

PFNDAI Bulletin June 2009

Editorial

Indian food industry has always been bothered by the cumbersome Prevention of Food Adulteration Act & Rules along with a horde of other orders. After a lot of efforts the government has finally given the new act, Food Safety & Standards Act. This will make rules and regulations based on science. It will consider safety as the basis of standards. We are sure that industry wants this and has been waiting for this momentous change all these years as it would not longer be at the whims of some committee to decide the levels of certain additives to be added in the food products. It would also mean that there would no longer be unnecessary delays in allowing certain ingredients and additives that have been proved safe all around the world.

When the industry has this golden opportunity to get all this, it should show some patience as government machinery takes a little time to move. It should also think of the entire industry as a whole when we try to make regulations and not just a section of the industry. In the past when PFA made some standards and rules, there would be attempts made to give exemption to certain sections. This tendency of granting relief created an environment in which one additive could be used in bread and not on cakes or an ingredient could be used in bakery products but not in fruit and vegetable products. This would happen even though there would be no reason for not allowing the same in other products.

It would be in the interest of the industry to have a system in which is an additive were found to be safe in foods, it would be allowed in any food product. If there is an acceptable daily intake (ADI) to be put as limit, then there must be a system to evaluate the consumption of various products by consumers and then set limits of that additive according to the consumption of those products. This would make life easier for everyone and also give better quality and safer food products to consumers. At present many imported products look so much better than indigenously manufactured ones and one reason is that the former contain some additives not yet permitted for Indian manufacturers.

It would also be easier to find out which are the additives currently allowed in which products. If one tries to find out under PFA, one has to go through a large number of gazette notifications or resort to private publications of PFA Act & Rules published every year and not authenticated by the government. In other countries, these rules are displayed on their websites in a compiled form and regularly updated. The Ministry of Health does not compile the rules but only displays notifications. One has to go through all the notifications to find out the relevant ones. Sometimes the notification may even contain corrections of commas and insertions without mentioning even the products or ingredient.

Secondly, even notifications given are scanned copies which run into several megabytes even for one or two pages. Thus one must spend a lot of time and efforts to find out what is allowed in where. Alternatively one must depend on private publications that might contain a printing error or one may hire a consultant. This hopefully will improve when FSSA is fully functional.

We are presenting a series of articles by Dr. Lewis from this issue about food regulations in India including the new ones. Industry will hopefully come together to decide what is safe and in what. If there is one voice, it is better heard rather than a cacophony.

We hope that this opportunity of getting out of outdated PFA is taken promptly to usher in the better Food Safety & Standards Act by all the stakeholders. Let us have safe, high quality and nutritious foods.

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FOOD SAFETY AND STANDARDS ACT

Blueprint for Renewal

By Dr. J. I. Lewis,
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Food is a creative expression of diversity and richness of Indian culture – it is enjoyed and passed on. Therefore food laws are to be made to propagate this diversity and cultural richness while providing a high level of consumer safety and public health. **Getting the balance right is the issue of regulations.**

The Food Safety and Standards Act 2006 [FSSA 2006] underwrites this ‘balance’ between diversity and consumer safety. This is the fundamental transformation of character that distinguishes the erstwhile Prevention of Adulteration Act 1954 and FSSA 2006. As the Act unfolds – and it is doing so – an appreciation of its distinctive parts will emerge for assimilation and implementation. However before that happens it is an appropriate time to reflect the path traveled since the first food laws came into force in the country as well as the world over. A brief review of the basis on which early regulations were made would bring out the principle shifts on the way regulations are to be made today.

Early regulations were mainly prepared by guilds or trade associations and relied largely on compositional make-up or product recipes. This was essential to prevent product distortions or adulteration essentially through recipe adherence. The addition of water to milk was commonplace – the most dangerous adulterants being the use of dyes as food colorants. The Adulteration Acts focused on the intentional debasing of the quality of the

product either by admixing or substituting with inferior substances or by removing a valuable ingredient. The erstwhile Prevention of Food Adulteration Act 1954, enacted more than 50 years back relied heavily on compositional standards, having emerged at a similar time.

Locked in Specifications

It is not surprising that in order to curb this activity laws were framed on the premise that *'no person shall sell an article of food which is not of the nature, substance or quality demanded by such purchaser'*. Compositional specification appropriately satisfied this singular purpose of law by elaborating the nature, substance and quality. The way to regulate this premise was to impose specifications on products and secondly to do so in such a manner that enabled testing to enforce the law. The precepts that emerged were – specify, inspect, test, convict.

Fallout of the regulatory system created a straitjacketed thinking that all public concerns could be controlled by specifications. The logic extended to safety through inappropriate specifications such as in pickles - *'should be covered in oil so as to form a layer not less than 0.5cm'* later rephrased to *'practically submerged'*. A corollary arising from the regulatory need to specify every product introduced to market led to the disparagement of proprietary foods whose only fault was not to have been mentioned in Appendix B. The idiom seemed to be that what is not standardized is not safe or of acceptable quality. Market response does not support this view.

The system largely propagated itself on its ability to police the market through an inspectorate and no reformation took place. Consumers were protected as long as the policing was good- an impossible task considering that over 20,000 food products stand on market shelves today. When inspection becomes unwieldy – compliance to the law becomes ineffective. Very simply the imminent scenario of impossible inspection itself should drive regulatory reformation towards investing in consumer safety rather than policing product diversity.

Global Shifts – from specification to safety

With the turn of the century most regulators around the world reviewed their basis of rulemaking – European Food Safety Act 2002(EFSA), Food Standards Australia New Zealand 2002 (FSANZ), Food Safety Authority of Ireland 1998 (FSAI), emerging from a need to modernize domestic practice and global alignments, the latter cited as harmonization but often confused with reproduction. The Codex Alimentarius Commission corrected its position early 1990 when it concluded that enough work had been devoted to commodity standardization and resources should be better devoted to horizontal activities such as labeling, food additives, food hygiene, nutrition, export import.

Legislative practice in a global context moved to the premise that a food product lawfully produced and marketed in one country should be permitted access to markets elsewhere unless it could be proved to be a threat to public health, or safety. Food laws based on the old system of adulteration were caught in the flux of protecting consumer health through

a spate of specifications drawing criticism of being over regulated, incoherent and fragmented.

The Food Safety and Standards Act 2006 reflects the international shift in food laws – namely from compositional standards or vertical standards to safety or horizontal standards. It provides a blueprint for renewal, assimilation and implementation and expectedly stakeholder understanding of its essence is critical to take this forward. FSSA 2006 while unifying multiple administrations of the law seeks to provide greater consumer protection and consumer health hitherto unaddressed by the PFA 1954. The word safety does not even appear in the PFA 1954. It is further inevitable that under FSSA 2006 legislations will be science based which is the bedrock of trade obligations and agreements.

Transiting the PFA

So what is the salient distinctiveness of FSSA 2006 that provides the blueprint for renewal? Several stand out for recognition.

The most important step in the Act is the need for legislation to be based primarily on scientific evidence and risk assessment. To do this task several Scientific Panels and an overseeing Scientific Committee have been constituted. The constitutional make up is the single most significant departure from the Subcommittees or Central Committee on Food Standards [CCFS] under PFA 1954 – where members are now selected for their individual scientific expertise and not from stakeholder affiliations.

Consultations in an open manner and not based on what is already settled as was done in the past will be a binding prerequisite for regulations under FSSA 2006. Consultation is quite different from opinions, advocating policy or influencing positions. The first step is to gain scientific insight into the issue prior to reaching a management decision. Consultation exercises should be clear about the scope of the exercise, setting out the context of the market disturbance or questions on consumer safety that raised the issue for regulatory deliberations.

The Panels and Committee are expected to deliver scientific advice of the highest possible quality – espousing the principle of excellence put to use for consumer safety and health. The high quality of scientific expertise is by nature based on prior experience and that therefore having an interest does not necessarily mean having a conflict of interest – a fact often misconstrued. Declaration of an ‘interest’ is to provide confidence in the public domain about transparency in evaluation of issues and is not automatically considered to be in conflict.

Each Scientific Panel should be asked to draft scientific opinions for the Food Authority to evaluate what recommendations it would make in terms of regulatory or non regulatory measures or in developing country positions at international forums and regional trade.

Due Diligence in Rulemaking

Another important feature of modern legislative practice supported by FSSA 2006, is that responsibility for legislation should be separate from scientific consultation. In principle the prior consultation of independent scientific experts under the Scientific Panels and Committee will be the best means of guaranteeing scientific objectivity and is of utmost importance at all stages of the preparation of new legislation. A consultation stage impact assessment should be carried out prior to most regulatory management decisions. Consultation moving up the regulatory process must provide for greater transparency in the policymaking process and should lead to departments having more robust evidence on which to base decisions. As a consequence the long felt need for regulations to be coherent, consistent, complete and predictive will emerge

Major shifts are expected to occur to the manner in which various stakeholders interacted under previous dispensation of PFA 1954. For example reformists in Government and Industry accessed the Codex for direct reproduction of guidelines [in rule form] depending on which part was favorable to a position or opinion. The ubiquitous expression of 'harmonize with Codex' actually meant reproduce. There was never an assessment of the domestic need or understanding why countries implemented the guidelines sometimes differently. It did not matter that the US mandated nutrition labeling on food packages and did not require quid labeling contrary to the EU rulings - and yet both were in apparent harmony.

Under FSSA 2006, scientific justification of measures to be adopted will determine what gets ruled. Any regulation developed must find its authority in the Act and be carried out within the limits and in accordance with conditions or requirements attached to it. To provide for structured rulemaking the FSSA 2006 is more voluble than the PFA 1954. Hence a careful and complete understanding of the Act is required while contemplating its implementation or elaboration. Legislative practice in the past is a poor measure of understanding new equations imposed by the Act. In essence all relevant factors, and no irrelevant factors, must be taken into account. Again, what factors are relevant may be expressly stated in the law, or inferred from its purpose.

In The Cusp of Change

FSSA 2006 places primary responsibility for safe food with producers and suppliers through HACCP, hygiene or good manufacturing practices backed by regulatory control. There is clear responsibility for the safety and wholesomeness of food at all stages of the food chain. It provides for calculated and appropriate response ranging from improvement notices to market recall – measures that are expected to reform the way regulations are made.

Experiences may serve to reform the way regulatory interactions should occur in that actions must be reasonable, have sufficient factual support and is not arbitrary. In fact the Food Authority should discourage poorly supported advice and require robustness of evidence over voluble rhetoric. Some regulatory agencies provide for an ombudsman that oversees that the rulemaking procedure is not unfairly tilted. This obviates the obvious

unfairness of allowing the regulator to be the judge of its own cause by giving its interpretive position on an issue of redress. Similarly regulatory actions are opening up the potential for private “self”-regulation to serve as an alternative to the costly command-and-control public regulation. In some cases, private enterprises will cooperate with government to create certifying bodies and accreditation structures. In still other cases, new combinations of public and private regulation will be developed. The blueprint of change upon us is one of balance of providing food diversities in a safe and wholesome way.



Biochemistry of Food Spoilage

By **Ms.Ummeayman R.**
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What is spoilage?

Every food item that we eat is biological in origin, i.e. it comes from living organisms, thus it is bound to contain proteins, carbohydrates and fats and several metabolic activities would be carried out in them with the help of enzymes. These carbohydrates, fats and proteins are a source of energy. Since every living organism requires energy for survival, we consume food for procuring energy and similarly even microorganisms require energy, thus food becomes the target for the growth of some microorganisms. Food spoilage means the original nutritional value, texture and flavour of the food are damaged, the food becomes harmful to people and unsuitable to consume.

Various microorganisms may cause changes in the character of food, which may be classified as "positive" or "negative". Products of "positive" microbial transformations include cheese, yoghurt, and wine, which can be seen as increasing the nutritional value. "Negative" aspects of microbial growth include food deterioration and spoilage by decay, and food poisoning, mainly caused by different and less widespread bacteria. As they grow, micro-organisms release their own enzymes into the liquid surrounding them, and absorb the products of external digestion. This is the main basis of microbial food spoilage, which lowers the nutritional value of the medium they are growing in. Bacteria and moulds may also produce waste products which act as poisons or toxins, thus causing the renowned ill-effects.

Factors of Food spoilage:

Nutrients in food, their kind and proportions determine the type of organism that will grow. Also, microorganisms vary in their ability to use nutrients. The presence of easily utilizable nutrients will encourage faster growth and quicker damage. For example, a food with easily utilizable sugars will allow better growth than one which contains polysaccharides. Most foods contain enough peptides and amino acids that they can meet the nitrogen requirement of most organisms found in foods. Some organisms are also proteolytic and can grow on proteins found in the food. The mineral requirement of

microorganisms is generally met by the food and this is not a limiting factor. Some foods may contain antibacterial substances which may prevent bacterial growth and food spoilage.

Other than the nutrients present in food, factors such as the pH, moisture content, oxidation reduction potential, etc., also influence microbial activity in foods. For example, each organism has an optimum pH for growth. Thus, both the growth as well as their survival in foods depends on the pH of the food material. Both yeasts and moulds can thrive in high acid foods like fruit, tomatoes, jams, jellies and pickles. Both are easily destroyed by heat. Processing high acid foods at a temperature of 100°C (212°F) in a boiling water canner for the appropriate length of time destroys yeasts and moulds.

Also, the concentration of the sugars will determine the type and extent of growth, since it affects both the osmotic pressure and the a_w (water activity). Generally, yeasts and molds are more resistant to high concentrations of sugar than bacteria. Bacteria generally prefer low acid foods like vegetable and meat. When the conditions for bacterial cell growth are unfavourable (e.g., low or high temperatures or low moisture content), several species of bacteria can produce resistant cells called endospores. Endospores are highly resistant to heat, chemicals, desiccation (drying out), and ultraviolet light. The endospores may remain dormant for long periods of time. When conditions become favourable for growth (e.g., thawing of meats), the endospores germinate and produce viable cells that can begin exponential growth.

Microorganisms have an absolute demand for water and the optimum level of moisture required for growth varies with the organisms. The water requirement is expressed in terms of available water or water activity (a_w), which is the vapour pressure of the solution divided by the vapour pressure of the solvent. This is equal to the vapour pressure of the solutions in water divided by vapour pressure of the water. Each organism has a maximal, optimal and a minimal a_w for growth. Most bacteria grow well in a medium of a_w activity around 0.995 to 0.998. Molds differ considerably in the optimal a_w . For example, *Rhizopus* sp., has an optimal a_w of 0.995-0.980, while *Penicillium* sp., and has an optimal a_w of 0.9935. The a_w value of a food is affected by the vapour pressure of solutes such as sugars, salts, hydrophilic colloids or gels. An increase in the concentration of sugars and salts allows the water to be tied up and also causes the removal of water from the microbial cells. The a_w value of the food therefore, determines to considerable extent the type of organism that can grow in it.

The oxygen tension or partial pressure of oxygen and the reducing and oxidizing power of the food (O-R potential) influences the growth of organisms. In relation to oxygen, bacteria can be aerobic, anaerobic or facultative, while fungi are mostly aerobic, yeast are aerobic or facultatively anaerobic. A high O-R potential favours the growth of aerobic and facultative organisms. Most fresh animal and plant foods have a low O-R potential in their interior but have a higher O-R outside. Thus, a fresh piece of meat could support the growth of aerobic organisms in the exterior and the growth of anaerobic organisms inside.

Other than Microbial growth and destruction, food is spoiled by enzymes present within them. This self destruction is termed as autolysis. The most important mode of destruction is by enzymes. Enzymes are proteins found in all plants and animals. If uncooked foods are not used while fresh, enzymes cause undesirable changes in colour, texture and flavour. This is because, even though the vegetables and fruits have been plucked from the plants, their cells are still alive and continue the basic life process i.e. respiration.

Chemical changes causing Food Spoilage:

Food spoilage occurs in food products due to reaction or breakdown of the chemical components of the food, including its proteins, lipids, and carbohydrates. The rate at which the chemical reactions takes place depends on many factors, which are, water activity, temperature, pH, exposure to light or oxygen.

Protein degradation can involve reactions with protein and other ingredients brought about by enzymatic activity. Protein hydrolysis is achieved by enzymes collectively called proteases. Proteases bring about the cleavage of long protein chains and form fragments of amino acids. Enzymes hydrolyzing peptide bonds in the interior of the amino acid chain are called endo-peptidases whereas proteases hydrolyzing peptide bonds at either the amino- or carboxy- terminal end of the protein are called exo-peptidases. One of the spoilage causing protease is 'Protease plasmin'. Plasmin can survive pasteurization temperature and can cause degradation of dairy proteins in milk and cause coagulation and gelatinization. Other protease can act on the proteins in meat and cause the meats to become mushy. Degradation of meat protein is also brought about by the oxidation of proteins; overexposure to oxygen can cause myoglobin and oxymyoglobin to oxidize into metmyoglobin, causing the change in meat colour from bright red to brown which renders the meat not appealing to the consumer.

Putrefaction is also protein degradation, where decomposition of animal proteins is carried out especially by anaerobic microorganisms described as putrefying bacteria. Putrefaction usually results in the formation of amines such as putrescine and cadaverine. Formula of putrefaction: Protein foods + proteolytic microorganism → amino acids + ammonia + hydrogen sulphide.

Enzymatic activities in fruits and vegetables can cause browning and softening of tissues. Typically these reactions are catalyzed by phenol oxidase enzymes, which react with phenol compounds and oxygen to form undesirable brown pigments. Another form of browning which happens due to non enzymatic activity is Millard Browning. This non enzymatic browning occurs due to reaction between proteins (amino acids) and reducing sugars. This is associated with loss in nutritional value along with the browning and change in the texture of food products. The essential amino acid lysine, which readily reacts with reducing sugars, is quickly lost.

Carbohydrates make up the largest proportion of any fruits and vegetables and so a larger percentage of food spoilage is due to the degradation of the carbohydrate content of these

foods. Vegetable cells, as plant cells, have rigid cell walls and are glued together by various polysaccharides such as cellulose, hemicellulose, and pectin. Once vegetables are harvested from the fields, the cells, now deprived of nutrient supplies normally obtained from soils and the air, go into senescence, or aging. The most noticeable structural change in senescent vegetables is softening, or loss of texture. Softening is caused by natural enzymatic reactions that degrade the plant cell walls. A large group of enzymes is involved in the senescence stage, including cellulase, pectinase, hemicellulase, proteinase, and others. After these enzymes break open the cells, chemical oxidation reactions take place and the vegetables develop off-flavours and loss of nutritional value. Broken cells are also much more easily subject to microbial attacks, which quickly lead to spoilage. In addition, even though the vegetables may be packaged or bagged, the plant cells continue to respire, or break down carbohydrates for energy needs.

Lipid spoilage most often occurs due to oxidation reactions or action of lipolytic enzymes and other hydrolytic reactions. Lipid oxidation is the most important degradation method in fats and oils and occurs in many foods containing fats and oils or in fried foods. During this reactions, oxygen attacks unsaturated fats to form colour changes, off-flavour and sometime toxic substances. The number and location of double bonds on the fatty acids and triglycerides is one factor that affects the rate and extent of oxidation. Light and heat are other important factors as they increase the rate of oxidation. Catalase and peroxidase are the two most important oxidizing enzymes that can cause darkening in diced and sliced vegetables. A simple heat treatment (Blanching) is used to inactivate these enzymes.

Atmospheric oxygen reacts with food components and cause rancidity. Rancidity is the term used for the deteriorative changes of fat with time and it results in undesirable flavour and odour. Hydrolytic rancidity occurs in foods when the lipid (fat) is hydrolyzed by the water contained in food to fatty acids. Some of the liberated fatty acids are volatile and some have very unpleasant odours and flavours. When rancidity occurs due to air, it is termed as Oxidative rancidity. The oxidation of acylglycerols which occurs in air, without the presence of enzymes, is called autoxidation. Among the products of autoxidation are hydroperoxides, ROOH. These have no taste, but they decompose easily to form aldehydes, ketones and acids, which give oxidised fats and oils their rancid flavours. It can be slow down by addition of antioxidants.



Industry News

Dietary Supplement Industry Contributes More than \$60 Billion to US National Economy – Study

A new study funded by the Natural Products Foundation has found the total economic contribution of the dietary supplement industry to the U.S. economy is more than three times annual consumer sales, or \$61 billion dollars per year. The study also showed that

the dietary supplement industry has enough activity throughout production and sales to support more than 450,000 jobs, while industry concerns paid more than \$10 billion dollars in taxes in 2006.

“Most industry assessments primarily focus on sales, but this is really just the tip of the iceberg,” said Tracy Taylor executive director of the Natural Products Foundation. “The labor, materials, and technology necessary to move each product from a raw material to the final sale cause a whole spectrum of economic consequences.”

The Economic Impact Report, completed by Dobson | DaVanzo, a Washington D.C.-based economic research firm, is the first to quantify the dietary supplement industry's overall financial impact on the national economy by considering such contributing factors as supply, production, research, direct employment, manufacturing, taxes, and the extended financial effects these factors produce.

By expanding the study's analysis beyond the industry's most basic financial impact of more than \$20 billion in consumer sales annually, researchers were able to provide a more complete economic picture, charting the widespread effects that dietary supplement-related transactions have on other, complementary industries.

“Not only does the dietary supplement industry represent an important and growing component of the U.S. economy, it is interconnected in essential ways with many other industries,” write the study's authors. “For example, the dietary supplement industry contributes to output (or spending) in other industries, such as retail and wholesale trade; real estate, rental and leasing; finance and insurance; professional, scientific, and technical services; and manufacturing.”

The dietary supplement industry's influence is expanding, with the entire industry growing at a rate that exceeds the rate of inflation. While health care providers are often given a “market basket” increase to account for medical and other inflation, usually between two and three percent, the dietary supplement industry is steadily growing at a rate greater than five percent per year. As the core sales of the dietary supplement industry grow, so too does its extended effects on the economy, providing sustainable jobs, manufacturing infrastructure, and health care benefits by way of prevention.

“The dietary supplement industry is a significant economic engine that powers businesses in communities in every state across the country,” says Taylor. “And the fact that the industry has been growing steadily at a rate that exceeds inflation for more than 10 years, even in unstable economic times, bodes well for the future.”

From: Natural Products Association May 27, 2009

Functional Foods Market Thrives as Consumers Take Proactive Approach to Health

Grocery stores have become hunting grounds for healthful, functional foods and beverages that offer distinct wellness advantages beyond basic nutrition. Consumers are more proactive about their health, and spurred the U.S. retail market for functional foods and beverages to a 6% gain with sales totaling almost \$31 billion in 2008, according to market research publisher Packaged Facts in the brand-new report, "Functional Foods and Beverages in the U.S., 4th Edition." The market reached \$29 billion in 2007.

"Consumers are reevaluating their health, nutrition, and lifestyle choices adopted years ago. This reevaluation includes considering the role functional foods and beverages could or should play in diets in order to avoid or help treat all kinds of health conditions," says Tatjana Meerman, publisher of Packaged Facts. "This new, proactive approach is fundamentally different from the reactive tendencies of consumers in the past who only treated health problems after they arose."

During the five-year period from 2003 to 2008, several functionally oriented food and beverage categories performed well, including yogurt, energy drinks, nutritional snacks and trail mixes, milk substitutes and soymilk, and refrigerated blended fruit drinks, among others. Packaged Facts projects that total U.S. retail sales of functional foods and beverages will continue to grow at a steady pace through 2013, and reach approximately \$43 billion.

Though the market has not proven to be recession proof, it has advantages that could prevent it from being as vulnerable as most other markets. Namely, in the short term functional products may save consumers money since these foods and beverages carry nutrients that shoppers would otherwise seek in expensive nutritional supplements. While in the long run, functional products save consumers money on medical expenses by helping to prevent illness and chronic conditions.

"Functional Foods and Beverages in the U.S., 4th Edition" examines the U.S. market for functional foods and beverages from all angles. It provides insight into key international markets, identifies global trends in new product introductions by geographic region and company, explores developing markets poised for growth, and profiles major marketers. An exclusive feature of the report is custom survey data from Packaged Facts' February 2009 online poll of 2,600 U.S. adults, which was conducted to measure purchasing patterns, attitudes, and demographics specific to functional foods and beverages.

From: Soya Tech E-News May 13, 2009

Herbal Supplement Sales Reach Nearly \$5 Billion in U.S.

Sales of herbal dietary supplements in the U.S. reached \$4.8 billion in 2008, according to a report in *HerbalGram*, the quarterly journal of the American Botanical Council (ABC). Data came from multiple market research firms, including Information Resources Inc. (IRI), *Nutrition Business Journal (NBJ)* and SPINS, which found that total herb supplement sales increased nearly 1% over 2007.

NBJ, Boulder, CO, estimated the total herb supplement sales figure for 2008 based on data derived from company surveys, interviews with major retailers and industry experts and various published and unpublished secondary material. IRI, a Chicago, IL-based market research firm, estimated herb supplement sales in the mainstream market channel to be about \$289 million for 2008, an increase of more than 7% over 2007 mainstream market sales. IRI's figure includes grocery stores, drugstores and mass market retailers, excluding Wal-Mart, Sam's Club, other large warehouse buying clubs and convenience stores.

SPINS, a Schaumburg, IL-based firm, determined that sales of botanical dietary supplements in the natural and health food channel were about \$329 million, indicating that sales in that market channel remained relatively stable from 2007 sales. SPINS' figure includes estimated sales from Whole Foods.

The five top-selling single herbal supplements of 2008 in the health and natural food channel, according to SPINS, are flaxseed oil (*Linum usitatissimum*), wheat grass and barley grass (*Triticum aestivum* and *Hordeum vulgare*), stevia (*Stevia rebaudiana*), aloe vera (*Aloe vera*) and milk thistle (*Silybum marianum*).

The top-selling herbal singles of 2008 in the food, drug, and mass market channel, according to IRI, are cranberry (*Vaccinium macrocarpon*), soy (*Glycine max*), garlic (*Allium sativum*), saw palmetto (*Serenoa repens*) and ginkgo (*Ginkgo biloba*). These rankings do not include combinations containing multiple herbs.

"Many people believe that herb sales may be somewhat recession-proof," said Mark Blumenthal, founder and executive director of ABC, editor of *HerbalGram*, and one of the authors of the report. "It is highly likely—and the sales data support this—that many consumers, particularly those without health insurance to cover costs of conventional medicines, may be purchasing herbal supplements to help manage some of their health needs."

"There is vast opportunity for innovative herbal products to move outside the category and into the food and beverage universe with the potential of attracting new shopper segments," said Mary Ellen Lynch, SPINS director of consumer insights and a co-author of the report. "For example, the antioxidant turmeric, which continues to grow in the natural channel, has this potential due to its link to multiple health benefits (including cardiovascular/liver/brain health) that align well to the mainstream consumer's growing interest in health and wellness."

From: Nutraceuticals World Breaking News May 19, 2009

Agricultural innovations needed to meet world food crisis

Does agriculture need technology to help meet the growing worldwide demand for safe, nutritious, and affordable food? The answer is a resounding "yes," according to Jeff

Simmons, author of a new white paper titled “Technology’s Role in the 21st Century: Food Economics and Consumer Choice.” In his paper, Simmons provides a comprehensive review of the growing challenge of feeding the world’s population, including both historical data and projections that underscore the absolute necessity for new and existing technologies in food production.

“Already, an estimated 963 million people do not have enough to eat, and by 2050, we will need to produce 100% more food than we do now,” said Simmons. “We can’t achieve that by merely adding farmland or increasing crop intensity. But, we can use technology—such as advances in nutrition, disease and pest control, and livestock management—to increase productivity.”

Simmons concludes that technology is an important key to meeting the global demand for food and consumer choice for three reasons. First, technology enables food producers to provide more high-quality grains and protein sources using fewer resources. Second, technological innovation can help keep food affordable while ensuring maximum consumer choice—especially in developing nations. While some countries’ well-designed organic systems can provide better yields and profits than traditional systems, on a global scale, organic foods come with a premium that many consumers can’t afford. Finally, technology can help minimize the global environmental impact of increased food production. For instance, modern beef-production techniques actually reduce greenhouse gas emissions per pound of beef by 38% compared with “all-natural” production methods, according to a 2007 study by the Hudson Institute. Moreover, technologies such as livestock feed ingredients can help significantly reduce animal-waste production that threaten vital water resources, particularly in developing nations where modern pollution-control standards are not in use.

IFT Newsletter May 6, 2009

Since FDA Claim Approvals, Omega-3 Fatty Acids Have Seen Rapid Sales Growth: New Report

Omega-enriched foods and beverages have entered an explosive growth phase in the global retail market. Since 2003, thousands of foods and beverages enriched with omega fatty acids have been introduced worldwide. Marketers really did not start touting the omega content of enhanced foods until late 2004, after the Food and Drug Administration (FDA) moved to allow a number of nutrient content claims for these powerhouse fatty acids. Nearly 1,300 new omega-3-enriched products were introduced in Europe and North America in 2007. In 2008, the omega-enriched food sector is operating under what is termed a “healthy halo,” defined by three primary parameters -- public awareness of omega fatty acids, proven scientific benefit and a willingness by the consumer to purchase these products. The global market for foods and beverages enhanced with omega-3, omega-6 and omega-9, as defined in this report, has been estimated by Packaged Facts at \$4.6 billion the end of 2007. The compound annual growth rate for the period from 2003 to 2007 is estimated to be 60.7%.

A number of drivers are propelling this market in addition to an avid consumer base. These include innovative formulations and technology advancements that are expanding the products amenable to enhancement with omegas. Also, methods of stabilizing omega-containing products to inhibit oxidation (which causes the fishy smell associated with fish-oil-based omega-3) have resulted in improved taste as well as extended shelf life. In the U.S., the FDA in 2007 implemented guidelines for Good Manufacturing Practices (GMP) for nutraceuticals companies, resulting in greater oversight of and confidence in the companies producing omega-enhanced products.

"Omega Fatty Acids: Trends in the Worldwide Food and Beverage Markets, 2nd Edition" contains comprehensive data on the global market for foods and beverages enhanced with omega-3, omega-6 and omega-9 fatty acids. Historical retail sales data (2003-2007) and forecast data (2008-2012) are provided for the global and selected international markets (U.S., Europe, Asia/Australia). The report discusses key trends affecting the marketplace, trends driving growth and consumer demographics. The report profiles major marketers of omega-enhanced products and suppliers of omega fatty acids as well as innovative companies in both of these sectors.

Soya Tech E-News May 19, 2009

Health & Wellness Industry Sales Top \$112 Billion

U.S. retail sales for the consumer packaged goods health and wellness industry reached more than \$112 billion in 2008, representing growth of 9% over 2007, according to the Natural Marketing Institute (NMI), Harleysville, PA.

This figure includes sales across all retail and direct-to-consumer channels for six categories detailed below. These findings are part of NMI's annual Health & Wellness Trends Database (HWTD) research study, conducted in the fourth quarter of 2008 among 5709 U.S. households.

"NMI research clearly shows that the current economic downturn is changing consumer behavior on many levels, including spending related to health and wellness," said Maryellen Molyneaux, NMI president. "So while sales in each category continue to grow, consumers are becoming more discerning and are looking for real value in their purchases and not just the perceived value. This shift in behavior will impact manufacturers and retailers not just short-term but also in the future."

While functional foods and beverages continue to represent the largest category with 2008 sales of \$40.5 billion, the second largest category saw a slight shift in the past year, from vitamins/minerals/herbal supplements to organic foods and beverages. The category with the largest growth over the past year also shifted in 2008. Natural/organic general merchandise (including pet products, clothing and household cleaning products) saw growth of 32% over 2007. This is likely due to the mainstreaming of these products and greater availability in a number of shopping channels, according to NMI.

Based on consumer spending by product segment, consumer penetration/usage trends and

projected data, industry retail dollars in billions for 2008 (and growth versus 2007) are as follows:

- * Functional/Fortified Foods & Beverages : \$40.5 (5%)
- * Organic Foods/Beverages: \$23.6 (18%)
- * Vitamins, Minerals, Herbal & Dietary Supplements: \$23.3 (7%)
- * Natural Foods/Beverages: \$14.6 (4%)
- * Natural/Organic Personal Care: \$8.4 (7%)
- * Natural/Organic General Merchandise: \$2.0 (32%)

With the economic future unclear, NMI projects that the health and wellness industry as a whole will remain relatively stable over the next five years at approximately 7% growth each year.

From: Nutraceuticals World May 21, 2009



Food & Nutrition Research

Child Weight Gain Not Associated with Strict Maternal Feeding Practices - Study

A new study published online in the journal “Obesity” provides further evidence that strict maternal control over eating habits – such as determining how much a child should eat and coaxing them to eat certain foods – during early childhood may not lead to significant future weight gain in boys or girls. Instead, this behavior may be a response to concerns over a child's increasing weight.

"Our findings suggest that controlling maternal feeding practices probably do not cause increased weight gain, as some previous studies have proposed. In fact, some degree of control may actually be beneficial in helping certain children maintain their weight," says lead author Kyung E. Rhee, MD, MSc, a researcher with the Weight Control and Diabetes Research Center at The Miriam Hospital. Rhee is also a pediatrician with Hasbro Children's Hospital and an assistant professor of pediatrics (clinical) at The Warren Alpert Medical School of Brown University.

Controlling or restrictive feeding practices have been associated with disinhibited child eating, increased caloric intake and excessive weight gain, prompting some experts to recommend that parents avoid these overly restrictive behaviors when helping children control their weight. However, as the study authors point out, research on the relationship between controlling feeding practices and child weight has been inconsistent and has not conclusively determined whether these practices cause, or are a consequence of, weight gain.

In the study, researchers examined the data of 789 children who participated in the

National Institute of Child Health and Human Development's Study of Early Child Care and Youth Development. The group included almost equal numbers of girls and boys, which the authors say is significant, since many prior studies have only focused on girls.

Child heights and weights were obtained at ages 4, 7 and 9 and changes in body mass index (BMI) were measured between 4-7 years and 7-9 years. Maternal feeding practices were measured at each age interval by asking mothers the question, "Do you let your child eat what he/she feels like eating?"

Although statistical analyses did not find an association between increases in controlling maternal feeding practices and later child weight gain, it did reveal some interesting gender differences. Researchers found that in boys, increases in restrictive feeding practices between the ages of 4 and 7 were associated with a decreased risk of increased BMI by the time the boys were 7-9 years old. But on the flip side, mothers seemed to increase their control when it appeared their daughters had gained significant amounts of weight between the ages of 4 and 7.

"Our findings mirror those of other studies that have found that parents are much less likely to recognize or be concerned about the overweight status of sons compared to daughters," says Rhee. "These behaviors may represent a sensitivity to societal values that girls should be slim while boys have a physical or social advantage in being larger."

Based on these findings, the researchers say restrictive feeding practices may actually be necessary for some children to help regulate their food intake, promote healthier eating habits and limit excessive weight gain. "There has been some concern about the negative impact of restrictive feeding practices and that we should be more lax and let the child determine how much, when and what to eat. However, some degree of control may not be harmful and may actually help certain children maintain their weight," says Rhee.

However, she adds that further research is needed to define what this type of control looks like. The researchers also call for additional definition and exploration of restrictive feeding practices and their relationship with child weight gain to better inform recommendations for obesity treatment and prevention.

The study was supported by grants from the Hasbro Pediatric Research Fund and the American Heart Association. Co-authors include Sharon Coleman and Danielle P. Appugliese from the Boston University School of Public Health; Julie C. Lumeng, Niko A. Kaciroti and Natalie Davidson from the University of Michigan; Robert F. Corwyn from the University of Arkansas at Little Rock, and Robert H. Bradley from the University of Arizona.

Nutrition Horizon 28 May 2009

New food safety technology for eggs

The U.S. Dept. of Agriculture's Agricultural Research Service (ARS) scientists have filed a patent on microfiltration technology that can protect pasteurized liquid eggs from food safety threats. These threats include both naturally occurring spoilage bacteria and pathogens. The new technology was developed by Sudarsan Mukhopadhyay, Peggy Tomasula, and John Luchansky, researchers at the ARS Eastern Regional Research Center (ERRC) in Wyndmoor, Pa. Current pasteurization technology removes heat-sensitive pathogens, but some heat-resistant spoilage microorganisms can survive. Consumers can avoid illness by properly preparing and cooking eggs before consumption, but the researchers have found that the new technology can compensate for the shortcomings of thermal pasteurization.

The technology—crossflow microfiltration membrane separation (CMF)—removes more pathogens than thermal pasteurization. And it does so without affecting the eggs' ability to foam, coagulate, and emulsify, meaning that CMF-treated eggs could be safely substituted for pasteurized eggs in angel food cake and other products where those characteristics are desired. In a pilot-scale study, CMF was shown to remove about 99.99% of inoculated *Salmonella enteritidis* from unpasteurized liquid egg whites. The technology can also be used to remove *Bacillus anthracis* spores from egg whites. This finding adds to previous work in which ERRC researchers used CMF to remove 99.99% of *B. anthracis* spores inoculated into fluid milk. Microfiltration can also protect milk from more common bacterial pathogens, potentially extending its shelf life. Although effective in its own right, CMF works best when used as an accompaniment to pasteurization, not a replacement for it. Combining the two processes significantly reduces the pathogen load. The research is published in *Agricultural Research* magazine.

IFT Newsletter May 13, 2009

Vitamin D Can Minimize Age-Related Cognitive Decline

Eating fish long considered 'brain food' may really be good for the old grey matter, as is a healthy dose of sunshine, new research suggests. University of Manchester scientists in collaboration with colleagues from other European centres have shown that higher levels of vitamin D primarily synthesised in the skin following sun exposure but also found in certain foods such as oily fish are associated with improved cognitive function in middle-aged and older men.

The study, published in the *Journal of Neurology, Neurosurgery and Psychiatry*, compared the cognitive performance of more than 3,000 men aged 40 to 79 years at eight test centres across Europe. The researchers found that men with higher levels of vitamin D performed consistently better in a simple and sensitive neuropsychological test that assesses an individual's attention and speed of information processing.

"Previous studies exploring the relationship between vitamin D and cognitive performance in adults have produced inconsistent findings but we observed a significant, independent association between a slower information processing speed and lower levels

of vitamin D," said lead author Dr David Lee, in Manchester's School of Translational Medicine.

"The main strengths of our study are that it is based on a large population sample and took into account potential interfering factors, such as depression, season and levels of physical activity.

"Interestingly, the association between increased vitamin D and faster information processing was more significant in men aged over 60 years, although the biological reasons for this remain unclear."

"The positive effects vitamin D appears to have on the brain need to be explored further but certainly raise questions about its potential benefit for minimising ageing-related declines in cognitive performance."

Nutrition Horizon 26 May 2009

Benefits of Compound in Turmeric Spice Studied

There may be a new way to spice up your weight loss routine, according to results from a new animal model study by Agricultural Research Service (ARS)-funded scientists and colleagues.

The researchers theorized that dietary curcumin could stall the spread of fat-tissue by inhibiting new blood vessel growth, called angiogenesis, which is necessary to build fat tissue. Curcumin is a bioactive component in curry and turmeric that has been consumed daily in Asian countries for centuries without reported toxic effects.

The study was led by nutritionist Mohsen Meydani at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University in Boston, Mass. Meydani is director of the HNRCA's Vascular Biology Laboratory.

Eighteen mice were assigned to three groups of six mice each. For 12 weeks, the mice were fed special diets. A "control" group's mix contained 4 percent fat, a "high fat" group's mix contained 22 percent fat, and another group was fed the same "high fat" diet supplemented with curcumin. A mouse typically eats about 3,000 to 3,500 milligrams (the weight of about six or seven paper clips) daily, so the curcumin-supplemented mice would have consumed about 1.5 to 1.75 milligrams of curcumin daily—a relatively small amount.

The researchers recorded the body weight and food consumption of the mice twice each week. At the end of the 12-week period, their total body weight and fat distribution were measured. The study found that supplementing the animals' high-fat diet with curcumin reduced body-weight gain and total body fat, even though food-intake was not affected, when compared to the nonsupplemented high-fat-diet group.

The curcumin-treated group also had less blood vessel growth in fat tissue. Blood

glucose, triglyceride, fatty acid, cholesterol and liver fat levels also were lower. At this time, it is not known whether the amount of curcumin normally present in food dishes prepared with turmeric is sufficient to inhibit complex fat-tissue secretions that are involved in recruiting new blood vessel growth. The researchers' next step is to determine the effectiveness of dietary intake of curcumin in reducing weight in humans.

From: News & Events, USDA Agri. Res. Service May 21, 2009

Folic Acid to Prevent Congenital Heart Defects

The Canadian policy of fortifying grain products with folic acid has already proved to be effective in preventing neural tube defects. The latest article published in the British Medical Journal by a group of researchers from the McGill Adult Unit for Congenital Heart Disease (MAUDE Unit), the Research Institute of the McGill University Health Centre (MUHC) and McGill University, shows that folic acid also decreases the incidence of congenital heart defects by more than 6%.

According to Raluca Ionescu-Ittu, a PhD candidate on the team, "this decrease is very significant and probably underestimated. During the study period, there was an increase in other factors associated with a higher prevalence of congenital heart defects, so without the fortification we would probably have seen an increase in these defects."

Since December 1998, all grain products sold in Canada have been fortified with folic acid with 0.15 mg of folate per 100 g of flour. Thanks to provincial databases, the researchers showed that the rate of congenital heart defects between 1999 and 2005 was 1.47 per 1000 births compared to 1.64 per 1000 births between 1990 and 1999 for a decrease of 6.2% per year after 1999.

Despite the success of this initiative, prevention efforts are still necessary to encourage future mothers to take folic acid supplements. "The level of fortification was established to avoid negative side effects in the general population," explained Ms. Ionescu-Ittu. "However, this level is not quite sufficient for women planning a pregnancy, who should start taking folic acid supplements at least three months before becoming pregnant."

Researchers are constantly assessing the beneficial effects of folic acid on the various aspects of embryonic and infant development. Natural sources of the vitamin, such as fruit or green vegetables, might not provide sufficient doses for pregnant women. Most gynecologists therefore recommend supplements in addition to a healthy diet rich in folic acid.

From: EurekAlert May 14, 2009

Probiotics may aid weight loss in post-pregnancy women

A study presented at the 17th European Congress on Obesity and conducted by researchers from the University of Turku, Finland, shows that probiotic supplements

taken by pregnant women may help prevent obesity following childbirth. Previous studies have investigated probiotics' potential to aid in the prevention of intestinal diseases and more recent studies examined whether bacterial imbalances might lead to obesity. In this study, 256 women in their first trimester of pregnancy were randomly divided into three groups. The first group received dietary counseling consistent with recommendations for healthy weight gain and fetal development and was given daily capsules of probiotics containing *Lactobacillus* and *Bifidobacterium*. The second group received the same counseling and placebo capsules, and a third group received placebo capsules and no counseling. The capsules were given until the women stopped exclusive breast feeding up to a maximum of six months after childbirth. The women were weighed at the start and the end of the study and additionally had their waist circumference and skin fold thickness measured at the end of the study, a year after childbirth.

The researchers found that 25% of the women in the probiotics group were classed as having central obesity. This is defined as a BMI of 30 or more or a waist circumference of over 80 cm. This compared with 43% of women in the counseling-only group and 40% in the third group who received neither probiotics nor counseling. The researchers also found that the average body fat percentage in the probiotics group was 28% compared to 29% and 30% in the counseling-only and third group, respectively. One year after childbirth, the women who received the probiotics had the lowest levels of central obesity as well as the lowest body fat percentage. However, the researchers noted that additional research would be needed to confirm the role of probiotics in prevention of obesity.

IFT Newsletter May 20, 2009

Low-Fat Dairy Reduced High Blood Pressure

New research has revealed that dairy products such as low-fat milk may help to reduce risk of high blood pressure in older age.

It is estimated that one in three adults in the UK suffers from hypertension, yet only a third of individuals are aware of their condition.

High blood pressure is one of the most significant risk factors for stroke, heart attack, heart failure and kidney disease. The lack of immediately identifiable symptoms has led it to be known as 'the silent killer'.

The research published by the American Journal of Clinical Nutrition measured blood pressure in 2245 participants over the age of 55, across a six year period. Individuals were split into five categories depending on the type of dairy intake in their diet: "milk and milk products", "cheese", "low fat dairy", "high fat dairy" and fermented milk group.

The study showed people eating more low-fat dairy (561grams) and milk products daily (651grams) had a lower risk of hypertension than those consuming less low-fat dairy (21 grams) and milk products (127grams) and adding one extra serving of dairy a day

lowered hypertension risk by 7%. Interestingly this study also found eating cheese and higher fat dairy products did not increase hypertension risk.

Dr Judith Bryans, Director of the Dairy Council says: "Dairy provides minerals such as calcium and potassium which are important for blood pressure regulation. This study is an extra building block to an increasing body of evidence which suggests that dairy proteins and minerals play an important role in maintaining a healthy blood pressure.

"Significantly, the study also shows that dairy products with higher fat contents, like hard cheese, are not associated with increased levels of blood pressure. Therefore, these foods may be part of a healthy balanced-diet; one which is rich in fruit and vegetables and a variety of foods."

Nutrition Horizon 06 May 2009

Salmonella's Sweet Tooth Predicts Its Downfall

For the first time UK scientists have shown what the food poisoning bug Salmonella feeds on to survive as it causes infection: glucose. Their discovery of Salmonella's weakness for sugar could provide a new way to vaccinate against it. The discovery could also lead to vaccine strains to protect against other disease-causing bacteria, including superbugs.

"This is the first time that anyone has identified the nutrients that sustain Salmonella while it is infecting a host's body," says Dr Arthur Thompson from the Institute of Food Research.

The nutrition of bacteria during infection is an emerging science. This is one of the first major breakthroughs, achieved in collaboration with Dr. Gary Rowley at the University of East Anglia.

Salmonella food poisoning causes infection in around 20 million people worldwide each year and is responsible for about 200,000 human deaths. It also infects farm animals and attaches to salad vegetables.

During infection, Salmonella bacteria are engulfed by immune cells designed to kill them. But instead the bacteria multiply. Salmonella must acquire nutrients to replicate. The scientists focused on glycolysis, the process by which sugars are broken down to create chemical energy. They constructed Salmonella mutants unable to transport glucose into the immune cells they occupy and unable to use glucose as food. These mutant strains lost their ability to replicate within immune cells, rendering them harmless "Our experiments showed that glucose is the major sugar used by Salmonella during infection," said Dr Thompson.

The mutant strains still stimulate the immune system, and the scientists have filed patents on them which could be used to develop vaccines to protect people and animals against poisoning by fully virulent salmonella. Glycolysis occurs in most organisms including other bacteria that occupy host cells. Disrupting how the bacteria metabolise glucose

could therefore be used to create vaccine strains for other pathogenic bacteria, including superbugs.

The harmless strains could also be used as vaccine vectors. For example, the flu gene could be expressed within the harmless Salmonella strain and safely delivered to the immune system.

The next stage of the research will be to test whether the mutants elicit a protective immune response in mice.

From: Institute of Food Research May 2009

Cereal And Milk Is The New Sports Supplement

A bowl of whole-grain cereal is as good as a sports drink for recovery after exercise. New research has shown that the readily available and relatively inexpensive breakfast food is as effective as popular, carbohydrate-based "sports drinks." Exercise physiologist Lynne Kammer, from The University of Texas at Austin, led a group of researchers who investigated the post-exercise physiological effects of the foods. Kammer and her team studied 12 trained cyclists, 8 male and 4 female. In contrast to many sports nutrition studies, however, the exercise protocol was designed to reflect a typical exercise session. After a warm-up period, the subjects cycled for two hours at a comfortable work rate, rather than the more frequently seen test-to-exhaustion.

"Our goal was to compare whole grain cereal plus milk—which are ordinary foods—and sports drinks, after moderate exercise," said Kammer. "We wanted to understand their relative effects on glycogen repletion and muscle protein synthesis for the average individual. We found that glycogen repletion, or the replenishment of immediate muscle fuel, was just as good after whole grain cereal consumption and that some aspects of protein synthesis were actually better".

"Cereal and non-fat milk are a less expensive option than sports drinks. The milk provides a source of easily digestible and high quality protein, which can promote protein synthesis and training adaptations, making this an attractive recovery option for those who refuel at home".

The researchers concluded that, for amateur athletes and moderately physically active individuals who are trying to keep in shape, popping into the kitchen for a quick bowl of whole-grain cereal with a splash of skimmed milk may be a smarter move than investing in a high-priced sports drink.

ScienceDaily (May 15, 2009)

Vinegar may enhance saltiness and enable lower sodium content

Excessive intake of salt causes hypertension and the World Health Organization recommends that its daily intake be restricted to 6 g/d. It is a common practice to substitute part of salt with vinegar, which may make up the reduced saltiness. In fact, addition of some acid to a food is known to enhance its saltiness in case the salt

concentration is low. A study published in the *Journal of Food Science* shows that the addition of vinegar to salt intensified the salty taste. Interaction of saltiness and acidity at the threshold level was studied employing 35 to 40 young female panelists. As a first step, the researchers measured the detection and recognition thresholds of salt, rice vinegar, and rice black vinegar for each panelist. To investigate the above interaction, the thresholds were again measured for each panelist of salt, but this time, vinegar at half the concentration of each panelist's detection threshold was added to the salt solution. Similar measurement was performed for vinegars with salt at half the concentration of each panelist's detection threshold.

The data analysis was done in two ways, namely, (1) by using Student's t-test to detect the significant difference in average between the data with and without the added ingredient, and (2) detecting significant deviations from zero in the individual shifts in two sensory tests among panelists who participated in the two measurements. The researchers found that both the detection and recognition thresholds of salt were decreased with the existence of the added vinegar ingredient. This tendency was more pronounced with rice black vinegar than with rice vinegar. However, no significant changes in the threshold of both detection and recognition were observed when salt at the half concentration of the detection threshold was added to rice vinegar. The researchers noted that was an interesting finding "since this breaks the symmetry of the enhancement/suppression between saltiness and acidity commonly believed."

IFT Newsletter May 27, 2009

Taking folic acid for a year before pregnancy may reduce risk of preterm birth

Women who take folic acid supplements for at least one year before they become pregnant may cut their risk of having a premature baby by half, according to research published this week in the online journal, *PLoS Medicine*. The study links pre-conceptional folate supplementation of at least one year to reduced early premature delivery rates of 50 to 70 percent, regardless of age, race or other factors. Of particular note is the drop in very early premature births, those babies who are at the greatest risk of complications such as cerebral palsy, mental retardation, chronic lung disease, and blindness.

The study is an observational analysis based on the self-reporting of folate supplementation by 38,033 participants in an earlier trial sponsored by the National Institutes of Health (NIH.) The current study only examined singleton pregnancies and excluded pregnancies with medical or obstetrical complications such as preeclampsia, chronic hypertension, or other abnormalities.

"Through the NIH trials, we received highly accurate evidence of gestational age enabling us to determine that folate supplementation for at least one year is linked to a 70 percent decrease in very early preterm deliveries (20 to 28 weeks gestation) and up to a

50 percent reduction in early preterm deliveries of 28 to 32 weeks," said Radek Bukowski, M.D., Ph.D., associate professor, in the Department of Obstetrics and Gynecology, at the University of Texas Medical Branch at Galveston, the lead study author.

"We already know that folic acid supplementation beginning before pregnancy and continuing into the first trimester helps prevent serious birth defects of the brain and spinal cord, such as spina bifida," said Alan R. Fleischman, M.D., senior vice president and medical director of the March of Dimes. "Dr. Bukowski's research makes us optimistic that taking folic acid for at least one year before pregnancy also may greatly reduce the risk of premature birth and reinforces our message that every woman of childbearing age should consume 400 micrograms of folic acid daily."

E-Science News May 12, 2009

Is Dephytinization From Infant Cereals Beneficial To The Nutrition Absorption?

Cereals are considered a rich plant source of carbohydrate, proteins, vitamins, and minerals, and are therefore usually introduced to an infant's diet between the ages of four and six months. However, cereals are also rich in antinutrients, which can decrease the absorption of critical nutrients such as iron, calcium, and zinc because of their high ability to chelate and precipitate minerals. Given the importance of an adequate intake of minerals during infancy, Dr. Carmen Frontela and her colleagues in the University of Murcia (Spain) tested the effect of the dephytinization of three different commercial infant cereals on iron, calcium, and zinc bioavailability.

In this study, Both dephytinized and non-dephytinized infant cereals were digested using an in vitro digestion protocol adapted to the gastrointestinal conditions of infants younger than 6 mo. Mineral cell retention, transport, and uptake from infant cereals were measured using the soluble fraction of the simulated digestion and the Caco-2 cells. They found that Dephytinization of infant cereals significantly increased ($P < 0.05$) the cell uptake efficiency (from 0.66%-6.05% to 3.93%-13%), retention (from 6.04%-16.68% to 14.75%-20.14%) and transport efficiency (from 0.14%-2.21% to 1.47%-6.02%), of iron, and the uptake efficiency (from 5.0%-35.4% to 7.3%-41.6%) and retention (from 4.05%-20.53% to 14.45%-61.3%) of zinc, whereas calcium only cell uptake showed a significant increase ($P < 0.05$) after removing phytate from most of the samples analyzed. A positive relationship ($P < 0.05$) between mineral solubility and the cell uptake and transport efficiencies was observed.

This study indicated that removing phytate from infant cereals had a beneficial effect on iron and zinc bioavailability when infant cereals were reconstituted with water. The study also demonstrated that Caco-2 cell lines are useful tools for study of mineral absorption and simultaneously to characterize the effect of some food components on mineral intestinal absorption. This research could be relevant not only for scientists in the field of human nutrition, but also for food manufacturers and consumers.

Medical News Today May 8, 2009

Folic acid fortification may lower risk of heart defects in babies

A study published in the *British Medical Journal* shows that fortification of flour and pasta products with folate may lower the risk of heart defects in babies. The researchers aimed to investigate whether the 1998 Canadian government policy for mandatory fortification of flour and pasta products with folate was followed by a reduction in the prevalence of severe congenital heart defects. To do this, the researchers used data from infants born 1990–2005 in Quebec who had severe congenital heart defects. Among the 1,324,440 births in Quebec during that time period, 2,083 infants were born with severe congenital heart defects, corresponding to an average birth prevalence of 1.57/1,000 births. Time trend analysis showed no change in the birth prevalence of severe birth defects in the nine years before fortification became mandatory, while in the seven years after there was a significant 6% decrease per year. The researchers concluded that “Public health measures to increase folic acid intake were followed by a decrease in the birth prevalence of severe congenital heart defects. These findings support the hypothesis that folic acid has a preventative effect on heart defects.” However, the researchers noted that further research is required to determine the level of folic acid intake required to achieve a reduction in heart defects.

IFT Newsletter May 27, 2009

Dietary Fats Trigger Long-term Memory Formation

Having strong memories of that rich, delicious dessert you ate last night? If so, you shouldn't feel like a glutton. It's only natural. UC Irvine researchers have found that eating fat-rich foods triggers the formation of long-term memories of that activity. The study adds to their recent work linking dietary fats to appetite control and may herald new approaches for treating obesity and other eating disorders.

Study results appear this week in the early online edition of the *Proceedings of the National Academy of Sciences*. Daniele Piomelli, the Louise Turner Arnold Chair in Neurosciences, teamed with UCI's James McGaugh, one of the world's leading learning and memory researchers, to examine how dietary fats facilitate memory retention.

Piomelli's previous studies identified how oleic acids from fats are transformed into a compound called oleoylethanolamide (OEA) in the upper region of the small intestine. OEA sends hunger-curbing messages to the brain to increase feelings of fullness. In elevated levels, OEA can reduce appetite, produce weight loss and lower blood cholesterol and triglyceride levels.

Piomelli and McGaugh discovered that OEA also causes memory consolidation, the process by which superficial, short-term memories are transformed into meaningful, long-term ones. It does this, Piomelli said, by activating memory-enhancing signals in the

amygdala, part of the brain involved in the consolidation of memories of emotional events. The researchers found that administering OEA to rodents improved memory retention in two different tests. When cell receptors activated by OEA were blocked, memory retention effects decreased.

"OEA is part of the molecular glue that makes memories stick," Piomelli said. "By helping mammals remember where and when they have eaten a fatty meal, OEA's memory-enhancing activity seems to have been an important evolutionary tool for early humans and other mammals." Dietary fats are important for overall health, helping with the absorption of vitamins and the protection of vital organs. While the human diet is now rich in fats, this was not the case for early humans. In fact, fat-rich foods in nature are quite rare.

"Remembering the location and context of a fatty meal was probably an important survival mechanism for early humans," Piomelli said. "It makes sense that mammals have this capability."

Today, he noted, such memory enhancement may not be so beneficial. While OEA contributes to feelings of fullness after a meal, it could also engender long-term cravings for fatty foods that, when eaten in excess, can cause obesity. Currently, Piomelli said, drugs that mimic OEA are in clinical trials for triglyceride control. He is interested in learning whether they could improve consolidation in people with memory problems.

From: UC Irvine Today April 27, 2009

Folic Acid May Help Treat Allergies, Asthma

Folic acid, or vitamin B9, essential for red blood cell health and long known to reduce the risk of spinal birth defects, may also suppress allergic reactions and lessen the severity of allergy and asthma symptoms, according to new research from the Johns Hopkins Children's Center. In what is believed to be the first study in humans examining the link between blood levels of folate – the naturally occurring form of folic acid — and allergies, the Hopkins scientists say results add to mounting evidence that folate can help regulate inflammation. Recent studies, including research from Hopkins, have found a link between folate levels and inflammation-mediated diseases, including heart disease. A report on the Hopkins Children's findings appears online ahead of print in the *Journal of Allergy & Clinical Immunology*.

Cautioning that it's far too soon to recommend folic acid supplements to prevent or treat people with asthma and allergies, the researchers emphasize that more research needs to be done to confirm their results, and to establish safe doses and risks. Reviewing the medical records of more than 8,000 people ages 2 to 85 the investigators tracked the effect of folate levels on respiratory and allergic symptoms and on levels of IgE antibodies, immune system markers that rise in response to an allergen. People with higher blood levels of folate had fewer IgE antibodies, fewer reported allergies, less wheezing and lower likelihood of asthma, researchers report.

"Our findings are a clear indication that folic acid may indeed help regulate immune response to allergens, and may reduce allergy and asthma symptoms," says lead investigator Elizabeth Matsui, M.D. M.H.S., pediatric allergist at Hopkins Children's. "But we still need to figure out the exact mechanism behind it, and to do so we need studies that follow people receiving treatment with folic acid, before we even consider supplementation with folic acid to treat or prevent allergies and asthma." The current recommendation for daily dietary intake of folic acid is 400 micrograms for healthy men and non-pregnant women. Many cereals and grain products are already fortified with folate, and folate is found naturally in green, leafy vegetables, beans and nuts.

Other findings of the study:

- People with the lowest folate levels (below 8 nanograms per milliliter) had 40 percent higher risk of wheezing than people with the highest folate levels (above 18 ng/ml).
- People with the lowest folate levels had a 30 percent higher risk than those with the highest folate levels of having elevated IgE antibodies, markers of allergy predisposition.
- Those with the lowest folate levels had 31 percent higher risk of atopy (allergic symptoms) than people with the highest folate levels.
- Those with lowest folate levels had 16 percent higher risk of having asthma than people with the highest folate levels.
- Blacks and Hispanics had lower blood folate levels — 12 and 12.5 nanograms per milliliter, respectively — than whites (15 ng/ml), but the differences were not due to income and socio-economic status.

The Hopkins team is planning a study comparing the effects of folic acid and placebo in people with allergies and asthma. Asthma affects more than 7 percent of adults and children in the United States, and is the most common chronic condition among children, according to the Centers for Disease Control and Prevention. Environmental allergies are estimated to affect 25 million Americans, according to the CDC.

From: John Hopkins Children's Centre, News Release April 30, 2009

Golden Rice an Effective Source of Vitamin A

The beta-carotene in so-called "Golden Rice" converts to vitamin A in humans, according to researchers at Baylor College of Medicine (www.bcm.edu) and Tufts University in an article that appears in the current issue of the American Journal of Clinical Nutrition. Golden Rice was developed in the early 1990s with a grant from the Rockefeller Foundation with the goal of creating rice that had beta-carotene -- a vitamin A precursor -- in the rice grain. In its current form, Golden Rice contains 35 micrograms of beta-carotene per gram.

"We found that four units of beta-carotene from Golden Rice convert to one unit of vitamin A in humans," said Dr. Michael Grusak

(<http://www.bcm.edu/cnrc/faculty/?PMID=9536>), associate professor of pediatrics at the USDA/ARS Children's Nutrition Research Center (<http://www.bcm.edu/cnrc/?PMID=0>) at BCM and Texas Children's Hospital.

They determined this by feeding five healthy adults a specific amount of specially-labeled Golden Rice and measured the amount of retinol, a form of vitamin A, in the blood. Vitamin A deficiency is prevalent in many parts of the world where poorer community members rely on rice as their major food source. People who lack adequate amounts of this vitamin can have vision problems or even blindness as a result. "By incorporating vitamin A into the major crop that is consumed, we would be able to make it accessible to the majority of people in the area," said Grusak.

Additional research is necessary before Golden Rice is made commercially available. The next steps of the research include incorporating this technology into the rice grains found in various regions and continuing testing the conversion rates in humans.

The study can be found at <http://www.ajcn.org/cgi/rapidpdf/ajcn.2008.27119v1>.

From: Soya Tech E-News May 13, 2009

Omega-3 Fatty Acids, Low Glycemic Index Diet Protects Against Age-Related Macular Degeneration

Researchers from Tufts University have found that a diet rich in omega-3 fatty acids and low glycemic index food can significantly reduce the risk of age-related macular degeneration (AMD). The team led by Dr Chung-Jung Chiu, of the Laboratory for Nutrition and Vision Research, and Jean Mayer USDA Human Nutrition Research Centre on Aging at Tufts University showed that nutrients, including vitamins C and E, zinc, lutein, zeaxanthin, omega-3 fatty acids (DHA and EPA), as well as low-GI foods can protect against AMD.

During the study, each dietary factor was assigned a percentile score, and factor scores were added up to find each participant's compound score. The compound scores were related to participants' AMD risk. "Although the compound score may be a useful new tool for assessing nutrients in relation to AMD, specific dietary recommendations should be made only after our results are confirmed by clinical trials or prospective studies," said Dr. Chiu.

Preventing AMD and delaying disease progression would best preserve people's quality of life while containing healthcare system cost and care challenges. Food sources of nutrients that support good general and eye health include: citrus fruits, vegetable oils, nuts, whole grains, dark green leafy vegetables, and cold water fish.

Soya Tech E-News May 3, 2009

Soyfoods Consumption Appears to Reduce Risk of Prostate Cancer: USDA Researchers' Meta-Analysis

Cancer Weekly -- May 5, 2009 -- "Epidemiologic studies have shown that the consumption of soy foods may be associated with a reduction in cancer risk in humans. The purpose of this study was to conduct a metaanalysis on the association between soy consumption and prostate cancer risk in men," scientists in the United States report (see also Prostate Cancer).

"We systematically reviewed studies obtained through a thorough Medline literature search and identified 15 epidemiologic publications on soy consumption and 9 on isoflavones in association with prostate cancer risk. We extracted the most adjusted relative risks (RRs) and odds ratios (ORs) of the highest and the lowest reported categories of intake from each study and conducted this analysis using a random-effects model in which studies with smaller SEEs are given greater weight in the summary measure. Our analysis of studies on soy intake yielded a combined RR/OR of 0.74 (95% CI: 0.63, 0.89; P = 0.01). When separately analyzed, studies on nonfermented soy foods yielded a combined RR/OR of 0.70 (95% CI: 0.56, 0.88; P = 0.01) and those on fermented soy foods yielded a combined RR/OR of 1.02 (95% CI: 0.73, 1.42; P = 0.92). The analysis of studies on isoflavones yielded a combined RR/OR of 0.88 (95% CI: 0.76, 1.02; P = 0.09). Further separate analyses showed a combined RR/OR of 0.52 (95% CI: 0.34, 0.81; P = 0.01) from studies with Asian populations and 0.99 (95% CI: 0.85, 1.16; P = 0.91) from studies with Western populations. The results of this analysis suggest that consumption of soy foods is associated with a reduction in prostate cancer risk in men. This protection may be associated with the type and quantity of soy foods consumed," wrote L. Yan and colleagues, Department of Agriculture.

Yan and colleagues published their study in American Journal of Clinical Nutrition (Soy consumption and prostate cancer risk in men: a revisit of a meta-analysis. American Journal of Clinical Nutrition, 2009;89(4):1155-1163).

Soya Tech E-News May 5, 2009



Health & Wellness News

'Eating For Two' Has Consequences For Mom And Baby

There is more medical evidence that pregnant women should steer clear of advice to "eat for two." Alison Stuebe, M.D., assistant professor of obstetrics and gynecology at the University of North Carolina at Chapel Hill School of Medicine, reviewed data for more than 1,300 women and found that those who consumed extra calories, as well as fried foods and dairy products, were more likely to gain more than is recommended during pregnancy – that's 35 pounds or more for a woman with a normal body mass index, or BMI.

Stuebe found that eating an extra 500 calories a day increased the odds of gaining too much by 10 percent. “That’s the number of calories in a muffin or a bagel with cream cheese at Dunkin Donuts,” Stuebe says. “It doesn’t take much for the calories to add up.”

Gaining too much weight is linked with complications at birth, such as pre-eclampsia or requiring a C-section, as well as higher odds that both mom and child will be obese later in life. But the study results are good news – there’s something women can do to reduce risks for themselves and their babies. “It’s a two-fer,” Stuebe says. “If you take care of yourself, it’s good for you and for your baby.”

Several eating habits reduced moms’ risk of gaining too much. Women with vegetarian diets in early pregnancy were half as likely to gain an unhealthy amount of weight, and those who exercised vigorously for a half hour a day reduced their risk by 20 percent. The researchers also found that consuming more monounsaturated fat, found in olive oil and nuts, were linked with a lower risk of excessive weight gain. Stuebe did the research while at Brigham and Women’s Hospital in Boston.

It might be obvious that a healthy diet and exercise reduce the odds of gaining too much weight during pregnancy, but more and more women are doing just that. Part of the problem is that providers don’t counsel moms on weight gain, Stuebe says. Other studies have shown that moms who get advice from their doctor or midwife are more likely to gain in a healthy range.

Stuebe’s study offers some guidelines to share with expecting moms. Eating fried foods “was a huge predictor of excessive weight gain,” she says. Women who ate one serving a day were four-times as likely to gain too much weight.

Some study results were surprising. For example, dairy products, including those made with low-fat milk, were associated with more weight gain. More studies are needed to sort out why milk products were associated with extra gain. The study used data from Project Viva, a prospective cohort of mothers and babies in the Boston, Mass., area. The study is ongoing, and researchers are currently following up the children at age seven.

For now, Stuebe says, her study results offer guidelines for moms to make healthy choices during pregnancy. “The next step is to study whether moms who get this advice have healthier weight gain than those who do not,” she says. In the meantime, moms should follow existing guidelines to get regular exercise, and avoid fried foods and high-calorie snacks. Otherwise, after childbirth, they may find themselves struggling to unload extra pounds. “And losing for two is a lot of work,” Stuebe says. The results were published May 19, 2009, in the online version of the *American Journal of Obstetrics and Gynecology*.

Medical News Today May 23, 2009

How portion control, fine dining, pasta affected by current lifestyles

Mintel has published three new food reports on portion control, fine dining, and pasta and pasta-based meals. The reports reveal how Americans shop and dine differently in the face of major issues like obesity, the recession, and time-strapped lifestyles.

100-Calorie packs a tough sell: Price and size deter hungry consumers

Though weight and health are major issues in today's society, Mintel sees lagging interest in portion-controlled packaging. Only one in seven adults (14%) currently buy pre-measured packs, and the number one reason they do is convenience. Weight management comes second. Of people who *don't* buy 100-calorie packs, half say they just aren't interested. Cost is another deterrent, and a third of people say they prefer measuring out their own snacks.

Fine diners in it for the food, but women also crave intimate settings and experience

Unsurprisingly, food quality is the most important factor to fine dining patrons. However, Mintel reports that women rank a leisurely experience and atmosphere nearly as high. Four in five women (80%) feel atmosphere is important, while 88% told Mintel they like not "feeling rushed." Nearly three-quarters of fine diners also place importance on food presentation and staff knowledge about food and food ingredients.

America still not tired of pasta's cheap, tasty options

From macaroni & cheese to spaghetti & meatballs, Mintel's latest survey finds 92% of people eat pasta. One in six Americans say they're eating *more* pasta this year, with the number one reason being that pasta is an economical choice during challenging financial times. Nearly half of people who report eating more pasta are doing so because they just "don't get bored with pasta."

IFT Newsletter May 20, 2009

Personalized Nutritional Information Sent Through Mail Helps Improve Diets

Brown University researchers have shown that there is an inexpensive way to help low-income, ethnically diverse people eat better: Send personalized nutrition education materials through the mail. That is the primary finding in a new study to be published in *The International Journal of Behavioral Nutrition and Physical Activity*. The implications are significant as public policy-makers struggle to find new cost-effective ways to slow the escalating price of health care. The \$2-million Your Health/Su Vida Saludable study funded by the National Cancer Institute showed so much promise that the research team is in the middle of disseminating the program to local community agencies, funded by a \$1.3-million grant from the Centers for Disease Control and Prevention.

"It's a lot less expensive to send (people) material in the mail than to sit down with them and do multiple counseling sessions over time. And people really liked the materials," said lead author Kim Gans, associate professor (research) of community health at Brown University and co-director of Brown's Institute for Community Health Promotion.

The initial study began in October 2000 and ran through February 2007. Researchers recruited 1,841 people, mostly in Rhode Island. Slightly more than half were Latino, and 13 percent were African American. About 56 percent of the population involved in the study had a household annual income of less than \$20,000. People interested in participating filled out forms at community events or dialed a 1-800 number posted at various public venues. Once participants were in place, researchers conducted a telephone survey to identify people's dietary habits, what motivated them to eat healthier, and barriers to eating healthier as well as their interests and other personal information.

About a week later, participants received nutrition information in the mail. The information they received depended on which study group they were in. One study group received nutrition brochures from national agencies. The other three study groups received nutrition information that was individually tailored to their needs and interests, based on their answers to the telephone survey. The mailings were written in a simple, easy-to-follow style in English or Spanish. Of the three tailored study groups, one group received the information all in one mailing. The two other groups received the information split into four mailings during a 12-week period. One of these two groups also received additional surveys between mailings to "re-tailor" the materials.

Gans and the other researchers found that people in the tailored groups had greater increases in vegetable and fruit consumption and larger reductions in their fat intake than those in the nontailored group. Of the nontailored groups, those people who received their information in small batches over time made the strongest improvements in their diets. Unexpectedly, the researchers also found that less educated consumers benefitted even more from the tailored dietary materials. They improved their fruit and vegetable intake even more than more consumers with more education.

ScienceDaily (May 8, 2009)

CRN Takes Issue with SI Article

Responding to a recent story in *Sports Illustrated (SI)*, the Council for Responsible Nutrition (CRN), Washington, D.C., stated that the article mischaracterizes the supplement industry and suffers from a lack of understanding of current regulation. The article, entitled "What You Don't Know Might Kill You," appeared in the May 18th issue of *SI* and claims "Would-be experts and untested products feed a \$20 billion obsession with better performance across all levels of sports."

Steve Mister, president and CEO of CRN, said this figure is simply overstated. "The entire dietary supplement industry has U.S. sales of approximately \$24 billion, with vitamin sales alone representing approximately \$10 billion of the total market," he said. "But the sports nutrition supplements that are the focus of this article represent sales somewhere closer to \$2.5 billion. While that smaller figure is not nearly as dramatic as the \$20 billion figure which teases the story, it is important, from a factual standpoint, to point out that the estimate in the article for sports nutrition products includes not just dietary supplements, but a whole range of conventional food products and drinks that are

marketed for weight loss as well.”

He went on to say that a majority of companies in the supplement industry engage in responsible marketing and other business practices. “Further, the article is surprisingly one-sided and suffers from an unfortunate lack of understanding of the Dietary Supplement Health and Education Act (DSHEA)—both in terms of what the law did, and what it allows FDA to do,” Mr. Mister added. “The article inaccurately suggests that dietary supplements are exempted from the entry requirements and regulatory scrutiny that apply to all other FDA-regulated products, including food and drugs. That is simply not so. According to the article, DSHEA ‘razed virtually every barrier to entry into the marketplace.’ With that premise, the extreme examples the article describes appear to be a product of DSHEA, when in fact, they more likely result from FDA’s lack of enforcement of that law over the past 16 years.”

Many in opposition of DSHEA claim that the law took away FDA’s authority to oversee the supplement industry. But Mr. Mister says DSHEA gave the agency new enforcement tools, even if it hasn’t applied them. “In actuality, FDA chose to sit on its collective hands, refusing to take advantage of the new tools it now had, even ignoring the simplest requirements from Congress to issue new GMPs specific to dietary supplements,” he added. “Whether due to a lack of resources, a lack of interest or a lack of political will, following the passage of DSHEA, FDA failed to enforce the regulations that DSHEA put on the books. It wasn’t until Dr. Mark McClellan became FDA Commissioner in 2002 that the Agency emerged from its fog of inertia concerning the dietary supplement industry and began to look at and use some of the additional authority provided to it by DSHEA.”

The industry and its watchdog have come a long way in the past five years, according to Mr. Mister. “The article’s description is not how we—and responsible companies in the industry—understand the laws and regulations at all. To begin with, because dietary supplements are regulated as a category of food, in every respect they get at least the same levels of scrutiny accorded to any kinds of food—from breakfast cereals to canned soup—and in many respects they get even more.”

“The article also insinuates that anabolic steroids and pro-hormone ingredients are lawfully marketed under the law and that enforcement to remove these products from the market is left to the Drug Enforcement Agency (DEA) to ‘keep up’ with the ever evolving list of new metabolites and analogs of these anabolic steroids. That’s simply not true. Under DSHEA, most of these substances are not even legal dietary ingredients (i.e., they cannot be legally included in dietary supplements, period).”

Mr. Mister claimed that readers are left with no way to distinguish between legitimate sports nutrition products and those without sufficient safety profiles and quality assurance. He concluded his response by saying: “Whatever the law, the ‘burden’ for consumer safety should always rest between a combination of industry responsibility and regulatory body enforcement. The article leaves the reader with the misimpression that the industry is suffering from a weak legal framework to govern bad actors and outliers—

and that simply is not true. Now that FDA has set its regulatory mind to enforcing the law, it has the ability under the law to weed out bad actors—those who are not abiding by regulations. FDA’s job is to protect the public, and we urge Congress to provide sufficient budgetary funds for the agency to do its job, rather than wasting time and taxpayers’ money with re-writing laws unnecessarily.”

Nutraceuticals World Breaking New May 20, 2009

Parents concerned, but confused about how to fix childhood obesity

Research from Mintel shows today’s parents are feeling overwhelmed and worried as they try to prevent obesity in their own children. In a consumer survey of American parents, Mintel found confusion over whether diet or exercise is most important for keeping kids at a healthy weight. Nearly three-quarters of parents (72%) believe kids have too much access to junk food, while 69% feel that a lack of exercise is more to blame for obesity. In addition, two in five parents (40%) are concerned that their children might develop obesity. The prevalence of overweight and obesity among children aged two to 19 is significant at 12%. While there are hints that these rates are leveling, they have yet to decline. The government has set a goal of 5% incidence in obesity among children for 2010.

According to Mintel, parents want help when it comes to promoting healthy eating with their children. While 95% feel that this is very or somewhat important, only 82% believe they are somewhat or very successful at doing so. Similarly, while 93% consider it very or somewhat important to limit their children's access to junk food, only 77% feel they have been very or somewhat successful at accomplishing this. Additionally, many parents blame kids’ sedentary lifestyles for obesity. According to parents, less than half of kids are physically active five or more hours per week—less than an hour a day. These sedentary habits are not enough to offset the caloric intake of kids with poor eating habits. More than half of parents (57%) are worried that their children don’t get enough information about healthy living at school, and 47% believe children should have ongoing diet and nutrition classes.

“When it comes to placing the blame, most parents look to themselves,” said Marcia Mogelonsky, Senior Analyst at Mintel. “Seventy-eight percent of parents believe the fault lies with them, yet most seek more information on nutrition so they can improve their children's health.”

IFT Newsletter May 20, 2009



Regulatory News

Nutrition labelling on a majority of EU products

The European Union project Food Labelling to Advance Better Education for Life (FLABEL) has found that on average 85% of food products contain nutritional information on the back of the package, while front-of-pack nutrition information was found on average on 48% of products. The group conducted an audit of the penetration of nutrition information using data from more than 37,000 products from five food and beverage product categories in retailers across the EU 27 Member States and Turkey. Nutrition labelling is voluntary in Europe except when a nutrition or health claim is made. Despite this, the research results show that the presence of nutritional information is higher than previously reported.

By far the most wide-spread format across all countries was the tabular or linear listing of nutrient composition on the back of packs, stating either the big four (calories, protein, carbohydrates, and fat) or the big eight (big four plus sugar, saturated fat, fibre, and sodium). Overall, breakfast cereals was the category with the highest penetration of nutrition information, displaying nutrition information back of pack on 94% of products and front of pack on 70% of products. Nutrition claims were on average on 25% of the products audited, ranging from 12% in Estonia to 37% in Ireland and Portugal. Guideline Daily Amounts (GDA) were on average on 25% of products, ranging from 2% in Turkey to 63% in the U.K. Nutrition claims and GDAs were the most prevalent forms of nutrition information on the front of pack.

These findings provide a solid base for subsequent FLABEL studies involving attention, reading, liking, understanding, and use by consumers of different nutrition labelling formats.

IFT Newsletter May 6, 2009

Salmonella remains most common cause of foodborne outbreaks in EU

The European Food Safety Authority (EFSA) and the European Centre for Disease Prevention and Control (ECDC) have published the “Community Summary Report on Foodborne Outbreaks in the European Union in 2007.” It shows that *Salmonella* remained the most common cause of foodborne outbreaks in the EU, followed by foodborne viruses and *Campylobacter*. A total of 5,609 outbreaks were reported in 2007, which affected almost 40,000 people and caused 19 deaths. Of the total number of outbreaks, 36% (over 2,000) were verified by laboratory detection of the pathogen in food or by epidemiological evidence showing a link between human infection and the food source. The majority of foodborne outbreaks in 2007 were outbreaks affecting more than one household. The contaminated foodstuffs were most commonly consumed in homes or in restaurants, cafés, hotels, or other caterers. In addition, outbreaks also occurred in schools, canteens, and hospitals or medical care facilities.

The report showed that *Salmonella* continued to be the most frequent cause of foodborne outbreaks accounting for four out of every 10 reported outbreaks. Of the 2,201 *Salmonella* outbreaks reported, 590 could be verified by laboratory detection or by analytical epidemiological evidence. The rest were also likely to be foodborne outbreaks, but no conclusive evidence was available. These outbreaks affected 8,922 people and caused 10 deaths. Eggs or products containing eggs were the foods most frequently involved in the *Salmonella* outbreaks.

The report is based on a new reporting system distinguishing between possible and verified outbreaks. While the data vary considerably between Member States, a high number of reported outbreaks do not necessarily indicate a particular food safety concern but may rather be indicative that an effective national monitoring system is in place.

IFT Newsletter May 13, 2009

FSA publishes salt reduction targets

As part of its continued drive to reduce people's risk of developing coronary heart disease, the U.K. Food Standards Agency (FSA) has published revised, voluntary salt reduction targets for industry to meet by 2012. These more challenging targets have been set for 80 categories of foods, to ensure the momentum in reducing salt levels is maintained by food retailers and manufacturers. The revised targets also reflect the FSA's long-term commitment to reducing the daily average population intake of salt to 6 g a day.

Around 75% of the salt we eat is already in everyday foods. The targets have been set for foods that make the greatest contribution of salt to our diet, such as bread, meat products, and cereals, as well as convenience foods such as pizza, ready meals, and savory snacks. When the 2010 targets were first set in 2006, the FSA committed to reviewing them in 2008. During this review the FSA welcomed the considerable reductions that have been made by many manufacturers and retailers. The revised targets reflect this progress. However, there remains significant variation in salt levels that exist between different products and there is clearly scope for some parts of industry to do more. The FSA intends to monitor closely both the progress towards meeting the targets, and the achievability of the 2012 targets. Continued, regular dialogue and close partnership working with industry will help to identify any difficulties encountered as well as provide opportunities to report back on progress.

To ensure people have all the information they need to look after their own and their family's health, there will be further public awareness activity on salt in autumn 2009. The FSA will continue to monitor salt intakes, public awareness, and the levels of salt in food on a biennial basis. The next review of industry progress towards meeting the targets will begin in 2010.

IFT Newsletter May 20, 2009

Food Industry Response to FSA Salt Targets

Responding to publication by the Food Standards Agency of revised salt targets for 2012, Julian Hunt, the Food and Drink Federation's (FDF) Director of Communications, said: "It's great to see the Food Standards Agency (FSA) recognises that manufacturers have made considerable reductions in salt levels to date, and - as we have been saying for some time - that the UK is leading the world in this area.

"FDF's members are committed to working with FSA to continue reducing levels of salt in our products and providing lower salt options where technologically possible, safe and acceptable to consumers. As always, food safety is industry's first priority.

"We'll work with our members to understand where the challenges are greatest and whether further investment will see sufficient progress in the timescale set by FSA. In some circumstances, further significant salt reductions will not be possible until new, innovative technologies, processing techniques and ingredient solutions are developed. We believe that targets are a relatively simplistic approach to driving progress and we've outlined to FSA where the particular challenges lie.

"FDF is also playing its part in enhancing communication to the consumer. Industry's salt reduction efforts are underpinned by the widespread use of front-of-pack nutrition labels using Guideline Daily Amount information to educate consumers that they should aim to consume no more than 6g of salt a day."

Nutrition Horizon 19 May 2009

Consumers More Likely to Identify Healthy Food Using Traffic Light Nutrition Labels

Consumers are five times more likely to identify healthy food when they see colour-coded traffic light nutrition labels than when labels present the information numerically by showing what percentage of the recommended daily nutrient intake each portion provides, new research finds.

Some governments are trying to improve the quality of nutrition information that consumers have access to in supermarkets by adding labels to the front of food packages, but there is no standard approach, not all products have labels and in many countries several different systems are used.

"Food manufacturers are currently allowed to use any labelling system they prefer on the front of food packages. In some countries this has led to a plethora of different systems appearing on supermarket shelves, which only serves to confuse consumers more and does not allow them to quickly and accurately identify healthy products," said Bridget Kelly, whose study was presented on Friday at the European Congress on Obesity.

"The food industry tends to favour the percentage daily intake method (known as Guideline Daily Amount in some countries), but our research indicates that the traffic light system is the most effective and that a consistent labelling approach across all food products is needed. This is unlikely to be achieved without government regulation," said Kelly, a nutritionist at the Cancer Council, New South Wales in Australia.

Kelly and her colleagues aimed to determine the most acceptable and effective food labelling system for consumers. Four different approaches were tested on 790 Australians to determine their preferences and ability to compare the healthiness of mock food products, using two variations of the traffic light system and two variations of the percentage daily intake system. Each person was exposed to only one type of nutrition label, allowing each system to evaluate on its own merits without the influence of the others.

Traffic light labelling uses colours to rate the nutritional content of food according to how healthy it is. A common version uses a panel with red, amber or green dots to rate the food's salt, sugar, saturated fat and total fat content separately. A variation adds a single coloured dot to give an overall rating, rather than just rating separate nutrients. The percentage daily intake system and its variations present, for each of the key nutrients, the proportion of the government recommended adult daily intake that a serving of the product contains.

The study found that consumers favoured a consistent labelling format across all products. In addition, those who were shown the traffic light labels were five times more likely to identify healthier foods than those shown a single colour version of the percentage daily intake label and three times more likely to do so than those shown a colour-coded version of the daily intake label.

"As a result of these findings, we are recommending that mandatory traffic light labelling regulation be introduced in Australia. The labels should be applied to all processed retail grocery food and drinks at first, and consideration should be given to extending that to restaurant chains with standard menu items," Kelly said.

The findings are relevant to other countries, Kelly said, adding that regulations being considered by the European Union favour a system similar to the percentage daily intake approach. Kelly said that further research is needed to determine whether the traffic light system proves to be as effective in other countries, but that the study showed it could be used equally well by all consumers, regardless of ethnicity, gender and socioeconomic status.

Nutrition Horizon 07 May 2009

FSA advises against toddler rice drink consumption

Young children should not have rice drinks as a replacement for cows' milk, breast milk or infant formula, according to the Food Standards Agency (FSA). It comes after the agency published results of two separate studies, one of which was on arsenic levels in rice drinks, which found low levels of arsenic in all 60 of the beverages tested. The agency results showed overall level of arsenic ranged from 0.010 - 0.034 milligram/kilogram.

Meanwhile, the levels of inorganic arsenic, which the FSA said is the most harmful type, ranged from 0.005 - 0.020 milligram/kilogram. The other study looked into cooking methods to lower arsenic levels in rice. It revealed that the effect of different methods of cooking on the overall dietary intake of arsenic is minimal. The FSA has subsequently announced that it is not advising anyone to change the way they cook rice. Earlier this month, the FSA published new voluntary salt reduction targets for the industry to meet by 2012. More challenging targets have been set for 80 categories of foods

IngredientsNetwork.com May 26, 2009

EFSA publishes health claims FAQ

The European Food Safety Authority (EFSA) has published a frequently asked questions (FAQ) document in advance of its stakeholders meeting in Brussels on June 15, to help the food industry better understand the nutrition and health claims process. The process for creating an EU-wide list of permitted health claims is due to be completed by Jan. 2010. The FAQ document discusses key issues that are addressed by the EFSA in assessment of the scientific evidence submitted for substantiation of health claims in order to assist applicants in preparing applications for claims under Articles 13.5 and 14 of Regulation (EC) No 1924/2006 on nutrition and health claims on foods.

IFT Newsletter May 27, 2009

