

The packaging is made of "intelligent plastics" that let consumers know when the food is close to spoiling because of damaged wrappers, the expiration or "best before" date is passed, or has not be stored at the proper temperature. Current freshness indicators are usually labels inserted into a package, but those labels can be costly, the researchers noted. The indicator will be used as part of a form of food packaging known as modified atmosphere packaging, which keeps food in specially-created conditions that prolong its shelf life.

"Modified atmosphere packaging is being used increasingly to contain the growth of organisms which spoil food but the costs of the labels currently used with it are substantial. We are aiming to eliminate this cost with new plastics for the packaging industry," said Andrew Mills, of the Department of Pure and Applied Chemistry, who is leading the project. "We hope that this will reduce the risk of people eating food which is no longer fit for consumption and help prevent unnecessary waste of food. We also hope it will have a direct and positive impact on the meat and seafood industries."

Energy Drinks Don't Blunt Effects of Alcohol, Study Finds

Marketing efforts that encourage mixing caffeinated "energy" drinks with alcohol often try to sway young people to believe that caffeine will offset the sedating effects of alcohol and increase alertness and stamina. But a new study led by researchers from the Boston University School of Public Health and the Center for Alcohol and Addiction Studies at Brown University has found that the addition of caffeine to alcohol -- mixing Red Bull with vodka, for example -- has no effect on enhancing performance on a driving test or improving sustained attention or reaction times.

"There appears to be little or no protective benefit from the addition of caffeine to alcohol, with respect to the safe execution of activities that require sustained attention with rapid, accurate decisions," says the study, published in the February edition of the journal Addiction. "The results of this study suggest that public education, via media and warning labels, should be considered regarding the safety of CABs [caffeinated alcoholic beverages], and that regulators should scrutinize energy drink and CAB advertising as it relates to promoting safety-related expectancies."

The study, headed by Jonathan Howland, professor of community health sciences at BUSPH, comes amid increased government scrutiny of energy drinks, particularly when mixed with alcohol. Denmark has banned the sale of energy drinks, and the governments of Canada and Sweden have issued warnings about mixing energy drinks with alcohol.

Nutrition Horizon 1/13/2011

New Research Fuels Call for Truth in Trans Fats Labelling by the FDA

Did you know that when you pick up a product promoted as trans fat free, you may still be ingesting a significant amount of this potentially harmful substance? An article by Case Western Reserve University School of Medicine student Eric Brandt, published in the January/February 2011 issue of the *American Journal of Health Promotion*, reveals that misleading labelling practices can result in medically significant intake of harmful trans fat, despite what you read on Food and Drug Administration (FDA) approved labels. Indeed, consumers' inability to identify high-risk foods may cause individuals to exceed the daily recommended value of 1.11 grams of trans fat from processed foods and lead to adverse long-term health side effects.

Ingestion of trans fat is a known public health concern. Top national health organizations, such as the U.S. Department of Health and Human Services and American Heart Association, suggest trans fats be ingested in limited quantities. However, current FDA labelling protocol and policy prevents the public from accessing the true amount of trans fat contained in their food products.

Current law requires that fat content of greater than five grams be listed in one gram increments, less than five grams be listed in .5 gram increments, and lower than .5 grams as containing zero grams of fat. Meaning, if a product has .49 grams of trans fat, the label can list the trans fat content as zero, thus masking a significant amount of trans fat that can exceed recommended limits and potentially lead to various adverse health effects.

Trans fat consumption has been linked to increased risk of coronary artery disease, diabetes, and sudden cardiac death. Because the daily recommended amount of trans fat from processed foods is only 1.11 grams, one would only need to consume a few deceptively labelled trans fat foods to exceed the healthy recommended intake. As few as three deceptively labelled trans fat items would exceed the healthy recommended intake; for example, consuming three serving sizes each with .49 grams of trans fat, totalling 1.47 grams. Despite what seems to be a small amount of trans fat to ingest, research shows that increasing daily trans fat consumption from .9% to 2.1%, or from two grams to 4.67 grams, will increase one's risk of cardiovascular disease by 30%.

In an effort to adhere to its mission and responsibility in "helping the public get the accurate, science-based information they need to use medicines and foods to maintain and improve their health," Brandt recommends the FDA revise its labelling protocol in order to prevent misleading the public about the amount of trans fat they are consuming. He recommends the FDA require food labels to report trans fat content in smaller increments, enabling consumers to recognize significant levels of trans fat in food products and allow one to properly manage their consumption. The suggested change will increase awareness of accurate food trans fat content, empower informed food choices, and improve public health outcomes.
SoyTech eNews January 3, 2011

FDA Needs to Reassess its Approach to Protecting Consumers from False or Misleading Claims – GAO

The Food and Drug Administration (FDA) oversees federal requirements to prohibit false or misleading food labels; the Federal Trade Commission enforces the prohibition against false or misleading advertising. By statute, health claims on food labels must have significant scientific agreement, but in 2002, in response to a court decision, FDA decided to allow qualified health claims with less scientific support. Structure/function claims refer to a food's effect on body structure or function and are also used on food. Congress directed GAO to study FDA's implementation of qualified health claims for food. GAO examined the results of FDA's efforts to allow the use of qualified health claims and oversight of these claims and consumers' understanding of the claims. GAO also examined FDA's oversight of structure/function claims. GAO reviewed FDA documents and consumer studies and interviewed stakeholders from health, medical, industry, and consumer groups.

FDA's efforts to protect consumers from false or misleading claims are conducted in a complex and challenging legal and regulatory environment. From 2002, when FDA announced its decision to allow qualified health claims on food labels--following a court decision involving its authority to regulate dietary supplements--through September 2010, FDA received 16 petitions from companies proposing 60 claims on food labels. After reviewing the scientific evidence presented in the petitions, FDA determined that there was enough credible scientific evidence for the agency to allow the use of 12 qualified health claims, by modifying language to qualify the claims and characterize in detail the strengths and limitations of the scientific support for those claims. In overseeing qualified health claims for food labels, FDA has issued two warning letters to food companies both in 2010 for citing health benefits that were not in the allowed qualified health claims or supported by scientific evidence. Research showed, and stakeholders indicated, that consumers find it difficult to understand the differences between health claims with significant scientific agreement and the lower level of scientific support for qualified health claims.

Research also showed that consumers find it difficult to distinguish among the many different types of claims on food labels, including health claims, qualified health claims, and structure/function claims. FDA data indicate that companies now minimally use qualified health claims on foods but more widely use structure/function claims to convey their foods' health benefits. Companies' use of structure/function claims is subject to the general statutory requirement that labeling not be false or misleading. However, FDA has not given companies guidance on the scientific support needed to prevent false or misleading information for a structure/function claim for food or given its inspectors instructions for identifying potentially false or misleading information in such claims when examining food labels as part of food facility compliance inspections. Even if FDA were to provide such guidance, structure/function claims pose a serious oversight dilemma for the agency.

That is because FDA unlike the Federal Trade Commission (FTC), which can require companies to submit any relevant evidence as part of an investigation of whether claims are substantiated does not have the ability to compel companies to turn over their substantiation documents. GAO's work indicates that FDA's efforts to meet that burden are hampered by the lack of access to the evidence that a company relies on to make such a claim. In particular, while FDA may ask a company to provide its scientific support for a claim, FDA does not have express legal authority to compel the company to provide such information. FTC, on the other hand, which is responsible for protecting consumers from false advertising generally, has the authority to compel companies to provide the support. FTC officials said that the Commission would have difficulty taking enforcement actions against companies for alleged false structure/function claims on food labels and in advertisements without access to companies' proprietary market and scientific research. GAO recommends FDA identify and request from Congress authorities to access companies' evidence for potentially false or misleading structure/function claims on food to establish scientific support, provide guidance to industry on the evidence it needs to support such claims, and provide direction to FDA inspectors to help identify claims for further review. FDA generally agreed with the first two recommendations but found the third to be impractical; GAO clarified that recommendation.

Food Ingredients First 1/18/2011

FSA Sets Purity Criteria for New Food Additives

The Food Standards Agency (FSA) published **new draft regulations** in England that will implement two European directives that set criteria for the purity of four new food additives and one sweetener recently permitted for use in the European Union. Similar regulations are being made in Scotland, Wales and Northern Ireland. The new additives are E392 extracts of rosemary, E427 cassia gum, E961 neotame, E1203 polyvinyl alcohol, and E1521 polyethylene glycol.

The purity criteria legislation will ensure each additive meets specified compositional criteria for its manufacture and production. Minor amendments also have been made to the existing specifications to bring them in line with international safety standards and to take account of new technological developments.

The new regulations take effect in England on March 31, 2011, and implements two directives—Directive 2010/67/EU, which amends Directive 2008/84/EC laying down specific purity criteria on food additives other than colors and sweeteners; and Directive 2010/37/EU, which amends Directive 2008/60/EC laying down specific purity criteria on sweeteners.

January 18, 2011 Food Product Design

UK FSA Publishes New Draft Regulations on Food Additives

The UK Food Standards Agency has published new draft regulations in England that will implement two European directives. The directives set criteria for the purity of four new food additives and one sweetener recently permitted for use in the European Union.

The new additives are:

* E392 extracts of rosemary
* E427 cassia gum
* E961 neotame
* E1203 polyvinyl alcohol
* E1521 polyethylene glycol

The aim of the purity criteria legislation is to make sure that each additive meets specified compositional criteria for its manufacture and production. Minor amendments have also been made to the existing specifications to bring them in line with international safety standards and to take account of new technological developments.

The new regulations, which will come into force in England on 31 March 2011, implement these two European directives:

* Directive 2010/67/EU, which amends Directive 2008/84/EC laying down specific purity criteria on food additives other than colours and sweeteners
* Directive 2010/37/EU, which amends Directive 2008/60/EC laying down specific purity criteria on sweeteners

It is not thought that these new rules will impose any additional costs to manufacturers.

Food Ingredients First 1/18/2011

Nutrition Keys: New FOP Labelling System Launches

January 25, 2011 **Food Product Design**

Called the most significant modernization of food labels since the Nutrition Labeling and Education Act of 1990, Nutrition Keys launched with the support of the nation's leading food and beverage manufacturers and retailers. The new front-of-package food labeling system was initiated in response to a request from First Lady Michelle Obama to help busy shoppers make informed choices.

"We share First Lady Michelle Obama's goal of solving childhood obesity within a generation," said Pamela G. Bailey, President and Chief Executive Officer of the Grocery Manufacturers Association. "Today's announcement would not have been possible without her leadership. Food and beverage companies have a strong track record of providing consumers with the products, tools and information they need to achieve and maintain a healthy lifestyle, and this program represents a significant milestone in our ongoing effort to help consumers construct a healthy diet."

The Nutrition Keys system is based on a simple FOP icon showing the calories, saturated fat, sodium and total sugars content of a product. The icon will also how the key nutrients in each product fit into a balanced and healthy diet as part of the federal government's daily dietary advice. Manufacturers can also include up to two "nutrients to encourage"—potassium, fiber, protein, vitamin A, vitamin C, vitamin D, calcium and iron. These are considered shortfall nutrients or are required to be on the nutrition facts panel. They can only be included on the Nutrition Keys label if the product contains more than 10 percent of the daily value per serving of the nutrient and meets the FDA requirements for a "good source" nutrient content claim.

Companies will begin rolling out the new labeling system this year, with the first newly labeled products hitting store shelves in the next few months. To build consumer awareness of the new icon, participating food and beverage manufacturers and retailers have agreed to invest at least $50 million in an advertising, public relations and in-store marketing campaign.

Front-of-Package Labels on Kids' Food Misleading

January 24, 2011 **Food Product Design**

Results of a new **Prevention Institute study** reveal labels on the front-of-packaging labelling on many children's foods are misleading. In fact, 84 percent of the products examined failed to meet basic nutritional standards of food packages for kids.

The study was released last week by the Strategic Alliance for Healthy Food and Activity Environments. The study examined front-of-package labelling on 58 "Better-for-You" children's products that manufacturers tout as nutritious. The nutritional content was compared against nutritional criteria derived from the U.S. Dietary Guidelines and the National Academies of Science. The findings revealed:

- 57% of the study products qualified as high sugar, and 95% of products contained added sugar.
- 53% were low in fibre.
- 53% of products did not contain any fruits or vegetables; of the fruits and vegetables found, half came from just two ingredients—tomatoes and corn.
- 24% of prepared foods were high in saturated fats.
- 36% of prepared foods and meals were high in sodium.

"Chronic diseases like diabetes are skyrocketing, and children are predicted to have a shorter life span than their parents. Parents want healthy food for their kids," said Prevention Institute's Executive Director Larry Cohen. "They need food labels that reveal what's really inside, instead of emphasizing one healthy aspect to trick them into buying something fundamentally unhealthy. Mandatory front-of-package labelling guidelines will move us closer to food packages parents can trust."

Non-Alcoholic Energy Drinks May Pose 'High' Health Risks

Highly-caffeinated energy drinks even those containing no alcohol may pose a significant threat to individuals and public health, say researchers at the University of Maryland School of Public Health and Wake Forest University School of Medicine. In a new online commentary in the Journal of the American Medical Association (JAMA), they recommend immediate consumer action, education by health providers, voluntary disclosures by manufacturers and new federal labelling requirements.

"Recent action to make pre-mixed alcoholic energy drinks unavailable was an important first step, but more continued action is needed," says University of Maryland School of Public Health researcher Amelia Arria, who directs the Centre on Young Adult Health and Development. "Individuals can still mix these highly caffeinated energy drinks with alcohol on their own. It is also concerning that no regulation exists with regard to the level of caffeine that can be in an energy drink."

Arria and co-author Mary Claire O'Brien, associate professor of emergency medicine at Wake Forest University School of Medicine, alerted various state attorneys general to the risks of alcoholic energy drinks starting in 2009, actions that culminated last November in actions against Four Loko and similar products by the U.S. Food and Drug Administration and the Federal Trade Commission.

Health Risks: The JAMA paper cites three public health concerns surrounding all packaged energy drinks containing moderate to high levels of caffeine:

* Consumers often mix alcohol and energy drinks: "Energy drinks have become enmeshed in the subculture of partying," the paper says. "The practice of mixing energy drinks with alcohol – which is more widespread than generally recognized – has been linked consistently to drinking high volumes of alcohol per drinking session and subsequent serious alcohol-related consequences such as sexual assault and driving while intoxicated… Research has demonstrated that individuals who combine energy drinks with alcohol underestimate their true level of impairment."
* Caffeine can have adverse health effects in susceptible individuals: "Therefore continued public health awareness regarding high levels of caffeine consumption, no matter what the beverage source, in sensitive individuals is certainly warranted," the researchers write.
* Energy drink use appears to be associated with alcohol dependence and other drug use: More research is needed to clarify the

possible mechanisms underlying the associations that have been observed in research studies.

Recommendations: The commentary recommends several "proactive steps to protect public health:"

* Health care professions should inform their patients of the risks of consuming highly caffeinated energy drinks;
* Individuals should educate themselves about those risks;
* Manufacturers should warn consumers about the risks of mixing their products with alcohol;
* Regulatory agencies should require energy drink manufacturers to disclose caffeine content on product labels and display appropriate warnings.

Nutrition Horizon 1/27/2011

EFSA Revises Assessment of Consumer Exposure to Steviol Glycosides

The European Food Safety Authority (EFSA) has reviewed its previous assessment of consumer exposure to the sweeteners steviol glycosides based on the revised levels of use proposed by the applicants. More commonly referred to as stevia, these sweeteners are proposed for use in sugar-free or reduced energy foods such as certain flavoured drinks and confectionary. Although the revised exposure estimates are slightly lower than those in the opinion adopted by EFSA's ANS Panel in April 2010, adults and children who are high consumers of foods containing these sweeteners, could still exceed the Acceptable Daily Intake (ADI) established by the Panel if the sweeteners are used at maximum levels.

In April 2010, EFSA's evaluation of the safety and consumer exposure indicated that some adults and children could exceed the ADI of 4 mg per kg body weight per day (mg/kg bw/day) if the sweeteners were used at the maximum use levels proposed by the applicants. The European Commission therefore asked industry to revise the uses proposed for the substances. In order to ensure that the use of such sweeteners would be safe for consumers, the European Commission subsequently requested that EFSA carry out a new exposure assessment on the basis of the revised uses proposed.

Taking into account the revised proposed uses and use levels submitted by industry, EFSA calculated the exposure to steviol glycosides from various food categories including non-alcoholic flavoured drinks which, given food consumption habits, would be among the main sources of exposure to steviol glycosides for both adults and children. In estimating the exposure, EFSA used data from several food consumption databases, including EFSA's Comprehensive Food Consumption Database.

For high consumers, revised exposure estimates to steviol glycosides remain above the established ADI of 4 mg per kg body weight. For European children (aged 1-14) exposure ranges from 1.7 to 16.3 mg/kg bw/day; and for adults, revised exposure estimates range from 5.6 to 6.8 mg/kg bw/day.

Food Ingredients First 1/28/2011

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