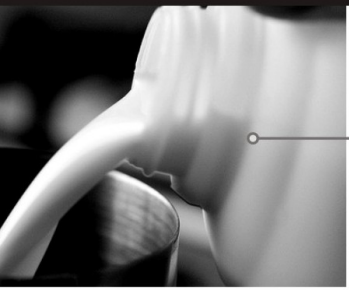

Editorial

Safety is probably one of the most underrated aspects of Indian life. Whether it is the road, construction, electrical devices, railways or even the everyday life in general, people are not much concerned about safety. When the roads are dangerous, people complain because of inconvenience and delays but not because it may cause accidents causing threat to life. Buildings are constructed so they are convenient, nice looking, comfortable etc. but whether they will last without collapsing in a few years' time or slabs may fall and cause injuries are things not considered by buyers. Electrical devices should not only work but should be attractive and cheap and not expensive. There have been so many cases of electrocution but that does not hinder consumers from buying unsafe devices.

There were several cases of terror attacks in many metro cities. In order to curb recurrence, cameras were placed, detectors were installed at stations, police parties were deployed at certain key places and everyone was watchful for a little while. Passengers would even watch luggage and bags being kept on racks by fellow passengers. Today many of these are either not working or are idling and people are not worried whether any untoward incident might occur.

Similar lack of concern about safety is seen with respect to food. Even when people know that many foods are prepared in unhygienic places at roadside where gutter is flowing behind and the quality of water is suspect, people will still eat streetfood because it is tasty with little regard for its safety. Any time some poisoning case occurs, people are watchful for some time. They will avoid drinking water and eating food outside.

This would go on for a few days or a few weeks and then again people would forget the incident. Regulators and enforcers also have the similar attitude. Whenever there is an article in media about unsafe adulteration there would be hectic and frantic activity by inspectors. Some offenders would be arrested. There will be officers issuing public statements about do's and don'ts. After a few days or weeks the whole thing would be forgotten and life would continue as before.

Are consumers not interested in safety at all? Are they not aware of the dangers of foods prepared under unhygienic conditions that might cause food poisoning? Consumer activists are talking a lot about chemical residues and additives in foods but they are not talking about microbial safety of foods including those prepared using unsafe water. Consumers even talk about them being immune to such bacteria.

It is not just street foods but sometimes sweets and other products prepared from milk may cause health hazards if they are not prepared using hygienic and safe processes. Many food poisoning organisms thrive very well on milk as it provides all the nutrients needed.

Food Safety & Standards Act has provided scientific basis for evaluation of foods for safety and this is a very good beginning. We must ensure that this awareness about safety reaches common people who should not just worry about chemicals in foods but also pathogens in foods that can cause various food poisoning and intoxication due to consuming foods that are contaminated.

Wishing all our members a season's greetings,

Prof. Jagadish S. Pai
Executive Director
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Texture Solutions for Snack Bars

Whatever the flavour, snack and nutrition bars are hard. However, due to protein technology advances and availability of various ingredients like fruits, syrups, grains and hydrocolloids, one can provide right eating quality from chewy to crunchy.

Water, water everywhere

Water is one important ingredient that is directly related to hardening rate of bar and its shelf life. Water works as plasticizer in nutrition bars providing flexibility and keeping them softer. As bars need to be shelf stable and without any final thermal processing, water activity needs to be less than 0.65 for food safety.

When bar contains high level of protein, water movement in matrix is very important as it tends to move from binders like syrups to proteins and other dry ingredients after bars are produced. Thus over a time syrups that provide flexibility as plasticizer will lose water. Proper selection of proteins is important to minimise migration of water and to maintain softness throughout shelf life. Not all proteins work similarly in bars.

For the joy of soy

Soy proteins have been a cost-effective alternative to other proteins in bars but different effects on hardness and shelf life. Special processing can minimise their hydrophilic property resulting in lower water migration to proteins and more consistent bar texture. Soy protein isolates with over 90% protein is available in a wide variety of functionality and texture options from short, cookie-like texture to chewy or fudgy bite. Isolate provides clean flavour, high protein content, ability to extend bar shelf life, superior machineability in bar processing and low cost compared to dairy proteins. Combination of dairy and soy proteins have better taste and texture than those with dairy protein alone.

Soy protein crisps or nuggets are commonly used in bars and besides providing high quality protein they also provide crispness and crunchy texture. Soy protein nuggets also reduce bar density and calorie density of bar. One company launched a nugget with 90% protein on dry weight basis.

Textured soy concentrates are also cost effective options to protein crisps. For consumers looking for moderate levels of proteins there are soy protein concentrates with low flavour profiles. Minimally processed soy flour is another excellent option for baked cookie bars or for use in gluten-free products. Soy flour delivers 53% protein with minimal impact to flavour and texture.

Wheying in

Regardless of type of protein, higher levels affect the bar more than lower levels. It is important to find balance between nutritional value and shelf life. Whey protein products

are available as isolates, hydrolysates, concentrates and specialty fractions and peptides specifically designed for bars to deliver good texture and flavour.

Whey protein isolates and concentrates can be used to add shortness or chewiness to bar and hydrolysate adds softness. Whey proteins in combination help in water binding, water activity and flavour of bars. They can also be used in whey crisps and nuggets as nutritional substitutes for cereal-based ingredients. With a full complement of amino acids, they boost lesser-quality protein especially plant proteins providing optimum nutrition.

According to a study in 2007, consumers preferred meal-replacement nutrition bars made with whey or a combination of whey and soy to bars made only with soy as the latter were harder and brittle with lack of cohesiveness and produced many particles during chewing.

Customisable whey protein crisps can improve bar acceptability by adjustment to suit flavour, colour and texture needs and used at desired protein level in finished bar. Crisps range from 25% to 70% protein so one can select appropriate crisp depending on how much room available in formula and protein level in finished snack bar (usually 10 to 30%). Most common crisps used have protein levels 50%, 60% or 70%. Texture depends on protein level, crispier texture having lower protein levels. It must be noted that whey crisps when added to nutrition bar will alter significantly the texture and taste due to their crunch and flavour. High protein crisps avoids need to solubilise and incorporate high protein solutions.

Hydrolysed whey protein allows more rapid utilisation of amino acids in body and also it helps prevent hardening that may develop on storage of bar as peptides have lesser tendency to draw moisture from other ingredients than do proteins. However, hydrolysed whey proteins are bitter and incorporation of sweeteners of flavours can help.

Grains to go

Whole grains not only add texture but also help in nutritional claims. Use of extruded intermediates enables claims such as “good source of protein” or a “good source of fibre”. Whole grain and multi-whole grain claims can be made whole ground corn, whole grain wheat, whole brown rice and whole oats, used singly or mixed and also provide hearty crunch and delightful toasted flavour. It is possible to get high expansion with crispy texture using multiple grains and starches that provides volume and neutral flavour to which vanilla or cinnamon flavour can be added giving lightly sweet aftertaste or with cocoa powder for signature flavour base.

Three forms of grains are available for bars: flakes, coated grains and clusters. Milled whole grains like oats, wheat, barley and rye can be either whole flakes or in quick-flake form are generally used in cereal bars that are baked. Choice of whole or quick flake will affect the texture and chew resistance. Simple coated grains have chewy bar applications. Use of coating alters texture in the final product, which are normally sweet and higher

ratio of reducing and non-reducing sugars will make them chewy. Total sugar content will affect the other texture characteristics. Pre-baked, coated grains are usually custom-designed for specific bar application and can be nutritionally enhanced using protein and fibre which also affect texture.

Cereal clusters of lighter, expanded whole-flakes grains can also be used to for texture giving less dense, air-containing bars by inclusion of components like fibre and protein crisps. Here also coating of cereal components will give advantages in designing texture.

Using small, uniform components will make a bar that is too compact and will also have shelf-life limitation if moisture equilibrates making the bar tough to chewy. Water activity balance is a key part in designing the bar and providing adequate shelf-life. Emerging ingredients include gluten-free flours including a blend of rice, potato and tapioca flours. Addition of soy flour helps with cohesion and reduction of brittleness of final product. Wheat and other cereal protein isolates deliver 80 to 90% protein. Baked bars with soy and wheat proteins have better cell structure, better bite and less dough-like or undercooked texture.

Focus on fibre

Fibre not only improves nutrition but also increases shelf life of bars by improving water binding and retention during processing and storage. Viscosity in sticky bars can be increased using fibre without excessive use of thickeners giving flexibility to bars reducing its breakage. Nutrition bars when extruded have hard, chewy or dense texture so adding fibre modifies their texture making it easier to eat for those who do not like chewy or dense product. Fibres also enhance extrusion rate as they are shear-resistant and withstand higher temperature.

Oat fibre is used at 2 to 3% in formulation as higher levels affect the mouthfeel of bar. Sugar beet fibre is ideal for provides granola type bars at 3 to 5%. Cellulose, wheat fibre and sugarcane fibre can be used in breakfast cereal bars, meal-replacement bars and low-carbohydrate bars at about 5%. Inulin and oligofructose offer both fibre enrichment and binding with other binders. They extend shelf-life and oligofructose provides partial sugar replacement.

Fruit and nut options

Many nutritional bars contain fruit products. Concentrated fruit juice is added as natural sweetener and also provides flavour and colour. Purees have humectant property and are also used to replace fat while keeping texture soft. Low-cost dried fruit powders like apple and pear can be added to binder to help with moisture control besides serving to deliver fruit. Some larger pieces of fruits may be incorporated topically to give visual appeal.

The amount of fruit used may depend on bar type. Nutritional bar is extruded and has a fruit filling with fruit content up to 35% with common usage at 7%. As per nutritional requirements about 3 to 5 grams fruit per bar gives ¼ fruit serving depending on bar size.

Moisture of dried fruit needs to be adjusted to match the water activity of the bar and the texture profile. If not done, texture of the bar may change during storage due to moisture migration. It may also affect colour as some fruits turn brown during storage. Apple and pear are neutral in colour but certain berries and exotic fruit powders may transfer colour pigments to bar matrix. Addition of high-coloured ingredients towards the end of the process of bar making may reduce the colour bleeding.

Dried plums improve bar taste, texture and nutrition besides helping to naturally bind moisture, round-out and enhance flavour and provide antioxidants, fibre and potassium. Improved texture of bar is due to fibre and sorbitol in dried plums. Sweetened dried-fruit ingredients are convenient alternatives to fruits difficult to process including orange, mango, raspberry, strawberry, cherry, blueberry and pomegranate.

Nuts are popular in bars adding crunch even at 5% level with sliced or diced almonds. For reducing carbohydrates and increasing protein, almond flour or meal can be added at 20 to 40%. A gluten-free bar contained nearly 75% almond ingredients in various forms like meal, flour, butter and paste.

Refining texture

Sugars and/or sugar replacers as well as hydrocolloids are main ingredients affecting the texture of bars. Sugars or replacers make up binding syrup and make up about 50% of granola-type bar. Hydrocolloids are used at less than 2% of bars either granola type or high-protein dough type.

In granola type, sugars have the most impact on texture. Texture is influenced by type of sugar e.g. fructose softens the bar, reduces water activity, improves sweetness profile and the taste of fruit in the bar. Moisture along with ratio of binding syrup to particulates changes the texture. Granola type bar having more binding syrup or syrup with more moisture will be chewy and softer.

Hydrocolloids also soften texture and can be used in binding syrup or protein dough type. They not only soften high-protein bars but extend their shelf life. Adequate balance avoiding excessive use of hydrocolloids prevents negative impact on texture. Various gums such Arabic, guar or cellulose effectively act as water binding agents giving desirable textural characteristics during storage. Bar hardening is due to migration of moisture from protein or starch that can be minimised by gums. It is not possible to prevent migration of water but adding water-holding components like gums can minimise its impact.

Condensed from an article by Cindy Hazen in Food Product Design May 2010

Recent Notification about Fruit & Vegetable Products

By Nehal Bagga & YK Verma, Regulatory Affairs, Nestle India Limited.

India is one of the largest producers of fruits and vegetables. Growth potential of India's fruit and vegetable processing industry is enormous. Fruits, vegetables, packaged/convenience foods, alcoholic beverages and soft drinks, are important sub-sectors of the food processing industry. Food additives are used in all these sectors to add flavor and/or to increase the shelf life of the products. Although India is one of the world's major food producers, its contribution to international food trade is very low. This indicates vast scope for both investors and exporters. Indian consumers are becoming increasingly interested in healthy food. This has led to the entry of new additive categories.

Recently there have been certain notifications from the Ministry of Health and Family Welfare on usage of various additives in food categories specifically related to carbonated beverages, targeting fruit and vegetable processing industries. One of them is GSR 63, which raises various concerns to the industry. Though it has allowed the use of certain additives in foods like carbonated fruit beverages or fruit drinks, nectars, etc… at the same time there are many ambiguities which needs attention. There is no sweetened category available for the most commonly used Indian fruit beverages. For instance, no sugars are allowed for reconstituted from concentrate orange, reconstituted from concentrate pineapple, grape and apple juice. This may eventually force industry to shift from juices to nectars or beverages with low fruit content.

Another concern here is the labeling, as India has addressed the same in 32nd Session of CCFL to incorporate "food additive sweeteners" against the term "sweetener" to food additives used as sweetening agents to replace sugars in fruit juice/nectars. Hence, to distinguish fruit nectars containing food additive sweeteners from other fruit nectars by the labelling requirement provided i.e. "with sweeteners". Condition for use of sweeteners should be laid down by the authorities.

Consumers should be aware of what they're buying, how healthy it is, does it contains an ingredient that might affect people with allergies, and how to store and cook the food safely. This category is for healthy consumers and use of safe additives should be allowed. Hardly any attempt has been made to study and inform potentially sensitive subgroups in the population. The potential consumers at risk like diabetics, can be identified and informed by appropriate labeling instead of restricting the use of a particular additive in all the food categories.

Although regulatory systems have been developed to protect the consumer from potential adverse effects and unsubstantiated medicinal claims, consideration of the need to have in place regulatory systems which enable consumers to be better informed about the potential benefits of foods, beyond their straightforward nutritional content, is lagging behind.

The FSSA is already in process of harmonizing its regulations on additives and aligning it to Codex. The harmonization of Indian food regulations with internationally accepted standards like Codex help in growth of Indian food business. There's going to be paradigm shift in the regulation with food categorization system in place. The question arises was there still a need of such notification at this point of time when redefining of food regulations and standards is in process.

The evaluation should be science based. The addition or deletion of an additive should be based on scientific grounds for e.g. the goal of sulfite regulation is to make sure that there is no higher level of sulfite residues in food than is absolutely necessary and to encourage the use of substitutes for sulfites in food processing. Foods that contain sulfites will have to be labeled. Due to the presence of undeclared sulfites, people who have severe sensitivity to sulfites may run the risk of allergic reactions if they consume this product. Use of sulfite should be widespread even in fruit juices and other beverages. Hence the use of additives should be based on the safety of that particular additive in human population rather than allowing its use in few food categories.

The PFA act is more than 50 years old. There have been very few changes in the legislation since then. With the advancement of science and India being representative of various Codex committees and a signatory to WTO, Industry now expects that their concern will be addressed more effectively now by the authorities. The draft notification was released in 2005 and has been defered many times since then. In span of five years there has been substantial work done by JECFA but the content of notification remains the same.

Advances will be driven by increasing consumer interest in foods, which promotes demand for high-value premium.

Golden-Girl Nutrition

When asked my husband's grandmother who celebrated 100th birthday who was petite and alert mother of three what her secret for vim, vigor and vitality was, she said, "I eat good food." She ate minimally processed foods, as well as balanced and portioned meals ending with something sweet such as fruit or chocolate, both natural antioxidant sources. When possible it was homemade custard with all-natural ingredients like egg yolks (with lutein and zeaxanthin for eye health and choline for brain function) and cream (with calcium for bone health as well as conjugated linoleic acid for lean muscle). However, with changing time, women rely on prepared and packaged foods. As aging signs start appearing around 40, what are the options for her in Nutrition Facts to undertake her journey into golden years?

Masterpiece in the making

Women have special dietary needs moving through different stages of life each stage having certain health concerns. Woman of 40s is beginning to retire her reproductive

system with less estrogen being produced. Estrogen has several roles in woman's body including helping protect heart, preserving bone strength and lifting and stabilizing woman's moods. Decreased estrogen also causes gradual yet visible changes like dry skin, wrinkles and weight gain as well as such problems like fatigue, sleep disturbances and hot flashes.

Influence of soy supplementation on many women's health concerns has been studied. Soy isoflavones are called phytoestrogens i.e. they are estrogen-like substances from plants. These isoflavones have been shown to decrease occurrences of hot flashes and assist with other menopausal symptoms.

As women age, they absorb and utilize nutrients less efficiently. For example, B vitamins may be less well absorbed and skin generates less vitamin D from sunlight. Women in 40s and 50s must also start protecting their mental acuity and physical strength to avoid later progression to Alzheimer's or injuries like hip fracture in senior years. Although it may be wishful thinking never to get old, by the time one accepts the inevitable, some of the damage has been done.

Market responds to consumers who did not take advantage of care in their younger years whether due to lack of time, money or awareness. There is a range of whole extracts and pure compounds that work as antioxidants, anti-inflammatories, neurotransmitter modulators and hemo-dynamic agents responding to age-related degerative mechanisms of actions.

Boning up on osteoporosis

Grandmama never aspired to be runway model but at 100, she has great posture and never fractured a bone. Not many are as lucky. National Osteoporosis Foundation (NOF) states that 80% of 10 million Americans afflicted by osteoporosis are women. 50% of women over 50 will eventually have a fracture due to osteoporosis. Consuming nutritionally balanced diet containing milk, yogurt and cheese rich in calcium and vitamin D can help women improve bone health. Although sunlight and dairy products provide these essential nutrients most women today rely on fortified foods for them.

Food and Nutrition Board of Institute of Medicine established Adequate Intakes (IAs) for calcium required for its retention and bone health in healthy people and for women up to the age of 50 is 1000 mg. As women age, their need for calcium goes up. For those over 50, the AI is 1200 mg. Higher consumption of protein, caffeine and sodium may show calcium deficiency as these increase calcium excretion through kidneys. Also foods with high amounts of oxalate (spinach, rhubarb etc.) and phytate (legumes, wheat bran etc.) reduce absorption of calcium. Also, calcium is best absorbed when the amount per single meal is around 500 to 600 mg or less.

Foods and beverages containing at least 20% of Reference Daily Intake (RDI) of calcium per serving can make health claim of role of calcium in reducing the risk of osteoporosis as per US FDA. Some of the other conditions for claim include, phosphorus not

exceeding calcium content, wording must also say that the osteoporosis depends on many factors including gender, race and age. FDA also permits other claims like “good source of calcium” for 10 to 19% RDA per serving and “high calcium” for 20% or more.

Many calcium compounds can be used for fortification depending on cost, calcium content, solubility, taste, mouthfeel and other factors for specific applications. Commonly following are used: carbonate (40% Ca by wt.), chloride (27%), citrate (21%), gluconate (14%), lactate (14%) and phosphate (17 to 38% depending on mono-, di- or tribasic). Other options are dairy calcium such as high calcium protein and milk minerals (Ca contents from 2 to 25%) and other calcium forms like calcium amino acid, malic acid chelate and calcium fumarate (19%).

NOF recommends that women less than 50 years get 400 to 800 IU of vitamin D daily. After 50 years, it should be 800 to 1000 IU. Some experts are saying that given reduced exposure to sunlight and dropping consumption of milk, level should be raised to 10,000 IU per day. Fat soluble vitamin D comes in two forms, both appearing to be equivalent in bone health: D3 or cholecalciferol (generated by exposure to UV rays) and D2 or ergocalciferol. Recent studies show that both forms are metabolized differently with D3 being more effective.

Combination of vitamin D and calcium is essential for strong bones. Specifically, vitamin D is important for absorption and regulation of calcium and phosphate in blood and for mineralisation of bones. Recently it is shown that vitamin K1 helps activate bone proteins that function in bone mineralisation.

Soy isoflavones reduce the bone loss in postmenopausal women especially soy proteins high in isoflavone daidzein is shown to reduce bone loss as women age. Recent study, Osteoporosis Prevention Using Soy, showed that adding soy isoflavones with calcium and vitamin D in diet reduced bone loss in postmenopausal women.

Prebiotic galacto-oligosaccharide (GOS) has been shown to increase calcium absorption by about 16% in post-menopausal women. One proposed mechanism for this is that GOS is selectively fermented by gut bacteria producing short chain fatty acids lowering gut pH and increasing solubilisation of Ca and Mg. Another theory is that calcium binding transporter protein calbinding forms and acts in presence of prebiotics.

Skin-deep nutrition

The effects of exposure of skin to sun starts showing in women above 40 years as the UV rays produce tan and also damages skin. UV rays exposure of skin will lead to formation of free radicals that disrupt body’s normal pathway and cause mutations that lead to wrinkling, discolouration and even cancer. Some food ingredients can help improve skin’s integrity and colour for example, aloe vera possesses anti-inflammatory and moisturising properties, while antioxidant sources like cocoa flavonols, grape seed extract, vitamins A, C and E quench destructive free radicals.

Fighting aches and pains

As people age, cartilage separating bone begins to wear away and joint space between bones narrows. As bones have fewer cushions between them inflammation and consequent aches and pains begin, the condition worsening with age. Glucosamine has been used by arthritis sufferers to reduce symptoms. This amino sugar is present in shells of shellfish, animal bones and bone marrows as well as some fungi. It functions as a precursor of glycosaminoglycan, a major component of joint cartilage.

Active lifestyle, impact sports and aging can all wear down joint cartilage. Glucosamin can help provide cushioning effect for joints. Present in human tissue, glucosamine has been used safely as a supplement to promote mobility and joint health. Commercially the fungal source provides non-animal and non-shellfish source of vegetarian, allergen-free, kosher and halal glucosamine. It can be added to many food products as a ‘drop-in’ ingredient. It is quite compatible with acid environment and usually 1500 mg glucosamine per day provides benefits of joint health.

Antioxidants are also used in healthy-joint strategy. Rosehip powder 2.5 g consumed twice daily has been shown in four studies to soothe sore joints within three weeks. Antioxidants in rose hip may prevent the damaging cell reactions caused by chemokines and interleukins in joints. Preparations of rose hip powder helps reduce oxidative activity which speeds up joint deterioration.

Staying slim and trim

Metabolism slows down with age. Women’s metabolism slows at a rate of 2 to 3% every year after 30 years but it can still be controlled. Weight gain is more due to changes in lifestyle and physical activity than to hormonal changes. Also older women experience a condition of sarcopenia, the age-related loss of muscle mass, function and strength. Regular exercise and adequate intake of dietary protein help prevent sarcopenia. Recent findings have shown that whey proteins which are high quality proteins from milk provide anabolic advantage over other proteins in promoting muscle synthesis due to high levels of leucine.

Replacing muscle with fat will burn fewer calories as muscle tissue is metabolically more active than adipose tissue resulting in weight gain. Hence sufficient protein intake and routine exercise are essential for staying fit as women age.

Protein and fibre also help with weight management as they provide a feeling of fullness to curb appetite. Reducing calories is very essential for most women for preventing obesity and for those dieting controlling appetite will help. Reduction in portion size also helps reduce calories. Use of fibre is very useful as it provides fewer calories and also provides satiety. Insoluble fibre also provides gut health and promotes laxation. Constipation is one of the problems as people age but women suffer more.

Women’s dedication to maintain vim, vigour and vitality has opened doors for a new generation of women’s food and beverage innovations.

From an article in Food product design May 2010 by Donna Berry

NATIONAL NEWS

Focus on global food quality standards: QCI

The Union Ministry of Food Processing Industries and Quality Council of India (QCI) has called for increased focus on hygiene and compliance to global standards for food safety and quality. In view of the growing concern for food safety and impending changes in India's food regulations, the food businesses need to increase focus on improving the benchmarks, Mr B. Venkataram, Chief Executive Officer of National Accreditation Board for Certification Bodies of QCI, said. Addressing an awareness programme conducted by the Ministry and QCI here on Saturday, he emphasised the importance and role of accreditation for the food industry.

Dr S. Srinivasan, who represented Food Safety and Standards Authority of India, spoke about the domestic regulation concerning food safety and quality and the transition from PFA Act to new regulations under Safety and Standards Act, 2006. The latter Act made good hygienic practices compulsory.

Quoting Public Health Foundation of India, a QCI press release said that 80 per cent of all deaths could be attributed to food and water. “While globalisation and removal of tariff and non-tariff barriers have brought in international competition to domestic markets, it has prompted the Indian food industry to adopt strong practices of food safety and quality in order to be competitive. It is important to note that improving food safety and quality has to be a constant and continuous effort rather than a one-off effort. All stakeholders should take part in the effort,” it said.

From: Hindu Business Line August 8, 2010

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Alarm Over Chemicals in Veggies

How fresh and healthy are the vegetables that you consume daily? Not very, according to the Union Health ministry. In a bid to make them look garden fresh and ensure that they grow faster, farmers are using chemicals at random that threaten to become a serious health hazard for consumers. Expressing concern, minister of state for health Dinesh Trivedi said, “Eating vegetables – a must for good health – may pose serious threat to health, causing nervous breakdowns, sterility and various neurotic complications because of their chemical content.”

In a letter to Union health secretary K Sujatha Rao, Trivedi has called for immediate action against farmers involved in such unscrupulous acts. The letter outlines that the health benefit of consuming green vegetables finds “a sharp contradiction in the present day context.” Farmers are blatantly using hormone shots to help vegetables grow at a faster rate. “These hormones may cause irreparable damage to our health, if consumed over a period of time,” Trivedi wrote.

Oxytocin, the most commonly used hormone, war earlier prescribed primarily for pregnant women. However, the drug is now banned for human consumption. The injection is mainly being administered to vegetables like pumpkin, watermelon, brinjal, gourd and cucumber, with potentially hazardous side-effects.

Times of India, New Delhi 28.07.2010
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Food Processing Can Thrive on Improved Infra, Wastage Cut

The food processing industry, termed as the sunrise sector of the Indian economy, is growing at the rate of 15% annually. It used to grow at 7% before 2005. Even though India is the second largest food producer in the world, processing level of agriculture and allied commodity is only 6-8% compared to 70-80% in developed countries.

The cost of production in India is 40% cheaper comparable to a location in the European Union and 10-15% over a location in Hong Kong. “There is huge technological gap in post harvest management and processing of agriculture produce. Around 30-35% of the produce gets wasted annually due to lack of proper cold chain in India. Market driven agriculture with strong backward linkages and the cold chain supply network can boost production and minimize wastage” said Subodh Kant Sahai, minister of food processing industries (MoFPI), at an entrepreneur meet on Friday.

“There has been around 16% improvement in food wastage in the last five years. Agricultural produces worth Rs. 60,000 Cr. are wastage annually. Gaps in infrastructure and backward linkages need to be identified to cut produce wastage further.” said Ashok Sinha, secretary of the food processing ministry. On the ministry’s 100-day agenda, Sinha said work is going on a number of projects, and is under various degrees of completion.

Between 1991 to November 2006, the total inflow of foreign direct investment in the food processing sector stood at Rs. 5,270 crore ($1.2 billion). The highest investment in a single year was at Rs. 1,000 crore recorded in 2001-02. “Foreign direct investment in food processing sector in 2009-10 is 225% more than what it was a year back. Processing levels in the country now stand at 11% compared to just 6% in 2004. Exports have increased 30% compared with 2005,” added Sinha.

The ministry plans to set up 10 integrated cold chain projects, including one irradiation project, which will create a storage capacity of over one lakh million tonnes in the

country. “The proposal for upscaling this scheme has been approved and the ministry is likely to come out with the expression of interest shortly for selecting around 25 more cold chain projects,” Sahai said. Currently, 50 proposals for setting up cold chains across the country, are under consideration added Sahai.

Ten mega food parks are at various levels of implementation. Four more will come up after the government approval. The projects are to be implemented under the public-private-partnership mode with a total expenditure of Rs. 100-150 crore. A maximum of Rs. 50 crore will be provided by the government.

The ministry is contemplating soya processing board and guar gum processing board on the lines of national meat and poultry processing board and Indian grape processing board. An investment in food processing sector can generate higher rate of employment than any other sector. The industry employs an estimated 1.6 million people, one-fifth of the country’s industrial labours, and accounts for 14% of the total industrial output. ITC, Dabur, Britannia, Parle, Amul, Godrej and Venky’s are the major Indian firms present in food processing, while multinationals like Wal-Mart, Nestle, Pepsi, Coke, Kellogg’s, Unilever and Glaxo have their operations in the country.

Financial Express New Delhi 05.07.2010

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Food Processing Industry: An Emerging Sector in NE

Food processing industries have been given high priority in our country. This sector has emerged as a major sunrise sector and has a great potential for development. Today, India is the world’s second largest producer of fruits and vegetables next to China. The country also tops in the world in production of banana, mango, tomato, potato, onion, green peas and coconut. In the milk sector also, India became the largest producer of milk displacing United States of America a few years ago.

The country has the potential of being one of the biggest in the food and agricultural sector. The installed capacity of fruits and vegetables processing industry has doubled from 1.1 mn tonnes in 1993 to 2.1 mn tonnes in 2006. Presently, the processing of fruits and vegetables is estimated to be around 2.2% of the total production in the country. The major processed items in this segment are fruit pulps and juices, fruit-based ready-to-serve beverages, canned fruits and vegetables, jams, squashes, pickles, chutneys and dehydrated vegetables. The new arrivals in this segment are vegetable curries in retortable pouches, dried fruits and vegetables, canned mushroom products and fruit juice concentrates. The total food production in India is likely to double in the next ten years and hence there will be an opportunity for large investments in food and food processing technologies, skills and equipment, etc. India’s food processing sector covers fruits and vegetables, meat and poultry, milk and milk products, beer and alcoholic beverages, fisheries, plantation, grain processing, and other consumer product groups like confectionery, chocolates and cocoa products, soya-based products, mineral water, high

protein foods etc. The industry also cover sectors like canning, bottling plants, cold storage, packaging industries, process machinery etc.

However, in spite of being the second largest producer of fruits and vegetables with annual production of around 155 million metric tonnes, only three to four per cent of the total fruits and vegetables and about 18-20% of milk produced in our country are processed and converted into value-added products. There is also a huge loss of 25 to 30% of the produce due to lack of efficient postharvest management and also lack of adequate infrastructure like grading, storing, packaging, poor handling, transportation, etc. In the developed countries on the other hand, 60-70% of fruits and vegetables are processed.

However, the food processing sector has emerged as a key industrial sector in India. This industry ranks fifth in size, contributing 6.3% to GDP, 19% to the country's industrial labour force and 13% to exports. Statistics show that not only the domestic market is rising, but exports of processed fruits and vegetables from our country have also increased from $166.77 million in 2004-05 to $394.11 million in 2008-09. Similarly, exports of fresh fruits and vegetables have also increased from $206.68 million in 2004-05 to $535.74 million in 2008-09. From an estimated present size of $200 billion, this industry is likely to grow to over $310 billion by 2015.

In the north-eastern region on the other hand, the congenial agro-climatic and soil conditions offer a great scope for development of food processing industry. The entire region is endowed with a variety of fruits and vegetables, spices, a number of food crops, etc.; the number of industries in the food processing sector is negligible. Out of a total of about 100,000 SMEs in the region, about 7000 (7%) industries are in the food processing sector. On the other hand, the use of processed food is becoming popular in the region due to various socio-economic changes such as increase in population, increase in income level, urbanisation, changes of taste and food habits, increase in the number of working couples, improvement in the living standards of people, etc. Besides, a large number of hotels and restaurants, tourist centres, hostels, military and paramilitary organisations and institutions, etc. also consume a large quantity of processed and other food items in the region. The demand for processed food items is likely to grow in the near future.

However, before setting up any food processing industry in the region, the entrepreneur is to make a thorough market survey, see whether the fruits, vegetables or food crops are available locally (depending on the type of industries), the power position or availability of power, soft water, skilled labour, packaging materials, etc. The Ministry of Food Processing Industries recently initiated a number of schemes to create an impact for promotion of food processing industries in the country in general and the north-eastern region in particular. The ministry has also developed strategic intervention with redesigning of certain schemes and strong implementation arrangements in areas like cluster-based, privately-driven food parts, integrated cold chain facilities and strategic distribution centres, leveraging the agri-horticultural surpluses and setting up testing and certification laboratories, etc. Such a policy gives special thrust for developing food-based industries in the region too by developing general infrastructure, market linkages,

technology infusion and support services to the entrepreneurs. There are various other schemes too from other ministries and departments. Our entrepreneurs should utilise these opportunities and grab them immediately.

From article by Dr. Sunil Kr Saikia in Assam Tribune Guwahati 08.06.2010

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Need for Soil Searching

It just isn't the good earth any more. Indian soils are under severe stress. And the compulsion to produce more food grain to meet the demands of ever increasing population and welfare obligations (such as those emanating from the new food law) from a shrinking area is set to put greater pressure on soil resources. Soil health degradation has emerged a serious threat to sustainable agriculture that aims to cater to present and future foodgrain needs.

In the run-up to blueprinting the much vaunted food law, reviving soil health and fertility should therefore have been a key precondition for policy makers. As should have been exponentially boosting storage capacity and strengthening procurement infrastructure in the existing Public Distribution System (PDS). Having delibitated it systematically over the last several years, however, the government now appears to be planning to put the entire weight of grain delivery under the new food law on the very same PDS, a classic demonstration of putting the cart before an old, hobbling horse.

Studies have established that a marked decrease in soil nutrients has noticeably affected crop yield per hectare, quite aside from poor or nil irrigation and other key inputs besides increasing rain-dependence. Over the last six years, there has been an increasingly weakening relationship between fertiliser consumption and foodgrain yeald, highlighting not just stagnant yields for several crops but not just stagnant yields for several crops but simultaneously sending of warning signals on food security and the economic health of farmers. Against an estimated annual removal of 34mt of nutrient (NPK) from soil, the replenishment from fertilisers is pegged at only 26mt, leaving a net deficit of 8mt of nutrients, a deficit that accumulates annually, further depleting the soil of secondary and micronutrients.

Soil testing is a basic necessity to determine the quantity of nutrients to be applied and has a key position under the new nutrient-based subsidy (NBS) regime for fertilisers. Yet, the country has only about 700 soil testing labs with an analysing capacity of severn million soil samples per annum.

Things can get a lot dirtier. Poor soil mapping and worse soil testing infrastructure threaten to make a mockery of the Centre's efforts under the NBS policy to replenish soil health unless urgent efforts are made to exponentially boost the number of soil testing labs and facilities countrywide. Worse, in most states, both general fertiliser recommendations and soil fertility maps have become grossly outdated. Deficiency of nitrogen, phosphorus, potassium, sulphur, zinc and boron is quite widespread now in

Indian soils and is 89%, 80%, 50%, 40%, 48% and 33% respectively. Curiously, though, underpinning the proposed food security law with an efficiently conceived national programme for soil mapping has never been on the radar of the government.

Agri-economists agree that the Indian agricultural sector currently suffers from decelerating productivity growth rate. It is imperative, therefore, to catalyse agricultural productivity, raise rural incomes and address serious challenges to faster productivity growth. Stagnant yields caused by declining soil health have affected real incomes on the ground for the entire farming community. Yet today, policy makers seem to set more store by "imminent" radical changes in farm sector through the growth of mobile telephony than by tackling nitty gritty such as mandatory issue of soil health cards to all 89.3 million farmer households. The irrational expectation of farm growth from mobile use is much on same lines as expectations pinned on agri-biotechnology, based on the Bt cotton experience in the country over the last two decades. Quite contrary to general belief, though, cotton is not that one crop that showed exponential increase in output in two decades. Studies prove that percentage increase in production of wheat, oilseeds and cotton crops in 2006-07 over the base year (1960-61) are 577.7%, 321.1% and 229.9%, respectively, proving that effective traditional inputting rather than agri biotech sustained the impressive crop output in the country.

In "Impact of Fertiliser on Indian Agriculture and Rural Prosperity", ND Shukla of the Project Directorate for Farming Systems Research, Meerut, argues that the crop production scenario in the country changed markedly within a 30-year span. The share of gross irrigated area rose to 99.5% in 2000-01 over 1970-71, a two fold increase within a span of 30 years in tandem with heightened use of fertilisers. Fertiliser consumption shot up to 16.7 mt in 00-01 from only 2.2 mt in 70-71. There was a steep rise in production of rice, wheat and total cereals from 42.2 mt, 23.8 mt and 96.6 mt in 70-71 to 85.5 mt, 69.7 mt and 185.7 mt in 00-01 and similar sharp growth in oilseeds and commercial crops like cotton, jute and sugarcane. The sharp growth in crop production improved the socio economic conditions of the farming community and resource poor farmers in particular. Not only did gross incomes rise since 70-71 till 00-01 (some 16.4-fold increase in gross return from crop production) but per capita income too rose (approximately 870% in the same period). Soil health, therefore, ranks high as a food security, poverty elimination and social upliftment factor.

It also acted as a catalyst for growth of other key farm inputs such as credit for crop improvement in the same period. But replicating that success through a second Green Revolution is unlikely to succeed if fundamentals in the farm sector such as soil health are ignored. The Fertiliser Association of India had suggested, to no avail, a centralised agency for soil mapping with soil fertility status checks every five years followed by remedial action taken, soil testing labs with testing facilities for secondary and micro nutrients and the PPP route to strengthening soil health and soil testing infrastructure. It's time for the government to urgently hit the dirt trail.

Economic Times Delhi 20.07.2010

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Life Imprisonment for Food Adulteration Under New Law

The new anti-adulteration law makes food adulteration an offence punishable with life imprisonment and manufacturers can be fined up to Rs 10 lakh, Health and Family Welfare Minister Ghulam Nabi Azad said. Speaking in Rajya Sabha he said the Food Safety and Standards Act passed by the Parliament in 2006 will come into force in next 3-4 months.

The Act integrates multiplicity of provisions under various food related laws. It will among other things regulate food safety standards and uniform licensing in the country. Of the 101 sections in the Act, so far 43 have been notified and the rest will be notified shortly, he said. The delay, he said, was mainly because several subjects were not under the Health Ministry and had to be brought under a common ambit. Employees under various departments had to be transferred to the Food Safety and Standard Authority of India that has been established under the Act. “In 3-4 months, this (Act) will become law,” he said.

The new Act provides for penalty on manufacturers of adulterated food items including fine of Rs 1 lakh to Rs 10 lakh to be adjudicated by an officer of the rank of Sub-Divisional Magistrate. Earlier, the fine was to be decided by the court, which will now decide on imprisonment. Adulterers face 6-month to life imprisonment, he said. “The new Act aims to ensure safe, hygienic and wholesome food for the citizens of the country. It also bestows responsibility on the food manufacturers and traders to manufacture and supply safe, hygienic and wholesome food,” he said.

It also provides provisions regarding food recall procedures and improvement notices. Adjudication processes have also been introduced for speedy disposal of cases under the new Act, he added. “I agree that the speed at which State governments should have been taking lead (in controlling adulteration) is not happening,” he said, adding only 7.21 per cent of samples collected by States during last three years have been found adulterated.

From: http://www.thehindu.com/news/national/article405965.ece

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New Food Safety Laws to Boost Imports, Exports

The Food Safety Standards Act 2006 will replace the prevention of Food Adulteration Act, 1956. This will bring Indian food laws at par with global norms, and give food imports and exports a boost, CNBC-TV18’s Shubhro Sen reports. This is not old wine in a new bottle. The new Food Safety Standards Act, which is expected to come into force in December, will give Indian food laws a sharper and stronger set of teeth. For one, it will lay down rules to standardise separate segments of new generation foods.

A whole range like detox, pro- and pre-biotoc, anti-oxidants, organic, genetically modified and irradiated, among others will be dealt with. So while the old act dealt with

only adulteration, the new one will deal with even negligence-induced, unintentional sub-standardisation. The new law is expected to make Indian food processing companies meet international standards.

Seema Vyas, Commissioner, FDA Maharashtra, said, “In order to give a boost to our exports, certainly, our products have to be acceptable to the consumers of the country who we are targeting. Also they have to be in-line with the statutory requirements of those countries and have to comply with the international standards as well.”

The new act also lays down a case-by-case punitive action plan—a nice change from the old law which prescribes compulsory prosecution, with a guilty verdict carrying a uniform minimum six months sentence and a Rs 1,000 fine. “It is only in cases where the case is injurious to health, we'll be sending it to court, in rest of the cases, there are provisions for graded penalties and compounding of offences so that will reduce the burden on the courts and expedite the process,” Vyas said.

Experts say the new law will help boost food imports, and attract more foreign food companies to the Indian market. Gowree Gokhale, Partner, Nishith Desai Associates, said, “Typically, when a company tries to make a business plan for a certain country, they will want to be compliant with the local laws. And if the laws are silent on certain things, it gives them a lot of discomfort.”

The Food & Drug Administration is gearing up to implement the new laws in December. Training sessions for officials should be over by September, and workshops with food industry players are expected to kick off by November.
From: CNBC TV 18 News Centre August 25, 2010
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Health & Nutrition News

Reconsidering ALA Omega 3s

Thanks to a plethora of media attention, many consumers know that omega-3s are good for them. However, omega-3s encompass several healthful fatty acids, including alpha-linolenic acid (ALA), eicosapentaenic acid (EPA) and docosahexanoic acid (DHA). And, despite the fact that ALA is the only omega-3 with an established Dietary Reference Intake (DRI) value, the majority of focus has been on the long-chain omega-3 fatty acids EPA and DHA for their myriad health benefits. Consequently, the efficacy of ALA has come into question.

Omegas dialed down

Omega-3 fatty acids are involved in a wide array of physiological processes in the body. For instance, they serve as a structural component for cell membranes, thereby regulating membrane fluidity and integrity of receptor sites. They also regulate serotonin and

dopamine transmission, influence the production of anti-inflammatory compounds in the body, and play a role in eicosanoid synthesis, gene expression, cell growth and protection from apoptosis. In addition, omega-3s influence cognitive development and vision in infants (*Current Pharmaceutical Design*, 2009; 15(36):4,165-4,172).

Each omega-3 fatty acid has its own unique metabolic fate in the body. ALA is the only omega-3 that is considered essential (meaning the body must obtain it from food and cannot make it), whereas EPA and DHA are made from ALA through a series of enzymatic reactions. Though both EPA and DHA are manufactured from ALA, and therefore not (at the current time) considered essential for consumption, this process is inefficient and affected by other fats in the diet. Omega-6 and omega-3 fatty acids compete for the desaturase and elongase enzymes and, therefore, the total amount of the omega-6 fatty acid linoleic acid (the only other essential fatty acid) affects the extent of ALA conversion to EPA and DHA (*American Journal of Clinical Nutrition*, 2000; 71(1):179S-188S). Studies show that approximately 8% to 21% of ALA is converted into EPA, and 4% to 9% of ALA is converted to DHA. Men are on the lower end of this scale, and women on the higher end (*Current Opinions in Clinical Nutrition and Metabolic Care*, 2004; 7(2):137-144).

Because so little ALA is converted to EPA and DHA, some argue that consumers should opt for EPA and DHA and skip ALA altogether, and that EPA and DHA should have established DRIs. However, others have a different take on the matter.

“For years, ALA was compared to EPA and DHA, but a compilation of ALA research has shown that ALA has its own health benefits, and consumers need to add all omega-3s to their diet,” says Carol Berg Sloan, R.D., nutrition consultant, California Walnut Board and Commission, Folsom, CA.

Several studies show that increased consumption of ALA-rich foods can improve some cardiovascular disease risk factors (*American Journal of Clinical Nutrition*, 2001; 74:612–619; *American Journal of Clinical Nutrition*, 1999; 69:890–897; *British Medical Journal*, 1996; 313:84–90). However, all foods naturally rich in ALA also contain a variety of other bioactive compounds that may act independently or synergistically to improve cardiovascular disease risk factors (*American Journal of Clinical Nutrition*, 2009; 89(5):1,649S-1,656S). Common natural sources of ALA include flaxseed and flaxseed oil, walnuts and walnut oil, soybeans and soybean oil, pumpkin seeds, rapeseed (canola) oil, and olive oil. The Adequate Intake for ALA is 1.6 and 1.1 grams per day for adult men and women, respectively.

Although some evidence points toward ALA for health benefits, an abundance of research shows that EPA and DHA play an important role in health and disease prevention. EPA and DHA consumption decreases high blood triglycerides and coronary heart disease risk (*Clinical Cardiology*, 2009; 32(7):365-372) and improves blood pressure and vascular function (*Clinical and Experimental Pharmacology and Physiology*, 2006; 33(9):842-846). In addition, research shows that EPA and DHA show promise for taming inflammation in those with inflammatory diseases such as rheumatoid

arthritis and inflammatory bowel disease (*Molecular Nutrition and Food Research*, 2008; 52(8):885-897) and may help with some symptoms of depression (*Current Pharmaceutical Design*, 2009; 15(36):4,165-4,172). EPA and DHA are primarily found in fatty fish.

ALA emerging

At this time, the beneficial effects of marine sources of EPA and DHA are well-documented, while evidence on the health benefits of ALA lags behind, perhaps due to confounding variables associated with the metabolism of ALA. Despite this, ALA is an important source of omega-3s in the diet, especially for vegans. The average per capita intake of EPA and DHA in the American diet is just 0.1 to 0.2 grams per day, whereas average per capita intake of ALA is approximately 1.4 grams per day (*Arteriosclerosis, Thrombosis, and Vascular Biology*, 2003; 23(2):e20-e30). Most experts indicate that Western diets are out of balance, with too much omega-6 and too little omega-3.

“Consuming foods rich in ALA can help balance the amount of omega-6s eaten while increasing omega-3s in the diet,” says Bruce A. Watkins, Ph.D., professor and director of biosciences and nutrition, Department of Food Science, Purdue University, West Lafayette, IN.

Future research will hopefully better elucidate the differences between ALA, EPA and DHA, and how ALA exerts its effects—either independently or through its role as a precursor to EPA and DHA. However, consumers who include an array of omega-3 fatty acids in their diet will benefit not only from the healthy fatty acids they are consuming, but also from the wide variety of nutrients found within both plant-based and fish-based sources of omega-3 fatty acids.

Food Product Design 05/18/2010

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Widely Used Chemicals Linked to ADHD in Children

A new study led by a team of Boston University School of Public Health researchers suggests a link between polyfluoroalkyl chemicals (PFCs), industrial compounds which are widely used in many consumer products, and attention deficit hyperactivity disorder (ADHD) in children.

Published online, ahead of print, in the journal *Environmental Health Perspectives*, the researchers found "increased odds of ADHD in children with higher serum PFC levels." The researchers used data from the National Health and Nutrition Examination Survey (NHANES) to compare the PFC levels found in serum samples taken from 571 children, ages 12 to 15. The parents of 48 of these children reported their children were diagnosed with ADHD, one of the most common neurodevelopmental disorders in children.

NHANES is an ongoing national survey of a representative sample of the U.S. population that gathers data on dietary and health factors conducted by the Centers for Disease Control and Prevention.

PFCs are highly stable compounds used in industrial and commercial products like stain-resistance coatings, food packaging, and fire-fighting foams. In a 2003-2004 survey, NHANES examined 2,094 blood samples taken from the U.S. population and found more than 98 percent of the sample had detectable serum levels of PFCs, according to the study. Once absorbed into the body, it can take years for some types of PFCs to be partially eliminated.

Although the study indicates there is a link between PFCs and ADHD, lead author Kate Hoffman said it is not known if there is a causal relationship between the two.

"There's a link between this exposure and outcome but we're not really sure what way that goes," said Hoffman, PhD, who conducted the study while completing her doctorate in environmental health at BUSPH. "What we can say is children with this outcome tend to have higher levels of PFCs in their blood." Because the PFC measurements were collected at the same time as the parental report of ADHD diagnosis, Hoffman said it is unknown whether children with ADHD engage in behavior leading to increased PFC exposure or if higher serum PFC levels in children result in ADHD.

The researchers examined the connection between four PFCs, perfluorooctane sulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), and perfluorohexane sulfonic acid (PFHxS) and samples from children in which there were parental reports of ADHD diagnosis.

The authors focused on ADHD because studies on animals have suggested exposure to PFCs can have neurotoxic effects. There is little information, however, on the chemicals' effects on human development.

ADHD is one of the most common neurodevelopmental disorders, Hoffman said. It is also unknown what causes ADHD, she said, but genetic and environmental factors have been associated with the disorder.

"Given the extremely prevalent exposure to PFCs, further investigation into the impact of PFC exposure on ADHD and other neurodevelopmental endpoints is warranted," the authors wrote.

Science Daily (July 20, 2010) —
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Sugar Substitutes Help Reduce Caloric Intake without Overeating or Hunger

A new study published in the August 2010 journal, Appetite, further demonstrates that people who consume low-calorie sweeteners are able to significantly reduce their caloric

intake and do not overeat.
In fact, study participants who received the sugar substitutes instead of sugar consumed significantly fewer calories and there was no difference in hunger levels despite having fewer calories overall.

The researchers noted, "In conclusion, participants did not compensate by eating more at either their lunch or dinner meal and reported similar levels of satiety when they consumed lower calorie preloads [pre-meals] containing stevia or aspartame than when they consumed higher calorie preloads containing sucrose."

This study was conducted in both healthy and overweight adults and participants were given a pre-meal containing either sucrose, aspartame or stevia. Those who received the stevia or aspartame consumed fewer calories overall, did not overeat and did not report increased feelings of hunger.

"Although the totality of the scientific evidence demonstrates that low-calorie sweeteners and the products that contain them are not related to weight gain, increased hunger or overeating, there have been recent reports questioning the benefits of low-calorie sweeteners," notes Beth Hubrich, a dietitian with the Calorie Control Council, an international trade association. "When used as part of an overall healthy diet, low-calorie sweeteners and light products can be beneficial tools in helping people control caloric intake and weight."

"This human study, in addition to the many others, serves as a counter to the recent allegations about low-calorie sweetener benefits from epidemiological studies (which cannot show cause and effect) and studies performed in a small number of rats," adds Hubrich.

This study also builds upon a recent 2009 meta-analysis (evaluating 224 studies) published in the American Journal of Clinical Nutrition and conducted by Mattes and Popkin. These researchers concluded, "A critical review of the literature, addressing the mechanisms by which non-nutritive [low-calorie] sweeteners may promote energy intake, reveals that none are substantiated by the available evidence."

Source: Medical New Today Jul 24 2010

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Novel Nutraceuticals Derived from Classic, Favorite Foods and Beverages Show Promise in Disease Treatment and Prevention

Taking favorite nutrient-dense and antioxidant-rich foods a step further, presenters at the 2010 Institute of Food Technologists (IFT) Annual Meeting and Food Expo shared ways in which proven disease-fighting and immune-building substances derived from plants, animals and minerals are being used as next-generation nutraceuticals.

New research shows that other common ailments have been alleviated with new forms of nutraceuticals and functional foods. As a supplement, the mineral chromium has a potential role in delaying or even preventing type-2 diabetes. In addition, chronic arthritis patients who took a 40 mg daily supplement of undenatured type-II collagen derived from chicken sternum reported a 40 percent reduction in joint discomfort and significantly better mobility and quality of life.

In another transformation of popular plant-based product to powerful nutraceutical, the "miracle compound" resveratrol found in red wine has demonstrated cardio protection against coronary heart disease in natural supplement form. "It's a novel and potentially very exciting new therapeutic strategy," said speaker Nilanjana Maulik, Ph.D., professor of molecular cardiology in the surgery department at the University of Connecticut Health Center.

Debasis Bagchi, Ph.D., senior vice president of R&D at InterHealth Nutraceuticals, reported that a cost-effective, edible berry-based antioxidant formulation has been shown in clinical studies to inhibit growth factors linked to some cancers. Bagchi credited the synergistic relationship between a certain combination of berries that appear to pack a more potent punch.

Source: Nutrition Horizon Jul 22 2010

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Less Salt for Everybody

Restricting the amount of sodium chloride in food can lower the risk of cardiovascular morbidities. This is the conclusion that Dieter Klaus and colleagues come to in the current issue of *Deutsches Ärzteblatt International*.

People whose intake of dietary sodium chloride is in excess of 6 g per day increase their risk of cardiovascular morbidities and hypertension. This is particularly notable in view of the fact that in the Western industrialized nations, one in two deaths is due to a cardiovascular disorder and the average intake of sodium chloride is in the range of 8 to 12 g/d. Salt restriction may help not only to prevent cardiovascular morbidities but may also counteract other lifestyle diseases such as obesity and diabetes.

As a preventive measure, the authors suggest reducing dietary salt intake population-wide. By successively lowering the NaCl content of industrially processed foods by 40% to 50%, people's daily salt intake would be lowered to 5 to 6 g/d per head of population.

Science Daily (July 16, 2010) —
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High-Fiber Diet Can Ward Off Heart Disease and Diabetes

A diet high in fiber can provide significant protection against type 2 diabetes and coronary heart disease, according to a scientific panel at the 2010 Institute of Food Technologists (IFT) Annual Meeting & Food Expo.

Researchers presented evidence from several studies supporting the benefits of a diet rich in whole-grain food, especially cereal fiber. In one analysis, scientists found that each one serving per day increment in whole grain intake is associated with a 10 percent lower risk of developing diabetes, said Frank B. Hu, MD, PhD, professor of nutrition, epidemiology and medicine in the Department of Nutrition at Harvard School of Public Health.

The U.S. Department of Agriculture defines whole grain as foods made from the entire grain seed, usually called the kernel, which consists of the bran, germ and endosperm. If the kernel has been cracked, crushed or flaked, it must retain nearly the same relative proportions of bran, germ and endosperm as the original grain in order to be called whole grain.

Hu said whole-grain fiber offers several key metabolic and digestive benefits, including:

* Satiety
* Increased insulin sensitivity
* Reduced inflammation
* Binding bile acids and increasing excretion of cholesterol

Britt Burton Freeman, PhD, assistant professor of nutrition at the Illinois Institute of Technology and the University of California, Davis, said there is some evidence that eating one meal rich in fiber can extend health benefits through the next meal and perhaps beyond. She said soluble viscous fibers, such as psyllium, guar gum, pectin and beta-glucan , are most effective at reducing post-meal glucose. High post-meal glucose is a significant issue for people with diabetes.

"People probably aren’t going to have perfect meals, so what happens in the morning could have benefits throughout the entire day," she said.

Source: IFT News Release Jul 21 2010 ---

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An Optimal Diet Starts with a High-Protein Breakfast

A quality, high-protein diet one that begins at breakfast is critical for maintaining muscle mass, curbing hunger, reducing abdominal fat, and preventing and slowing the progression of age-related bone and muscle loss. These findings were presented during a panel presentation at the 2010 IFT Annual Meeting and Food Expo.

While humans maintain the ability to build muscle at any age, the effects of insufficient protein increase substantially in older adults, often leading to muscle and bone conditions

such as sarcopenia (the degenerative loss of muscle mass) and osteoporosis, said Douglas Paddon-Jones, Ph.D., associate professor, physical therapy and internal medicine, the University of Texas Medical Branch.

Protein makes up about 50 percent of bone volume and 33 percent of our body mass, said dietician and sports nutritionist Marie Spano. “Higher protein diets (optimally, between 25 and 30 grams of protein per meal) are associated with greater bone mass and fewer fractures when calcium intake is adequate.” In addition, replacing carbohydrates with protein can prevent obesity and obesity-related conditions such as Type 2 Diabetes. The move toward a more protein rich diet could lower health costs and improve mobility and independence in older adults, said Spano.

Quality, high-protein foods include: eggs (12.5 grams of protein per egg), milk (3.3 grams per 4 ounces), and meats and fish (7 grams of protein per serving), said Craig Julius of Pierre Foods, Inc. Whey is also high in protein; soy and rice are “incomplete” sources of protein.

Source: Nutrition Horizon Jul 20 2010 ---

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Diabetes Risk: Waist Circumference Gives Better Prediction Than BMI

Waist circumference gives a better prediction of diabetes risk than does BMI. This is the conclusion drawn by Silke Feller and her colleagues from the German Institute for Nutritional Research in Potsdam-Rehbrücke, in the current edition of *Deutsches Ärzteblatt International* .

Current guidelines recommend that the degree of risk of diabetes from overweight should be based on the determination of the body mass index (BMI). It is only recommended to measure the waist circumference when the BMI is greater than 25 points. Perhaps this strategy should be reconsidered, as the predictive power of waist circumference for diabetes is particularly high for normal and underweight people (BMI <25). Persons with a BMI of less than 25 points, but with a large waist circumference, have just as high a risk of developing diabetes, as pre-obese (25 < BMI < 30) women and men with low waist circumference.

The development of diabetes is particularly influenced by visceral fat tissue, which is metabolically more active than non-visceral fat. Visceral fat can be more accurately assessed from the waist circumference with people of lower weight than with overweight people, as waist circumference in overweight people contains a high proportion of subcutaneous fat.

Science Daily (July 15, 2010) —
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Several Studies Support the Role of Choline in Fetal Development and Throughout the Lifespan

A study published in the American Journal of Clinical Nutrition found that a choline-deficient diet is associated with increased risk for heart defects during prenatal development. Choline is an essential nutrient required for normal cell activity, healthy brain and nerve function, liver metabolism and transportation of nutrients throughout the body. Research shows that only 10 percent or less of older children, men, women and pregnant women in America are meeting the Adequate Intake (AI) levels for choline; despite a growing body of science which supports the importance of choline especially in healthy fetal development.

Vital Role of Choline During Pregnancy

A growing body of science, conducted in both animals and humans, supports the need for more dietary choline. Researchers from McGill University and Cornell University examined the offspring of mice that consumed a choline-deficient diet during pregnancy compared to the offspring of mice that consumed a diet containing the recommended amount of choline. The researchers observed that heart defects were more prevalent among the offspring of mice consuming a choline-deficient diet. The study also found that low choline intake was associated with increased levels of homocysteine, an amino acid in the blood that, when elevated, is associated with an increased risk of cardiovascular disease and declined cognitive function.

"Choline is a complex nutrient that is intricately involved in fetal development, and this research reveals another piece of the puzzle,"according to Cornell University Associate Professor, Marie Caudill, Ph.D., R.D. "Women with diets low in choline have two times greater risk of having babies with neural tube defects so it's essential that nutrition education during pregnancy and breastfeeding highlight the importance of dietary sources of choline."

Another study, published in the June issue of Behavioral Neuroscience, reported that choline intake during pregnancy and lactation is associated with improved attention function.3 The researchers observed that offspring of female mice consuming a diet supplemented with choline during pregnancy and lactation performed significantly better on attention tasks compared to offspring from mothers consuming a diet not supplemented with choline.

The Importance of Choline Throughout the Lifespan

Another study published in the American Journal of Clinical Nutrition examined adult dietary intake of choline and betaine (a nutrient related to choline) and found that higher intakes of choline and betaine were associated with lower blood homocysteine concentrations, especially in subjects with low blood levels of folate and vitamin B12.4 Choline, like folate, is involved in breaking down homocysteine in the blood. Elevated homocysteine concentrations have been associated with increased risk of stroke, coronary

heart disease and cognitive decline.

In May, a study published online in the Journal of Nutrition reported on the role of choline in the complex system that regulates DNA production and stability. Researchers studied the impact of choline intake on DNA damage in 60 Mexican-American men. They found that individuals with greater intakes of choline, even exceeding current dietary recommendations, exhibited the least amount of DNA damage.5

Focusing on a Choline-Rich Diet

"Choline is important for people of all ages, particularly moms and moms-to-be," says Neva Cochran, M.S., R.D., nutrition communications consultant and nutrition writer and researcher for Woman's World magazine. "It is easy to meet the recommended choline intake with delicious foods like an egg, which is an excellent source of choline and provides roughly one-quarter of a pregnant or breastfeeding woman's choline needs."

Cochran recommends the following choline-rich meal ideas as part of a balanced diet:

* Basic Hard-Cooked Eggs – Prepare a batch of hard-cooked eggs on Sunday to have, high-quality protein meals and snacks on hand throughout the week which is especially important for moms-to-be.
* Cereal Bowl Egg & Cheese Breakfast Burrito – Try this microwavable burrito bowl topped with cheese and salsa - a quick, easy breakfast that can be enjoyed in seconds.
* Basic Frittata – Make fillings from your favorite foods or from leftovers. Use a combination of meat, seafood or poultry, cheese, vegetables and cooked pasta or grains.

Source: Nutrition Horizon Jul 16 2010 ---

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Cashew Seed Extract an Effective Anti-Diabetic

Cashew seed extract shows promise as an effective anti-diabetic, according to a new study from the Université de Montréal (Canada) and the Université de Yaoundé (Cameroun). Published in the journal Molecular Nutrition & Food Research, the investigation analyzed the reputed health benefits of cashew tree products on diabetes, notably whether cashew extracts could improve the body’s response to its own insulin.

Diabetes is caused when a person has high blood sugar because their body does not respond well to insulin and/or does not produce enough of the hormone. The illness, which affects nearly 220 million people worldwide, can provoke heart or kidney disease. The goal of the study was to examine the impact of leaves, bark, seeds and apples from cashew trees, native to northeastern Brazil and other countries of the southern hemisphere, on cells that respond to insulin.

“Of all the extracts tested, only cashew seed extract significantly stimulated blood sugar

absorption by muscle cells," says senior author Pierre S. Haddad, a pharmacology professor at the Université de Montréal's Faculty of Medicine. "Extracts of other plant parts had no such effect, indicating that cashew seed extract likely contains active compounds, which can have potential anti-diabetic properties."

Cashew tree products have long been alleged to be effective anti-inflammatory agents, counter high blood sugar and prevent insulin resistance among diabetics. "Our study validates the traditional use of cashew tree products in diabetes and points to some of its natural components that can serve to create new oral therapies," adds Dr. Haddad, who is also director of the Canadian Institutes of Health Research Team in Aboriginal Anti-Diabetic Medicines at the Université de Montréal.

Source: Eurekalert Jul 14 2010 ---

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High Blood Levels of Vitamin E Reduces Risk of Alzheimer's, Swedish Study Finds

High levels of several vitamin E components in the blood are associated with a decreased risk for Alzheimer's disease (AD) in advanced age, suggesting that vitamin E may help prevent cognitive deterioration in elderly people. This is the conclusion reached in a Swedish study published in the July 2010 issue of the Journal of Alzheimer's Disease.

"Vitamin E is a family of eight natural components, but most studies related to Alzheimer's disease investigate only one of these components, ±-tocopherol," says Dr. Francesca Mangialasche, who led the study. "We hypothesized that all the vitamin E family members could be important in protecting against AD. If confirmed, this result has implications for both individuals and society, as 70 percent of all dementia cases in the general population occur in people over 75 years of age, and the study suggests a protective effect of vitamin E against AD in individuals aged 80+."

The study was conducted at the Aging Research Center (ARC), Karolinska Institutet, Stockholm, Sweden, in collaboration with the Institute of Gerontology and Geriatrics, University of Perugia, Italy. The study included a sample of 232 participants from the Kungsholmen Project, a population-based longitudinal study on aging and dementia in Stockholm (Kungsholmen parish). All participants were aged 80+ years and were dementia-free at the beginning of the study (baseline). After 6-years of follow-up, 57 AD cases were identified.

The blood levels of all eight natural vitamin E components were measured at the beginning of the study. Subjects with higher blood levels (highest tertile) were compared with subjects who had lower blood levels (lowest tertile) to verify whether these two groups developed dementia at different rates. The study found that subjects with higher blood levels of all the vitamin E family forms had a reduced risk of developing AD, compared to subjects with lower levels. After adjusting for various confounders, the risk was reduced by 45-54%, depending on the vitamin E component.

Dr Mangialasche notes that the protective effect of vitamin E seems to be related to the combination of the different forms. Another recent study indicated that supplements containing high doses of the E vitamin form ±-tocopherol may increase mortality, emphasizing that such dietary supplements, if not used in a balanced way, may be more harmful than previously thought.

"Elderly people as a group are large consumers of vitamin E supplements, which usually contain only ±-tocopherol, and this often at high doses," says Dr Mangialasche. "Our findings need to be confirmed by other studies, but they open up for the possibility that the balanced presence of different vitamin E forms can have an important neuroprotective effect."

Science Daily (July 7, 2010) —

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FOOD 4U 2010 – New Partner in Fight for Healthy Eating Launched in Europe

The European Economic and Social Committee has signed an institutional partnership with the Italian Ministry for Agricultural, Food and Forestry Policies for the FOOD 4U campaign. With this shared patronage, the EESC wants to emphasize the importance of healthy food as well as the negative effects of unhealthy eating habits. Over 30,000 schools (20% more than last year) took part in the competition to produce a short film on the value of healthy eating habits.

Obesity is a priority issue for the European Union due to the amount of diseases and disorders associated with bad eating habits. According to the International Obesity Taskforce, the number of overweight children has soared to approximately 22 million, of whom 5 million are obese.

The objective of the FOOD 4U campaign and the film competition is to inspire in-depth discussions on a subject that is often ignored. Education is not enough: youngsters need to get involved and be given the chance to develop vital tools to decode advertising messages.

The EESC supports the video competition to raise awareness of healthy diets. Out of hundreds of entrants, 33 finalists from 16 European countries were selected. Fast food was identified by several participants as being the antithesis of healthy nutrition with a balanced diet seen as the solution to bad eating habits.

The young European filmmakers will go to Jesolo, Italy from 18 to 21 September for the FOOD 4U Video Festival 2010 where they will have the opportunity to exchange views and learn more about healthy food. The FOOD 4U Award 2010 will be presented to the winning entry at the closing event on 23 September at the Auditorium della Conciliazione in Rome. Ms Madi Sharma, EESC Member and rapporteur of an EESC opinion on obesity in Europe will be part of the international jury.

The FOOD 4U initiative, now in its sixth year, confirms its Europe-wide importance as an effective tool in nutrition education. From 2011, due to increased demand, all European countries will be able to participate.

Source: Nutrition Horizon Jul 15 2010 ---

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New Intervention Program Promotes Healthy Dietary Choices During Infancy

Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behaviour, shows that teaching first-time mothers to feed their babies "responsively" promotes higher acceptance of vegetables and novel foods by their infants.

Many infants and toddlers consume too many nutrient-poor but calorie-rich foods, which can lead to overweight and obesity. Early childhood prevention programs can help protect children against obesity by fostering more healthful eating habits; a key mission of the Center for Childhood Obesity Research at Pennsylvania State University. In the current study, nurses went to the homes of first-time parents to teach them about timing and methods for the introduction of solids to their infants, how to improve their infant's liking and acceptance of new foods such as vegetables using repeated exposure, and how to identify infant hunger and fullness cues. Altogether, the program is designed to teach parents to feed their infants "responsively".

Mothers who received the one year intervention had infants who were more likely to accept vegetables and novel foods. Lead researcher Jennifer Savage from the Center for Childhood Obesity Research says, "These results provide the first evidence that teaching parents how, what, and when to feed their infants can promote healthful eating habits." The intervention also promoted improved growth patterns among infants. "Because early feeding decisions and practices play a critical role in the development of children's food preferences and intake, our intervention program focuses on teaching parents about how to respond sensitively and appropriately to infant hunger and fullness cues, allowing infants and toddlers a role in deciding how much to eat, while also providing information on how, what, and when to introduce solids to promote acceptance of new foods," says Savage. The success of the intervention has implications for long-term obesity prevention.

Source: Eurekalert 13 Jul 2010 ---

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Kids Could Get More Whole Grains from After-School Snacks, Study Finds

An after-school snack of graham crackers might be one way to get children to eat more whole grains, a new study from the University of Minnesota shows. Federal nutrition

guidelines recommend at least three servings a day of whole-grain foods, but previous studies have found that children typically only eat about one serving per day, largely because they don't like the taste or texture of whole-grain foods.

In this study, researchers served graham snacks with four levels of whole-grain flour content to about 100 elementary-school children in a Roseville, Minn. after-school program. The researchers measured how much of each kind of snack was thrown away uneaten. The surprising finding: the students ate just as many crackers with higher whole-grain content as the more processed versions.

"Graham snacks provide a healthy, highly acceptable whole grain food that kids love to eat," says Len Marquart, the lead investigator on the study. " This is an excellent way for kids to get up to an additional serving of whole grain per snacking occasion."

To avoid any influence of branding or recognition of something the students had eaten before, all the crackers looked alike and the students ate from plain aluminum packets. Some of the students also participated in taste tests and focus groups about how the crackers could be improved.

Science Daily (July 22, 2010) —

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Fish Oil May Reduce Risk of Breast Cancer

A recent report in Cancer Epidemiology, Biomarkers & Prevention, a journal of the American Association for Cancer Research, adds to the growing evidence that fish oil supplements may play a role in preventing chronic disease.

Researchers at the Fred Hutchinson Cancer Research Center in Seattle, Wash., led by Emily White, Ph.D., a member of the public health sciences division, asked 35,016 postmenopausal women who did not have a history of breast cancer to complete a 24-page questionnaire about their use of non-vitamin, non-mineral "specialty" supplements in the Vitamins and Lifestyle (VITAL) cohort study.

After six years of follow-up, 880 cases of breast cancer were identified using the Surveillance, Epidemiology and End Results registry.

Regular use of fish oil supplements, which contain high levels of the omega-3 fatty acids, EPA and DHA, was linked with a 32 percent reduced risk of breast cancer. The reduction in risk appeared to be restricted to invasive ductal breast cancer, the most common type of the disease. The use of other specialty supplements, many of which are commonly taken by women to treat symptoms of menopause, was not associated with breast cancer risk.

This research is the first to demonstrate a link between the use of fish oil supplements and a reduction in breast cancer. Studies of dietary intake of fish or omega-3 fatty acids have

not been consistent. "It may be that the amount of omega-3 fatty acids in fish oil supplements are higher than most people would typically get from their diet," White said. However, White cautioned against gleaning any recommendations from the results of one study. "Without confirming studies specifically addressing this," she said, "we should not draw any conclusions about a causal relationship."

Edward Giovannucci, M.D., Sc.D., professor of nutrition and epidemiology at the Harvard School of Public Health and an editorial board member of Cancer Epidemiology, Biomarkers & Prevention, agreed. "It is very rare that a single study should be used to make a broad recommendation," said Giovannucci. "Over a period of time, as the studies confirm each other, we can start to make recommendations."

Still, fish oil continues to excite many, as evidence emerges about its protective effect on cardiovascular disease and now cancer.

Harvard researchers are currently enrolling patients for the randomized Vitamin D and Omega-3 Trial (also called VITAL), which will assess the impact of fish oil supplements and vitamin D on cancer, heart disease and stroke. The researchers plan to enroll 20,000 U.S. men aged 60 years and older and women aged 65 years and older who do not have a history of these diseases and have never taken supplements.

Source: Nutrition Horizon 8 Jul 2010 ---

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High Fructose Diet May Contribute to High Blood Pressure

People who eat a diet high in fructose, in the form of added sugar, are at increased risk of developing high blood pressure, or hypertension, according to a study appearing in an upcoming issue of the Journal of the American Society Nephrology (JASN). The results suggest that cutting back on foods and beverages containing a lot of fructose (sugar) might decrease one’s risk of developing hypertension.

Hypertension is the most common chronic condition in developed countries and a major risk factor for heart and kidney diseases. Researchers are striving to identify environmental factors that might be responsible for the development of hypertension, and they suspect that fructose may play a role. Over the past century, a dramatic increase in the consumption of this simple sugar, which is used to sweeten a wide variety of processed foods, mirrors the dramatic rise in the prevalence of hypertension.

To examine whether increased fructose consumption has contributed to rising rates of hypertension, Diana Jalal, MD (University of Colorado Denver Health Sciences Center) and her colleagues analyzed data from the National Health and Nutrition Examination Survey (2003-2006). The study involved 4,528 US adults 18 years of age or older with no prior history of hypertension. Study participants answered questions related to their consumption of foods and beverages such as fruit juices, soft drinks, bakery products, and

candy. Dr. Jalal's team found that people who consumed a diet of 74 grams or more per day of fructose (corresponding to 2.5 sugary soft drinks per day) had a 26%, 30%, and 77% higher risk for blood pressure levels of 135/85, 140/90, and 160/100 mmHg, respectively. (A normal blood pressure reading is below 120/80 mmHg.)

"Our study identifies a potentially modifiable risk factor for high blood pressure. However, well-planned prospective randomized clinical studies need to be completed to see if low fructose diets will prevent the development of hypertension and its complications," said Dr. Jalal.

Study co-authors include Richard Johnson, MD, Gerard Smits, PhD, and Michel Chonchol, MD (University of Colorado Denver Health Sciences Center). Disclosures: Dr. Richard Johnson is an author of the book, "The Sugar Fix." All other authors reported no financial disclosures.

Source: Am. Soc. Nephrology Press Release 1 Jul 2010 ---

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Higher-Protein Diets Support Weight Loss, but May Lower Bone Density in Postmenopausal Women

Overweight and moderately obese postmenopausal women using diets based on higher protein intake also need to be aware of potential bone loss, according to new research from Purdue University.

"We know that when overweight, postmenopausal women reduce their energy intake to successfully lose weight, they can lose less lean body mass when they consume higher amounts of protein and include lean meats, such as pork loins, ham, beef and chicken, in their diet," said Wayne W. Campbell, professor of foods and nutrition. "However, we also found that these older women lost bone mineral density faster than women who consumed normal protein diets that did not contain any meats. This finding is of concern for this age group that is susceptible to osteoporosis."

Campbell and doctoral student Minghua Tang analyzed data from two controlled diet studies. In the first study, they reduced 28 women's individual daily diets by 750 calories to achieve a one-and-one-half-pound weight loss each week for 12 weeks. These postmenopausal women ranged in age from 43-80. Fifteen women consumed meat-free diets with protein from vegetarian, dairy and egg sources, comprising 18 percent of each woman's energy intake. This amount of protein was comparable to the recommended dietary allowance of 0.36 grams of protein per pound of body weight per day.

The diets for the other 13 women were composed of 30 percent of energy from protein with 40 percent of the protein from lean pork, such as loin and ham, and 60 percent of the protein from vegetarian, dairy and egg sources. The women, on average, lost about 19

pounds each, but those who ate the higher-protein, meat-containing diet lost bone mineral density.

In the second study, 43 postmenopausal women each ate a 1,250-calorie diet for nine weeks. All participants consumed the same 1,000-calorie vegetarian diet, but 15 women received 250 calories from chicken breast meat, 14 women received 250 calories from beef tenderloin and 14 women received 250 calories from shortbread cookies and sugar-coated chocolates. Another 11 women served as the control group. The researchers saw again that all of the women who ate the energy-reduced diets successfully lost weight, but the groups that consumed the higher-protein meat-containing diets also lost bone mineral density compared to the control group. The bone mineral density was measured using a dual-energy X-ray absorptiometer.

The findings are published online in the *Journal of Gerontology: Medical Sciences* and will be printed in September. "Purposeful, moderate weight loss is an effective way for overweight postmenopausal women to improve their health and well-being," Campbell said. "However, research shows that older women are at risk of losing bone when they lose weight, and our findings highlight that amount and sources of protein are important to consider when choosing a weight-loss diet. Each individual needs to evaluate, or consult with a dietitian about how to achieve and sustain a healthy body weight and body composition, including muscle and bone." Campbell and Tang indicate that more research is needed to better understand how different amounts and sources of protein impact bone when people lose weight.

"The impact of dietary protein on bone remains controversial, and information about dietary protein and bone from studies with weight-stable subjects might not be applicable to weight loss," Campbell said. "We know that bone is constantly forming and breaking down, and how fast these two processes occur determines the density of your bones. We don't have the data at this time to know the mechanisms involved with these changes in bone density.

"It is also important to note that these two studies were relatively short, nine to 12 weeks, so studies to evaluate how protein intakes impact body composition and bone beyond the period of active weight loss would be helpful."

The National Pork Board supported the first study, and the second study was supported by National Institutes of Health and the Beef Checkoff program, though the National Cattlemen's Beef Association.

Science Daily (July 11, 2010) —

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Food Science & Technology News

Andrew Streeter Director of Pack-Track takes a look at latest packaging and products from around the globe.

Andrew Streeter said: “There’s a real feel of ‘back-to-nature’ in recent packaging innovations which ties in and moves on recent sustainable trends.”

- Oneglass wine from YESST in Italy which comes in a single-serve bottle-shaped pouch has been launched in time for summer. It fits recent consumer trends of new entrants into consumption when out and about, as it is lighter to carry than a wine bottle making it perfect for country picnics, camping and festivals. Not only does it have less material weight than glass it is also convenient to dispose of carefully assisting environmental concerns.
- The popularity of compostable packaging could be growing. Sun Chips in the US from Frito-Lay has been launched in a fully compostable metallised film bag. To increase appeal the bag itself is advertised as being noisy and ‘crunchy’.
- Trying to get a product to stand out amongst a sea of other products that are similar is a problem facing the manufacturers of products like eggs, bread and milk. Dutch company Rondeel created a buzz around their eggs by launching a completely different type of packaging. The Albert Heijn Puur & Eerlijk Rondeeleiereneggs comes in a highly innovative coconut fibre foldable tray which looks different to the other egg cartons on the shelves and also breaks the mould by containing 7 eggs rather than 6 or 12.

Andrew Streeter, added: “With the economic down turn still affecting manufacturers and shoppers’ budgets, new packaging that doesn’t cost the earth is vital.”
From: Datamonitor Release by Aartee Sundheep July 27, 2010
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Could Our Minds Be Tricked Into Satisfying Our Stomachs?

Research presented at the Annual Meeting of the Society for the Study of Ingestive Behavior suggests that the key to losing weight could lie in manipulating our beliefs about how filling we think food will be before we eat it, suggesting that portion control is all a matter of perception. Test subjects were more satisfied for longer periods of time after consuming varying quantities of food for which they were led to believe that portion sizes were larger than they actually were.

Memories about how satisfying previous meals were also played a causal role in determining how long those meals staved off hunger. Together, these results suggest that expectations before eating and memory after eating play an important role in governing appetite and satiety.

In the first experiment, participants were shown the ingredients of a fruit smoothie. Half were shown a small portion of fruit and half were shown a large portion. They were then asked to assess the 'expected satiety' of the smoothie and to provide ratings before and three hours after consumption. Participants who were shown the large portion of fruit reported significantly greater fullness, even though all participants consumed the same smaller quantity of fruit.

In a second experiment, researchers manipulated the 'actual' and 'perceived' amount of soup that people thought that they had consumed. Using a soup bowl connected to a hidden pump beneath the bowl, the amount of soup in the bowl was increased or decreased as participants ate, without their knowledge. Three hours after the meal, it was the perceived (remembered) amount of soup in the bowl and not the actual amount of soup consumed that predicted post-meal hunger and fullness ratings.

The findings could have implications for more effective food labeling. "The extent to which a food that can alleviate hunger is not determined solely by its physical size, energy content, and so on. Instead, it is influenced by prior experience with a food, which affects our beliefs and expectations about satiation. This has an immediate effect on the portion sizes that we select and an effect on the hunger that we experience after eating," said Dr. Brunstrom.

"Labels on 'light' and 'diet' foods might lead us to think we will not be satisfied by such foods, possibly leading us to eat more afterwards," added Dr. Brunstrom. "One way to militate against this, and indeed accentuate potential satiety effects, might be to emphasize the satiating properties of a food using labels such as 'satisfying' or 'hunger relieving'."

Science Daily (July 14, 2010) —

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School Feeding Programs Improve Livelihoods, Diets, and Local Economies

In many parts of sub-Saharan Africa, 60 percent of children come to school in the morning without breakfast, if they attend school at all. Many suffer from health and developmental problems, including stunted growth. Exhausted from hunger and poor nutrition, they often have trouble paying attention and learning during class.

The United Nations World Food Programme (WFP) provides school meals for about 20 million children in Africa. While some national governments, including Côte d'Ivoire, have provided school meals for decades, the food, fuel, and financial crises of 2007–08 highlighted the role that school nutrition programs can play in not only improving education, health, and nutrition, but also providing a safety net for children living in poverty. For some children, these programs provide the only real meal of the day.

Improved school menus provide students with much-needed nutrition while also creating an incentive for both students and parents to keep up regular attendance. Some programs include a take-home ration, targeted specifically at improving the attendance of girls. In exchange for an 80-percent attendance rate for one month, for example, students are able to take home a jug of vegetable oil to their family. Students also often share the nutrition information they learn at school with family members, helping to improve the nutritional value of meals made at home.

Earlier this year, the Partnership for Child Development (PCD), in partnership with the WFP and with funding from the Bill & Melinda Gates Foundation, launched the Home

Grown School Feeding (HGSF) program. HGSF, modeled in part after programs developed by the New Partnership for Africa's Development (NEPAD), works with governments to develop and implement school feeding programs, improving the diets and education of students while also creating jobs and supporting local agriculture.

Starting with five countries that were either already running school food programs or had demonstrated an interest in them and a capacity for implementation—including Côte d'Ivoire, Nigeria, Mali, Kenya, and Ghana—HGSF hopes to create a bigger market for rural farmers through demand created by purchasing only locally grown and processed food for school meals.

"The definition of 'local' varies from country to country," says Kristie Neeser, program coordinator at PCD. "Some schools keep their food purchasing within the local community and some keep their purchasing within the country. But what is most important is creating that relationship between the farmers and the government program."

To best facilitate links between farmers and governments, HGSF works closely with the ministries of education to develop programs that will suit local needs and customs. In Ghana, for example, markets are run by "market queens," women who purchase vegetables from farmers and then sell them to commercial buyers at markets. To avoid disrupting this system, HGSF works to incorporate the market queens with Ghana's school purchasing process, instead of attempting to deal directly with the farmers, as programs in other countries often do. Ultimately, HGSF hopes to work with 10 countries, transitioning each program to being fully government owned, funded, and implemented—creating a permanent safety net for school children and a dependable demand for local, small-scale, farmer-sourced produce.

From: www.nourishingtheplanet.org

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