PFNDAI Bulletin April 2010

Editorial

It is distressing to learn that there is an increasing number of fitness and weight reduction centres coming up in cities, metro as well as smaller, which are trying to make a quick buck by grabbing the opportunity of lifestyle disease using means that are not above the board. People have a lot of money but no time to get exercise or eat right and balanced diet. In addition they also have a lot stressful work environment, so they end up having all kinds of diseases like hypertension, obesity, cardiovascular diseases, type-2 diabetes etc. Part of the solution to this is weight management and exercise.

Even children have started having some of these problems as they spend too much of time either studying or watching TV or playing computer games rather than playing in the fields the physical games and sports. They also spend a lot of time and money in malls where they go to movies and shop and eat a lot of calorie dense foods. Since they do not put in enough of physical activities to burn the calories, they end up gaining weight which further makes it difficult as they then shun sports since they find it difficult to move about rapidly.

This problem is growing rapidly in cities where this opportunity is used by various fitness centres that now even guarantee weight reduction and their charges are as per your requirement of weight loss within stipulated time. There are some which make you work out the excess weight by regularly making you follow their plan of exercise and diet but then most of our rich and busy do not want the pains of both diet and workout and are looking for quick-fit solutions. This creates more opportunities which are in grey areas.

Some centres are said to provide fat dissolving substances or use some machines that will get rid of fat without you working out at all. We do not know whether there are some steroids involved which might affect the metabolism so utilisation of food for calories become very inefficient. There are also stories about machines which will make you perspire so when one weighs after the session there is measurable weight loss. Such gimmicks are at times harmful and might cause serious damage not to mention the cheating that is also going around.

It is claimed by some that when they went for weight reduction, they were weighed initially. Then they were put on some machine that would make them perspire a lot. After the session of about half an hour, they were weighed and shown that they had lost 300 or 500g of weight. This was mostly because of loss of body water so when they go home and drink water as they are thirsty, they would gain all that lost weight back. Next time they go to the centre, they are back to their original weight. There would be reprimands from the instructor, for bad eating at home to which this weight gain would be attributed. The clients would get frustrated thinking that in spite of the centre's best efforts they are unable to lose weight, so they would either give up the programme or starve themselves at home and would lose weight. The weight loss is because of starvation and not because of these machines which would only make you lose body water.

We are hoping that these are just stray incidents and not a general practice of most fitness centres. We also feel that it is time for our regulatory agencies to monitor the practices of these centres so no unprofessional practices are used to make the most of the opportunities that exist in this field. There were reports in the past of some dangerous substances were found in some centres after analysis by FDA. There were also some on-line marketing of certain exotic products with exaggerated claims. This was also curbed after intervention of FDA.

People are very gullible and they will always be after the magic cure or solution which does not involve too much of efforts. Money nowadays is less of a problem for many of them so such shady operators will find field open for easy money. People have to be careful and should not fall prey to these tricksters. Weight loss although could be enhanced by modern techniques, there are limits. Such drastic invasive techniques like liposuction and

stomach stapling might be necessary in some cases but most people should have a little more patience and consult their family doctors or dieticians and try to gradually workout excess weight along with diet control that would not only be safe but would lead to healthier life after weight loss. Our association hopes to create awareness in this area also.

We welcome our new members namely, Novozymes South Asia, Keva Industries & Jagdale Industries. We hope that they have a long and fruitful association with us.

With season's greetings
Prof. Jagadish S. Pai
Executive director
(executivedirector@pfndai.org)

Vitamin A: Vitamin of Vision

By Prof. Jagadish S. Pai

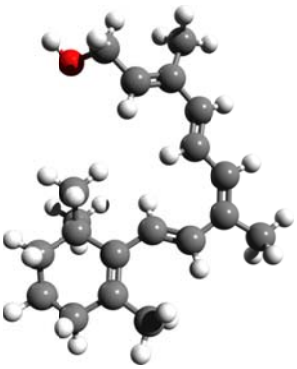
Vitamin A is among some very critical micronutrients whose deficiency is commonly seen in India and many other countries in Asia, Africa and South America. In children its deficiency causes blindness among other problems and in adults one common symptom is night blindness. It has many functions besides a healthy vision. It helps produce white blood cells, participates in bone structure, and helps maintain healthy endothelial cells and controls growth and multiplication of cells.

As there can deficiency of this vitamin, there can be problems with too much also. There is some evidence of too much of preformed vitamin A may increase the risk of hip fracture and certain birth defects besides possible interference with beneficial functions of vitamin D. Beta carotene does not seem to have these effects even at high levels of intake as body only converts enough to vitamin A as needed so it is not necessary to watch consumption.

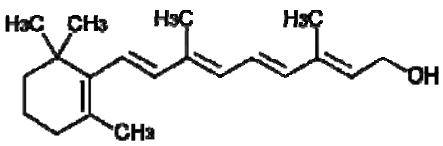
Deficiency of Vitamin A is a significant blindness and death, especially for children and pregnant and lactating women. The deficiency affects 250 million preschool children in over 100 countries and about 250,000 to 500,000 children lose sight and over half die within a year. The deficiency also increases the risk of death by malaria and measles. It is estimated that vitamin A deficiency contributes to the death of 1.2 to 3 million children each year. It is also estimated that about 7.2 million pregnant women in developing countries suffer from vitamin A deficiency so infants born to them will be in a compromised state.

India has among the highest vitamin A deficiency in the world, which is associated with the death of 330,000 children in India alone. Although vitamin A status has improved a survey by National Nutrition Monitoring Bureau shows still 57% Indian children were deficient in vitamin A in late 90s and the deficiency affects both rural and urban children. Thus vitamin A deficiency and the problems associated are still very common in India.

Forms of Vitamin A



Vitamin A is a generic term that includes a large number of related compounds. Retinol (an alcohol) and retinal (an aldehyde) are referred to as preformed vitamin A. Retinal can be converted to retinoic acid in body. All these three are known as retinoids whereas beta-carotene and other carotenoids are called provitamin A carotenoids as they could be converted to retinol.



Diagrams: Retinol (3D & chemical structures)

Functions of Vitamin A

Vitamin A plays an important role in vision, bone growth, reproduction and cell division and differentiation. It also helps in immune system which prevents or fights infections by making white blood cells. Vitamin A promotes healthy surface linings including that of eyes, respiratory, urinary and intestinal tracts. When these linings rupture bacteria gain entry into body causing infection. Vitamin A also helps skin and mucous membrane function. The more prominent functions are as follows

Vision: Light passes through the lens of the eye, it is sensed by retina, located at the back of the eye, which converts it to a nerve impulse for brain. Retinol is transported to retina and accumulates in retinal pigment epithelial cells where it is stored as retinyl ester. When needed it is hydrolysed to 11-cis-retinol and could be oxidised to 11-cis-retinal. This retinal shuttles across to rod cell, binds to

protein opsin to form visual pigment rhodopsin. Rod cells with rhodopsin can detect very small amounts of light, making them important for night vision. absorption of a light photon catalyses isomerisation to all-trans-retinal, which triggers a series of events, leading to generation of signal to optic nerve which the brain interprets as vision. All-trans retinal is then converted to all-trans-retinol and transported back to epithelial cell, completing the visual cycle. Inadequate retinol in retina results in impaired dark adaptation called “night blindness.”

Regulation of Gene Expression: Retinoic acid and isomers act as hormones affecting gene expression and so can influence many physiological processes. All trans and 9-cis retinoic acids are transported to cytoplasmic retinoic acid-binding proteins in the nucleus of cell where they bind to the specific receptors forming complexes. These complexes regulate the rate of gene transcription thereby influencing synthesis of certain proteins. Through stimulation and inhibition of transcription of specific genes, retinoic acid plays a major role in cellular differentiation.

Immunity: Vitamin A is required for normal functioning of immune system. The skin and mucosal cells of various tracts function as barrier and form body’s defence against infection. The vitamin and its metabolites are necessary to maintain the integrity and function of these cells. It also plays important role in the development and differentiation of white blood cells that play critical role in immune responses.

Growth and Development: Both excess and deficiency of vitamin A cause birth defects. Retinol and retinoic acid are essential for embryonic development, during which retinoic acid functions in limb development and formation of heart, eyes and ears whereas retinoic acid regulates expression of gene for growth hormone.

Among other things, red blood cells are derived from stem cells and these are dependent on retinoids for normal differentiation into red blood cells. Vitamin A deficiency may exacerbate iron deficiency anemia, so combined supplementation of vitamin A and iron seems to reduce anemia more effectively.

Vitamin A deficient rats when supplemented with retinoic acid show reversal of growth-stunting as well as xerophthalmia. However, such rats still show infertility and degeneration of retina, showing that these functions need retinal or retinol which are intra-convertible, but cannot be recovered from oxidised retinoic acid.

Vitamin A Deficiency

The deficiency is common in developing countries but it is often associated with strict dietary restrictions and excess alcohol intake in developed countries. Severe zinc deficiency, associated with strict dietary limitations, is seen with vitamin A deficiency as zinc is needed to make retinol binding protein that transports vitamin A from liver to body tissues. Night blindness is one of the early symptoms of vitamin A deficiency. Vitamin A deficiency contributes to blindness by making cornea very dry and damaging the retina and cornea.

Further, the deficiency diminishes the body’s ability of fight infections and millions of children die of complications of infectious diseases such as measles. In deficient individuals, cells lining the lungs lose ability to remove disease-causing bacteria contributing to pneumonia. According to WHO vitamin A deficiency is under control in developed countries but is a considerable concern among children in developing countries where WHO has implemented several initiatives for supplementation. Some strategies include combination of breast feeding, dietary intake, food fortification and supplementation and such efforts have averted over a million deaths due to vitamin A deficiency.

Vitamin A deficiency occurs as either primary or secondary deficiency. Primary deficiency occurs when children do not have adequate intake of vitamin A rich foods like vegetables, fruits and liver. Early weaning can also increase the risk of vitamin A deficiency. Secondary deficiency occurs due to chronic malabsorption of lipids, impaired bile production and release, low fat diets, and chronic exposure to oxidants like cigarette smoke. Vitamin A being fat soluble requires adequate fat in diet to be absorbed in small intestine. Zinc deficiency can also impair absorption, transport and metabolism as mentioned above and might increase the risk of vitamin A deficiency.

The deficiency may initially be seen as night blindness and may further give rise to xerophthalmia, wherein there is dryness of conjunctiva, which is followed by the build-up of keratin debris in small opaque plaques (Bitot’s spots) and eventually erosion of roughened corneal surface with softening and destruction of cornea and total blindness. Other changes like impaired immunity, hypokeratosis (white lumps at hair follicles), degeneration of epithelium lining of upper respiratory passages and urinary bladder and also enamel hypoplasia may occur.

Recommended Intakes

As carotenoids are converted to vitamin A, it is attempted to find out equivalence to the amount of retinol so comparisons could be made of benefits of different foods. It is a bit confusing as accepted equivalences have changed. Earlier, International Unit (IU) was

equal to 0.3 µg of retinol, 0.6 µg of β-carotene or 1.2 µg of other provitamin A carotenoids was used. Later a unit called Retinol Equivalent (RE) was used which corresponded to 1 µg retinol, 2 µg β-carotene dissolved in oil, 6 µg β-carotene in normal food (because it is not absorbed as well as in oils), and 12 µg of other carotenoids in food.

Newer research has shown that absorption of dietary provitamin A carotenoids is just half as much as was earlier presumed so the US Institute of Medicine recommended Retinol Activity Equivalent (RAE) which corresponds to 1 µg retinol, 2 µg β-carotene in oil, 12 µg "dietary" β-carotene and 24 µg of other dietary provitamin A carotenoids.

Institute of Medicine's current recommendation for vitamin A is 900 µg of retinol for men (equivalent to 3000 IU) and 700 µg for women (equivalent to about 2310 IU).

Table: Recommended Dietary Allowances for vitamin A

	µg RAE
Children 1-3 yrs	300 (1,000 IU)
Children 4-8 yrs	400 (1,320 IU)
Children 9-13 yrs	600 (2,000 IU)
Males 14-18 yrs	900 (3,000 IU)
Males 19+ yrs	900 (3,000 IU)
Females 14-18 yrs	700 (2,310 IU)
Females 19+ yrs	700 (2,310 IU)
Pregnancy 14-18 yrs	750 (2,500 IU)
Pregnancy 19+ yrs	770 (2,565 IU)
Lactation 14-18 yrs	1,200 (4,000 IU)
Lactation 19+ yrs	1,300 (4,300 IU)

As information is inadequate to establish RDA for infants, Adequate Intake levels have been established based on the amount of vitamin A consumed by healthy infants fed breast milk.

Table: Adequate Intakes for vitamin A for infants

Age (months)	Males/females (µg RAE)
0-6	400 (1,320 IU)
7-12	500 (1,650 IU)

Indian Council of Medical Research has also recommended vitamin A RDA for Indians as given in the table.

Table: RDA of Vitamin A for Indians

Group		Vitamin A (µg/day)	
		Retinol	β-Carotene
Man		600	2400
Woman		600	2400
	Pregnant	600	2400
	Lactating	950	3800
Infants	0-12 mo	350	1200
Children	1-6 yrs	400	1600
	7-9 yrs	600	2400
Boys/Girls	10-18 yrs	600	2400

Source: ICMR

Foods Rich in Vitamin A

Vitamin A (either retinol or carotenoids) is found in many animal foods such as eggs, milk and liver. Fruits and vegetables, especially darkly coloured, contain provitamin A carotenoids. Some of the common sources of this vitamin are carrots, oranges, mango, spinach etc. There are also some of the processed foods like breakfast cereals, juices, dairy products etc. that are fortified with retinol and contribute significantly to vitamin A intake. Some typical foods containing this vitamin are shown in a table along with the vitamin content.

Table: Selected animal sources of vitamin A

Food	Vitamin A (IU)*
Liver, beef, cooked, 3 ounces	27,185
Liver, chicken, cooked, 3 ounces	12,325
Milk, fortified skim, 1 cup	500
Cheese, cheddar, 1 ounce	284
Milk, whole (3.25% fat), 1 cup	249

USDA National Nutrient Database for Standard Reference

Table: Selected plant sources of vitamin A (as β-carotene)

Food	Vitamin A (IU)*
Carrot juice, canned, ½ cup	22,567
Carrots, boiled, ½ cup slices	13,418
Spinach, frozen, boiled, ½ cup	11,458
Kale, frozen, boiled, ½ cup	9,558
Carrots, 1 raw (7½ inches)	8,666
Vegetable soup, canned, chunky, ready-to-serve, 1 cup	5,820
Spinach, raw, 1 cup	2,813
Apricots with skin, juice pack, ½ cup	2,063
Apricot nectar, canned, ½ cup	1,651
Papaya, 1 cup cubes	1,532
Mango, 1 cup sliced	1,262
Peas, frozen, boiled, ½ cup	1,050
Tomato juice, canned, 6 ounces	819
Peaches, canned, juice pack, ½ cup halves or slices	473
Peach, 1 medium	319
Pepper, sweet, red, raw, 1 ring (3 inches diameter by ¼ inch thick)	313

USDA National Nutrient Database for Standard Reference

Vitamin A in Indian diets is obtained from animal foods like butter and ghee, whole milk, curds, egg yolk, liver etc. Liver oils of fish like cod, halibut and shark are among the richest sources of vitamin A. Rich sources of carotenes are leaves of spinach, amaranth, coriander and drumstick, curry leaves, mint, radish leaves etc. Ripe fruits like mangoes, papaya and tomatoes are rich in carotenes. Vegetables like carrots and yellow pumpkin are also rich in carotenes.

Vitamin A contents of some Indian plant foods (carotene µg per 100g)

Bengal gram whole	189	Mustard leaves	2622
Lentil	270	Spinach	5580

Soya bean	426	Carrot	1890
Amaranth leaves (math)	5520	Capsicum	427
Amaranth leaves (rajgira)	14190	French beans	132
Colocasia leaves	10278	Apricot fresh	2160
Coriander leaves	6918	Mango ripe	2743
Curry leaves	7560	Orange	1104
Drumstick leaves	6780	Papaya ripe	666
Fenugreek leaves	2340	Tomato ripe	351
Mint leaves	1620	Crab muscle	780

Source: Nutritive Value of Indian Foods by Gopalan & others

Vitamin A content of some Indian animal foods (Retinol µg per 100g)

Egg hen	420
Liver sheep	6690
Milk buffalo	48
Milk cow	53
Curd	31
Khoa	149
Butter	960
Ghee (cow)	600

Source: Nutritive Value of Indian Foods by Gopalan & others

Vitamin A found in foods of animal origin is preformed vitamin A and is absorbed as retinol, which is one of the most usable (active) forms. Retinol can be converted to retinal and retinoic acid, which are other active forms in the body. Plant foods mostly contain provitamin A carotenoids. They could be converted into retinol in the body. Common provitamin A carotenoids in foods are β-carotene, α-carotene and β-cryptoxanthin. Of these β-carotene is most efficiently converted into retinol; the others only half as efficiently could be converted. Other carotenoids like lycopene, lutein and zeaxanthin do not have vitamin A activity.

Hypervitaminosis A

Since vitamin A is fat-soluble, disposing of any excess taken in diet or supplementation is much harder than in case of water-soluble vitamins B and C, thus vitamin A toxicity may occur when high doses are consumed. Hence when the body storage levels of vitamin A are high, this can lead to toxic symptoms.

There can be adverse effects like birth defects, liver abnormalities, reduced bone mineral density that may lead to osteoporosis and disorders of central nervous system. The symptoms can also be seen after intake of very large dose of preformed vitamin A over a short period. These include nausea and vomiting, headache, dizziness, blurred vision and lack of muscular coordination. This may occur due to consuming large amount of liver regularly or taking excess nutrient supplements having preformed vitamin A.

Institute of Medicine has given tolerable upper intake levels of retinol as 600 µg (2000 IU) for children up to 3 years, 900 µg (3000 IU) for children up to 8 years, and 1700 µg (5610 IU) up to 13 years, and for children and adults up to 18 year 2800 µg (9240 IU) and above 19 years 3000 µg (10000 IU). Those females who are pregnant should be especially careful as they may pass on the toxicity to fetus resulting in birth defects.

Carotenoids are generally considered safe as they are not associated with adverse health effects. Conversion of carotenoids to vitamin A decreases when body stores are full. High intake of carotenoids can turn skin yellow although this is not considered dangerous to health. Although some early studies associated β-carotene supplement with higher incidence of lung cancer and death in smokers, no such adverse effects have been observed to support them.

Disease Prevention & Treatment

Studies in cell culture and animal models have shown the ability of retinoids to reduce carcinogenesis significantly in skin, breast, liver, colon, prostate etc. However relationship in human studies is not very clear. Some studies of efficacy of β-carotene and retinol in reducing the risk of lung cancer have shown mixed results.

Retinoids are used at pharmacologic doses to treat several conditions including retinitis pigmentosa, acute promyelocytic leukaemia and various skin diseases. However, these therapies are associated with potential side effects and toxicities.

OBESITY AND COLORECTAL CANCER

Overweight and obesity , which are due to increase in the body fat are implicated as the cause of morbidity and mortality for several non communicable diseases including cardio vascular diseases (CVD) , diabetes, hypertension, kidney failure, degenerative osteo-arthritis and cancer. A study on cancer prevention in USA estimated that overweight and obesity accounted for 14% of all cancer deaths in men and 20% of those in women.

Cancer of colon and rectum is the fourth most common incident cancer and the cause of death from cancer throughout the world. In India, although the incidence rate of colorectal cancer is very low and rectal cancer remains more common, a significant increase in its incidence has been reported for both men and women over the last two decades. An estimated 35635 new cases of colorectal cancer occurred in 2006, accounting to 3.9 % of all new cases of cancer.

A BMI of 30 Kg/m^2 and above is a reference that defines obesity. Universally accepted ideal body mass index is 20-24.9 kg/m^2 for adults aged 18 years and above of both the sexes. Asian Indians being at a higher risk of developing atherosclerosis and related complications, a BMI of 25 Kg/m^2 is considered as obese. The prevalence of obesity in India is 2-15 percent in urban and 0-6 percent in rural population by using the current definition of obesity (30 Kg/m^2). Some researchers have argued that a waist-to-hip ratio, a measurement of abdominal adiposity, may be a better predictor and indictor of colon cancer risk as compared to overall body mass. This is because in men, a high BMI tends to be associated with fat being distributed abdominally, whereas in women it is more likely to be distributed in hips, thigh and buttocks.

In India, women suffer from a dual burden of malnutrition with nearly half of them being either too thin or overweight. National Family Health Survey -3(NFHS-3) study undertaken at the National level during the year 2006, revealed that the percentage of ever married women in the age group of 15-49 years who are overweight or obese increased from 11% in NFHS-2 to 15% in NFHS-3 study. Overweight and obesity were found to be over three times higher in urban than in rural areas.

There is convincing evidence to show that colon cancer arises from adenomas, which are considered to be potential precancerous lesions. An increased amount of fat or adipose tissue in an overweight or obese person probably influences the development of cancer by releasing several hormone-like-factors or adipokines. Chemopreventive intervention studies have been carried-out to evaluate the effect of various strategies such as dietary modifications, vitamins and antioxidants, folate, fiber, calcium supplementation, aspirin therapy, etc. on the adenoma recurrence, adenoma growth or on incidence of colorectal cancer. An early detection and removal of these lesions are presumed to reduce the incidence and mortality due to colorectal cancer.

Epidemiological studies strongly support a relationship between dietary constituents and risk of colorectal cancers. It is agreed that the risk of colorectal cancer can be modified by food and dietary habits. High red meat and animal fat consumption have been associated with an increased risk of colorectal cancer. Obesity, frequent eating and diets high in sugar, total and saturated fat, eggs, high alcohol intake and processed meat all possibly increase the risk. Contrary to this, diet rich in fruits and vegetables, dietary fibre, and certain micronutrients appear to be protective. Fruits and vegetables possibly offer protection against colorectal cancer through anticarcinogenic components such as antioxidants, folic acid, flavonoids, organosulphides, isothiocyanates, and protease inhibitors as well as fermentable fibre.

A case control study was carried out at the National Naval Medical Centre, USA to investigate the possible associations between dietary factors and colorectal adenomas diagnosed by sigmoidoscopy and colonoscopy. The study showed a strong positive relation between oleic acid intake and colorectal adenoma risk. Increased intake of dietary fibre was associated with a moderate decreased risk of adenomas. Another study on the cohort of Finnish population revealed that high cholesterol intake was associated with increased risk for colorectal cancers between the highest and lowest quartiles of dietary cholesterol.

Many studies have found a significant reduction in colon and rectal cancers with higher intakes of folic acid and their related nutrients (vitamin B6, and B12).In the Nurses' Health Study, supplementation of folic acid was found to be protective against colon cancer and became statistically significant after 15 years of use suggesting that folate may act early in carcinogenic process. Calcium is hypothesized to prevent carcinogenesis in colon by either binding bile acids and/or fatty acids in the lumen or by having a direct inhibitory effect of the proliferation of the epithelial cells in the colon. The randomised controlled trial which assessed the efficacy of calcium supplementation on the risk of new colon adenoma formation amongst individuals with the history of adenoma formation amongst individual with history of adenomas has revealed reduced incidence of adenoma apparent after just 1year of supplementation.

A population based case control study was conducted with 1993 incident colon cancer cases and 2410 controls to evaluate the association between colon cancer and dietary fat as well as specific dietary fatty acids .The study revealed that neither total dietary fat nor specific fatty acid were associated with the risk of colon cancer. Women who consumed a diet high in mono-unsaturated fatty acids(MUFAs) and poly-unsaturated fatty acids(PUFAs) and who had a family history of colorectal cancer were at a greater risk of colorectal cancer than those with similar intake but without a family history of colorectal cancer .

Weight gain with or without physical activity is associated with increased incidence of cancers in both men and women .Thus a possible means of preventing this cancer are maintenance of body weight within recommended level throughout life and consumption of diets high in non-starch polysaccharides, starch and carotenoids and low in sugar, fat and eggs with regular physical activity and reduction in the consumption of red and processed meat.

Condensed by Ms. Ummeayman Rangwala, Nutritionist, PFNDAI from: ICMR bulletin –Volume 39 no.7 July-September 2009

Research in Food & Nutrition

Flavonoids in Orange Juice Suppress Oxidative Stress from High-Fat, High-Carb Meal

Eating foods containing flavonoids orange juice, in this case along with a high-fat, high-carbohydrate fast-food meal neutralizes the oxidative and inflammatory stress generated by the unhealthy food and helps prevent blood vessel damage, a new study by University at Buffalo endocrinologists shows.

Free radicals, or reactive oxygen species, are known to induce inflammation in blood vessel linings and contribute to the risk of heart attack and stroke. Study researchers say the potent preventative effect of orange juice likely is linked to its heavy load of the flavonoids naringenin and hesperidin, which are major antioxidants.

"Our data show, for the first time to our knowledge, that drinking orange juice with a meal high in fat and carbohydrates prevented the marked increases in reactive oxygen species and other inflammatory agents," says UB's Husam Ghanim, PhD, first author on the study. "This did not happen when participants drank water or a sugary drink with the meal," he says. "These issues of inflammation following a meal are important because the resultant high glucose and high triglycerides are known to be related to the development of cardiovascular events." Ghanim is a research assistant professor in UB's Division of Endocrinology, Diabetes and Metabolism. The study appears in the March issue of the American Journal of Clinical Nutrition and appeared online ahead of print.

The study involved three groups of 10 normal-weight healthy men and women between the ages of 20 and 40. After an overnight fast, participants ate a 900-calorie breakfast composed of an egg "muffin" sandwich, a sausage "muffin" sandwich and a serving of hash browns. The meal contained 81 grams of carbohydrates, 51 grams of fat and 32 grams protein.

Along with the breakfast, one group drank 300 calories of "not-from-concentrate" orange juice, a second group drank a 300-calorie glucose drink and the third group drank an equal amount of water. All participants were given 15 minutes to finish their food and drink. Blood samples were collected before the meal and at 1, 3 and 5 hours afterwards. There was no significant difference in inflammatory mediators among the groups before the meal.

Analysis of the samples after the meal showed that oxygen free radicals increased an average of 62 percent with water, 63 percent with the glucose and 47 percent with orange juice. There also was an increase in blood components known as toll-like receptors, which play an important role in the development of inflammation, atherosclerosis, obesity, insulin resistance, and injury to cardiac cells than can occur after a blocked vessel is reopened. Orange juice also prevented a significant increase in SOCS-3, an important mediator of insulin resistance, which contributes to development of type 2 diabetes.

"These data emphasize that a high-fat, high-carbohydrate meal is profoundly and rapidly proinflammatory, and that this process occurs at the cellular and molecular level," says Paresh Dandona, MD, UB distinguished professor of medicine, director of the Diabetes-Endocrinology Center of Western New York at Kaleida Health and senior author on the study.

"In addition, specific proinflammatory genes are activated after the intake of glucose and a high-fat, high-carbohydrate meal, and these changes are observed in mononuclear cells that participate in vascular inflammation and insulin resistance," he says. "These observations extend our previous work showing oxidative and inflammatory stress following such meals by demonstrating a remarkable increase in the mediators of insulin resistance after a single meal, and the equally remarkable prevention of these changes following the intake of orange juice."

Dandona emphasizes that vascular inflammation is an essential component of atherosclerosis, and that this inflammation may become permanent if a person consumes similar meals regularly. "The choice of safe foods that are not proinflammatory may provide protection from the unending cycle of postprandial and cumulative inflammation," he says. "This choice may lower the risk of atherosclerosis and resistance to insulin."

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Obesity, Hypertension, Alcohol and Diuretic Use Gout Risk Factors for Women

Researchers from Boston University School of Medicine found that women with serum uric acid levels over 5 mg/dl had a significantly lower risk of developing gout than men. This study, the first to examine the relationship between uric acid levels and gout risk in women, also evaluated purported risk factors for gout and found that increasing age, obesity, hypertension, alcohol use, and diuretic use to be among leading contributors for women. Results of this 52-year follow-up study are published in the April issue of Arthritis & Rheumatism, a journal of the American College of Rheumatology.

Gout is a common and excruciatingly painful inflammatory arthritis caused by elevated uric acid levels in the blood. When too much uric acid builds up in joint fluid, uric acid crystals form and cause joint swelling and inflammation. Historically, gout was seen as a male disease, however growing evidence suggests the disease is also a concern for older women. According to the Third National Health and Nutrition Examination Survey (NHANES-III) the prevalence of gout in women was 3.5% for ages 60-69 years, 4.6% in the 70-79 age group, and 5.6% in those 80 or older. Furthermore, the Rochester Epidemiology project study found the incidence of gout has doubled among women over the past 20 years.

The research team led by Hyon Choi, M.D., D.Ph., analyzed data from the Framingham Heart Study for 2,476 women and 1,951 men who had a complete follow-up history and who were free of gout at baseline. The mean age at baseline was 47 years for women and 46 years for men. Researchers evaluated serum uric acid levels and risk factors for gout that included: age, body mass index (BMI), alcohol consumption, hypertension, medication use (diuretics, hormone replacement therapy), blood glucose and cholesterol levels, and menopause status. At baseline the mean serum uric acid level was 4.0 mg/dl for women and 5.1 mg/dl for men.

"We identified 104 gout cases in women and 200 in men over the 28-year median follow-up period," said Dr. Choi. "The gout incidence per 1,000 person-years was 1.4 in women and 4.0 in men." Specifically, results showed that the incidence rates of gout for women per 1,000 person-years according to serum uric acid levels of <5.0, 5.0.9, 6.0.9, 7.0.9, and ≥8.0 mg/dl were 0.8, 2.5, 4.2, 13.1, and 27.3, respectively.

Results also found among the purported risk factors for gout, increasing age, obesity, alcohol consumption, diuretic use, and hypertension were independently associated with higher risk of gout incidence in women. However, researchers found only a stronger age effect among women placed them at higher risk factors for gout than men. The age-adjusted relative risk (RR) of gout in post-menopausal women was 4.18 and the RR for gout in women using hormone replacement therapy was 0.24. Other risk factors did not differ significantly between women and men.

"Our study found that higher levels of uric acid in the blood increase the risk gout risk for women in a graded manner," concluded Dr. Choi. The risk of gout among women with serum uric acid levels ≥8 mg/dl was 46 times higher than that among women whose levels were <5 mg/dl. However, results show the magnitude of the association between gout and uric acid blood levels among women was significantly lower than for men. "Confirming our results using specific case definitions (observation of urate crystal in joint fluid) would provide to be a valuable contribution to understanding gout incidence in both sexes."

Eurekalert 30 Mar 2010 ---
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Breathe Easy: A Natural Fruit Compound May Help Asthma

A preliminary study by New Zealand company Plant & Food Research shows that natural chemicals from blackcurrants may help breathing in some types of asthma. Researchers found a compound from a New Zealand blackcurrant may reduce lung inflammation with a multi-action assault in allergy-induced asthma. The compound was found in laboratory experiments to enhance the natural defence mechanisms in lung tissue by both suppressing inflammation-causing reactions and minimising inflammation. The findings are published in the journal Molecular Nutrition and Food Research.

Fruit consumption has been shown to reduce symptoms in allergy-induced asthma yet this research is the first to give insights into the mechanism by which this may occur. The researchers identified that the component, epigallocatechin, reduced inflammation in lung tissue. Epigallocatechin is a known antioxidant and a major component of proanthocyanidins found in blackcurrants. In the Plant & Food Research study, led by Dr Roger Hurst, cells from lung tissue were used to test the effects on the immune system of a proanthocyanidin rich extract, from blackcurrant cultivars grown in New Zealand.

When the lungs are exposed to allergens, the body's natural response is to attack the perceived foreign body which in some individuals results in long-term inflammation. Selective compounds found in fruit and vegetables may work together with the body's own natural defence mechanism to suppress long-term lung inflammation.

This study shows that epigallocatechin, from blackcurrants, works in conjunction with other natural immune responses that occur at the same time to reduce inflammation. These actions are distinct from the inflammation-reducing activity of another group of compounds, anthocycanins, which are also rich in blackcurrants. Anthocyanins are known for their antioxidant properties and, interestingly, have been shown by Dr Hurst's research group to also influence inflammatory mechanisms and complement the body's own natural immune responses. The research shows some compounds in fruit thought to promote health with their antioxidant activity are keeping us well by other means.

"To find natural compounds that potentially reduce lung inflammation and complement the body's own immune response is an exciting breakthrough," says Dr Hurst. "Should we discover more about how this works we may eventually develop foods containing

these compounds that could provide more natural alternatives to assist conventional drug treatments for asthma and even other allergic re-actions."

The study is part of Plant & Food Research's Food Innovation science platform that focuses on discovering the natural goodness in fruit, vegetables, grains and seafood and using this knowledge to develop fresh whole foods, ingredients and food concepts. Dr Kieran Elborough GM Science Food Innovation says research is improving the understanding of food and its makeup, how it benefits us and the development of new value technologies, ingredients and products.

"Maintaining wellness in a natural way is a growing consumer trend that food companies recognise, "says Dr Elborough. "New Zealand is well known for its quality fresh produce and I am quietly confident our understanding of natural compounds in fruit, vegetables, grains and seafood has good potential for food and beverage companies."

Nutrition Horizon 26 Mar 2010 ---

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Trans fats linked to increased endometriosis risk and omega-3-rich food linked to lower risk

Women whose diets are rich in foods containing Omega-3 oils might be less likely to develop endometriosis, while those whose diets are heavily laden with trans fats might be more likely to develop the debilitating condition, new research published suggests.

The study - which is the largest to have investigated the link between diet and endometriosis risk and the first prospective study to identify a modifiable risk factor for the condition - found that while the total amount of fat in the diet did not matter, the type of fat did. Women who ate the highest amount of long-chain Omega-3 fatty acids were 22% less likely to be diagnosed with endometriosis than those who ate the least and that those who ate the most trans fats had a 48% increased risk, compared with those who ate the least.

The findings from 70,709 American nurses followed for 12 years, published online in Europe's leading reproductive medicine journal Human Reproduction [1], not only suggest that diet may be important in the development of endometriosis, but they also provide more evidence that a low fat diet is not necessarily the healthiest and further bolster the case for eliminating trans fats from the food supply, said the study's leader, Dr. Stacey Missmer, an assistant professor of obstetrics, gynaecology and reproductive biology at Brigham and Women's Hospital and Harvard Medical School in Boston, Massachusetts, USA.

"Millions of women worldwide suffer from endometriosis. Many women have been searching for something they can actually do for themselves, or their daughters, to reduce the risk of developing the disease, and these findings suggest that dietary changes may be something they can do. The results need to be confirmed by further research, but this study gives us a strong indication that we're on the right track in identifying food rich in Omega-3 oils as protective for endometriosis and trans fats as detrimental," Dr. Missmer added.

Endometriosis occurs when pieces of the womb lining, or endometrium, is found outside the womb. This tissue behaves in the same way as it does in the womb – growing during the menstrual cycle in response to oestrogen in anticipation of an egg being fertilized and shedding as blood when there's no pregnancy. However, when it grows outside the womb, it is trapped and cannot leave the body as menstruation. Some women experience no symptoms, but for many it is very incapacitating, causing severe pain. The tissue can also stick to other organs, sometimes leading to infertility. It afflicts about 10% of women. The cause is poorly understood and there is no cure. Symptoms are traditionally treated with pain medication, hormone drugs or surgery.

In the study, the researchers collected information from 1989 to 2001 on 70,709 women enrolled in the U.S. Nurses Health Study cohort. They used three food-frequency questionnaires spaced at four-year intervals to record the women's usual dietary habits over the preceding year. They categorized consumption of the various types of dietary fat into five levels and related that information to later confirmed diagnoses of endometriosis. A total of 1,199 women were diagnosed with the disease by the end of the study. The results were adjusted to eliminate any influence on the findings from factors such as total calorie intake, body mass index, number of children borne and race.

Long-chain Omega-3 fatty acids are found mostly in oily fish. They have been linked to reduced heart disease risk. In the study, the highest contributor was mayonnaise and full-fat salad dressing, followed by fatty fish such as tuna, salmon and mackerel.

Trans fats are artificially produced through hydrogenation, which turns liquid vegetable oil into solid fat. Used in thousands of processed foods, from snacks to ready-meals, they have already been linked to increased heart disease risk. Some countries and municipalities have banned them. The major sources of trans fats in this study were fried restaurant foods, margarine and crackers.

"Women tend to go to the Internet in particular to look for something they can do. The majority of the dietary recommendations they

find there are the ones prescribed for heart health, but until now, those had not been evaluated specifically for endometriosis," Dr. Missmer said. "This gives them information that is more tailored and provides evidence for another disease where it is the type of fat in the diet, rather than the total amount, that is important."

Besides confirming the finding, a next step could be to investigate whether dietary intervention that reduces trans fats and increases Omega-3 oils can alleviate symptoms in women who already have endometriosis, Dr. Missmer added.

E! Science News March 23, 2010

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Indian Spice May Delay Liver Damage and Cirrhosis, Study Suggests

Curcumin, one of the principal components of the Indian spice turmeric, seems to delay the liver damage that eventually causes cirrhosis, suggests preliminary experimental research in the journal *Gut*. Curcumin, which gives turmeric its bright yellow pigment, has long been used in Indian Ayurvedic medicine to treat a wide range of gastrointestinal disorders. Previous research has indicated that it has anti-inflammatory and antioxidant properties which may be helpful in combating disease. The research team wanted to find out if curcumin could delay the damage caused by progressive inflammatory conditions of the liver, including primary sclerosing cholangitis and primary biliary cirrhosis.

Both of these conditions, which can be sparked by genetic faults or autoimmune disease, cause the liver's plumbing system of bile ducts to become inflamed, scarred, and blocked. This leads to extensive tissue damage and irreversible and ultimately fatal liver cirrhosis. The research team analysed tissue and blood samples from mice with chronic liver inflammation before and after adding curcumin to their diet for a period of four and a period of eight weeks. The results were compared with the equivalent samples from mice with the same condition, but not fed curcumin.

The findings showed that the curcumin diet significantly reduced bile duct blockage and curbed liver cell (hepatocyte) damage and scarring (fibrosis) by interfering with several chemical signalling pathways involved in the inflammatory process. These effects were clear at both four and eight weeks. No such effects were seen in mice fed a normal diet. The authors point out that current treatment for inflammatory liver disease involves ursodeoxycholic acid, the long term effects of which remain unclear. The other alternative is a liver transplant. Curcumin is a natural product, they say, which seems to target several different parts of the inflammatory process, and as such, may therefore offer a very promising treatment in the future.

ScienceDaily (Mar. 24, 2010) —
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Low Levels of Vitamin D Linked to Higher Rates of Asthma in African American Kids

Researchers at Children’s National Medical Center have discovered that African American children with asthma in metropolitan Washington, DC, are significantly more likely to have low levels of vitamin D than healthy African American children. This study supports recent research that suggests vitamin D plays a greater role in the body than just keeping bones healthy. Vitamin D deficiency has been recently linked to a variety of non-bone related diseases including depression, autoimmune disorders, and now asthma.

“It’s been well-documented that as a group, African Americans are more likely than other racial groups to have low levels of vitamin D,” said Robert Freishtat, MD, MPH, an emergency medicine physician and lead author on the study. “But we were shocked to see that almost all of the African American children with asthma that we tested had low vitamin D levels. After adjusting for differences in age, weight, and the time of year of the testing, the odds of these kids with asthma being vitamin D deficient were nearly twenty times those of healthy kids.”

The study took a one-time measurement of vitamin D in the blood of 85 African American children with asthma, who were between 6 and 20 years old. Additionally, the researchers measured the vitamin D levels of 21 healthy African American children between the ages of 6 and 9 years of age. The research team found that 86 percent of the children in the study with asthma had insufficient levels of vitamin D, while only 19 percent of non-asthmatics had these low levels.

These findings may mean that low vitamin D levels have more serious effects on a child’s lung health than previously believed. Though more research is needed to establish definitively how vitamin D deficiency can contribute to asthma, parents can ensure that their children receive healthier amounts of vitamin D by following the current USDA guidelines for milk consumption and seeking a doctor’s advice about multivitamins.

“The District of Columbia has among the highest rates of pediatric asthma in the United States, and we’re working to find out why,”

says Stephen Teach, MD, MPH, senior author of the study. “For African American kids with asthma, vitamin D testing and ensuring adequate vitamin D intake may need to become necessary steps in their primary care.”

Eurekalert 17-Mar-2010

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Cloves are the Best Natural Antioxidant

Using spices eaten in the Mediterranean diet as natural antioxidants is a good way forward for the food industry, given the beneficial health effects of these products. This has been shown by researchers from the Miguel Hernández University (UMH), who have put the clove in first place. Researchers from the Miguel Hernández University have identified cloves (Syzygium aromaticum) as the best antioxidant spice, due to the fact they contain high levels of phenolic compounds, as well as having other properties.

"Out of the five antioxidant properties tested, cloves had the highest capacity to give off hydrogen, reduced lipid peroxidation well, and was the best iron reducer", Juana Fernández-López, one of the authors of the study and a researcher at the UMH, tells SINC. As a result, the research study published in the latest issue of the Flavour and Fragrance Journal ranks this spice as the best natural antioxidant.

"The results show that use of the natural oxidants occurring in spices used in the Mediterranean diet, or their extracts, is a viable option for the food industry, as long as the organoleptic characteristics of the food product are not affected", adds the researcher. "These substances exhibit high antioxidant capacity, and could have beneficial effects for health", says the researcher

The team also evaluated the antioxidant effect of the essential oils from other spices used in the Mediterranean diet – oregano (Origanum vulgare), thyme (Thymus vulgaris), rosemary, (Rosmarinus funcionarios cinalis) and sage (Salvia funcionarios cinalis). The objective of the study is to enable these spices to be incorporated into food products (above all meat products) as natural antioxidants.

Changing the food industry

"Lipid oxidation is one of the main reasons for foods deteriorating, and causes a significant reduction in their nutritional value, as well as loss of taste", says Fernández-López. These alterations lead to a reduction in the useful lifespan of the food product. To avoid such deterioration, the food industry uses synthetic antioxidants in its products. However, as these are chemical compounds, questions have been raised about their potential toxicity and side-effects.

As a result, there is a growing interest in using plant-based products (spices, aromatic and medicinal plants) with potential antioxidant activity, in order to replace the synthetic antioxidants with "natural" substances.

Eurekalert 16-Mar-2010

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Diabetes' Link to Eating Disorders Explored

Diabetics, under the gun to better manage their disease by controlling their food intake and weight, may find themselves in the sticky wicket of needing treatment that makes them hungry, researchers said. Attempts to maintain healthy blood sugar levels and prevent weight gain may suggest an eating disorder when the disease and its treatment are to blame, said Dr. Deborah Young-Hyman, pediatric psychologist at the Medical College of Georgia's Georgia Prevention Institute.

"You can't use the same criteria to diagnose eating disorders that you use in non-diabetic populations because what we actually prescribe as part of diabetes treatment is part of disordered eating behavior. Food preoccupation is one example," she said. Preoccupation with food, in fact, is required for optimal disease management. Questions like "What are you putting in your mouth? Did you know that was going to raise your blood sugar?" are a part of life, Dr. Young-Hyman said. Young women, and increasingly young men, also are not immune from societal pressures to be thin, she noted.

Side-by-side comparisons of young people with and without diabetes are needed to answer fundamentals such as the incidence of eating disorders among diabetics, who is at risk and whether treatment can be modified to reduce the risk, researchers report in a review article in the March issue of Diabetes Care. Answers could include better methods of insulin delivery and new therapies that address hunger-related hormones, which also become dysregulated in type 1 diabetes.

Dr. Young-Hyman and her colleagues extensively reviewed related literature enabling them to connect the dots between the disordered eating behavior reported by some diabetics with the dysregulation of hunger-related hormones and/or inadequate management of insulin therapy.

In type 1 diabetes, the immune system attacks the insulin producing cells of the pancreas complicating food metabolism. The treatment – insulin by injection or pump – spurs hunger. If the insulin dose isn't exactly calibrated with food intake, blood sugar levels rise and require more insulin which could drop the blood sugar levels and increase hunger even more. The cycle of inexact insulin dosing can cause weight gain which increases insulin requirements and resistance.

And there's another factor at work: the insulin producing-cells attacked by the disease also make amylin which works with other appetite regulating hormones such as leptin to regulate the sensation of fullness. The resulting difficulty of diabetics to determine whether they are full has been documented in anorexia.

Interestingly, most type 1 diabetics lose a lot of weight before diagnosis because they excrete rather than metabolize calories. For a period of months, they may be able to eat large amounts of food and not gain weight. When they start taking insulin to "control" their disease, they can gain a lot of weight quickly. "It's not hard to see how the treatment of the disease can lead to disordered eating behavior to control weight gain," Dr. Young-Hyman said.

As a psychologist, Dr. Young-Hyman has treated many type 1 diabetics diagnosed with an eating disorder. In fact, one patient she describes as accomplished, funny and discouraged by her inability to control how much she ate and her subsequent weight gain, helped inspire Dr. Young-Hyman to learn more about eating disorders in patients with diabetes.

The conundrum expressed by this patient can lead, particularly for young women, to unhealthy behavior such as skipping or reducing insulin doses or binging-purging in an effort to avoid weight gain. The behaviors create immediate risks such as hypoglycemia or extreme high blood sugar levels, and are associated with long-term complications of diabetes such as eye, nerve and heart damage.

Controversy persists about whether type 1 patients have increased rates of diagnosable eating disorders or disordered eating behavior; incidence projections range from as low as 3.8 percent to up to 40 percent in young females when skipping or reducing an insulin dose is considered.

"We need to document that these patients are experiencing dysregulation in satiety and that it's not only connected with factors one usually associates with disordered eating behaviors such as societal pressure, anxiety and depression," Dr. Young-Hyman said. "It's also associated with having diabetes."

Studies that chronicle disordered eating behavior in type 1 diabetics could aid in prevention, including developing potential new treatments, Dr. Young-Hyman said.

She is completing an American Diabetes Association-funded study that might answer some of the questions. She and colleagues at Harvard and Emory universities are following 90 children, age 10-17, newly diagnosed with diabetes or transitioning to an insulin pump. They are documenting pertinent issues such as treatment patterns, weight, psychological adjustment and attitudes about weight and eating, including changes in eating patterns and blood sugar levels in response to insulin dosing.

Eurekalert **11-Mar-2010**

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Supermarket Lighting Enhances Nutrient Level of Fresh Spinach

Far from being a food spoiler, the fluorescent lighting in supermarkets actually can boost the nutritional value of fresh spinach, scientists are reporting. The finding could lead to improved ways of preserving and enhancing the nutritional value of spinach and perhaps other veggies, they suggest in a study in ACS' *Journal of Agricultural and Food Chemistry*.

Gene Lester, Donald J. Makus, and D. Mark Hodges note that fresh spinach is a nutritional powerhouse, packed with vitamin C, vitamin E, folate (a B vitamin), and healthful carotenoid antioxidants. Supermarkets often display fresh spinach in clear plastic containers at around 39 degrees Fahrenheit in showcases that may be exposed to fluorescent light 24 hours a day. Lester, Makus, and Hodges wondered how this continuous light exposure might affect spinach's nutritional value.

The scientists exposed fresh spinach leaves to continuous light or darkness during simulated retail storage conditions for three to nine days. Spinach stored in light for as little as three days had significantly higher levels of vitamins C, K, E, and folate. They also had higher levels of the healthful carotenoids (plant pigments) lutein and zeaxanthin. During continuous light exposure after nine days, levels of folate increased between 84 and 100 percent, for instance. Levels of vitamin K increased between 50 and 100 percent, depending on the spinach variety tested. By contrast, spinach leaves stored under continuous darkness tended to have declining or unchanged levels of nutrients, the scientists say.

ScienceDaily (Mar. 19, 2010) —

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Flaxseed Lowers High Cholesterol in Men, Study Suggests

A new study from Iowa State University's Nutrition and Wellness Research Center (NWRC) may give men a way to combat high cholesterol without drugs -- if they don't mind sprinkling some flaxseed into their daily diet.

Suzanne Hendrich, an ISU professor in food science and human nutrition, led a study that examined the effects of flaxseed lignan in 90 people diagnosed with high cholesterol. The results showed that consuming at least 150 milligrams of flaxseed lignans per day (about three tablespoons) decreased cholesterol in men, but not women, by just under 10 percent over the three months that they were given the flaxseed.

While Hendrich admits that's considerably less than the expected outcome from cholesterol-lowering drugs -- approximately 10 to20 percent for three months, depending on the individual -- it's still enough to make flaxseed a more natural option for some men.

"Because there are people who can't take something like Lipitor, this could at least give you some of that cholesterol-lowering benefit," Hendrich said. "The other thing is, there are certainly some people who would prefer to not use a drug, but rather use foods to try to maintain their health. So this potentially would be something to consider."

Americans suffer from high blood cholesterol

According to the Centers for Disease Control and Prevention, about 17 percent of Americans suffer from high blood cholesterol -- a fat-like substance found in the body that can clog arteries and contribute to heart disease.

Hendrich developed the study with ISU master's student Kai Ling Kong and doctoral graduates Zhong Ye, Xianai Wu, and Sun-Ok Lee to determine whether the main lignan in flaxseed, secoisolariciresinol diglucoside, could lower cholesterol. They'll be presenting results of the research at the American Society for Nutrition's annual meeting at Experimental Biology 2010, April 24-28, in Anaheim, Calif.

The study's 90 subjects -- which included twice as many men as women -- all had high cholesterol, but no other underlying health conditions. The participants were divided into three groups and were randomly assigned to daily consume tablets that contained zero, 150, or 300 milligrams of flaxseed lignans for 12 weeks.

It's the flaxseed lignans -- a group of chemical compounds found in plants that are known for their protective health effects -- that may help lower cholesterol, according to Hendrich. These compounds are converted to their bioactive forms by gut microbes. Hendrich reports that they made a healthy conversion in the subjects in this study, with no adverse health consequences.

No cholesterol-lowering effect in women

While the study found that the flaxseed lignans lowered cholesterol in men, it did not produce a significant change in women.

"We're really puzzled about that because we were looking at post menopausal women and these lignans are known as plant estrogens, so they have a very weak but measurable estrogen effect," Hendrich said. "So potentially, they would have a mild effect for substituting some estrogens in women. It's really hard to know why [there was no effect in women] and whether these substances are counteracting, possibly, some testosterone in men, which of course women don't have. It's definitely something we'd like to investigate further."

Hendrich reports the flaxseed lignan tablets used in this study are not currently available in the U.S. to her knowledge. In the absence of tablets, she says flaxseed can also be sprinkled on cereal, or added in a muffin mix or bread, although whole seeds are not very digestible. Ground flaxseed meal can also provide the desired cholesterol-lowering lignans, according to Hendrich, but it will oxidize

over time and could potentially affect the flavor of the foods that it's in. She points out that the oxidation of the product also would diminish the flaxseed's omega-3 fatty acids, which can prevent heart attacks, so freshness is important in the product's impact.

ScienceDaily (Mar. 30, 2010) —

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Vitamin D and Calcium Interplay Explored

Increasing calcium intake is a common -- yet not always successful -- strategy for reducing bone fractures. But a study supported in part by the Agricultural Research Service (ARS) underscores the importance of vitamin D and its ability to help the body utilize calcium. The study also may explain why increasing calcium alone isn't always successful in dealing with this problem.

Currently, calcium intake recommendations are not tied to vitamin D status, which may explain why markedly different recommended calcium intakes exist among countries. In the United States, the recommended calcium intake is 1,200 milligrams (mg) daily for adults aged 50 and older.

The body's skeleton needs adequate dietary calcium to reach its full potential in terms of bone mass. Still, many other factors affect bone mass, such as exercise, smoking and vitamin D -- the latter through its effect on calcium absorption and direct effect on the skeleton.

The study involved a close look at about 10,000 men and women aged 20 and older participating in a nationally representative survey. Coauthors included nutrition specialist Bess Dawson Hughes with the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University in Boston, Mass. Dawson Hughes is director of the HNRCA Bone Metabolism Laboratory.

Blood levels of 25-hydroxyvitamin D are used as the primary indicator of vitamin D adequacy. Within the study sample of U.S. adults, a large fraction of younger and older adults were below a suggested desirable serum vitamin D concentration of at least 75 nanomoles-per-liter (nmol/L).

The study supports the idea that correcting inadequate blood levels of vitamin D is more important than increasing dietary calcium intake beyond 566 mg a day among women and 626 mg a day among men for better bone mineral density. For example, a higher calcium intake beyond 566 mg a day may only be important among women whose vitamin D concentrations are low (less than 50 nmol/L), according to authors.

ScienceDaily (Mar. 15, 2010) —

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Vitamins Stored in Bathrooms, Kitchens May Become Less Effective

High humidity present in bathrooms and kitchens could be degrading the vitamins and health supplements stored in those rooms, even if the lids are on tight, a Purdue University study shows. Lisa Mauer, an associate professor of food science, said that crystalline substances -- including vitamin C, some vitamin B forms and other dietary supplements -- are prone to a process called deliquescence, in which humidity causes a water-soluble solid to dissolve. Keeping those supplements away from warm, humid environments can help ensure their effectiveness.

"You might see salt or sugar start to cake in the summer, start to form clumps, and that's a sign of deliquescence," said Mauer, whose findings were published in the early online version of the *Journal of Agricultural and Food Chemistry*. "You can also get chemical instabilities, which are a little more problematic if you're consuming a dietary supplement with vitamin C for that vitamin C content."

Kitchen salt, sugar and powdered drink mixes commonly cake, Mauer said, making their measurement more difficult but not rendering them useless. Chemical changes become more than a nuisance in vitamins and dietary supplements, however.

"If you get some moisture present or ingredients dissolve, they'll decrease the quality and shelf life of the product and decrease the nutrient delivery," Mauer said. "You can get complete loss of the ingredients. It depends on the conditions. It depends on the formulations. Within a very short time -- in a week -- you can get complete loss of vitamin C in some products that have deliquesced."

Bathrooms and kitchens can increase the detrimental effects because of spikes in humidity in those rooms. And Mauer said storing vitamins or supplements in containers with lids doesn't always help.

"Opening and closing a package will change the atmosphere in it. If you open and close a package in a bathroom, you add a little bit of humidity and moisture each time," Mauer said. "The humidity in your kitchen or bathroom can cycle up quite high, depending on how long of a shower you take, for example, and can get higher than 98 percent."

Mauer used a gravimetric moisture sorption balance to determine the humidities at which substances would deliquesce. The samples spiked in weight at the deliquescence point because moisture was being adsorbed, meaning humidity was condensing on the solid and then the solid dissolved.

Different crystalline substances deliquesce at different humidities, Mauer said. For example, at room temperature, sodium ascorbate would deliquesce at 86 percent humidity, ascorbic acid at 98 percent humidity and fructose at 62 percent. Some ingredient blends deliquesce in as low as 30 percent humidity. Different forms of ingredients, such as the two forms of vitamin C studied (ascorbic acid and sodium ascorbate), have different deliquescence points, different sensitivity to moisture and different degradation rates. At high enough humidities, samples dissolved completely.

Once humidity or temperature is brought back down, the product will solidify, Mauer said, but the damage has been done.

"Any chemical changes or degradation that have occurred before resolidification don't reverse. You don't regain a vitamin C content after the product resolidifies or is moved to a lower humidity," she said. "The chemical changes we've observed are not reversible."

This information could be important to anyone using vitamin-containing products, ranging from the consumer to the food and dietary supplement industry and ingredient suppliers. Storing products in dry conditions, below their deliquescence relative humidities, can avoid unwanted ingredient loss.

Consumers could notice liquid in vitamin containers, but Mauer said another sign of nutrient degradation is brown spots, especially on children's vitamins. Mauer suggested discarding any dietary supplement that is showing signs of moisture uptake or browning.

"They're not necessarily unsafe, but why give a vitamin to a kid if it doesn't have the vitamin content you're hoping to give them?" Mauer said. "You're just giving them candy at that point with a high sugar content."

ScienceDaily (Mar. 7, 2010) —

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Studies on Nutrients, Gene Expression Could Lead to Tailored Diets for Disease Prevention

Personal health recommendations and diets tailored to better prevent diseases may be in our future, just by focusing on genetics. Researchers at Kansas State University recently published an academic journal article discussing the potential for nutrigenomics, a field that studies the effects of food on gene expression. The researchers discussed the possibility of using food to prevent an individual's genes from expressing disease. The researchers said nutrigenomics could completely change the future of public health and the food and culinary industries.

"Nutrigenomics involves tailoring diets to someone's genetic makeup," said Koushik Adhikari, K-State assistant professor of sensory analysis. "I speculate that in five to 10 years, you would go to a genetic counselor or a physician who could help you understand your genetic makeup, and then a nutritional professional could customize your diet accordingly." Adhikari collaborated with Denis Medeiros, professor and department head of human nutrition, and Jean Getz, former K-State graduate student in human nutrition, for an article on nutrigenomics that was published in the January issue of *Food Technology*. Getz, now a student at the School of Osteopathic Medicine at Michigan State University, wrote the article while at K-State.

Nutrigenomics is a fast-moving field of research that combines molecular biology, genetics and nutrition to regulate gene expression through specific nutrients. Nutrients have been shown to affect gene expression through transcription factors, which are biochemical entities that bind to DNA and either promote or inhibit transcription of genes. By understanding the roles of specific nutrients and how they might cause diseases, scientists could recommend specific foods for an individual based on his or her genetics. "Scientists are looking at the molecular mechanisms in the body," Adhikari said. "At the molecular level, you can look at what specific nutrients can do to your body that would trigger genes to act properly, in a healthy way."

Medeiros said K-State researchers in human nutrition are doing these kinds of studies. Some are studying the impact plant chemicals have on different types of cancers in terms of their potential prevention effects. Other researchers are looking at how wolfberry, a Chinese fruit, could be used to improve vision. "These studies not only answer whether the concerned nutrients prevent a disease, but also how they exert their health benefits," Medeiros said.

Current health recommendations for people in the United States are general for the overall population. However, with nutrigenomics research, health recommendations could be better modified to individuals.

"That is where I think the main focus of nutrigenomics is going to be in the future," Adhikari said. "It could tell you that you have the propensity for certain chronic diseases so that you could modify your diet accordingly. With a better understanding of how nutrients alter gene expression, there is a potential that food could be used instead of medication to combat problems like high cholesterol." Adhikari said this kind of personalized health care is in the near future since the human genome has been mapped. Now scientists are focusing on identifying single-nucleotide polymorphisms, which are a small change in a person's DNA sequence like sensitivity to bitterness. Polymorphisms could determine if a person has a propensity for different chronic diseases. At K-State, Adhikari and Mark Haub, associate professor of human nutrition, are leading a study of the genotypes of diabetic and non-diabetic individuals to determine if there is a link between the risk for type-2 diabetes and bitter-taste sensitivity.

Nutrigenomics would require a collaborative effort from people in genetics and the industries of public health, food science and culinary. Adhikari said more options should be available so that consumers can make the healthiest choice. He said the food industry should collaborate with the culinary industry to create more healthful and appealing foods. "This is one of the major issues with the food industry," he said. "It's very easy to make good-tasting food. Put some lard or butter in it, and it's going to taste good. The challenge is how to take the fat out and create healthful but also good-tasting food."

Consumer education also will be an important factor for the future of nutrigenomics and public health. Adhikari said consumers are often skeptical of genetically modified foods, where scientists modify a food's DNA by splicing and adding genes. However, this practice is different from nutrigenomics, which focuses on using foods' natural components to promote better health. The researchers said a shift in public health is greatly needed, and with an increasing incidence of obesity and chronic diseases such as types 2 diabetes, nutrigenomics might prove to be the panacea in the future.

ScienceDaily (Mar. 7, 2010) —
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Low Levels of Vitamin D Linked to Muscle Fat, Decreased Strength in Young People

A ground-breaking study published in the March 2010 *Journal of Clinical Endocrinology and Metabolism* found an astonishing 59 per cent of study subjects had too little Vitamin D in their blood. Nearly a quarter of the group had serious deficiencies (less than 20 ng/ml) of this important vitamin. Since Vitamin D insufficiency is linked to increased body fat, decreased muscle strength and a range of disorders, this is a serious health issue.

"Vitamin D insufficiency is a risk factor for other diseases," explains principal investigator, Dr. Richard Kremer, co-director of the Musculoskeletal Axis of the Research Institute of the MUHC. "Because it is linked to increased body fat, it may affect many different parts of the body. Abnormal levels of Vitamin D are associated with a whole spectrum of diseases, including cancer, osteoporosis and diabetes, as well as cardiovascular and autoimmune disorders."

The study by Dr. Kremer and co-investigator Dr. Vincente Gilsanz, head of musculoskeletal imaging at the Children's Hospital Los Angeles of the University of Southern California, is the first to show a clear link between Vitamin D levels and the accumulation of fat in muscle tissue -- a factor in muscle strength and overall health. Scientists have known for years that Vitamin D is essential for muscle strength. Studies in the elderly have showed bedridden patients quickly gain strength when given Vitamin D.

The study results are especially surprising, because study subjects -- all healthy young women living in California -- could logically be expected to benefit from good diet, outdoor activities and ample exposure to sunshine -- the trigger that causes the body to produce Vitamin D.

"We are not yet sure what is causing Vitamin D insufficiency in this group," says Dr. Kremer who is also Professor of Medicine at McGill University. High levels of Vitamin D could help reduce body fat. Or, fat tissues might absorb or retain Vitamin D, so that people with more fat are likely to also be Vitamin D deficient."

The results extend those of an earlier study by Dr. Kremer and Dr. Gilsanz, which linked low levels of Vitamin D to increased visceral fat in a young population. "In the present study, we found an inverse relationship between Vitamin D and muscle fat," Dr. Kremer says. "The lower the levels of Vitamin D the more fat in subjects' muscles."

While study results may inspire some people to start taking Vitamin D supplements, Dr. Kremer recommends caution. "Obviously this subject requires more study," he says. "We don't yet know whether Vitamin D supplementation would actually result in less

accumulation of fat in the muscles or increase muscle strength. We need more research before we can recommend interventions. We need to take things one step at a time."

ScienceDaily (Mar. 6, 2010) —
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New Testing Method Hints at Garlic's Cancer-Fighting Potential

Researchers have designed a urine test that can simultaneously measure the extent of a potential carcinogenic process and a marker of garlic consumption in humans. In a small pilot study, the test suggested that the more garlic people consumed, the lower the levels of the potential carcinogenic process were. The research is all about body processes associated with nitrogen-containing compounds, scientists say. These processes include nitrosation, or the conversion of some substances found in foods or contaminated water into carcinogens.

"What we were after was developing a method where we could measure in urine two different compounds, one related to the risk for cancer, and the other, which indicates the extent of consumption of garlic," said Earl Harrison, Dean's Distinguished Professor of Human Nutrition at Ohio State, an investigator in Ohio State University's Comprehensive Cancer Center, and senior author of the study. "Our results showed that those were inversely related to one another -- meaning that the more we had the marker for garlic consumption, the less there was of the marker for the risk of cancer."

Ultimately, the scientists hope to find that a nutritional intervention could be a way to stop the process that develops these carcinogens. This process is most commonly initiated by exposure to substances called nitrates from certain processed meats or high-heat food preparation practices, or to water contaminated by industry or agricultural runoff. About 20 percent of nitrates that are consumed convert to nitrites. A cascade of events can convert these compounds into what are called nitrosamines, and many, but not all, nitrosamines are linked to cancer.

Vegetables also contain nitrates, but previous research has suggested that the vitamin C in vegetables lowers the risk that those nitrates will convert to something toxic. Researchers suspected that nutrients in garlic could have similar antioxidant effects as vitamin C. The study is published in a recent issue of the journal *Analytical Biochemistry*.

The research began with the small human study based at Penn State University. Researchers there fed participants a weeklong diet lacking any nitrates or garlic. They then gave the participants a dose of sodium nitrate -- in a formulation that would not become toxic, but which would show a marker in the urine of the potentially toxic process.

Groups were then treated with capsules containing varying levels of garlic: 1, 3 or 5 grams of fresh garlic, or 3 grams of an aged garlic extract. A separate group received 500 milligrams of ascorbic acid, or vitamin C. Both the nitrate formula and treatments were given for seven days. Urine samples were collected from all of the participants every other day for seven days.

That research team then turned to Harrison and colleagues, who explored the methods required to precisely quantify biomarkers in urine for both the garlic consumption and the presence of nitrosoproline, the indicator that nitrosation has occurred. Harrison's group developed the urine test using a method called gas chromatography-mass spectrometry.

Gas chromatography separates components of a mixture to detect specific substances, and has been used previously to quantify nitrosoproline. The addition of mass spectrometry to the analysis allowed for determination of the chemical structures of molecules in the sample -- in this case, the presence of a specific compound that is released in urine after garlic is eaten.

When the test was used on the urine samples from the pilot garlic study, it showed that the participants who had taken garlic had lower concentrations of the marker for nitrosation than did those who took no garlic. Though the differences were slight, the consumption of 5 grams of garlic per day was associated with the lowest level of the marker for potential carcinogens. A single garlic clove typically can weigh between 1 and 5 grams. Vitamin C had a similar effect in lowering the marker for nitrosation.

Harrison, also an investigator in the Center for Advanced Functional Foods Research and Entrepreneurship at the Ohio Agricultural Research and Development Center, noted that previous research has suggested that garlic and other plants with sulfur-containing compounds offer a variety of potential health benefits. Many questions remain about exactly what those benefits are and precisely how garlic works as a nutritional intervention. "The precise mechanism by which garlic and other compounds affect nitrosation is under extensive investigation, but is not clear at this time," he said.

"What this research does suggest, however, is that garlic may play some role in inhibiting formation of these nitrogen-based toxic substances. This was very small pilot study, so it's also possible that the more garlic you have, the better it would be. So if you like

garlic and you like garlic-containing foods, go out and have as much as you want. There's no indication it's going to hurt you, and it may well help you."

ScienceDaily (Mar. 2, 2010) —

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Omega-3 DHA Kills Cancer Cells

STOCKHOLM, Sweden—Omega-3 fatty acid DHA may help treat many types of childhood and adult cancers including neuroblastoma, medulloblastoma, colon, breast and prostate cancers, according to a new study published in the FASEB Journal.

"We hope that this study can provide a deeper understanding of the actions of omega-3 fatty acids and their products in cancer cells, and why they can be of such high importance in treatment of the disease," said Helena Gleissman, PhD, co-author of the study from the Childhood Cancer Research Unit of the Karolinska Institutet in Stockholm. "Ultimately, we hope that we can be able to cure more children with neuroblastoma, and possibly other cancers."

Scientists administered DHA to neuroblastoma cells from the nervous system and analyzed the cells for byproducts as the DHA was metabolized into the cells. Researchers then examined the affect of both DHA and its derivatives on the growth of cancer cells. Results showed DHA killed the cancer cells, but that the toxic derivatives produced by DHA were even more effective at killing the cancer cells. This suggests that DHA could become a new agent for treating neuroblastoma and possibly many other cancers.

Food Product Design March 1, 2010

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Vegetable Juice Aids Weight Loss

DAVIS, Calif.—Incorporating vegetable juice into your daily diet may not only increase the number of daily vegetable servings, data from a recent study also suggest the potential of using a low-sodium vegetable juice in conjunction with a calorie-restricted diet to aid in weight loss in overweight individuals with metabolic syndrome (Nutr J. 2010;9:8). Researchers evaluated the effects of a ready-to-serve vegetable juice as part of a calorie-appropriate Dietary Approaches to Stop Hypertension (DASH) diet in an ethnically diverse population of people with metabolic syndrome, a constellation of metabolic risk factors for type 2 diabetes and cardiovascular disease (CVD), on weight loss and their ability to meet vegetable intake recommendations, as well as their clinical characteristics of metabolic syndrome (waist circumference, triglycerides, HDL, fasting blood glucose and blood pressure).

A prospective 12-week, three-group (0, 8 or 16 fluid ounces/d of low-sodium vegetable juice) parallel arm randomized controlled trial requested 81 participants with metabolic syndrome (22 men, 59 women) to limit their calorie intake to 1,600 kcals for women and 1,800 kcals for men, and were educated on the DASH diet.

There were significant group-by-time interactions when aggregating both groups consuming vegetable juice (8 or 16 fluid ounces/d). Those consuming juice lost more weight, consumed more vitamin C, potassium and dietary vegetables than individuals who were in the group that only received diet counseling ($P<0.05$).

Food Product Design March 2, 2010

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High-Fat Foods Intensify Asthma

NEW ORLEANS—Individuals with asthma should avoid eating high-fat foods because they cause increased airway inflammation and may inhibit the response to the asthma reliever medication Ventolin (albuterol), according to a new study presented at the ATS 2010 International Conference.

“Subjects who had consumed the high-fat meal had an increase in airway neutrophils and TLR4 mRNA gene expression from sputum cells, that didn’t occur following the low-fat meal,” said Dr. Lisa Wood, PhD, research fellow of the University of Newcastle. “The high-fat meal impaired the asthmatic response to albuterol. In subjects who had consumed a high-fat meal, the post-albuterol improvement in lung function at three and four hours was suppressed.”

Researchers studied 40 asthmatic subjects who were randomized to receive either a high-fat, high-calorie "food challenge", consisting of fast-food burgers and hash browns containing about 1,000 calories, 52 percent of which were from fat; or a low-fat, low-calorie meal consisting of reduced-fat yogurt, containing about 200 calories, and 13 percent fat.

Sputum samples were collected before the meal and four hours afterward, and analyzed for inflammatory markers. Subjects who had consumed the high-fat meal had a marked increase in airway neutrophils and TLR4 mRNA gene expression. Subjects who had consumed the high-fat meal also had reduced bronchodilator response as measured by FEV1% predicted and FEV1/FVC%, when compared to those had consumed the low-fat meal.

Food Product Design March 2010
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Multi-hued carrots offer a wide variety of health benefits

A review published in Comprehensive Reviews in Food Science and Food Safety shows that purple and red carrots offer just as much nutritional benefit as the typical orange variety. The review offers insight on the nutritional value of carrots of all colors, stating that the greatest benefits of this food are the phytochemical content and fiber. Carotenoids are compounds that are responsible for the multi-hues of carrots ranging from yellow to orange and red. Anthocyanins give the purple carrots their bluish-red hue.

Researchers from the University of Wisconsin at Madison suggest that:

■Red carrots provide the antioxidant lycopene.
■Yellow carrots may serve as an alternative bioavailable source of lutein.
■Dark orange carrots have more concentrated beta carotene that might assist people who are at risk for vitamin A deficiency.
■Purple carrots have similar bioavailability of beta carotene as orange carrots. The review authors detail that carrots have an impact on overall health and disease prevention including cardiovascular disease, cancer, and satiety.

"Understanding the bioavailability of carrots nutrients will help researchers determine how to best help a population in need," said lead author Sara Arscott.

IFT Newsletter March 17, 2010
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Chemical in bananas may act as HIV infection inhibitor

A new inhibitor of HIV, derived from bananas, may open the door to new treatments to prevent sexual transmission of HIV, according to a University of Michigan Medical School study. Scientists have an emerging interest in lectins, naturally occurring chemicals in plants, because of their ability to halt the chain of reaction that leads to a variety of infections.

In laboratory tests, BanLec, the lectin found in bananas, was as potent as two current anti-HIV drugs. Based on the findings published March 19 in the Journal of Biological Chemistry, BanLec may become a less expensive new component of applied vaginal microbicides, researchers say.

The new study describes the complex actions of lectins and their ability to outsmart the HIV virus. Lectins are sugar-binding proteins. They can identify foreign invaders, like a virus, in the body, and attach themselves to the pathogen. The U-M team discovered BanLec, the lectin in bananas, can inhibit HIV infection by binding to the sugar-rich HIV-1 envelope protein, gp120, and block its entry to the body.

Therapies using BanLec could be cheaper to create than current anti-retroviral medications which use synthetically produced components, plus BanLec may provide a wider range of protection, researchers say.

"The problem with some HIV drugs is that the virus can mutate and become resistant, but that's much harder to do in the presence of lectins," said lead author Michael D. Swanson, a doctoral student in the graduate program in immunology at the University of Michigan Medical School. "Lectins can bind to the sugars found on different spots of the HIV-1 envelope, and presumably it will take multiple mutations for the virus to get around them."

IFT Newsletter March 17, 2010
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Frying cod in sunflower oil may increase omega-3 consumption

A study published in the Journal of Food Science shows that pan-frying cod fish with sunflower oil may lead to a higher consumption of omega-3 fatty acids. Many studies have recommended consuming fish high in omega-3 fatty acids to promote optimal health. Pan frying is the most common way that fish is prepared, and it can affect the amount and quality of the fat content in the fish.

Researchers from University of Navarra in Pamplona, Spain, analyzed lean and fatty fish (cod and farmed salmon) after the application of pan-frying, using extra virgin olive oil and sunflower oil.

Results showed the following:

■Both oils have nutritional value; however, the use of extra virgin olive oil led to a higher fat absorption rate than the sunflower oil in both fish.
■The fat content of the salmon was hardly affected by pan-frying, while the cod showed a significant increase in fat content with both oils.
■The dietary supply of omega-3 in salmon was much higher regardless of oil type used when pan-frying. “With these results it is possible to conclude that, regarding the intake of omega-3 fatty acids, pan-frying lean fish with sunflower oil may be more beneficial than using olive oil because it would lead to a higher consumption of these compounds. However, the use of extra virgin olive oil was efficient to avoid a significant increase of the lipid oxidation intensity during frying in cod,” said lead researcher Diana Ansorena. “The type of oil has more influence in the nutritional fish quality for the lean fish compared to that of the fatty fish.”

IFT Newsletter March 24, 2010

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Nutrition & Health News

Cutting salt intake by 10 per cent 'could prevent thousands of heart attacks'

If the food industry and US government collaborated to lower salt intake by ten per cent, thousands of heart attacks could be avoided, it has been claimed. Research conducted at the Stanford University School of Medicine and the Veterans Affairs Palo Alto Health Care System in California created computer models to determine the potential number of lives that could be saved by reducing salt consumption.

It was found that by reducing salt consumption by 9.5 per cent a total of 531,885 strokes and 480,358 heart attacks would be prevented. Study author Dr Crystal Smith-Spangler said: "Per person on average it is a very small decrease in blood pressure, but over large populations, we saw a significant reduction in cardiovascular disease and in cost savings."

Earlier this year, the Wall Street Journal reported that some companies are quietly reducing the levels of salt in their flagship brands as part of a move to reduce American's salt intake by at least 20 per cent by 2014.

Posted By Lauren Cook **Ingredients Network 05 March 2010**

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Markets strengthen as Indians go the health way

The belief ‘An apple a day keeps your doctor away’ seems passé as Indians now seem to be eating a lot more than just apples to stay healthy! A recent *consumer insight report published by Datamonitor states that the health and wellness wave is going to be a forerunner in shaping the Indian FMCG industry in the years to come. According to Datamonitor estimates, in 2009, the packaged food and beverages market in India was worth approximately $21.6bn, of which, health and wellness foods accounted for $725m. This industry has been registering a solid annual growth rate of more than 25% for the past five years clearly highlighting the optimism amongst the consumers and the prospects of its manufacturers. The report shows that Indians have become increasingly aware of their health concerns and are proactively taking measures to deal with it.

“A need to stay healthy amidst a hectic lifestyle is driving Indians to take more interest in information related to health and wellness, engage in exercise routines and improve the quality of their dietary intake” says Rahul Ashok, Datamonitor’s Consultant – Consumer Markets.

Since Indians traditionally attach a lot of importance to ‘healthy eating and healthy living’, health food options are seen by many as a route to preventive healthcare and this has begun to command a larger share of the consumers’ wallet. “Over the last decade, the demand for health foods in India has been fuelled by the increasing incidence of lifestyle-related diseases, economic uncertainty and the awareness created through the media. This demand has now gathered enough steam to create a sustained impact on the consumers’ desire to eat healthy,” says Rahul Ashok , based in India .

Health consciousness has had an impact on Indian diet in two ways. Firstly, Indians have realized the importance of maintaining a healthy dietary habit of eating as much fresh food as possible and try to avoid potentially harmful fast/junk food. The perils associated with the consumption of junk food on a regular basis are now better understood by most Indians. A recent consumer survey conducted by Datamonitor reveals that the effort to eat healthily was linked to eating as fresh as possible. Indeed, 62% of Indians consumers stated that freshness related claims even on processed food and beverages had a significant impact on their product choices.

Secondly, Indians are increasingly trying to ensure that their dietary intake is sufficient to meet their daily nutritional requirements. As a result of the massive transformation in the lifestyle of an average Indian, their health priorities have transformed as well. These days, eating healthily is not only associated with maintaining a disease-free body, but also ensuring desired levels of energy/stamina, cognitive alertness, and physical appearance in terms of body weight and shape.

In the Datamonitor survey, 70% of the consumers have indicated that they make a conscious attempt to eat healthily on a regular basis. Furthermore, the survey highlights that Indian men and women display similar interest levels in improving their general health and well-being. However, women more actively buy and consume food and beverages with a health positioning. “The new generation of Indian women is making conscious efforts to read about health and wellness trends and to make evaluated purchase decisions based on their families’ health needs” adds Rahul.

Over the years, manufacturers in India have constantly made an attempt to position some of their offerings on a health platform. The manufacturers initially toyed with the concept of health and wellness to differentiate their offerings from that of the competitors in a growing market. However, as more and more companies join the health and wellness bandwagon, the point of product differentiation is fast blurring. To satiate the informed demands of today’s critical and discerning consumers, manufacturers have to continuously innovate by bringing in ingredients-linked claims, which are relevant and authentic.

Currently, the Indian market has product offerings with a mix of 'good for you' and 'better for you' positioning. 'Good for you' products are those which are fortified with ingredients that aid healthy living and 'Better for you' includes products where certain ingredients perceived as unhealthy are removed or reduced in the formulation. Through the Datamonitor survey it was found that, Indians are increasingly using the nutritional information on product packaging to understand such ingredient modification and potential health benefits, before making a product choice. "At this juncture, companies would have to focus on creating descriptive package-literature/graphics linked to nutritional information and health claims, as this is going to play the most significant role in consumer's purchase decisions" predicts Rahul Ashok.

Since the health and wellness wave offers a potential for differentiated positioning and even helps in commanding a price premium as of now, many manufacturers often use unsubstantiated claims in their marketing campaigns or product labelling to gain an unfair advantage. The flooding of markets with products making such false claims has led many Indian consumers in the last few years to displayed dissonance even over the legitimate health claims. "Lack of stringent regulations regarding advertising and marketing of FMCG products have held back the market from growing to its full potential. Therefore, it is imperative for the manufacturers to seek ways to add credibility to their health claims in order to reduce the consumer skepticism in future," concludes Rahul.

Analysing prospects, Datamonitor predicts that there is a tremendous opportunity for the food and beverage manufacturers to drive growth by offering ingredient modifications and packaging innovations to cater to this emerging set of health concerns and consumption patterns. While doing so, it is also going to become important for the companies to focus on creating sustainable and ethical processes for product development and marketing in order to profit from the opportunities in the Indian health and wellness sector.

From Datamonitor release Melbourne, 6th May, 2010 -

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Biodegradables May Be Future of Asia's Plastics Industry

Asia's plastic industry is growing, with China and India challenging established producers such as Thailand. Now, there is increasing attention to the environmental impact of plastics. Both environmentalists and industry executives agree biodegradable plastics will need to play a larger role in the industry's future. Asia's plastics industry is seeing new expansion, driven by demand in China and India, as consumers and product makers look to plastics to play the role of humble bag at the corner shop, all the way to sophisticated engineering parts. The global plastics market is estimated at around 200 million tons and has been growing five percent, annually. Some two million tons of Thai 14 million annual tons of solid waste are non-degradable plastics.

In the early days, plastic was viewed as a cheap and convenient alternative to other forms of containers and wrapping, such as paper or even traditional banana leaf in regions of Asia. But Greenpeace activist Ply Pirom says, gradually, awareness of the impact of plastics on the environment has grown. "People start to use [plastic] they are not really aware of the environmental impact until the past 10 years when the garbage problem is more and more," Pirom said. "Then people start to say, 'Hey it really a problem'. If you look at the trend of waste separation it's still not [much] progress but it's increasing." Thailand is now a key regional producer of raw materials for plastics and finished products. The Thai Plastics Industries Association has a membership of 500 companies.

In 2009, Thai exports of plastics products ranked among the top 10 in industrial sectors, with plastics exports worth more than $2.37 billion, targeting key markets such as Japan, the United States, Australia and Indonesia. The production of plastic products across the region has been rising, with China and India also seen as major producers generating millions of tons of plastic goods each year. But both environmentalists and industrialists are in agreement alternatives to plastics need to be found. They point to rising environmental costs, calls for substitution of renewable resources and steps to reduce greenhouse gases, key contributors to global warming and effecting climate change.

Thai Plastics Industries Association's Krianglit says biodegradable plastics, bio-plastics, are the future goal for the plastics industry. "In future, the final target should be 100 percent to be biodegradable and right now we try to achieve that," he said. "We buy the biodegradable mix with our normal plastic, maybe 50/50; they can be biodegradable but not so quickly like the 100 percent [plastic]."

Work is well underway. Currently corn-based biodegradable plastic materials are used to produce poly-lactic acid and drawn from plants with high starch content, such as corn and cassava roots. Bio-plastics are seen as being on the verge of a major breakthrough. Already they are being used in packaging, electronics, autos and agriculture.

In Furano Japan the community uses biodegradable plastic bags to collect household organic waste this in turn produces organic fertilizers. A pilot project is now underway in Thailand in a 730-household community north of Bangkok using bio-plastics in waste management. Thai Plastics Industries Association's Krianglit says Thailand's strength lies in the agricultural sector contributing to the future of bio-plastics.

"We are an agricultural product producer. For example, we have corn; we have the tapioca; and, we have the sugar - all raw materials based in Thailand, and exports. When the technology is perfect and good enough for us to apply, then we can be a good exporter in the

future to the worldwide market."

Daniel Loh, the BASF head of business management in specialty plastics in Singapore, says the future challenge is to ensure communities are involved in the debate about biodegradable plastics. Bring this message correctly across to the consumers to the relevant parties, legislatures, that biodegradable plastics serve a certain purpose," he said. "It is not merely to replace normal plastic bags. If waste collection methods are not in place, the structures are not in place, and if consumers have habits of littering plastics indiscriminately, that does not change. These are the challenges that we will face. "

Loh says countries across Asia are increasingly aware of the issue of plastics waste and management, including Japan, South Korea, Singapore, and Malaysia. But he says, in Southeast Asia, Thailand has taken the most steps in dealing with the problem. BASF has joined with German aid agency, GTZ, along with bio-plastic associations from Europe, Japan, Korea, Taiwan and the United States, to work together on research with Thailand's National Innovation Agency (NIA).

Thailand has a plan for development of the bio-plastics industry by 2012, with a budget of $54 million to promote research and development. Environmentalists want to see more government support promoting development of bio-plastics, as well as having consumers pay a higher price for using plastic containers and bags.
From: Soya Tech eNews March 1, 2010
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Botanicals hailed as inflammation fighters

Chronic inflammation and its role in human disease was a common thread in presentations in the botanicals track at the Nutracon conference Wednesday at the Hilton Hotel in Anaheim, California. Presenters Dr. Gailen Marshall and Bharat Aggarwal, PhD, were enthusiastic about the role botanical extracts could play in reducing inflammatory diseases, especially cancer. Aggarwal, of the University of Texas, spoke on the role of compounds found in various spices, especially those common to southern and southeast Asia, in fighting cancer. Epidemiological studies show a striking correlation of rock-bottom cancer rates in areas where consumption of such spices is high. Conversely, Aggarwal showed, a person moving from Shanghai to the US shows an increased risk of cancer. And North America, he noted, leads the world in the incidence of cancer.

Aggarwal related how then-President Richard Nixon declared war on cancer in 1971, with the goal of having a cure by 1975. But by 2002, cancer mortality rates hadn't budged a whit.
"If we are going to play to game the game against cancer as we have for the last 50 years for the next 50 years things are not going to get any better," he said. The pathway of protection for botanicals is in inhibiting NF kappa-B, a necessary part of the immune system that is also the culprit in many types of chronic inflammation.

Aggarwal focused on curcumin, the active compound in turmeric. The substance shows powerful anticancer activity, as evidenced by the truly staggering amount of data that Aggarwal brought to the table. It plays a key role in modulating the potentially harmful activity of NFkB.
Marshall was equally enthusiastic about botanicals' role in fighting disease, but he sounded cautionary notes about aims and health claims. "One size does not fit all," Marshall cautioned. Boosting the immune system of an already overly sensitive individual – someone who suffers from allergies or other autoimmune conditions, for example – would be inappropriate, for instance.

Marshall likened the functioning of the human immune system to a gyroscope. What is needed is not necessarily turning up the spin (or overly "boosting" the system, in other words) but rather helping it to function with as little wobble as possible. "One must be very careful about making claims," he said. "If not, this field, which needs to move forward, will be set back by regulators."
But, "there is great potential for botanicals as immune modulators," he said. "Botanicals (as food, supplements, etc.) have a built-in natural appeal. It excites me as we move forward that we are becoming more evidence-based."
By **Hank Schultz** from Functional Ingredients Mag March 10, 2010
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Coconut Water for Health

LONDON—New Nutrition Business released its "Coconut water: innovation and natural health benefits drive a new category" report, which analyzes the $450 million retail market for coconut water that is seeing huge growth thanks to its strong isotonic, hypoallergenic and all-natural health benefits.

The report provides detailed, independent and opinionated analysis, using supermarket sales data and interviews with executives at all of the companies concerned, as well as independent beverage industry experts. It analyzes packaging, ingredients and nutrition profiles, supply strategies, marketing communications strategy, pricing strategies, target consumers and flavors.
Food Product Design March 22, 2010
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Fat May Be Humans' 'Sixth Taste'

MELBOURNE, Australia—A newly discovered ability for people to taste fat could hold the key to reducing obesity, according to new research from the Deakin University. Researchers also found that people with a high sensitivity to the taste of fat tended to eat less fatty foods and were less likely to be overweight. The research team developed a screening procedure to test the ability of people to taste a range of fatty acids commonly found in foods. They found that people have a taste threshold for fat and that these thresholds vary from person to person; some people have a high sensitivity to the taste while others do not.

"We know that the human tongue can detect five tastes—sweet, salt, sour, bitter and umami (a taste for identifying protein rich foods). Through our study we can conclude that humans have a sixth taste—fat," the researchers wrote. "We also found that those with a high sensitivity to the taste of fat consumed less fatty foods and had lower BMIs than those with lower sensitivity. With fats being easily accessible and commonly consumed in diets today, this suggests that our taste system may become desensitized to the taste of fat over time, leaving some people more susceptible to overeating fatty foods."
Food Product Design March 8, 2010
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Chocolate may cut blood pressure and help heart

According to BBC News, a study published in the European Heart Journal shows that consuming chocolate can lower blood pressure. The study of more than 19,000 people found those who ate half a bar a week had lower blood pressure. They also had a 39% lower risk of heart attacks and strokes. The study looked at the chocolate consumption of middle-aged men and women over eight years. It compared the health of those who ate the most and least chocolate. The difference between these two groups was just 6 g a day, equivalent to one small square of chocolate a day.
The lead author, Brian Buijsse, from the German Institute of Human Nutrition, Nuthetal, said "Our hypothesis was that because chocolate appears to have a pronounced effect on blood pressure, therefore chocolate consumption would lower the risk of strokes and heart attacks, with a stronger effect being seen for stroke."

This is, in fact, what the study found. Those who ate more chocolate cut their risk of heart attacks by around a quarter, and of stroke by nearly half, compared with those who ate the least. But Buijsse warned that it was important people ensured that eating chocolate did not increase their overall intake of calories or reduce their consumption of healthy foods. The researchers believe that flavanols in cocoa may be the reason why chocolate seems to be good for people's blood pressure and heart health. And since there is more cocoa in dark chocolate, dark chocolate may have a greater effect.
IFT Newsletter March 31, 2010
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Protecting Consumers With Food Allergies Should Improve With New International Guidelines

The European Commission's Joint Research Centre has co-authored new international guidelines which should better protect consumers, by promoting the harmonized, accurate and reliable testing of potentially lethal food allergens by analytical laboratories worldwide. The guidance document is the result of several years of negotiation by a high-level collaboration of experts from regulatory agencies representing Canada, USA, Australia, Japan, the European Union, academic research institutions, and food allergen test-kit manufacturers, under the auspices of the AOAC (Association of Analytical Communities) Presidential Taskforce on Food Allergens.

For the first time, national authorities carrying out official food allergen controls have a common basis for accepting validated testing methods. Consumers allergic to certain food ingredients will benefit from an increased level of protection by the availability of harmonised and reliable testing methods, and international trade will be facilitated by applying mutually-agreed testing protocols.

Protection through better measurements
The new guide is important because consumers depend on truthful labelling of food products to avoid allergic reactions. Accurate labelling is only possible if an internationally-agreed set of validated testing methods that are reliable and robust is available. The use of so-called ELISA testing methods (enzyme-linked immunosorbent assay) to detect food contaminants and residues is fairly well established. However, the new guidance document addresses for the first time the validation of ELISA testing methods for food allergen analysis in a harmonised way.

Food allergens are proteins, which are large and complex molecules. Scientists have to target the right mixture of protein markers in food samples to reliably detect the presence of food allergens. The targeted proteins have to meet multiple criteria, such as the efficiency with which they are extracted from the food sample and the ability to withstand food production processes like roasting and extrusion.

Hope for treating food allergies
Until now, avoidance of the offending food is the only means of protecting allergic persons. New approaches are currently developed to treat food allergy sufferers, thereby improving their quality of life. The Cambridge University Hospitals NHS Foundation Trust in the United Kingdom is forging ahead with a new project which is demonstrating a revolutionary approach to treating patients with

food allergies. By using a technique called immunotherapy -- where the patient is given the substance they are allergic to -- the Trust will carry out a major trial of peanut oral immunotherapy involving 100 children suffering from peanut allergies.
ScienceDaily (Mar. 2, 2010) —

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Regulatory News

CRN Responds to McCain Bill

The Council for Responsible Nutrition (CRN), Washington, D.C., has sent a letter to Sen. John McCain (R-AZ) regarding the recently introduced Dietary Supplement Safety Act of 2010. In his letter, Steve Mister, president and CEO of CRN, said the association is "concerned about some of the mischaracterizations of the dietary supplement industry."

"Dietary supplements are already required by the Federal, Food, Drug and Cosmetic Act (FDCA) to ensure that the claims they make about their products are truthful, and not misleading, and that the manufacturer has adequate substantiation to support these claims. Current federal law also requires dietary supplements to have a standard Supplement Facts box on the label that describes the suggested use, serving size, amount per serving, percentage of the daily value and list of ingredients. If the label does not provide this information along with the identity and quantity of ingredients, then the product is misbranded and its manufacturer is subject to both civil and criminal penalties."

In a statement on the Senate floor, Sen. McCain said the legislation would require dietary supplements to list all ingredients on packaging, mandate all supplement manufacturers to register with FDA to ensure the agency knows what is being sold and provides FDA with mandatory recall authority.

CRN's letter states: "We respectfully disagree that your legislation, as introduced, would not 'seek to limit consumers' ability to purchase dietary supplements,' and that it would not establish 'a new regulatory structure for dietary supplements' at FDA. S 3002 would replace the existing New Dietary Ingredient provisions of the FDCA with a list of 'Accepted Dietary Ingredients' to be created by FDA; it would be illegal to market a supplement containing an ingredient that is not on the list. Accordingly, dietary ingredients with a long history of safe use and wide consumer acceptance would have to petition FDA to get on the list…"

"Moreover, the legislation would create civil liability for any retailer that sells dietary supplements if it fails to obtain certification from its suppliers or manufacturers that the products it sells have met all the upstream regulatory requirements, such as being on the list of 'Accepted Dietary Ingredients.'"

While Mr. Mister noted there are parts of the legislation it can agree on, "there are onerous provisions in the bill that do, in fact, fundamentally alter the regulatory structure and limit consumer access."
Nutraceuticals World Breaking News March 1, 2010
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Clarity Needed in Use of Biomarkers to Substantiate Food, Supplement Health Claims

WASHINGTON—The standards of science used by FDA in evaluating health claims for foods or dietary supplements should be no different than those used in assessing drugs, according to a new report from the Institute of Medicine (**IOM**), as all these products can have significant effects on people's well-being. IOM's Committee on Qualification of Biomarkers and Surrogate Endpoints in Chronic Disease recommended a new framework for FDA to use to consistently evaluate the health and safety claims based on stated effects of biomarkers and surrogate endpoints in chronic disease.

The evaluation framework, outlined in a **report brief**, involves three steps: analytical validation of the biomarker tests, qualification of evidence associating the biomarker with the disease, and utilization of the biomarkers as a surrogate endpoint if the evidence supports it. The committee tested the framework using case studies of biomarkers, such as cholesterol levels and their connection to cardiovascular disease. While the committee noted the use of biomarkers is critical to the regulation of food and drugs, there are concerns that the process is not harmonized and may require legislative adjustments to strengthen FDA's authority.

Specifically, the committee, convened by FDA's Center for Food Safety and Applied Nutrition (CFSAN), suggested Congress permit FDA to require further studies of drugs and devices after they are approved if their approval is based on studies using biomarkers as surrogate clinical outcomes. It also suggested granting FDA the authority to conduct studies of how well consumers understand food and supplement health claims and requiring manufacturers to make changes if needed to promote greater clarity.

“Many people naturally assume that the claims made for foods and nutritional supplements have the same degree of scientific grounding as those for medications, and this committee thinks that should in fact be the case,” said committee chair John Ball, executive vice president, American Society for Clinical Pathology, Chicago. “Without changes in the way biomarkers are used and assessed, however, health care providers, regulators and consumers will not be able to reliably collect or judge information to support claims.”

However, the committee may have gone outside its bounds in making its regulatory recommendations, according to Daniel Fabricant, Ph.D., vice president of scientific and regulatory affairs, Natural Products Association (NPA). “There is valid need to use surrogate biomarkers where no mechanism of action has been identified in how certain foods or nutrients affect certain disease states,” he said. “We need to find a way to bridge the gap when we don’t see a clear mechanism of action but can see beneficial health effects from nutritional ingredients and foods. Biomarkers can give us an idea of this, and trying to see foods through the same lens as isolated pharmaceuticals is impractical from a policy standpoint.”

Andrew Shao, Ph.D., senior vice president scientific and regulatory affairs, Council for Responsible Nutrition (CRN), attended one of the committee’s three meetings, held over the last 18 months, and said from the start it appeared the committee thought food policy and regulation was within their purview. “In fact, CFSAN laid out a mandate as the agency is looking for more biomarkers to rely on as surrogate endpoints for chronic disease to allow for more health claims,” he said. “Ultimately, the committee completed a great framework to validate these biomarkers, but went ahead and dove into areas that were outside of the scope of what they were equipped to do.” He added one of the committee members, Ronald Krauss, M.D., will be participating in CRN’s Annual Day of Science, set for Sept. 29 in Austin, Texas.

From Food Product Design March 2010

Consumers Want FOP Labeling

OAKBROOK TERRACE, Ill.—Eighty-six percent of consumers are interested in the government implementing objective front-of-pack labeling that calls out calories and beneficial nutrients such as vitamin D or fiber, according to a new survey by FoodMinds.

The survey also found 77 percent of shoppers are interested in front-of-package labels designed to warn them of products with high calories, low nutrients, while 64 percent said if their favorite food had a warning label on it, they would either eat less or stop buying the product entirely.

The majority also believe they are individually responsible for making the right food choices to avoid obesity, but will readily accept the government's help to be successful. In fact, 74 percent favor government-sponsored nutrition education programs to help them better identify the "good" versus the "bad" foods; 58 percent support the government banning advertising of "unhealthy" foods to children and young adults; and half are in favor of the government allowing employers to reward healthier employees while levying higher costs or fines to punish those who engage in unhealthy behaviors.

Food Product Design March 9, 2010

FDA Cracks Down on Food Labeling Violations

ASHINGTON—The U.S. Food and Drug Administration (FDA) notified 18 food manufacturers regarding the labeling of food products that violate the federal Food, Drug, and Cosmetic Act. The violations cited include unauthorized health claims, unauthorized nutrient content claims, and the unauthorized use of terms such as “healthy,” and others that have strict, regulatory definitions.

Companies that received warning letters have 15 business days to inform the FDA of the steps they will take to correct their labeling or be subject to legal proceedings that would remove misbranded products from the marketplace.

The action follows an October 2009 statement by FDA Commissioner Margaret Hamburg, MD, encouraging companies to review their labeling to ensure that they were in compliance with FDA regulations, and were truthful and not misleading.

In an **open letter to industry** dated March 3, Hamburg underscored the importance of providing nutrition information that consumers could rely on. She also expressed her hope that the warning letters would clarify the FDA's expectations for food manufacturers as they review their current labeling.

"Today, ready access to reliable information about the calorie and nutrient content of food is even more important, given the prevalence of obesity and diet-related diseases in the United States," she said.

Hamburg has made nutrition labeling a priority for the FDA. The warning letters are the agency's most recent action to help improve consumers' ability to make nutritious choices. The FDA soon will propose guidance regarding calorie and nutrient labeling on the front of food packages and plans to work collaboratively with the food industry to design and implement innovative approaches to front-of-package labeling that can help consumers choose healthy diets.

Food Product Design March 4, 2010
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Food labelling should be easier to understand, say MEPs

Food labels in the EU should be easier to understand and should contain more information, members of European Parliament have said. Despite voting against the enforcement of an EU-wide "traffic light" system to show key food ingredients such as salt, sugar and fat, MEP's have suggested that more advice should be readily available to enable consumers to make informed choices based on a product's energy content and nutritional value.

The report from the European Parliament's environment committee lays out draft legislation which aims to modernise, simplify and clarify food labelling within the European Union. It recommends making minor changes to existing rules regarding compulsory information on food labels, such as the product's name, a list of ingredients and "best before" or "use by" date. MEP's also suggested an additional requirement to list key nutritional information.

Paul Lincoln, chief executive of the National Heart Forum, has criticised the decision by the Food Standards Agency (FSA) not to introduce compulsory "traffic light" labelling, saying that consumers are being "denied the most useful scheme on the market".
Ingredients Network 17 March 2010
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Food labelling verdict 'could be a threat to consumer health'

A leading health advisory body has expressed serious concern about the Food Standards Agency's (FSA) decision not to enforce 'traffic light' labelling on food packaging. The FSA announced yesterday (March 11th) that traffic light labelling - which indicates the guideline daily amounts (GDAs) of key food ingredients in a particular product using a three-colour code - would not be made compulsory.

However, Paul Lincoln, chief executive of the National Heart Forum, pointed out that independent research had shown the system was the one which best helped consumers to identify elements such as calories, salt, sugar and saturated fat. An excess of salt and saturated fat in the diet can increase the chances of developing heart disease, in addition to other conditions such as diabetes.

Mr Lincoln worried that the FSA's ruling meant consumers were being denied "the most useful scheme in the market", and warned that the decision could even be a disincentive for food manufacturers that are currently using the system to continue doing so. "There is quite a lot of evidence that when you put these front-of-pack labels on packs, it does encourage the producers to reformulate [food products] but also it does change consumer [purchasing] behaviour," he explained.
Ingredient Network 12 March 2010
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FSA calls for reduced saturated fat and sugar

The Food Standards Agency (FSA), has called on manufacturers to reduce the levels of saturated fat in their sweet snacks and sugar in fizzy drinks. It also believes companies should change the sizing of their chocolate confectionery and soft drinks, providing a greater variety of sizes, to help consumers opt for a healthier diet. According to the FSA, an independent government department that protects the health and consumer interests of the public in relation to food, companies like confectionery giant Cadbury, should cut the saturated fat content of their filled chocolate bars by at least ten per cent.

Plain sweet and savoury biscuits and plain cakes should also have ten per cent less fat and other biscuits and cakes should see a five per cent reduction, the FSA said. There would be "real public health benefits" if the FSA recommendations were followed by

manufacturers.

However, critics said the FSA proposals were not enough. Richard Watts of the Children's Food Campaign said the FSA should tell people to drink fewer fizzy drinks and consume fewer snack foods rather than reduce the size of them, the Guardian reported.

Ingredients Network 29 March 2010
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IADSA Addresses Global Regulatory Issues

The global food supplement industry recently gathered in Istanbul for the Annual Meeting of the International Alliance of Dietary/Food Supplement Associations (IADSA) to address the scientific and regulatory issues shaping the future of legislation. The meeting brought together members from Asia, Europe, Latin America, Russia and the U.S. to establish priorities for action. It was agreed that:

- The IADSA Scientific Programme would be extended to cover the substantiation of claims and best practice in the regulation of botanical ingredients in supplements.
- That a global framework for good manufacturing practices (GMP) would be developed. This will bring together elements of existing GMPs from across the world.
- That cooperation would continue with governments across Asia and Latin America as priorities.
- That IADSA should monitor closely developments in the EU, and particularly on the health claims Regulation, in view of the global importance of the EU in regulation.

Peter Zambetti, the newly elected Chairman of IADSA, highlighted the importance of harnessing the combined expertise and networks of the members across the world. “IADSA is an organization that continues to move from strength to strength,” he said. “We have to move forward on engaging in more education and training for decision-makers, whether in government or science. It is vital that whatever regulatory and policy solutions are arrived at across the world, the interests of the whole supplement sector are protected.”
Nutraceuticals World Breaking News March 18, 2010
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USDA Secretary Vilsack urges Congress to reauthorize Child Nutrition Act

On Feb. 23, U.S. Department of Agriculture (USDA) Secretary Tom Vilsack spoke at a National Press Club Luncheon to highlight the Obama Administration’s priorities for the reauthorization of the Child Nutrition Act and to advocate for the rapid passage of a strong reauthorization bill to reduce hunger and improve the health and nutrition of our nation's children.

"The health of our nation—of our economy, our national security, and our communities—depends on the health of our children. We will not succeed if any of our children aren't learning as they should because they are hungry, and cannot achieve their potential because they aren't healthy," said Agriculture Secretary Tom Vilsack. "This reauthorization is a critically important opportunity to improve the health of our children and reduce hunger in this country."

The reauthorization of the Child Nutrition Act is the primary legislation of First Lady Michelle Obama's "Let's Move!" campaign, which seeks to solve the epidemic of childhood obesity within a generation.

By passing a strong reauthorization of the Child Nutrition Act, the Administration hopes to reduce hunger, promote access, and improve the overall health and nutrition of children throughout the country. Specific priorities in this area include:

- Improve nutrition standards. Establishing improved nutrition standards for school meals based on the Dietary Guidelines for Americans and taking additional steps to ensure compliance with these standards.
- Increase access to meal programs. Providing tools to increase participation in the school nutrition programs, streamline applications, and eliminate gap periods.
- Increase education about healthy eating. Providing parents and students better information about school nutrition and meal quality.
- Establish standards for competitive foods sold in schools. Creating national baseline standards for all foods sold in elementary, middle, and high schools to ensure they contribute effectively to a healthy diet.
- Serve more healthy food. Promoting increased consumption of whole grains, fruits and vegetables, and low- and fat-free dairy products and providing additional financial support in the form of reimbursement rate increases for schools that enhance nutrition and quality.
- Increase physical activity. Strengthening school wellness policy implementation and promoting physical activity in schools.

- Train people who prepare school meals. Ensuring that child nutrition professionals have the skills to serve top-quality meals that are both healthful and appealing to their student customers.
- Provide schools with better equipment. Helping schools with financial assistance to purchase equipment needed to produce healthy, attractive meals.
- Enhance food safety. Expanding the current requirements of the food safety program to all facilities where food is stored, prepared, and served.

IFT Newsletter March 3, 2010

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FDA survey finds more Americans read information on food labels

A majority of consumers read food labels and are increasingly aware of the link between good nutrition and reducing the risk of disease, according to the latest survey of dietary habits released by the U.S. Food and Drug Administration (FDA).

The 2008 U.S. Health and Diet Survey of more than 2,500 adults from all 50 states and the District of Columbia found that, for the first time, more than half of those surveyed "often" read a label the first time they buy a product. Yet, while the number of consumers reading a food label the first time they buy a product has risen, consumers are skeptical of industry claims such as "low fat," "high fiber," or "cholesterol free" on the front of packages.

The 2008 survey is the 10th such survey since 1982. It was based on a random-digit-dialing telephone survey weighted for the number of phone lines and adults in a household, gender, race/ethnicity, and education.

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FDA seeks public comments on increasing transparency with regulated industry

As part of the final phase of its transparency initiative, the U.S. Food and Drug Administration (FDA) is seeking comment from the public and other interested stakeholders on how the agency can increase transparency in its interactions with regulated industry.

Posted in the March 12 Federal Register, the request for electronic or written comments has a deadline of April 12, 2010.

The FDA formed an internal Transparency Task Force in response to the Obama Administration's commitment to achieve "an unprecedented level of openness in Government." The Task Force is developing recommendations for making information about FDA activities and decisions more useful, understandable, and readily available, while appropriately protecting confidential information.

The Task Force held public meetings in June 2009 and November 2009. Based upon input received thus far, the Transparency Initiative has been divided into three phases. The first phase, creating a Web-based resource called "FDA Basics" to provide information on commonly misunderstood aspects of the agency, has been completed. The second phase, improving FDA's disclosure of information to the public, is underway and the agency intends to issue draft proposals for public comment soon.

The request for comment for the third phase follows a series of listening sessions with members of regulated industry in January 2010. Transcripts and summaries of those listening sessions are available at fda.gov/transparency and at regulations.gov.

For this final phase, the FDA is particularly interested in comments from all interested parties on how the agency can make improvements in the following areas:

■Training and education for regulated industry about the FDA regulatory process in general and/or about specific new requirements
■The guidance development process
■Maintaining open channels of communication with industry routinely and during crises
■Providing useful and timely answers to industry questions about specific regulatory issues Electronic comments may be submitted to regulations.gov.

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