



Editorial

Some things cannot be overemphasised. The changes taking place in food science and the industry are so rapid. Ingredient manufacturers are finding newer ingredients with newer applications. More recently many new ingredients with health benefits are being used. Nutraceuticals with physiological activity including omega 3 fatty acids, antioxidants, oryzanol, lutein, ginseng, probiotics, beta glucan and many more are being used. Although most come from common food ingredients newer sources are being explored.

Process engineers are finding new technologies to process and preserve foods. Non-thermal processes are being explored for producing safer foods while still retaining the sensory quality of foods. High pressure processing is already commercialised while many others are in pipeline. Machinery manufacturers are developing faster and more efficient machines for newer processes. There are new additives that can provide new applications to prepare more appealing product with better safety and quality. New sweeteners have been developed and are being used now. Even the new safety systems are being developed to enable marketing of food products across the world. There are newer packaging systems and materials with better handling capability as well as ease in identifying and tracking during marketing.

One of the biggest changes at least in India is new food laws with new emphasis on safety rather than quality that would go a long way in making the Indian food industry competitive in the global markets.

The point to be made here is in this rapidly developing scenario students would find it extremely difficult to get an idea of what they

would be entering after their studies are over. Not only the syllabus must keep pace with the rapidly changing picture but teachers also must keep pace and there should be books available on these subjects.

Except for a few institutes, many find it difficult to keep the pace and prepare the students adequately. Here industry must play a proactive role in educating students. It must realise that students of today will be their employees of tomorrow so if they put in some efforts now they can get better trained personnel. In the past there have been reservations about industry scientists interacting with institutes except when there was a sponsored project.

Things are now changing and just like in business schools the experts from industry would help out schools in teaching programmes. There are many instances wherein industry experts not only would teach subjects but also involve teachers in finding solutions. Students would also be given opportunity to work in industry. However, still there is lack of enthusiasm when it comes to industry visits when companies hesitate to show students their facilities especially the processing areas.

Hopefully things would improve further and both teachers and industry experts would work as partners not only in training students but finding solutions in the present complex situation of rapidly changing situation in industry.

With season's greetings

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Food Classifications: Purpose and Application

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At the time of writing an Indian Food Categorization System (IFCS) has been published modelled largely on the Codex Food Category System (CFCS). It is an opportune moment to study the objectives and purpose of the CFCS and in doing so – the IFCS. Is the latter ‘harmonized with Codex’ so often clamoured by Industry?

Getting our fundamental concepts right is essential to the discussion. Generally speaking a classification is a structure that organizes concepts into a hierarchy possibly with a scheme of facets (a facet is a well-defined characteristic of a group or class) – referred here as food descriptors (**Fig 1 & 2**). The term food category is to be understood as a set of more or less similar foodstuffs or groups of foodstuffs themselves. Secondly it establishes acceptable nomenclature defined sufficiently well through food descriptors with a view to encompass all foods that answer to the descriptors whatever they are called in local languages of various countries.

Codex has several categorization systems perhaps not as popular as the Food Categorization System under the Codex General Standards for Food Additives (GSFA: Codex Stan 192: 1995). Some classification systems are cited below to emphasise the specific objectives that each one delivers.

- The Commodity Standards List (comprising food product standards)
- Codex Classification of Foods and Animal Feeds CCPR (for pesticide residues)
- Food Category in Veterinary Drug Residues
- Food Category System for Food Additives (CIAA and GSFA)
- Codex Classification for Contaminants & Toxins (GSC)
- The Harmonised System (HS) of nomenclature used for collecting data on external trade of goods.

If there are several classification systems within Codex and elsewhere, it would obviously imply that each is structured to deliver a specific objective and cannot arbitrarily be used for other unintended purposes. For example the Codex Classification of Foods and Feeds is intended primarily to ensure uniform nomenclature and to classify foods into groups and/or sub-groups (19 types) for the purpose of establishing group maximum residue limits for pesticide residues. It is as complete a listing of food commodities as possible used in trade, classified into groups on the basis of the commodity’s similar potential for pesticide residue (**Fig 3**).

These systems harmonize the way countries manage risks that their respective populations are exposed to and compare the same with other countries. **Quite clearly purpose precedes use.**

The Food Category System originally developed by CIAA (Confederation of the Food and Drink Industries of EEC), was later adopted by Codex and placed in the GSFA. It consists of a top level of 16 main food groups with the last one used for prepared or composite dishes in which additives are directly added to the composite food. The grouping system is based on product descriptors of food as marketed, unless otherwise stated.

Capturing of the specific food under the food descriptor is a key requisite of the system and hence descriptors are as broad as possible yet sufficiently precise to identify the food. An example of such fuzzy descriptors used

is ‘water based flavoured drinks, energy reduced or with no added sugar’, rather than “soft drinks”. Another important reason for this choice for ‘fuzzy’ descriptors’ is to harmonize procedures adopted by various countries in controlling risks and food safety.

The clear purpose of what the CFCS is intended - and not intended - is clear from an elaboration of its objectives briefly given below:

- The system is hierarchical (parent child relationship) and is
- Intended *solely as a tool for the allocation of food additives* as a basis for their authorization. Because both systems (CIAA & CFCS) are food additive driven and emphasize processed foods, the methods of preparation and conservation of foods condition the use of certain additives.
- *Applies to all foods whether standardized or not*
- The *food category descriptors are not intended as legal product designations or with labelling* and should not be used for those purposes.
- Product descriptors are of foods as marketed and do not take into account the industry or food sector to which they may belong. Because of this food additives are linked to foods consumed.
- Takes into account ‘carry over’
- *Simplifies reporting of food additive uses*

The system was developed in order to have a universal view of how food additives are allocated across the food categories moving from broad level allocation to single foods and even restrictions. For example:

- food additives with low ADI’s, may be allocated to limited number of foods and hence a narrower sub categories is specified only
- yet in some instances authorizations may be only for a specific food or where allotted to a sub category restriction placed on siblings or co-workers in the category.

The allocation system provides the facility to show exactly where the food belongs in context of the whole universe of foods consumed, whether standardized or not (proprietary foods). A comparison can be made to how the additive is used universally by all countries where products fit into the broad descriptors – whether the food is ethnic, traditional or otherwise. Countries the world over have ethnic, traditional and proprietary names to various foods sold in the market– the Codex system attempts to capture all these through the applicable food descriptors. Some categories and sub categories may not require additives, but they remain present to enable an international consensus (harmonisation) on which are these. Ironically instead of deploying the CFCS for the allocation of food additives for which it is used by Codex, its deployment under Product Approval Advisories, exhibits a poor understanding of regulatory principle and practice. **The clamour of ‘harmonization’ is more of sound than substance.**

A good example of its correct use is the Australia New Zealand Food Standards Code (ANZFSC) – which states “a food additive may only be added to food where expressly permitted in Standard 1.3.1 of the Australia New Zealand Food Standards Code. Schedule 1 to the Standard details permitted uses and restrictions of food additives by food type and is hierarchical in structure. Food additive permissions listed for higher order

category (e.g. 2) flow on to the next lower category (e.g. 2.1)”. Simply put – categorizing foods is subject to a superior purpose or higher motive to be understood prior to its usage.

Recall the inappropriate use of the HS code required under the conditions of license and registration of FSSAI - resulting in confusion among FBO’s. The Harmonized system (HS Code) of the World Customs Organization (WCO) – adapted by India under the Indian Trade Clarifications (ITC-HS) – is a systematic list of commodities that forms the basis for international trade negotiations, applied by most trading nations, including India.

Imported goods are declared under the applicable subheading which determines the rate of customs duty and how the goods are treated for statistical purposes. To have applied this code for domestic products was wholly inappropriate to its objectives.

What should be remembered is that food classification systems are related but almost never compatible. It is a common view that a system covering all needs does not exist.

However despite an earlier inappropriate use of the HS code no lessons have been learnt and yet another case of inappropriate application without an understanding of the end objectives is being pursued through the Indian Food Categorization System. The Food Product Standards published under the Food Safety & Standards (Food Product Standards & Food Additives) Regulations 2011 are an adequate classification of food products – industry sector wise – a practice followed by other countries including Codex. This is the appropriate categorization for food product registration for purposes of licensing – a few instructions for additional information would have adequately placed foods for special dietary uses, food supplements etc into their respective categories either under Section 2.12 (Chapter 2) or subsequent stand alone sections (e.g. food supplements 2.14, Foods for Special Dietary Uses 2.15, etc.).

It is well appreciated that the Food Authority has the onerous task of constructing a regulatory framework under the Food Safety & Standards Act 2006. From inception it has endeavoured and succeeded in making several character shifts through its training programs, reorganization, online facilitation and consolidation of all erstwhile Acts/Orders. However its major break out from the past mould of the PFA will truly be reflected by the manner it harmonizes its rulemaking framework. Food classification systems provide some of these critical frameworks for risk management.

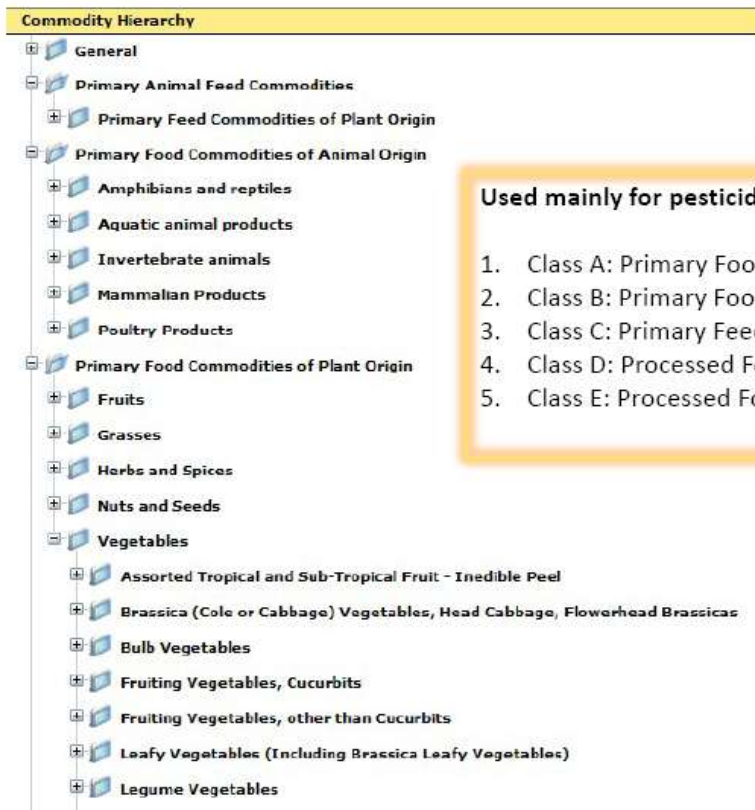
FIG 1: EXAMPLES OF FACETS

Facets	Examples
Origin/type	Animal, plant or chemical foundation from which the food is manufactured, e.g. beef, gooseberry, water, ...
Heat treatment	Type of treatment of the food using heat, e.g. heat treated, boiled, pasteurised, ...
Ingredients	Additives, e.g. fruit, dyes, ...
Pickled in...	Medium in which pickled, e.g. fruit juice, aspic, salt solution, ...
Quality details	e.g. extra, fine, ...
Processing	Further processing stages, e.g. deburred, smoked, preserved, ...
...	...

FIG 2: FACET (DESCRIPTORS) TYPES FOR A PARTICULAR FOODSTUFF

Basic food list	Facet: origin/ type	Facet: quality	Facet: preservation method	Facet: declaration
Jam	Strawberry	extra	sterilised	reduced calorific value
Jelly	Raspberry	simple	boiled	...
Marmalade	Blackberry		pasteurised	
Processed fruit	Red currant		...	
...	...			

FIG 3: Codex classification of foods and animal feeds



Used mainly for pesticide residue and contaminants limits

1. Class A: Primary Food Commodities- Plant Origin (5 types)
2. Class B: Primary Food Commodities- Animal Origin (5 types)
3. Class C: Primary Feed Commodities (1 type)
4. Class D: Processed Food of Plant Origin (4 types)
5. Class E: Processed Food of Animal Origin (4 types)

Call In the Food Fixers

Consumers routinely see food labels stating what is not in them e.g. fat, sugar, gluten etc. Claims appear on beverages, salad dressings, sauces, cookies, and even bread. What shoppers may not know is that when fat, sugar or gluten is removed precise combination of other ingredients replaces them. These help food scientists make “light” or “-free” versions of products that taste very much like the originals.

Usually texture is replicated. One brand of light version of salad dressing has 40% less calories and 50% less fat than original. The label additionally promises “Betcha can’t tell it’s light!” and the trick is done by modified food starch, carrageenan and xanthan gum replacing some of oil and sour cream.

Ingredients are needed to build viscosity and give creamy mouth feel. For right viscosity more than one texturizing ingredient is needed with synergistic effect. Starch thickens products. With xanthan gum, product flows when bottle is shaken but will cling to lettuce in salad. It is also good for dipping as it stays on carrot. To ensure consumers don’t miss out any desirable property a long list of texture-improving additives from agar to xanthan gum is available and several are chosen. Specialty chemicals or food ingredients companies have developed many for various applications. These have been used for several decades and the R & D has focused more on differentiation than on totally new products. It is too expensive to get approval for brand-new-product.

Although many ingredients are made with the help of chemistry, consumers look negatively at food ingredients that are chemically altered. Also long and complicated lists of ingredients on food labels are falling out of favour. Ingredient suppliers are playing a big role in helping their customers balance health claims, good taste and consumers’ desire for “natural” foods.

Most textural replacement ingredients are hydrocolloids, having ability of hold on to and control migration of water in foods and beverages. Global market for food hydrocolloids was \$5.8 billion in 2010. Half that value is due to starches and gelatin. Remaining is claimed by carrageenan, alginates (both from seaweed), cellulose from tree pulp and cotton and its specialised derivatives including microcrystalline cellulose, methylcellulose, hydroxypropyl methylcellulose etc., plant-derived substances pectin, guar gum, locust bean gum and xanthan gum from bacteria. It is estimated that 1.4 million tons of hydrocolloids were consumed worldwide in 2010 of which starch was 73%. Asia (particularly China) is the growing market for hydrocolloids.

One large company provides starches derived from corn, potatoes and tapioca and has introduced texture systems that add precise creaminess and cling that the customer desires. Primarily starch is a thickener for which it has to be cooked in presence of water to be functional. However, instant and modified starches are also available. Besides being bulking agent, they help manage water and prevent syneresis or separation of water from food matrix. This may happen when temperature changes or when proteins or carbohydrates tightly bind to themselves squeezing out water.

Starch based ingredients can replace some fat, even dairy fat, in sauces and other products. People love the indulgent experience of high-fat creamy sauce but avoid it because of saturated fat and calories. If heavy cream in such sauces could be reduced from about 20% down to 10% or less they would love it. Fats and oils impart many textural attributes that affect eating experience. Ingredient formulators need to build back lubricity, mouth coating, how it melts away as fat melts, creaminess and oral viscosity. One also has to think about what is left in mouth and how quickly it clears palate.

Most new products fail in marketplace due to wrong texture. Texture is important as it gives food the right feel and changes in texture ingredients affects flavour as well. Hence food makers use objective means of evaluating texture. A panel of sensory experts can describe and evaluate attributes of food. Many companies develop their own texture language e.g. one client described a baked potato chip to be halfway between crunchy and crispy or “crinchy”. To such descriptions lab data is added including rheological tests for flow behaviour, dynamic viscosity, gel strength, hardness, breakage etc. and then correlated with different sensory attributes.

Next horizon for starch is gluten-free foods. It is fairly easy to mimic wheat flour properties in cookies. However, bread is a challenge as gluten is the backbone that provides soft and chewy bread trapping air which is difficult when starch replaces gluten. Another tricky application is microwavable pizza dough that needs to be crisp even without baking.

Many starches are modified chemically, physically or enzymatically for use in food. Maltodextrin is common enzyme-treated starch. Modified food starches are generally chemically modified to prevent retrogradation when amylopectin molecules gel or recrystallise changing viscosity. Some consumers avoid modified starch so a line of native starches with functional properties similar to modified starches are available at premium prices.

Although starch-based ingredients are leaders, other texture products are coming up. Although gellan gum is more expensive it is needed much less to achieve the same effect. Introduced in 1980s, it is a polysaccharide made by bacteria. It is used in flavoured beverages where it forms a fluid gel structure that can suspend particulates without adding much viscosity. Xanthan gum is also derived from bacteria and unlike gellan with a weak gel structure, xanthan forms stronger gel adding viscosity at very small doses.

One of the oldest is pectin used in jam and jelly and is rapidly moving in on gelatine to become the second most commonly used hydrocolloid after starch. Pectin is extracted from citrus peels while gelatine is made from skin of pigs and cows. Pectin can also be made from sugar beets. Pectin is replacing gelatine due to rise in vegetarianism and also as consumers are becoming more aware of ingredients list. Pectin is finding applications in yogurt and yogurt drinks, where its properties protect protein allowing acidic fruit juices to coexist with milk proteins. Consumer image for pectin is high and one cannot overestimate its importance.

Food trends on their own don't change desirability of particular food ingredients as one not only has to consider the end product but also manufacturers' processing constraints. Ingredients may need to survive pasteurisation, provide long shelf life and withstand wide fluctuations of temperature in distribution. Manufacturers also look for cost reductions. Many texture-enhancing ingredients can replace expensive ingredients like dairy products. Manufacturers who want labelling benefits of natural-sounding ingredients will pay more.

Carrageenan is seaweed like alginates and is used for gelling, thickening and stabilising properties. They rank very well due to their natural origin and many have the possibility of labels like organic or GMO-free. Commercial carrageenan is made from red seaweeds that are gathered, dried, ground, sieved and washed. It is removed from other plant material with hot extraction process to produce polysaccharide in one of following forms: kappa, iota and lambda, each with different water solubility and gelling properties.

Cellulose also can mimic texture of fat and is used in sugar-free beverages. Without sugar, beverages are watery and thinner. Cellulose is made from tree pulp. It is not water soluble so it is chemically processed to make it suitable in food. Processing hydrolyses part of fibrous material to remove amorphous regions leaving crystalline material that forms a gel. It can be made into powdered or colloidal microcrystalline cellulose.

Combinations of cellulose and carrageenan are available that could be used in chocolate milk and non-dairy creamer to get a richer texture, particulate suspension, flow characteristics and wide temperature stability. Ingredient manufacturers have technical application laboratories where food scientists work directly with local consumers. Company researchers also try to track early indicators of emerging trends. Several products like coconut water, chocolate beverages, milk-like beverages based on grains like oat and on nuts are quite popular. There are technical challenges to stabilise grains and suspend ground nuts.

Methylcellulose with slight affinity for fat molecules has applications for fried foods reducing fat uptake in them. Methylcellulose will gel and reduce steam escape in fried foods reducing fat penetration in the product. It can also add stability to coatings or keep intact a filled appetiser.

Although trend to reduce fat and sugar with texture building substances will increase, consumers also read labels and look for foods that are "natural". This battle will go on. At present standards are not prescribed for using words "natural". Also consumers want more information on ingredients and additives used as carboxymethyl cellulose is commonly written as cellulose gum on labels while chemically altered starch is listed as modified but modified pectin is just listed as pectin. Consumers are looking for natural ingredients.

Consumer activists ask how natural versus unnatural is determined. Something could be natural because its chemical bonds are not broken but it might have gone through such processing that the term natural becomes almost like a religious doctrine. The textural ingredients even the modified ones are not harmful but they don't bring any health benefits. So even with all these presumably safe ingredients it may still be junk food.

Manufacturers will always side with texture over a short list of ingredients as taste is king for them. They would rather use modified food starch and xanthan gum than have products that consumers won't buy because they don't like the taste.

Condensed from article by Melody M. Bomgardner Chemical & Engineering News October 31, 2011



Research in Health & Nutrition

Omega-3 Supplementation May Reduce Joint and Cognitive Side Effects of Breast Cancer Treatments

"I know I need this medicine to help lower my chance of cancer recurrence, but it makes my joints ache and stiff. It makes me feel old and I am not sure I can take this medication much longer." It's a story that oncologists across the country hear frequently from patients taking aromatase inhibitors, a medication that reduces circulating estrogen levels, which leads to lower breast cancer recurrences. Dr. Maryam Lustberg, an assistant professor at the Ohio State College of Medicine, knew the pain made some of her patients less compliant, possibly giving the cancer a foothold.

"Up to a third of my patients were reporting joint symptoms on aromatase inhibitor therapy which was impacting their quality of life and some had to stop taking the medication," says Lustberg. Lustberg attended a seminar hosted by Ohio State's Center for Clinical and Translational Science (CCTS) designed to bring new TL-1 award recipients together to share research interests. There, she met Tonya Orchard, a doctoral student in nutrition working on a CCTS-funded study with post-menopausal women and the consumption of fatty acids a nutrient essential to human health that had also been linked to reducing joint pain related to osteoarthritis and rheumatoid arthritis.

"Dr. Lustberg approached me with what she was seeing in her clinic and we quickly became excited about the prospect of working together to address the problem," recalls Orchard, now a visiting assistant professor in the Department of Nutrition at Ohio State. "We put together a grant proposal and the Cancer and Leukemia Group B awarded us pilot funding to see if omega-3's could help women taking these estrogen-blocking drugs."

This study due to be completed in Spring 2012 adds another chapter in Orchard's career that has included working with patients suffering from osteoporosis in a clinical setting and researching the health impacts of omega-3 fatty in post-menopausal women. "Early on, I was fascinated with research showing a correlation between omega-3's and bone mineral density, but it was really after seeing my grandmother suffer from several lumbar fractures, a hip fracture and ultimately ending up in a nursing home that my interest in fatty acids was solidified," says Orchard.

The interest is continuing through the Women's Health Initiative working group at Ohio State, where Drs. Lustberg and Orchard are also collaborating with neuroscientist Dr. Courtney DeVries to investigate the effects of omega-3 supplementation on cognitive symptoms associated with chemotherapy. As many as one-third of breast cancer patients undergoing chemotherapy will experience problems with memory and verbal fluency, but these women's health researchers believe that the anti-inflammatory properties of fatty acids may provide a solution.

"Fatty acids are present in every cell of the body. They alter the production of signaling hormones and how cells communicate with each other in ways that may impact inflammation," says Orchard. "Omega-3 supplementation has been shown to be safe during chemotherapy and may offer solutions to multiple issues associated with cancer therapies where inflammation may be involved."

Orchard's work with fatty acids isn't stopping there. "I'd like to further explore genetic interactions that might modify the relationship of omega-3's to fracture using Women's Health Initiative data," said Orchard. "I'm also interested in other nutritional components that impact inflammation and musculoskeletal disease." Her research has definitely impacted her own diet, and Orchard says she has increased her own omega-3 intake by eating salmon and tuna about 1 - 2 times a week, adding flaxseed to her cooking and modifying several recipes to increase the omega-3 content.

Orchard offers the following simple cooking and food tips to increase omega-3 fatty acids:

Substitute up to ¼ of the oil in baked goods with milled flaxseed (great in muffins and holiday breads)

Use canola oil or a high omega-3 margarine with no trans-fat in place of corn, vegetable oil or butter for holiday baking or for sautéing

Substitute canola oil for shortening or lard in pie crusts, decrease the water slightly and roll out between waxed paper

Substitute omega-3 fortified products (sour cream, eggs, etc.) in holiday recipes

Add English walnuts to your favorite dishes, such as hot oatmeal with raisins and cinnamon for breakfast

Try adding a can of drained Albacore tuna to your favorite cheese-ball recipe

Shrimp cocktail, smoked herring or sardines on peppered crackers make a great, high omega-3 party appetizer (Medical News Today: 19 Nov 2011)



Young Women May Reduce Heart Disease Risk Eating Fish With Omega 3 Fatty Acids, Study Finds

ScienceDaily (Dec. 5, 2011)

Young women may reduce their risk of developing cardiovascular disease simply by eating more fish rich in omega-3 fatty acids, researchers reported in *Hypertension: Journal of the American Heart Association*. In the first population-based study in women of childbearing age, those who rarely or never ate fish had 50 percent more cardiovascular problems over eight years than those who ate fish regularly. Compared to women who ate fish high in omega-3 weekly, the risk was 90 percent higher for those who rarely or never ate fish.

Researchers used a Danish nationwide population based pregnancy cohort to examine whether or not eating more fish might reduce cardiovascular disease risk in the young women. About 49,000 women, 15-49 years old, median age of just under 30 years in early pregnancy -- were interviewed by telephone or answered food frequency questionnaires about how much, what types and how often they ate fish, as well as lifestyle and family history questions.

Researchers recorded 577 cardiovascular events during the eight-year period, including five cardiovascular deaths in women without any prior diagnosis of the disease. In all, 328 events were due to hypertensive disease, 146 from cerebrovascular disease, and 103 from ischemic heart disease.

Inpatient and outpatient admission for cardiovascular disease was much more common among women who reported eating little or no fish. In three different assessments over a 30-week period, women who never ate fish had a three-fold higher disease risk compared to women who ate fish every week.

"To our knowledge this is the first study of this size to focus exclusively on women of childbearing age," said Marin Strøm, Ph.D., lead researcher and post-doctoral fellow at the Centre for Fetal Programming, at Statens Serum Institut in Copenhagen, Denmark. "The biggest challenge in getting health messages like this across to younger populations is that usually the benefits may not be evident for 30 or 40 years, but our study shows this is not the case. We saw a strong association with cardiovascular disease in the women who were still in their late 30's."

Fish oil contains long chain omega-3 polyunsaturated fatty acids, which are believed to protect against heart and vascular disease. Few women in the study took fish oil supplements, so these were excluded from the analyses and the results were based on the dietary intake of omega-3 fatty acids, not intake from supplements.

Most previous studies that found cardiovascular benefits of omega-3 fatty acids have focused on men, according to Strøm. "Men and women share many cardiovascular risk factors, but some studies have shown that there might also be gender differences. For example, inflammation, cholesterol, and triglyceride levels may have a more negative influence among women," Strøm said.

Even women who ate fish only a couple of times a month benefitted. "Women who eat fish should find the results encouraging, but it is important to emphasize that to obtain the greatest benefit from fish and fish oils, women should follow the dietary recommendations to eat fish as a main meal at least twice a week," she said.

The most common fish consumed by women in the study were cod, salmon, herring, and mackerel. "Our study shows that for younger women, eating fish is very important for overall health, and even though we found cardio-protective effects at relatively modest dietary levels, higher levels may yield additional benefits," Strøm said.



New Approach to Management of Overeating in Children

Overeating, whether in children or adults, often takes place even in the absence of hunger, resulting in weight gain and obesity. Current methods to treat such overeating in youth focus on therapies that restrict what kids may eat, requiring them to track their food intake and engage in intensive exercise.

But for most children, such behavioral therapy techniques don't work long term, according to Kerri Boutelle, PhD, associate professor of psychiatry and pediatrics at the University of California, San Diego School of Medicine. Boutelle and colleagues are developing new ways to treat overeating in children and adults.

Their study, published in the *Journal of Consulting and Clinical Psychology* this week, describes two new methods for reducing overeating. The overall aim of these studies is to improve responses to internal hunger and satiety cues and decrease physiological and psychological responses to foods in the environment. Basically, how do we learn to stop eating when we are no longer hungry?

The first treatment group, called appetite awareness training, trains children and parents to recognize, and appropriately respond to, hunger and satiety cues. The other treatment group, called cue exposure training, trains children and their parents to resist the food that is in front of them.

"We teach children and parents how the environment tricks us into eating foods even when we're not hungry," said Boutelle, citing examples of food triggers such as TV commercials, the abundance of easy-to-eat and high-calories snacks, and the use of food as a reward.

In this study, 36 obese 8-to-12-year olds with high levels of overeating and their parents were assigned to eight-week-long training, either in appetite awareness or a cue-exposure treatment. Children were provided a toolbox of coping skills to "ride out their cravings" -- identifying such cravings and learning strategies to ride them out until the urges diminished (but only when they were not physically hungry).

Participants also learned how to manage potential overeating situations when they might not listen to their bodies' signals, because of the availability of foods or even their own moods.

While the appetite awareness group focused on training the participants to regulate eating by focusing on internal cues of hunger and appetite, the cue exposure group trained the participants to tolerate cravings to reduce overeating.

Children and parents in the appetite awareness group brought dinner into the clinic and practiced monitoring their hunger and satiety cues throughout the meal. Children and parents in the cue exposure group brought in their highly craved foods and "stared them down" -- holding, smelling and taking small bites of the food -- for up to 20 minutes while rating their cravings, after which they threw away the food.

In post-treatment surveys, 75 percent of the children in the appetite awareness group and more than 50 percent of children in the cue exposure group liked the program "a lot" or "loved it." A high percentage (81 and 69 percent, respectively) reported feeling more in control of their eating due to the program.

The researchers assessed the impact of these two different eight-week treatments on body weight, overeating, binge eating and caloric intake in both the children and parents.

"While this was a pilot study, our initial results suggest that the 'cue exposure' approach might be very helpful in reduction of eating in the absence of hunger," said Boutelle. She added that significant reduction in such overeating was found in the cue-exposure group, even six months post-treatment, though there was very little long-term impact on overeating in the appetite awareness group. There was only a small effect on body weight and no effect on reported calories eaten in either group; however, both approaches resulted in decreased binge eating in children and their parents.

"These findings are exciting because they offer a completely new paradigm for controlling overeating and binge eating," Boutelle said. "By reducing overeating and binge eating, we hope to provide a new way of preventing weight gain and providing children with a sense of control over what they chose to eat. This is really important, because a loss of control can lead to depression and other psychiatric problems, and of course childhood obesity."

Additional contributors to the study include Nancy L. Zucker, Duke University; Carol B. Peterson and Sarah A. Rydell and Lisa Harnack University of Minnesota; and Guy Cafri, UC San Diego. The project was funded by a University of Minnesota Faculty Development Grant to Boutelle and Harnack.

ScienceDaily (Dec. 7, 2011)



Intermittent, Low-Carbohydrate Diets More Successful Than Standard Dieting, Study Finds

An intermittent, low-carbohydrate diet was superior to a standard, daily calorie-restricted diet for reducing weight and lowering blood levels of insulin, a cancer-promoting hormone, according to recent findings.

Researchers at Genesis Prevention Center at University Hospital in South Manchester, England, found that restricting carbohydrates two days per week may be a better dietary approach than a standard, daily calorie-restricted diet for preventing breast cancer and other diseases, but they said further study is needed.

"Weight loss and reduced insulin levels are required for breast cancer prevention, but [these levels] are difficult to achieve and maintain with conventional dietary approaches," said Michelle Harvie, Ph.D., SRD, a research dietician at the Genesis Prevention Center, who presented the findings at the 2011 CTRC-AACR San Antonio Breast Cancer Symposium, held Dec. 6-10, 2011.

Harvie and her colleagues compared three diets during four months for effects on weight loss and blood markers of breast cancer risk among 115 women with a family history of breast cancer. They randomly assigned patients to one of the following diets: a calorie-restricted, low-carbohydrate diet for two days per week; an "ad lib" low-carbohydrate diet in which patients were permitted to eat unlimited protein and healthy fats, such as lean meats, olives and nuts, also for two days per week; and a standard, calorie-restricted daily Mediterranean diet for seven days per week.

Data revealed that both intermittent, low-carbohydrate diets were superior to the standard, daily Mediterranean diet in reducing weight, body fat and insulin resistance. Mean reduction in weight and body fat was roughly 4 kilograms (about 9 pounds) with the intermittent approaches compared with 2.4 kilograms (about 5 pounds) with the standard dietary approach. Insulin resistance reduced by 22 percent with the restricted low-carbohydrate diet and by 14 percent with the "ad lib" low-carbohydrate diet compared with 4 percent with the standard Mediterranean diet.

"It is interesting that the diet that only restricts carbohydrates but allows protein and fats is as effective as the calorie-restricted, low-carbohydrate diet," Harvie said.

ScienceDaily (Dec. 8, 2011)



Alzheimer's: Diet Patterns May Keep Brain from Shrinking

People with diets high in several vitamins or in omega 3 fatty acids are less likely to have the brain shrinkage associated with Alzheimer's disease than people whose diets are not high in those nutrients, according to a new study published in the December 28, 2011, online issue of *Neurology*[®], the medical journal of the American Academy of Neurology.

Those with diets high in omega 3 fatty acids and in vitamins C, D, E and the B vitamins also had higher scores on mental thinking tests than people with diets low in those nutrients. These omega 3 fatty acids and vitamin D are primarily found in fish. The B vitamins and antioxidants C and E are primarily found in fruits and vegetables.

In another finding, the study showed that people with diets high in trans fats were more likely to have brain shrinkage and lower scores on the thinking and memory tests than people with diets low in trans fats. Trans fats are primarily found in packaged, fast, fried and frozen food, baked goods and margarine spreads.

The study involved 104 people with an average age of 87 and very few risk factors for memory and thinking problems. Blood tests were used to determine the levels of various nutrients present in the blood of each

participant. All of the participants also took tests of their memory and thinking skills. A total of 42 of the participants had MRI scans to measure their brain volume.

Overall, the participants had good nutritional status, but seven percent were deficient in vitamin B12 and 25 percent were deficient in vitamin D.

Study author Gene Bowman, ND, MPH, of Oregon Health & Science University in Portland and a member of the American Academy of Neurology, said that the nutrient biomarkers in the blood accounted for a significant amount of the variation in both brain volume and thinking and memory scores. For the thinking and memory scores, the nutrient biomarkers accounted for 17 percent of the variation in the scores. Other factors such as age, number of years of education and high blood pressure accounted for 46 percent of the variation. For brain volume, the nutrient biomarkers accounted for 37 percent of the variation.

"These results need to be confirmed, but obviously it is very exciting to think that people could potentially stop their brains from shrinking and keep them sharp by adjusting their diet," Bowman said.

The study was the first to use nutrient biomarkers in the blood to analyze the effect of diet on memory and thinking skills and brain volume. Previous studies have looked at only one or a few nutrients at a time or have used questionnaires to assess people's diet. But questionnaires rely on people's memory of their diet, and they also do not account for how much of the nutrients are absorbed by the body, which can be an issue in the elderly.

ScienceDaily (Dec. 29, 2011)



Protecting Bones During Weight Loss - Eat Protein-Rich Foods

According to an investigation published online in the *Journal of Clinical Endocrinology and Metabolism*, consuming a calorie controlled diet lower in carbohydrates and higher in protein - primarily from dairy foods - combined with daily exercise has a significantly positive impact on bone health in overweight individuals as well as obese young women.

The researchers observed that bone health improvements were particularly evident, because of the high density of bone-supporting nutrients, such as vitamin D, dairy-based protein and calcium.

The researchers enrolled overweight and obese, but otherwise healthy, premenopausal women to participate in the study. The women were then split into three groups, each consumed either low, medium or high amounts of dairy foods together with lower or higher amounts of carbohydrates and protein for 16 weeks. In addition, vitamin D and calcium were graded from low to high across the three groups together with the dairy foods they consumed.

Each participant engaged in aerobic exercise seven days per week as well as two additional workouts of circuit weightlifting per week. Andrea Josse, of the Department of Kinesiology at McMaster and lead author of the investigation, explained: "Our findings demonstrate the importance of diet composition to the maintenance of bone health status during weight loss. Our data clearly shows dairy-source protein is important when aiming to avoid harmful consequences such as accelerated bone loss during weight loss. In our view, young women attempting to lose weight should consume a diet higher in dairy-source protein."

A prior investigation from the same team and the same participants revealed that across the groups, total weight losses were identical, although body composition change was significantly different with the higher protein, high-dairy group experiencing more significant whole-body fat and abdomen fat losses as well as greater lean mass gains.

In this investigation, the same participants consuming higher-protein and high-dairy also had considerable improvement in markers of bone formation, an increase in circulating vitamin D levels, no alterations in bone loss, as well as a decrease in levels of parathyroid hormone, which when raised is often linked to bone loss.

According to the researchers, maintaining or even improving bone health in young women, especially in women trying to lose weight, is vital for overall health, and might have considerable implications for reducing the chances of developing diseases like osteoporosis later in life.

Stuart Phillips, senior author and a professor in the Department of Kinesiology, stated: "Our data provide further rationale to recommend consumption of dairy foods to aid in "high quality" weight loss, which we defined as loss of fat and sparing of muscle, and the promotion of bone health in young women. These women are not only at the age when achieving and maintaining peak bone mass is of great importance, but in whom adequate dairy consumption would offset sub-optimal intakes of calcium and vitamin D."

Participants who consumed marginally adequate protein while undergoing weight loss showed significantly increased levels of markers of bone loss suggesting that consuming such a diet would weaken bones in the future.

01 Dec 2011 Medical News Today



Fish Baked Or Broiled Reduces Alzheimer's Risk

Eating fish once a week is good for brain health, as well as lowering your risk of developing Alzheimer's disease and MCI (Mild Cognitive Impairment), researchers from the University of Pittsburgh School of Medicine explained at the annual meeting of RSNA (Radiological Society of North America), Chicago, yesterday.

Cyrus Raji, M.D., Ph.D. said: "This is the first study to establish a direct relationship between fish consumption, brain structure and Alzheimer's risk. The results showed that people who consumed baked or broiled fish at least one time per week had better preservation of gray matter volume on MRI in brain areas at risk for Alzheimer's disease."

To **broil** means to cook by direct radiant heat, as one would under an electric element or over a grill.

To **bake** (in this text) means to cook with dry heat, e.g. to oven cook.

It is estimated that about 5.1 million people in the USA have Alzheimer's disease, says the National Institute on Aging. Mild cognitive impairment is sometimes the first step towards Alzheimer's.

Raji and team carried out a study on 260 cognitively healthy people from the Cardiovascular Health Study. They were given a questionnaire (National Cancer Institute Food Frequency Questionnaire) which included details on their fish consumption.

163 of the participants ate fish at least once a week, many of whom did so up to four times weekly. They all underwent a 3-D volumetric MRI brain scan. A brain mapping technique, called Voxel-based morphometry, was utilized to determine whether there might be a link between fish consumption at the start of the study and the structure of their brains a decade later.

The researchers gathered and analyzed data to find out whether the preservation of brain volume linked to eating fish might have an impact on Alzheimer's disease risk (reducing the risk). They took into account several factors which may have influenced the results, including participants' race, education, sex, age, levels of physical activity, as well as the presence of a gene that raises Alzheimer's risk (ApoE4, or apolipoprotein E4).

Brain health is closely linked to brain volume, the more brain volume you can preserve as you age, the better your long-term brain health. If the amount of gray matter starts to go down, it means the brain cells are shrinking.

The researchers found that those who ate baked or broiled fish at least once a week tended to have better preservation of volume in several brain areas, including the orbital frontal cortex, posterior cingulate cortex, and hippocampus. Greater volume in these brain areas was found to be associated with a five-times lower risk of

developing Alzheimer's or MCI.

Dr. Raji said: "Consuming baked or broiled fish promotes stronger neurons in the brain's gray matter by making them larger and healthier. This simple lifestyle choice increases the brain's resistance to Alzheimer's disease and lowers risk for the disorder."

The investigators also noticed that those who ate fish regularly had higher levels of cognition, compared to the participants who rarely ate fish. Dr. Raji said: "Working memory, which allows people to focus on tasks and commit information to short-term memory, is one of the most important cognitive domains. Working memory is destroyed by Alzheimer's disease. We found higher levels of working memory in people who ate baked or broiled fish on a weekly basis, even when accounting for other factors, such as education, age, gender and physical activity." Raji emphasized that according to his findings, dried or fried fish do not seem help preserve brain volume or lower Alzheimer's risk - the fish has to be baked or broiled.

01 Dec 2011 Medical News Today



Vegetables, Fruits, Grains Reduce Stroke Risk In Women

Swedish women who ate an antioxidant-rich diet had fewer strokes regardless of whether they had a previous history of cardiovascular disease, in a study reported in *Stroke: Journal of the American Heart Association*. "Eating antioxidant-rich foods may reduce your risk of stroke by inhibiting oxidative stress and inflammation," said Susanne Rautiainen, M.Sc., the study's first author and Ph.D. student at the Karolinska Institute in Sweden. "This means people should eat more foods such as fruits and vegetables that contribute to total antioxidant capacity."

Oxidative stress is an imbalance between the production of cell-damaging free radicals and the body's ability to neutralize them. It leads to inflammation, blood vessel damage and stiffening. Antioxidants such as vitamins C and E, carotenoids and flavonoids can inhibit oxidative stress and inflammation by scavenging the free radicals. Antioxidants, especially flavonoids, may also help improve endothelial function and reduce blood clotting, blood pressure and inflammation.

"In this study, we took into account all the antioxidants present in the diet, including thousands of compounds, in doses obtained from a usual diet," Rautiainen said. Researchers collected dietary data through a food-frequency questionnaire. They used a standard database to determine participants' total antioxidant capacity (TAC), which measures the free radical reducing capacity of all antioxidants in the diet and considers synergistic effects between substances.

Researchers categorized the women according to their TAC levels - five groups without a history of cardiovascular disease and four with previous cardiovascular disease. For women with no history of cardiovascular disease who had the highest TAC, fruits and vegetables contributed about 50 percent of TAC. Other contributors were whole grains (18 percent), tea (16 percent) and chocolate (5 percent).

The study found:

- Higher TAC was related to lower stroke rates in women without cardiovascular disease.
- Women without cardiovascular disease with the highest levels of dietary TAC had a statistically significant 17 percent lower risk of total stroke compared to those in the lowest quintile.
- Women with history of cardiovascular disease in the highest three quartiles of dietary TAC had a statistically significant 46 percent to 57 percent lower risk of hemorrhagic stroke compared with those in the lowest quartile.

"Women with a high antioxidant intake may be more health conscious and have the sort of healthy behaviors that may have influenced our results," Rautiainen said. "However, the observed inverse association between dietary TAC and stroke persisted after adjustments for potential confounders related to healthy behavior such as smoking, physical activity and education."

For the study, researchers used the Swedish Mammography Cohort to identify 31,035 heart disease-free women

and 5,680 women with a history of heart disease in two counties. The women were 49-83 years old. Researchers tracked the cardiovascular disease-free women an average 11.5 years and the women with cardiovascular disease 9.6 years, from September 1997 through the date of first stroke, death or Dec. 31, 2009, whichever came first.

Researchers identified 1,322 strokes among cardiovascular disease-free women and 1,007 strokes among women with a history of cardiovascular disease from the Swedish Hospital Discharge Registry. "To the best of our knowledge, no study has assessed the relation between dietary TAC and stroke risk in participants with a previous history of cardiovascular disease," Rautiainen said. "Further studies are needed to assess the link between dietary TAC and stroke risk in men and in people in other countries, but we think our results are applicable."

05 Dec 2011 Medical News Today



Probiotics Reduce Infections For Patients In Intensive Care

Traumatic brain injury is associated with a profound suppression of the patient's ability to fight infection. At the same time the patient also often suffers hyper-inflammation, due to the brain releasing glucocorticoids in response to the injury. New research published in BioMed Central's open access journal Critical Care shows that including probiotics with nutrients, supplied via the patient's feeding tube, increased interferon levels, reduced the number of infections, and even reduced the amount of time patients spent in intensive care.

In a small scale trial, based at North Sichuan Medical College and Hospital in China, 52 patients who had suffered traumatic brain injuries, and who were being treated in the intensive care unit (ICU), were either treated as usual or had their nutrition supplemented with probiotics.

Suppression of the immune system can be measured by an alteration of helper T-cells (Th) from Th1, which stimulate the action of macrophages to fight infection, to Th2. Th2 cells recruit B-cells which in turn are involved in antibody production. This switch from Th1 to Th2 leaves patients vulnerable to infections including ventilator-associated pneumonia and sepsis. Researchers involved in this trial monitored the TH1/Th2 switch by measuring levels of the Th1-associated signaling molecules (cytokines) IL-12 and interferon gamma (IFN γ).

No differences were found between the groups of patients when they began the trial, and throughout the study all the patients had lower levels of IL-12 and IFN γ than uninjured healthy controls. However by day 15 the patients who received the probiotics had significantly higher levels of both IL-12 and IFN γ than the control patients. They also showed a decrease in the Th2-associated factors IL-4 and IL-10.

Prof Jing-Ci Zhu, the supervisor of this study from the Third Military Medical University School of Nursing in China, explained, "Probiotic treatment appeared to swing the Th1/Th2 balance back towards normality and, in our study, had beneficial effects. Possibly due to the small size of our study there was no significant difference in the number of infections between the groups (9 for the probiotic group, 16 for the control patients). However probiotic therapy reduced the number of infections occurring after seven days, reduced the number of different antibiotics needed to treat infections, and shortened the length of time the patients were required to stay in ICU."

05 Dec 2011 Medical News Today



Link Between Low Vitamin D Levels And Higher Degrees Of Insulin Resistance

A recent study of obese and non-obese children found that low vitamin D levels are significantly more prevalent in obese children and are associated with risk factors for type 2 diabetes. This study was accepted for

publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM).

High rates of vitamin D deficiency have been found in obese populations and past studies have linked low vitamin D levels to cardiovascular disease and type 2 diabetes. The mechanisms by which obesity and its comorbidities are related to vitamin D deficiency are not fully known. This new study examined associations between vitamin D levels and dietary habits in obese children, and tested whether there were correlations between vitamin D levels and markers of abnormal glucose metabolism and blood pressure.

"Our study found that obese children with lower vitamin D levels had higher degrees of insulin resistance," said Micah Olson, MD, of The University of Texas Southwestern Medical Center in Dallas and lead author of the study. "Although our study cannot prove causation, it does suggest that low vitamin D levels may play a role in the development of type 2 diabetes."

In this study, researchers measured vitamin D levels, blood sugar levels, serum insulin, BMI and blood pressure in 411 obese subjects and 87 control non-overweight subjects. Study participants were also asked to provide dietary information including daily intake of soda, juice and milk, average daily fruit and vegetable intake, and whether or not they routinely skipped breakfast.

"Poor dietary habits such as skipping breakfast and increased soda and juice intake were associated with the lower vitamin D levels seen in obese children," said Olson. "Future studies are needed to determine the clinical significance of lower vitamin D levels in obese children, the amount and duration of treatment necessary to replenish vitamin D levels in these children and whether treatment with vitamin D can improve primary clinical endpoints such as insulin resistance."

Medical News Today 06 Dec 2011



Milk Powder Better Than Liquid Drops To Treat Milk Allergies

A small study by researchers at the Johns Hopkins Children's Center and Duke University shows that eating higher doses of milk protein in the form of dry powder substantially outperforms lower-dose therapy a few drops of liquid milk extract under the tongue for treatment of food allergies.

Both approaches are designed to give allergic children progressively higher doses of milk protein, a strategy to retrain their immune systems to tolerate the product. Overall, half of the 30 patients in the study were able to take 8 grams of milk protein the equivalent of 8 ounces of liquid milk without any sign of allergic reaction at the end of the two-year trial, but a comparison of the two approaches showed the dry milk route to be superior. Most children treated with the dry-milk approach could eventually introduce real amounts of milk in their diets with fewer and milder reactions over the course of the two-year trial.

A report on the research, involving patients ages 6 to 17 with moderate to severe milk allergies, is published online ahead of print in the *Journal of Allergy and Clinical Immunology*. Previously published studies by the same research team have shown that both approaches can ease allergic symptoms, but this is the first head-to-head comparison of the two therapies in terms of efficacy and side effects, the scientists say.

"Our findings underscore important differences between the two approaches and set the stage for further research into the best possible treatments for children with severe food allergy," says principal investigator Robert Wood, M.D., director of Allergy & Immunology at Johns Hopkins Children's Center.

Six of the 15 children who gained full tolerance and passed the milk challenge lost some of the therapeutic effects quickly once they stopped drinking milk daily, the researchers reported. The finding, they say, highlights the importance of regular milk consumption to preserve tolerance and avoid a relapse.

All children were initially treated with milk drops under the tongue, known as sublingual immune therapy (SLIT), for several weeks until they built up some tolerance. Afterward, they were randomly assigned to one of three groups. Ten children remained on the SLIT treatment with 7 milligrams of milk about one-twentieth of a teaspoon under the tongue daily. Ten children were assigned to eat 1 gram of milk protein in the form of dry powder daily equal to about 1 ounce of milk and the other 10 children consumed 2 grams of milk powder per day.

The drops-under-the-tongue approach was markedly less effective in improving milk tolerance. Only one of the 10 children treated with SLIT passed a food challenge that required them to drink 8 ounces of milk at the end of the trial. By contrast, 14 out of the 20 children who ate milk powder, an approach known as oral immunotherapy (OIT), successfully passed the food challenge. Within the OIT group, children on the higher daily dose had the greatest improvement, leading researchers to believe that efficacy is dose-dependent. Six of the 10 who consumed 1 gram of milk powder per day passed the milk challenge, compared with eight of the 10 on 2 grams daily.

However, children in the milk-powder group were more likely to experience serious allergic reactions, including abdominal pain and difficulty breathing with daily doses, compared with children given milk drops under the tongue, the researchers noted.

To determine whether and how well milk tolerance persisted after the two-year treatment, the investigators asked the 15 patients who passed the 8-gram challenge to abstain from milk and return for follow-up challenges one week and six weeks later. Six of the 15 children had allergic reactions after abstinence two of them within only a week.

Still, even children who had a relapse did so only after consuming much higher doses of milk than before treatment about a cup, compared with a teaspoon of it before the study. Importantly, all children in the OIT group, whether or not they passed the final food challenge, successfully introduced milk in their daily diets, including up to a cup of ice cream or a whole slice of cheese pizza, both of which contain significant amounts of milk protein.

"It is encouraging to know that children who in the past might have suffered violent reactions to microscopic amounts of milk now have no reactions or only mild reactions to a much higher dose and that their quality of life can improve dramatically," said lead investigator Corinne Keet, M.D., M.S., a pediatric allergist at Hopkins Children's Center. The investigators warn that both therapies can lead to serious allergic reactions and neither should be tried without close medical supervision.

Medical News Today 07 Dec 2011



40% of Cancers Avoidable, UK Research

New research from a leading charity, Cancer Research UK, suggests that around 40% of all cancers are avoidable. More than 100,000 cases of cancer diagnosed in the UK each year can be directly attributable to cigarettes, diet, alcohol and obesity, and this figure rises to 134,000 when taking into account over a dozen lifestyle and environmental risk factors, according to a review published as a series of research papers in a supplementary 6 December issue of the *British Journal of Cancer*.

"Looking at all the evidence, it's clear that around 40% of all cancers are caused by things we mostly have the power to change," says Professor Max Parkin, a Cancer Research UK epidemiologist based at Queen Mary, University of London.

This new review of cancer and lifestyle in the UK is the most comprehensive undertaken, according to a statement from the charity. It shows that smoking is by far the greatest culprit, causing some 23% of cancers in men and 15.6% in women.

Parkin says many people believe cancer is in the genes, and it's down to fate whether you are going to develop it or not, but this is not what they found. And they came across some unexpected surprises: "We didn't expect to find that eating fruit and vegetables would prove to be so important in protecting men against cancer. And among women we didn't expect being overweight to have a greater effect than alcohol," says Parkin.

Parkin and colleagues found that of the 158,700 cancers diagnosed in men each year, the top six risk factors impacted as follows (numbers of cases rounded up to the nearest 100):

- Tobacco use: 23% (36,500 cases).
- Lack of fruit and vegetables; 6.1% (9,600 cases).
- Occupation (eg exposure to asbestos): 4.9%. (7,800 cases).
- Alcohol use: 4.6% (7,300 cases).
- Overweight and obesity: 4.1% (6,500).
- Too much exposure to sun/sunbeds: 3.5% (5,500).

Of the 155,600 cancers diagnosed in women each year, the top six risk factors were:

- Tobacco use 15.6% (24,300 cases).
- Overweight and obesity 6.9% (10,800 cases).
- Infections (eg human papillomavirus, HPV) 3.7% (5,800 cases).
- Too much exposure to sun/sunbeds: 3.6% (5,600).
- Lack of fruit and vegetables; 3.4% (5,300 cases).
- Alcohol use: 3.3% (5,100 cases).

Because most cancers have more than one cause (for instance cervical cancer can be linked to smoking and HPV infection), when you add up the percentage of cases that each factor contributes to, you will find it comes to more than 100%. Parkin and colleagues said when you add up the percentage of cancers that are linked to one or more of the 14 lifestyle and environmental risk factors you get a total of 42.7% (134,000 cases) for men and women, which breaks down to a figure of 45.3% (72,000) for men, and 40.1% (62,000) for women.

Sara Hiom, director of information at Cancer Research UK, tells the press the charity doesn't want people to feel guilty about indulging a bit more than usual and having a drink at Christmas, and acknowledges it can be hard to limit food and alcohol at this time: "But it's very important for people to understand that long term changes to their lifestyles can really reduce their cancer risk," she urges.

Leading a healthy lifestyle is no guarantee that you won't get cancer, but this review shows how we can vastly reduce the odds, says Dr Harpal Kumar, the charity's chief executive. "Stopping smoking, eating a balanced diet, cutting down on alcohol and maintaining a healthy weight could be New Year's resolutions that help save more lives in future," says Kumar.

In a separate science blog on their website, the charity lists the 14 lifestyle and environment factors, together with some information and advice. Here is a summary:

1. Tobacco use: although rates have fallen dramatically in recent decades, with lung cancer rates plunging too, smoking rates in the UK have stuck at a stubborn 22%. The charity is calling for plain packaging as a key strategy to stop future generations from picking up the habit through brand seduction.
2. Overweight and obesity: despite being a significant cause of cancer, in a recent survey the charity found only 3% of people are aware that keeping to a healthy weight can reduce their cancer risk.
3. Fruit and vegetables: too many people in the UK are failing to eat their recommended 5 portions of fruit and vegetables per day, thus leaving themselves short of the essential vitamins, minerals and fibre

their bodies need for healthy functioning. Relying on supplements is not the answer and in some cases causes more harm than good.

4. Alcohol use: you don't have to cut it out completely, but the less you consume, the lower your risk of cancer. Try tracking your consumption to see what the pattern is, and where you can cut down (eg where it is habitual).
5. Occupation: some jobs make it more likely that you will be exposed to chemicals or practices that put you at higher risk for cancer. If you have any concerns, then talk to your manager or get in touch with the authorities (eg the Health and Safety Executive in the UK).
6. Exposure to the sun and sunbeds: too much UV light from either of these sources is the main cause of skin cancers. Rates of melanoma, the deadly form, are rising rapidly. Reduce your risk of sunburn and get SunSmart.
7. Infections: in the UK, human papillomavirus, or HPV, which causes cervical cancer, is behind the most cancers in the UK, followed by *Helicobacter pylori*, which causes stomach cancer. Rates of cervical cancer are expected to fall as more girls are vaccinated for HPV.
8. Red meat (eg fresh or minced or frozen beef, pork, lamb, veal) and processed meat (eg salami, bacon, ham, sausages): eating small amounts should not increase risk of bowel cancer, but it is best to limit intake to no more than twice a week.
9. Radiation: we are all exposed to this from our environment, and from space, but occasionally we get higher doses from undergoing X-rays, radiotherapy or traveling in aircraft.
10. Fibre: the benefit of fibre is that it helps speed up the passage of food through the digestive system, thus minimizing the time that cancer-causing chemicals in the food spend in contact with the wall of the gut, which in turn reduces the risk of bowel cancer.
11. Exercise and physical activity: not only does this help you maintain a healthy weight, it also directly affects cancer risk. You don't have to be an athlete: 30 minutes of moderate activity on 5 days a week, is enough to make a significant difference. And even if those 30 minutes are from short bursts over the day, it has the same benefit.
12. Breastfeeding: if you can breastfeed, this will reduce your risk of breast cancer, especially if you can maintain it for 6 months.
13. Salt: high-salt diets increase the risk of stomach cancer, as does smoking and the common bacterial infection, *Helicobacter pylori*.
14. Hormone Replacement Therapy (HRT): may help reduce some of the uncomfortable symptoms of the menopause, such as hot flashes and mood swings, but it can also increase the risk of cancer. Talk to your doctor if you are thinking of starting or stopping HRT.

07 Dec 2011 Medical News Today



Low Vitamin C Levels Due To Smoke And Poor Diet In India's Elderly Population

Up to three quarters of elderly people in parts of India have vitamin C deficiency, a study by the London School of Hygiene & Tropical Medicine found. Vitamin C is an essential nutrient for human health, playing a role from maintenance and repair of tissues to antioxidant activities. This study is the first ever large screening of vitamin C blood levels in the older Indian population.

Vitamin C deficiency is primarily due to a diet which is low in fruit and vegetables. Vitamin C blood levels can also be depleted by smoking or chewing tobacco and cooking with fuels such as wood crops or dung (used by 70% of the rural population). One of the effects of tobacco and inhaling fumes from home or cooking fires is oxidative stress (which can cause damage to cells) and the body uses vitamin C to combat this.

The study, coordinated by Professor Astrid Fletcher of the London School of Hygiene & Tropical Medicine in collaboration with Aravind Eye Hospital Pondicherry and the All India Institute for Medical Sciences in Delhi, has been published in *PloS One*.

The research, funded by the Wellcome Trust, highlights marked differences between the study locations in the north and south of the country, although in both regions the percentages of vitamin C deficient people over 60 years of age were extremely high, with 74% in the north and 46% in the south. Only 11% and 26% respectively, met the criteria for adequate levels. Vitamin C levels were also found to vary seasonally, in conjunction with the

monsoon months, thought to reflect the lower intake of fruit and vegetables.

The large population-based study involved over 5000 people aged 60 years or over from rural villages and small towns and included interviews about their diet, blood analysis and malnutrition assessments.

DrRavindran, principal author of the study said " while much attention has focused on increasing levels of obesity in India, the problem of poor nutrition in the older population has received much less attention even though India has one of the fastest growing older populations. In poor communities, such as in our study, consideration needs to be given to measures to improve the consumption of vitamin C rich foods, and to discourage the use of tobacco and biomass fuels".

Medical News Today08 Dec 2011



Evaluation Method Supports Soy Protein As A High-Quality Protein Similar To Meat, Eggs And Dairy

The importance of protein in the human body is undeniable. However, the idea of what makes a protein a "quality protein" has not been as easy to determine. A new study from the *Journal of Agriculture and Food Chemistry* takes a closer look at the criteria for determining the quality of a protein.

Traditional methods for determining protein quality have shown animal proteins such as milk and eggs to be high in quality. However, those who are interested in a plant-based diet, or diversifying their proteins, have a more difficult time determining which of their choices are high in quality. Testing methods have shown most plant proteins, such as pea protein, are lower in quality than animal-based proteins.

"Accurate methods for determining protein quality are key to helping people plan a healthful diet," said Glenna Hughes, MS, research scientist at Solae. "Due to the increasing interest in including plant-based proteins in the diet, accurate information on protein quality is needed in scientific literature to help educate consumers and healthcare professionals on this topic."

The Food and Agriculture Organization (FAO) and the World Health Organization (WHO) recommend using the protein digestibility-corrected amino acid score (PDCAAS) as a simple and scientific procedure for assessing protein quality. The PDCAAS methodology focuses on three different parameters: the amount of each essential amino acid the protein contains, how easily the protein can be digested, and by taking both of those parameters into account, whether the protein meets the FAO/WHO's amino acid requirements set for children aged two to five years, as they have higher needs to support growth and development than adults.

According to this study, soy protein has a PDCAAS of 1.00, meaning it is a high-quality protein that meets the needs of both children and adults. Eggs, dairy and meat proteins also have a PDCAAS score of 1.0.

However, soy protein is the only widely available high-quality plant-based protein that achieves this score.

"It's important for people to understand that a plant-based diet is healthy, but that not all proteins are created equal," said Connie Diekman, RD, LD, FADA. "If you are planning a vegetarian diet or want to incorporate plant-based proteins in your diet, understanding protein quality using the PDCAAS scale can allow you to select proteins that score higher, such as soy, to ensure that you are getting the essential amino acids you need."

Medical News Today08 Dec 2011



Stroke Risk Driven By Diet Quality And Overeating, Rather Than Individual Nutrients

A review published in the special stroke issue of *The Lancet Neurology* says that many of the numerous studies on stroke prevention have been based on unreliable evidence. The same applies to headlines that have highlighted potential benefits of specific nutrients and foods. According to researchers, the risk of stroke is more likely to be predicted by dietary patterns and excess energy intake, i.e. overeating.

Graeme Hankey from the Royal Perth Hospital in Perth, Australia explains:

"The overall quality of an individual's diet (i.e. dietary pattern) and balance between energy intake and expenditure seem to be more important determinants of stroke risk than individual nutrients and foods."

Hankey argues that even though the benefits of fighting the two main nutritional threats, such as over-consumption of calories and salt, are well known risks that cause stroke, legislation and policies addressing the obesity and salt epidemics are nowhere near enough widespread.

Worldwide, there are currently approximately 1.46 billion overweight adults and 170 million overweight children, two-thirds of adults being in the USA. Unless the obesity epidemic is reversed, there will be a 60% clinically obese rate among men and 50% among women in the UK by 2050.

The third most common cause of mortality in developed countries is stroke, and with only limited treatment being available, it is important to prevent the risk of stroke by modifying its risk factors, such as unhealthy eating behavior. Even though it is a well-known fact that malnutrition and over-consumption of calories increase the risk of stroke, researchers have little knowledge about which particular nutrients and foods affect the risk of developing stroke.

This could be due to the fact that there are almost no randomized trials, which provide reliable evidence, and the few that have been carried out indicate that dietary supplements, such as antioxidant vitamins, B vitamins, and calcium do not lower the risk of stroke, but could actually increase the chance of a heart attack and mortality. Another explanation is that the majority of studies evaluated stroke as a single outcome, meaning that important effects of foods, nutrients, beverages, and dietary patterns on different types of stroke may have been overlooked.

Data from observational studies that do not prove cause and effect, and are therefore less reliable indicate that the risk of stroke could be reduced by low-salt - and low sugar diets that are high in potassium or other diets, such as the Mediterranean diet, which is rich in vegetables, fish, fruit, nuts and whole grains.

Hankey declares:

"Further research...to accurately assess and understand the role of nutrition in the causes and consequences of stroke will be crucial in developing and implementing strategies to minimize the global burden of stroke."

He argues that in the meantime, cutting salt intake and reducing obesity must be viewed as a critical health priority, saying:

"Unlike the tobacco and cardiovascular disease epidemic, the obesity and salt epidemics have not been reversed by public health interventions and policies aimed at individuals to change personal choice and behavior."

There have to be more improvements in public awareness in terms of food and behaviors relating to food. Targets for nutritional contents in processed foods and standards for food labeling must be set and enforced.

According to Hankey there is growing evidence that enforcing salt targets for foods could prove to be highly cost effective, for example; in the USA, if the entire population would make a small reduction of just 3g per day, the annual number of new stroke incidents could be reduced by 32,000 to 66,000.

In a concluding statement Hankey says:

"The potential effects of adopting a healthy diet policy on population health, agricultural production, trade, the global economy, and livelihoods is likely to be substantial in some countries, and the effects could be realized sooner than we think".

14 Dec 2011 Medical News Today



Dietary Fibers from Algae Help Weight Loss

Researchers at the Faculty of Life Sciences (LIFE) at the University of Copenhagen have established that dietary fibers from brown algae boosts the body's sensation of satiety, so that people eat less and lose more weight.

Earlier studies have demonstrated that a fiber-rich diet is easier for maintaining weight. Researchers at the University of Copenhagen have now discovered in a new PhD project that alginates (dietary fibers) from brown algae, are superb at creating an 'artificial feeling of fullness' in the stomach.

Scientists have categorized the numerous different types of seaweed into three main groups, such as brown algae (*Phaeophyceae*), red algae (*Rhodophyta*) and green algae (*Chlorophyta*). The researchers of this study based their study primarily on palm seaweed fibers obtained from the brown algae.

PhD student Morten Georg Jensen says:

"Over a three-year period, we have studied the effect of taking different alginate doses. We are able to demonstrate that the healthy subjects who took alginates and were also allowed to eat as much as they wanted felt less hungry and ate less than the subjects not drinking fiber drinks with alginates."

Jensen and his team conducted a 12-week study involving 96 overweight men and women. They assigned 48 participants to consume a specially designed drink containing alginates three times daily before each main course, whilst the other 48 received drinks containing placebo without alginates. The drinks were administered as a supplement to an energy-reduced diet.

They discovered that of the 80 participants who completed the study, those in the alginate group achieved a significantly greater loss of weight loss on average, i.e. 1.7 kg, compared with participants in the placebo group. This weight loss has been primarily achieved because of a reduction in body fat percentage.

Jensen explained:

"A probable explanation of the weight loss is that the alginates form a gel in the stomach which strengthens the gastrointestinal satiety signals to the brain because the gel takes up space in the stomach. The overweight subjects thus ate less than usual."

Easy 24/7 access to unlimited quantities of energy-rich food is partly responsible for the growing epidemic of obesity. To tackle this problem it is necessary for scientists to conduct more research and develop new dietary measures.

Morten states:

"Eating more than you burn results in a body energy imbalance, which may lead to weight gain in the long term. It is therefore crucial that new dietary measures improve appetite control and limit our food intake."

The researchers anticipate that their findings may open the doors for new treatment options for those who are overweight. Researchers have developed the special fiber drink containing alginates in collaboration with the biotech company S-biotek, but until now such fiber drinks are not yet available on the market.

Morten Georg Jensen will be presenting his PhD thesis, *Effect of alginate fiber supplementation in regulation of appetite, body weight and metabolic risk factors*, on Wednesday 14 December 2011 at 1 pm at the Faculty of Life Sciences, lecture hall A1-01.01., Bülowsvej 17, 1870 Frederiksberg C.

15 Dec 2011 Medical News Today



Caffeine Study Shows Sport Performance Increase

Caffeine combined with carbohydrate could be used to help athletes perform better on the field, according to new research by a sport nutrition expert.

Mayur Ranchordas, a senior lecturer and performance nutritionist at Sheffield Hallam University, carried out studies on footballers using caffeine and carbohydrates combined in a drink. Along with improvements in endurance caused by ingesting carbohydrate, the athletes' skill level improved after taking caffeine and carbohydrate together.

Mayur said: "There is already plenty of research that shows that caffeine and carbohydrate improve endurance, but this study shows that there is also a positive effect on skill and performance.

"We carried out three different soccer-specific match simulations of 90 minutes each two 45 minute sessions that tested agility, dribbling, heading and kicking accuracy. The test was designed to mimic a football game where the participants had to carry out multiple repeated sprints, dribble the ball around cones and shoot accurately.

"We found that the combination of carbohydrate and caffeine allowed players to sustain higher work intensity for the sprints, as well as improving shooting accuracy and dribbling during simulated soccer activity.

"These findings suggest that, for athletes competing in team sports where endurance and skill are important factors, ingesting a carbohydrate and caffeine drink, as opposed to just a carbohydrate drink, may significantly enhance performance. Our findings suggest that soccer players should choose a carbohydrate caffeine drink over a carbohydrate drink to consume before kick off and at half-time."

Medical News Today 15 Dec 2011



Vitamin D Research Shows Fracture Reduction, Limited Effects on Cancer

Nutraceuticals World December 27, 2011

New research published in the *Annals of Internal Medicine* supports the efficacy of vitamin D and calcium to reduce the risk of fracture. However, the same study concluded evidence is lacking regarding the benefits of vitamin D supplementation for the prevention of cancer.

This analysis examined the benefits and harms of vitamin D with or without calcium supplementation on clinical outcomes of cancer and fractures in adults.

Studies examined included randomized, controlled trials (RCTs), prospective cohort studies, and nested case-control studies reporting incidence of or death from cancer and fracture outcomes; 19 RCTs (3 for cancer and 16 for fracture outcomes) and 28 observational studies (for cancer outcomes) were analyzed.

According to the study, limited data from RCTs suggested that high-dose (1000 IU/d) vitamin D supplementation can reduce the risk for total cancer, and data from observational studies suggested that higher blood 25-hydroxyvitamin D (25-[OH]D) concentrations might be associated with increased risk for cancer.

Mixed-effects dose–response meta-analyses showed that each 10-nmol/L increase in blood 25-(OH)D concentration was associated with a 6% (95% CI, 3% to 9%) reduced risk for colorectal cancer but no statistically significant dose–response relationships for prostate and breast cancer. Random-effects model meta-analysis showed that combined vitamin D and calcium supplementation reduced fracture risk (pooled relative risk, 0.88 [CI, 0.78 to 0.99]) in older adults, but the effects differed according to study setting: institution (relative risk, 0.71 [CI, 0.57 to 0.89]) versus community-dwelling (relative risk, 0.89 [CI, 0.76 to 1.04]). One RCT showed adverse outcomes associated with supplementation, including increased risk for renal and urinary tract stones.



Vitamins and Omega 3s Linked to Better Cognitive Function

Higher levels of vitamins and omega 3 fatty acids were tied to better cognitive function and brain volume in elderly subjects, according to [research](#) published in *Neurology*, the journal of the American Academy of Neurology.

Researchers examined the cross-sectional relationship between nutrient status and psychometric and imaging indices of brain health in dementia-free elders.

Thirty plasma biomarkers of diet were assayed in the Oregon Brain Aging Study cohort (n = 104). Principal component analysis constructed nutrient biomarker patterns (NBPs) and regression models assessed the relationship of these with cognitive and MRI outcomes.

Mean age was 87 ± 10 years and 62% of subjects were female. Two NBPs associated with more favorable cognitive and MRI measures: one high in plasma vitamins B (B1, B2, B6, folate, and B12), C, D and E, and another high in plasma marine omega 3 fatty acids. A third pattern characterized by high trans fat was associated with less favorable cognitive function and less total cerebral brain volume. Depression attenuated the relationship between the marine omega 3 pattern and white matter hyperintensity volume.

Authors concluded that distinct nutrient biomarker patterns detected in plasma account for a significant degree of variance in both cognitive function and brain volume. Objective and multivariate approaches to the study of nutrition in brain health warrant further study. Findings should be confirmed in a separate population, they added.

Nutraceuticals World December 28, 2011



Regulatory News

Total viable count method certified for raw meat, poultry

MicroVal has validated and certified the *GreenLight* total viable count (TVC) method for raw meats and poultry. This method automatically detects microbial contamination in food and beverage samples. Based in The Netherlands, MicroVal validates and certifies alternative microbiological analysis methods according to EN-ISO 16140.

GreenLight sensor technology was developed by Luxcel Biosciences and has been marketed in the United States by MOCON Inc. since 2010. The methodology was developed to provide precise, same-day results in a cost-effective manner. Depending on the bacterial load, results can be obtained between minutes and 12 hrs. This is more than 10 times faster than the traditional agar plate or film methods, which typically require 48–72 hrs to achieve a meaningful microbial count.

As part of the MicroVal certification process, the microbial contamination methodology was tested at eight independent laboratories in five different European countries.

“After a successful launch in the United States, the MicroVal certification will now enhance our ability to market *GreenLight* series instrumentation across Europe. The rigorous independent testing that this methodology has gone through over the past two years, gives European food processors the confidence to convert to faster, more efficient technology,” said Richard Fernandes, CEO, Luxcel Biosciences Ltd.

IFT Newsletter Nov 30, 2011



EU approved the first Yeast-derived beta-glucan as Novel Food

Health ingredients firm Biothera has been granted novel foods approval in the EU for its immune health ingredient yeast beta-glucan and said there were prospects for manufacturers in a variety of food formulations. Manisha Upadhyay of UK's Food Standards Agency told, “An application for incorporation of beta glucans from *Saccharomyces cerevisiae* into a range of foods, and supplements has been assessed under the EU novel foods regulation.”

“All member states voted in favour approval at the Standing Committee meeting in October 2011, but the authorization decision has not yet been published,” she said. Biothera made the application for EU approval following success in supplying the ingredient to food manufacturers in the US, Canada and South America. The ingredient has GRAS status in the US and has been approved as a novel food in China. Manufacturers are already using the beta-glucan outside the EU.

“The compound is very stable and can withstand the processing temperatures and pressure in any food environment. It also has a very long shelf life,” said Richard Mueller, Biothera President and CEO. He added that the ingredient would not affect the efficacy of the product or taste and said no manufacture using the ingredient had needed to change processing procedures thus far.

AIFPA E-Newsletter December 2011



NPA Submits NDI Comments to FDA

The Natural Products Association (NPA), Washington, D.C., has submitted extensive comments to FDA in response to the agency's draft guidance on New Dietary Ingredients (NDIs).

“In this draft guidance, FDA significantly oversteps the authority given to it by Congress in DSHEA,” said NPA executive director and CEO John Gay. “Therefore, a substantial rewrite of the guidance is necessary.”

“Congress set appropriate parameters regarding the safety of new dietary ingredients, and NPA supports those safety measures. Unfortunately, this draft guidance goes well beyond what was envisioned by Congress,” said NPA vice president for Scientific and Regulatory Affairs Dr. Cara Welch. “To cite just one example, the draft

guidance sets up a de facto food additive safety standard, which directly contravenes the intent of Congress in DSHEA.”

Added Mr. Gay, “Through DSHEA, Congress envisioned a system that would allow products already on the market to remain available to the consumer while creating a reasonable mechanism for new ingredients to enter the market. The draft guidance does neither. Rather, it proposes an NDI process that would result in dampened innovation, more expensive and fewer products and excessive paperwork, robbing the industry and FDA of scarce resources. The overall impact would be felt by customers, retailers, and suppliers alike, hitting small businesses especially hard.”

“The industry needs clarity for the rules governing the NDI process, but those rules must be consistent with DSHEA. Our comments provide the FDA with the information needed to achieve that goal, and NPA stands ready to work with the FDA on this important task,” said Mr. Gay.

Nutraceuticals World December 1, 2011



Opinions Still Mixed on Article 13.1 Health Claims Process

Consensus among academics, scientists, authorities and the food supplement sector on the assessment of article 13.1 health claims is still a long way off, but opportunities for more dialogue have opened up, European trade association EHPM has said.

Commenting at the conclusion of a two-day food supplement conference in Berlin last week (December 8-9), EHPM said the event highlighted the still hugely diverging opinions on the interpretation of the EU Nutrition and Health Claims Regulation’s claims assessment requirements, but welcomed the invitation from the European Food Safety Authority (EFSA) for more dialogue to take place involving the different interested bodies.

The event focused heavily on health claims, with issues raised by representatives of the European food supplement industry regarding the discrepancy in understanding of recital 26 of the regulation, which states that article 13.1 claims should undergo a different assessment to article 13.5 and 14 claims.

Professor David Richardson, scientific adviser to the U.K. Council for Responsible Nutrition and speaker at the event, also stressed the regulation’s reference to assessment based on the totality of the available data, highlighting that the legislation requires an assessment of the weight of the evidence and the “extent to which” the cause and effect can be assessed, a procedure that many in the food sector have argued has not been followed for article 13.1 claims.

“The reference to the ‘extent to which’ a cause and effect can be assessed is to me an assessment of whether it is strong, moderate or weak,” said Professor Richardson. “This type of assessment is helpful for regulators too, as it is a thorough basis upon which they can base their decisions. However, EFSA requires conclusive evidence. This is a challenge for the scientific community as a whole, because to get conclusive evidence of anything is very difficult.”

European trade association EHPM agreed, reiterating its argument for EFSA to assess the strength, consistency and biological plausibility of the evidence in a similar way to the diet and health relationships assessed by the World Health Organization and the World Cancer Research Fund.

“The regulation does not require a focus on conclusive evidence of cause and effect and this requirement is not proportionate legally or scientifically,” said EHPM Chairman Peter van Doorn. “The legislation requires a scientific assessment of the highest possible standard but this standard cannot be automatically associated with the EFSA interpretation for conclusive proof of cause and effect and simple yes or no opinion. What we need is a transparent and proportionate scientific and regulatory framework for assessing the weight of the totality of the evidence in support of a beneficial nutritional and/or physiological effect. This is an argument that we have brought to the table since the regulation’s terms of reference was published years ago.”

EHPM recently submitted a complaint to the European ombudsman arguing that the assessment of article 13.1 claims is not in accordance with the requirements of the EU Nutrition and Health Claims Regulation.

Nutraceuticals World December 13, 2011



Food Science & Industry News

Soft drinks market focuses on health and innovation

The global soft drinks industry continues to develop in new directions, with health driving the market to an ever-greater degree. Manufacturers are increasingly reformulating their products to reduce sugar and fat levels, as well as removing artificial ingredients and additives to cater towards the desire for more natural drinks.

Those are among the conclusions of a report recently published by Leatherhead Food Research, which also notes that other growth areas include ready-to-drink (RTD) tea and coconut water – 47 new coconut water drinks were launched in 2010, up from 20 in the preceding year, although sales remain in their infancy across most parts of the world.

The report also notes the growing use of functional ingredients such as aloe vera, Coenzyme Q10 (CoQ10) and natural protein collagen in order to provide soft drinks with increased health appeal as well as appearance-improving properties.

Leatherhead estimates that the world soft drinks market is to be worth \$447 billion, of which carbonates account for 43%, fruit juices and drinks 21% and sports/energy drinks 8%.

Increasing overlap between sectors

The report also notes that an overriding trend is becoming apparent in the world's soft drinks market: the increasing overlap between sectors. Many colas are now occupying a similar position to energy drinks, for example (on account of a higher caffeine content), while some functional bottled waters are actively competing against sports drinks.

Broadly speaking, the trend towards healthier beverages is expected to continue, says the report, especially since many of the industry's leading suppliers appear to be committed towards improving the perceived health and nutritional qualities of their drinks.

Ingredients Network 20 December 2011



Shedding Light On Why It Is So 'Tough' to Make Healthier Hot Dogs

In part of an effort to replace animal fat in hot dogs, sausages, hamburgers and other foods with healthier fat, scientists are reporting an advance in solving the mystery of why hot dogs develop an unpleasant tough texture when vegetable oils pinch hit for animal fat. A report on their study appears in ACS' *Journal of Agricultural and Food Chemistry*.

Anna M. Herrero and colleagues explain that some brands of sausage (frankfurters) have been reformulated with olive oil-in-water emulsion as a source of more healthful fat. With consumers gobbling up tens of billions of hot dogs annually, and the typical frankfurter packing 80 percent of its calories from fat, hot dogs have become a prime candidate for reformulation. Some hot dogs reformulated with vegetable oil develop an unpleasant chewy texture. Herrero's team set out to uncover the chemistry behind that change with an eye to guiding food companies to optimize low-fat sausage manufacture.

Using a laboratory instrument called an infrared spectrometer (IR spectrometer) they verified that sausages made with heart-healthy olive oil-in-water emulsion stabilized with casein were slightly tougher. However, when frankfurters were elaborated with an emulsion stabilized with a combination of casein and microbial transglutaminase (to help the oil blend in better) the sausage became much tougher. The IR spectrometer revealed that the proteins and fats in low-fat cooked derivatives formulated with this stabilizer system as animal fat replacer showed weak lipid-protein interactions, which implies more physical entrapment of the emulsion within the meat matrix. This fact could explain why those sausages are tougher than the others.

ScienceDaily (Dec. 7, 2011)



Whole Grains Most Sought After Health Claims On Food Packages

Grocery Shopper Trends report whole grains are now the most sought after health claims on food packages, followed closely by claims about dietary fiber. In the December 2011 issue of Food Technology magazine, published by the Institute of Food Technologists (IFT), contributing Editor A. Elizabeth Sloan writes about the latest whole grain trends in food.

The number of whole grain products has increased nearly twenty-fold between 2000 and 2010 according to Mintel's Global New Products Database. More consumers look for the "100 percent whole wheat" descriptor on foods, more than they look for "a full serving of vegetables or fruit" notes Technomics Inc.'s 2010 Healthy Eating Consumer Trend Report.

In conjunction with U.S. shoppers caring more about whole grains and fiber in their food, according to a 2009 Kellogg's survey more than one-third of adults were eating whole grains simply because they enjoyed the taste. In addition to taste, HealthFocus International reported last year that 37 percent of consumers are interested in whole grains for reducing the risk of cancer, 36 percent for both weight management and heart health, and 35 percent to reduce the risk of Type 2 diabetes.

Restaurants are also beginning to feature more exotic rice, ancient grains, and other lesser known grains in everything from salads to cocktails. "Hot" items for 2011 included black/forbidden rice, quinoa, and red rice according to American Culinary Federation Chefs surveyed by the National Restaurant Association. Ancient grains like lamut, spelt and amaranth as well as flatbreads like naan, pappadum, lavash, pita and tortilla as top the trendy ingredient charts.

Medical News Today 19 Dec 2011



How to Cut Calories With Fast Foods

With today's hectic schedules, individuals often eat at fast food joints due to convenience. Although fast food joints are packed with tempting colorful signs, those watching their weight can still order healthier alternatives. Dr. Jessica Bartfield, who specializes in nutrition and weight management at Gottlieb Memorial Hospital, part of Loyola University Health System, explained:

"The average American consumes close to 50% of his or her meals outside of the home and fast-food restaurants are abundant. By following a few rules, you can keep any fast food meal in calorie check."

Dr. Bartfield likes sandwich shops that allow customers to fill their sandwich with a variety of vegetable toppings, which adds nutritional value, while having the option to stay clear of higher-calorie ingredients like dressings and cheese. He explained:

"I am also a fan of fast-food places that offer soup or even chili as soup can be a terrific option, particularly ones loaded with veggies, lean meats and beans. Be careful to avoid the cream- or cheese-based soups and beware of the bread bowl, which can increase the calories by up to 1,000."

Dr. Bartfield's Fast-Food Tips:

- "Select grilled rather than fried. A fast-food grilled chicken sandwich has 470 calories and 18 grams of fat while the fried version has 750 calories and 45 grams of fat.

- Hold off on cheese, mayonnaise and salad dressings unless low-fat options are available. Cheese can add an additional 100 calories or more per serving, as does mayonnaise and, often, you won't miss the taste when ordering the plainer versions.
- Order the smallest size available. Go for the single burger rather than the double and for the small fry rather than bonus-size.
- Skip sugar-sweetened drinks, which are usually absent in nutritional value and don't make you feel more satisfied. These calories quickly add up leading to excessive calorie consumption, especially at restaurants offering free refills on drinks.
- Save half of your order for your next meal. You save calories, save time and also save money."

19 Dec 2011

Medical News Today



Ingredients Derived from Nature Helping Processed Foods Taste Satisfying

Alginates are polysaccharides derived from brown seaweeds. They are used for thickening, stabilizing, gelling, and film forming in foods such as cream and fruit fillings, salad dressings, ice cream, low-fat spreads, restructured meats, and yogurt.

Carrageenans are carbohydrates extracted from red seaweeds. Used for gelling, thickening, and stabilizing, they are often found in ice cream, coffee whiteners, cottage cheese, and low- or no-fat salad dressings. They are also used to suspend cocoa in chocolate milk.

Microcrystalline cellulose is a purified, partially depolymerized cellulose derived from tree pulp. It forms a stable gel that provides creaminess and cling to salad dressings, sauces, batters, fillings, icings, and low-fat sour cream. It prevents fried foods from becoming soggy and helps stabilize whipped toppings and chocolate drinks.

Methylcellulose and hydroxypropyl methylcellulose are derived from tree pulp. They provide thermal gelling properties that reduce oil uptake in fried foods and improve the texture of meat alternatives. They can be used to improve the “mouth feel” of sugar-free beverages and reduce milk fat in whipped toppings and desserts. A new use is to help trap air in gluten-free foods.

Cellulose gum, or carboxymethylcellulose, is made from fibers removed from tree pulp and cotton. It helps retain moisture in frozen dough, tortillas, and cakes and reduces fat uptake in doughnuts. It stabilizes proteins in protein drinks and replaces texture lost when reducing sugar in beverages. Cellulose gum adds viscosity, flow, and glossy appearance to low-fat sauces.

Gelatin is derived from the collagen in pig and cattle skins and bones. It is used as a gelling agent, stabilizer, thickener, and texturizer in desserts, yogurt, and low-fat foods.

Guar gum, a polysaccharide, comes from the seeds of the guar gum bush, *Cyamopsis tetragonolobus*, which is an annual leguminous plant that originated in India. As a thickener, it is eight times more powerful than cornstarch. It controls moisture and adds texture to baked goods. It also controls viscosity in dairy drinks, salad dressings, and condiments.

Pectin is extracted from the peels of citrus fruits and from sugar beets. It is used for gelling, thickening, and stabilizing food. Pectin derived from sugar beets does not form a gel but is used for stabilizing and emulsifying. Pectin is used in jams, jellies, fillings, and confectioneries. It can also be used to thicken and stabilize fruit- and milk-based beverages.

Starch is generally derived from corn, potatoes, or tapioca. Food makers use both native and modified versions. Starch can be hydrolyzed into dextrins such as maltodextrin. Starches are used as thickeners, stabilizers, and fat replacers in puddings, sauces, and salad dressings. They are often added to grain-based foods such as breads, cereals, tortillas, and pasta.

Xanthan gum is made by industrial fermentation of sugar by the bacteria *Xanthomonas campestris*. Used in small amounts, it adds viscosity and cling to salad dressings and sauces. It is also used in egg substitutes and in gluten-free baking.

Chemical & Engineering News October 31, 2011

