PFNDAI Bulletin October 2008

Editorial

PFNDAI has always supported education and research in Food Science and Nutrition. There have been awards for meritorious students. There have been awards for best projects. There have support for research. Even special programmes like Nutrition Week programmes with industry sponsorship have been organised wherein competitions among the students have been held. These included quizzes, innovative recipes, thematic posters, etc. Also seminars were organised wherein experts and eminent speakers from academics, industry, government etc. are invited to give talks and interact with students and teachers. Such programmes have been immensely popular among the students and teachers and also industry enjoyed such interactions.

This year PFNDAI started two student support activities. The first was loan scholarship for needy students of Food & Nutrition courses to help them partly meet the educational expenses towards their studies. As costs are increasing such help would immensely help the students who would like to pursue their career and are bright enough to make good grades. The teachers suggested that we give loan scholarships so after their studies are over they would repay the loan when they get jobs through their salaries. This would also inculcate a sense of duty in them. The repayment would enable us to help more students in future as well as increase the amount that is given as scholarship.

Ph.D. support is also given this year to a student who was not getting any fellowship nor any support for research. Government funding agencies have limitation as there are too many universities and institutions to fund and cost of support also keeps increasing. So we decided that PFNDAI whose major objectives include support to education and research must participate in this type of funding.

Although this is a beginning and we hope that industry will come forward to help us out. As students ultimately are employed by industry, the benefits of such support go to a great extent to industry. In fact industry can invite applications and also indicate the type of research it would like to encourage considering the needs for such work. There have been many instances where industry has supported research work at educational institutions and allowed the person working on them to register for a degree using part of the research results. This kind of partnership goes a long way in getting research carried out as well as training the research students.

We hope that members would interact and debate and come up with proposals for such partnerships and PFNDAI would gladly be a link for such an activity. We welcome the new members Ecolab Food Safety & Hygiene Solutions, Godfrey Phillips, Giract, Adeka India and Jindal Refineries into PFNDAI.

With season's greetings,

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Enchanting Snack Foods and the Modern Trends

By Dr. J. S. Pai

Snack is a type of food not normally eaten as a main meal such as breakfast, lunch or dinner but to mitigate hunger between these meals. Snack may also be consumed between meals purely for the enjoyment of its taste. Traditionally snacks were prepared from leftovers or ingredients easily available at home and included sandwiches, nuts, fruits etc. More recently, because of the popularity of such foods packaged snack foods are not big business. Snack foods are made so they are portable, quick and satisfying. They have become more appealing than prepared foods and contain tempting, flavourful ingredients.

Snack foods are considered different from fast foods such as hamburger, pizza, etc. These are prepared and offered immediately in a restaurant or fast food place or even on street, although there are such products also available in frozen forms. There are some products that are packed and sold in stores too. Many Indian foods like dosa, idli, vada pav etc. will fall into this category

of fast foods. Fast foods may also be consumed as meals. The distinctions are not very rigid and as will be seen below, some overlap and also aggression into other territory is seen in the market.

Different Types of Snack Foods

Potato chips or sticks are the most popular among the snack foods and dominate markets almost everywhere. Sliced potatoes are fried and salt is added making the a highly flavourful even if a nightmare for a health professional due to high level of fat, calories, sodium etc. There are many criticisms because of the health effect but due to its very high acceptability due to flavour and taste, these products dominate the snack industry. There are many variations due to the innovative shapes and size (including stackable) of the final product along with a large number of flavours including cheese, onion, barbecue, pepper, tomato, garlic, paprika and a long list of other flavours.

Corn chips, tortilla etc. are becoming significant portion of snack foods consumed. Corn is a versatile material that can be used alone or added to other ingredients including potato, rice, wheat etc. While potato chips are fragile and are easily broken, corn chips are sturdy. These can also be prepared in many sizes and shapes and flavoured in different ways. Pop corn is one of the early snack and is still popular especially while watching movies on TV or in cinema hall.

Extrusion technology gave a phenomenal boost to the snack food industry by increasing the possibility of new shapes and sizes and textures using various raw materials several folds. These snacks may be either ready to eat or ready to fry or bake and consume. Possibility of cooking while extruding and due to expanded products there is a possibility of having less oil or fat in the product that could be ready to eat. Also various flavours could be incorporated into the dough to be extruded so there is ease in processing.

Bakery products like biscuits, cookies, cakes and pastries, wafer type products, cream filled biscuits, doughnuts etc. with their multitude of variations have been another large section of snack food industry. Bread sometimes is included in this group but since most consider it as staple food consumed at regular meals it loses the snack status.

Chocolate and sugar based products also comprise a huge market with products including candy bars, various specialty chocolates, cereal based products coated with chocolate, energy bars, soft and hard candies, jujubes, lollipops, coated confections, and a large variation of all these. Here also there are products that are pure enjoyment with very less health and those that are healthy granola bars and a large number in between.

Western Snack Food Industry

The global market for savoury snacks is about $50 billion a year with a volume of about 6 million tonnes. North America accounts for over 50% of the market followed by western Europe with about 20%. European market is dominated by UK with almost 40% followed by Germany and France. Western markets are somewhat static but strong growths are being seen in developing markets particularly in Asia. Average per capita consumption globally is 1.5kg but this varies markedly from over 9kg in the US to less than 0.5kg in India and less than 0.1kg in China. Chips and other snacks made from corn and potato account for over 60% of the market whereas nuts come a distant second with 15% and the rest consisting of various other snacks.

The global biscuit market in 2006 grew by 2.9% to reach a value of about $24 billion. It is expected to grow to about $30 billion by 2010-2011. Here, Europe is the leading region with about half the global market. Specialist retailers dominate the distribution channel with a share of 37.4% of the global market the rest being controlled by supermarkets. This segment includes American cookies, wafer cookies, etc.

Another big segment in snack foods is composed of confectionery market. The global confectionery market generated over $95 billion in 2005 of which chocolate alone stood at over $53 billion. With a growth of about 2.4% per year, the market is expected to reach over $107 billion by 2010.

The total snack foods market comprising of all segments is expected to reach about $280 billion by 2010. This is because the line between meals and snacks is fast fading due to innovative ideas for new opportunities in snacking. Easy on-the-go portable packs with single-serve/bite sized packs etc. adding to convenience. Health-conscious snackers demand healthy, low fat, low calories, low trans-fat, organic, fibre rich, vitamin & mineral fortified snacks while others want exotic tastes and flavours. Nuts are getting popular because of their wholesome nutrition with health benefits.

Rise in number of occasions for snacking translates into increased business opportunities. With people foraging on snacks and eating fewer full meals, snack foods are encroaching into the territory of convenience foods for breakfast and dinner. Meals cloaked as snacks in terms of convenience and portability is being used to regain some lost ground.

Asia-Pacific is the new ground for opportunity in global market. The region has high population density, rapid economic growth with growing disposable income, liberalised imports and willingness to shift from traditional to western diets. The market in this region is expected to grow by 7% giving the lead to the global market.

Indian Snacks & Industry

Snacking in India is not new. At one time there were mostly nuts or roasted pulses, chikki as well as dried fruits, but then fried snacking items became quite popular such as sev, ganthia, papdi, chivda, farsan, chaat items made from cereals and pulses. People used to eat wafers and popcorn mostly at cinemas. More recently considerable western influence has been seen with the influx of a variety of snacks including potato and corn chips variants and other salty snacks, cookies, candies, doughnuts etc. The Indian snacks have also grown and the industry is showing a very high rate of growth.

As per one report by McKinsey, total food market in India was about $155 billion that is expected to more than double to about $350 billion by 2025 given a growth rate of slightly over 4% per year. Snack foods are an important part of this market and are currently at about $3 billion. The unorganised market has dominated food industry but in snack foods the organised sector is fast catching up and is currently slightly less than 50% at about $1.44 billion. Unorganised sector is growing at about 7-8% but the organised snack food industry is growing at phenomenal 15 to 20%. There is also a significant share of imported snacks and snack food ingredients comprising about $30 million and rapidly increasing. Such foods as potato chips (prepared and preserved), confectionery containing artificial sweeteners, non-cocoa confectionery, cookies, corn and other savoury chips are some of the imported items.

As per the Ministry of Food Processing Industries, the snack food industry is producing over 400,000 tonnes of snack foods worth over Rs. 10, 000 crores comprising of bakery products, ready-to-eat mixes, chips, namkeen and other light processed foods. APEDA surveyed about 1000 snack items and 300 types of savouries sold in India.

Lifestyle changes and economic growth has contributed to multiplex culture, snacking at home watching TV, being served free in pubs and bars, substituting traditional foods at parties and other social functions etc. have added many reasons for increasing sales of snack foods. Although there is a large number of variants of Indian snack item, potato chips and other potato based snacks dominate the branded snacks, but Indian variants and new innovative products with Indian flavours are getting very popular. One such product is banana wafer which has currently over 3% of total branded savouries sales. Other ingredients used in Indian snacks are rice, wheat, corn, pulses including black gram, Bengal gram, green gram, moth beans etc. as well as some nuts. Both Indian companies and MNCs are vying for both western and Indian styles of snack food market.

Another sector of snack foods that is becoming quite popular is frozen snacks. There are many snacks like batter-coated foods including some non-vegetarian snacks that are growing at rapid rate. While the total market for frozen snacks is about Rs. 400 crores, of which frozen non-vegetarian snacks comprise Rs. 150 crores are growing at phenomenal 25 to 30 per cent per annum.

Modern Trends

With salty snacks market worth over $25 billion in the US and Americans having both love for salty snacks and high obesity and related health problems, the industry has led with health positioning of some kind in over 200 out of 300 savoury snack launches in first half of this year. Some of the top snacks positionings are given alongside. Some popular brands have introduced reduced salt variants with 30-50% less salt than original. Others have introduced whole grains with one chip product contains 18g whole grains per serving.

Top 15 Snacks Positionings by % (Jan 08-Aug 08)			
Positioning	**%**	**Positioning**	**%**
No additives/preservatives	16	Low cholesterol	5
No trans fats	13	Microwaveable	5
Vegetarian	9	Organic	4
Gluten-free	9	Children (5-12)	3
Low fat	8	Seasonal/In-Out products	3
Natural	8	Indulgence & premium	3
Halal	6	Ethical	3
Kosher	6	**Source: Innova Database**	

UK has seen emergence of baked snacks against the fried that reduced fat content. Baked potato chips are oven baked giving the similar taste of standard chip but less fat and calories. There are also multigrain chips containing whole wheat, oats and corn

that were launched. Some of the potato and corn chips have infused rice to give healthier variant. There is also some interest in olive oil that is considered as healthier oil with high mono-unsaturated fatty acids.

Germany differs from the US and UK markets in that a large share of market (about 30%) is taken by nuts. Chips are marginally ahead and chip makers are trying to go further ahead by introducing light, lower-fat variants as well as new products. One rice-maize snack in introduced with 70% less fat than standard. There are also gluten-free products making appearance. Some exotic flavours are being introduced like Chakalaka Spices of Africa based on traditional African sauce.

France is where nuts and extruded snacks dominate accounting for 60% of the market. Potato chips have a smaller role with 20%. Savoury snacks are traditionally used as aperitifs and not any time snacking. Things are slowly changing though. Healthier options are making appearance with one snack food having just 10%. Newer products like pumpkin seeds are also entering with spicy variants of nuts.

Healthy Trends in Snack Industry

Snack foods have been under constant attack for excess of calorie, fat including trans-fat, sugar, sodium, etc. in them. There have been many lost campaigns to avoid them or at least reduce the intakes of snack foods. So tempting are these products that people risk hypertension, obesity, cardiovascular heart diseases, diabetes etc. rather than give up these products. So finally manufacturers decided to make these products less harmful if not completely healthy by changing either their process and ingredients to reduce the harmful properties or add certain ingredients that make them less detrimental. While making them healthful, one must remember that these are popularly consumed because of their flavour, so there should be minimum reduction in that aspect while making alterations. Otherwise, consumers would reject the product.

Most snacks have the excellent flavour because of the frying. When thin slices of potato and other materials are fried they absorb up to 40% fat in the final snack. This contributed to a large intake of calories that are blamed in many ailments. Fat reduction can be achieved by using optimum frying conditions as well as using certain emulsifiers, starch derivatives etc. Using less viscous oils also give less fat absorption. Baked chips with much lower fat contents have become a huge success in European market especially in the UK.

Trans-fats from partially hydrogenated oils have been blamed for not only elevating the undesirable LDL cholesterol but also by reducing the desirable HDL cholesterol. Thus trans-fats are worse than saturated fats. Many health and regulatory agencies have recommended their reduction so partially hydrogenated fats are avoided in snacks. They have certain advantages in making products as they have higher solid fat index at much lower saturation; they are cheaper; they give very good shortening effect in baked goods and they do not have oily appearance in fried products. Now many labelling regulations need to declare trans-fat contents of food products so manufacturers have been substituting partially hydrogenated fats with other fats and oils blending naturally solid fats with oils and using various emulsifier systems.

Cholesterol problems is two-fold – one with ingredients having cholesterol content and second with saturated fats producing higher levels of LDL cholesterol in body. Animal products especially eggs and dairy products commonly introduce cholesterol into food products. There are many bakery products like cakes, pastries, doughnuts, etc. made using eggs. The eggs are replaced in low cholesterol products with emulsification system using a variety of surface active agents that would do the job of eggs.

Saturated fats are also replaced with mono- and poly-unsaturated oils such as groundnut, olive, safflower, soy, sunflower, rice bran, etc. There are advantage of use of solid fats in snacks including finer qualities like crispness, brittleness, crumbly texture, etc. in savoury snacks and softness in cakes and doughnuts. Thus when oils are used for healthy reasons, it must be remembered that these products are consumed by people because they give health but because of their sensory properties. Hence, it is a challenge to maintain the original properties and use ingredients and processes that are healthy. Newer ingredients and additives provide these tools.

Savoury snacks are preferred because of their salty taste with their aroma. Salt have been implicated in hypertension and cardiovascular diseases so its reduction has been advised in daily intake. Snacks being major source, many snack manufacturers are offering low salt variation for those who want to cut their sodium intake. Some reduce the amount of salt added while others use salt substitutes. There are also subtle changes in the formulations necessitating less salt in the products.

Many consumers are trying to restrict sugar intake for various reasons including calories, diabetes etc. Many products started appearing with low or no sugar. Use of artificial sweeteners is possible to some extent but since sugar not only contributes to sweetness but also to bulk and texture, some additional ingredients are needed that would provide the same product characteristics. Indians like more sweetness in their sweets than others making the change even more difficult.

Healthy Ingredients

Making healthier snacks can be in two ways. One can reduce the unhealthy properties or ingredients in them such as fat, salt, sugar etc. Secondly one can also add healthy ingredients to the product making it healthy. Vitamins, minerals and other nutrients have been earlier added but adding functional ingredients is the new trend. Many nutraceuticals added to foods provide health by preventing the disease and making the product a functional food.

Fibre has become important in many snacks and can be easily derived from many whole grains like wheat, oats and some of the pulses. Fibre and whole grains have shown effectiveness in reducing risks due to heart disease, stroke, cancer, diabetes, obesity, hypertension etc. This has encouraged many manufacturers to use in their snacks not only whole grains but multi-grains to derive additional benefits. Many health recommendations have suggested intakes of 25 to 30 g fibre per day and snacks offer one interesting way.

There are already potato corn chips having rice and other grains incorporated but in many extruded products the addition of whole grains is much easier although it will still affect the taste as well as texture to some extent. In bakery product, gluten formation is affected by fibre and leavening is also much less. Process changes involving mechanical working using high speed mixers are needed to get the same texture and expansion.

Some of the other ingredients added include seeds of sunflower, pumpkin, flax as well as fruits and vegetables that provide many health giving substances including antioxidants, omega-3 fatty acids, prebiotics, and others.

Snacking Meals

Snacks are now slowly making inroads to restaurants and fast food menus from its traditional local convenience store location. Even convenience stores are selling snacks that may replace the fast foods. Rather than larger bags, individually wrapped snacks are so easy to take and consume on the run. Smaller packs also give a feeling of not too many calories with a 90 calorie snack pack. Health bars are selling more than ever with low fat/low calorie/high fibre types.

Many snack makers are offering snacks that are easily portable in a car. They are also packed in ‘road ready container’ and fits into an auto-cup holder, where coffee or soft drink used to fit. Of course, fast food companies are also catching on and are making fry containers that fit into auto-cup holder as well.

Smaller packs have other advantages also. When one buys a big pack contents are same. Offering two, three or four different small pack variants will not only give someone different tastes while eating the snacks but also they could share them with others. Fast foods also have started this by offering smaller burgers, smaller pizza etc. so one can get many tastes and flavours at one sitting.

With the different style of working, especially with call centres and even many outsourced businesses, the timings have gone haywire. There are no fixed times for lunch, tea etc. so sometimes people may get opportunity to eat at 3 in the afternoon. This may not be a time for regular meal so snacking or fast food eating takes place. Snacks and fast foods are getting interchanged. One can get fast foods that are packed and sold in a store while many fast food restaurants are offering snacks that are freshly made like freshly baked cookies in a short time that it takes to order a burger.

Finally

Americans are biggest snack consumers and have shown lately to have the most health problems related to weight, diabetes, cancer and heart. They have started to look for the healthier snacks rather than cut down snacks. Snacks are very enticing and with the changing lifestyle with more meetings, leisure, parties and celebrations, the snacks are going to be consumed even more. As manufacturers have come up with healthier options there is going to be even greater boost to the snack food industry as those who only care for taste of foods will continue to munch on traditional snacks with high fat, salt and sugar. Those who worry may switch to healthier snacks to feel less guilty. Still those who avoided snacks because they were not healthy, will now offer a new market, as they would not consider healthier snacks as something to be avoided.

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Regulatory Impact Analysis

Dr. J. I. Lewis, Marico

Regulatory Impact Analysis is a high level summary of the problem and key objectives to be achieved. It evaluates impact of all regulatory and non regulatory options available and documents why it preferred the option chosen as best.

In 1991 US FDA while issuing an advanced notice of proposed rulemaking on labelling did not require trans fats be listed. However it requested comments whether listing of trans fatty acids should be voluntary. Two years later, it commented that to include trans fatty acids on labels was premature because of a lack of agreement on the dietary implications. Six years later, it amended labelling rules to require trans fat be included in the amount declared for saturated fatty acids with a footnote indicating the amount of trans fatty acids in a serving of the product when the product contains 0.5g or more. Finally, in July 2003, 12 years from its first position on trans labelling it amended rules requiring declaration on a separate line immediately under saturated fatty acids. It had determined that the dietary exposure approximately 5.8g per day and evidence of dose dependent adverse effects on health required the amendment. The amendment came into force January 2006. The entire rulemaking process took 15 years from an emerging concern to implementation.

Why did it deliberate the issue so intensely and purposefully? In an impact analysis based on evidential exposures and risk assessment it estimated that 3 years after the effective date, January 2006, *trans* fat labeling would annually prevent from 600 to 1,200 heart attacks and save 250-500 lives. Based on this estimate, this rule will realize a cost savings of $900 million to $1.8 billion per year in medical costs, lost productivity, pain and suffering. Industry would incur a one-time cost of approximately $140 to $250 million, that include analyses of *trans* fat in food products, relabeling the nutrition facts panel to add *trans* fat, and reformulating products voluntarily to decrease the amount of *trans* fat.

By comparison notification GSR 664 requiring trans fat labelling to come into force in March 2008 has neither provided evidential exposure of the Indian consumer to trans fats nor estimated what health benefits or avoidance of disease that will accrue over a period of time. The character of domestic rulemaking is considerably biased towards enactment of rules rather than enablement of law to address health or safety issues. When regulations are made in absence of quantified dietary exposures and consumer benefits, verbal expressions of 'in the consumer's interest' are inaccurate and pretentious. A key element missing in Indian regulations is regulatory impact analysis which is the core discussion of this article.

What is regulatory Impact Analysis?

Regulatory Impact Analysis is a high level summary of the problem and key objectives to be achieved. It evaluates impact of all regulatory and non regulatory options available and documents why it preferred the option chosen as best. This procedure ensures government departments entrusted with the regulatory task undertake robust preparedness prior to reaching the legislative step.

Regulations are all those activities of government that influence or control, either directly or indirectly, the entire food supply chain, including primary producers, food processors, retailers and food preparation businesses. This may be through regulatory controls and includes all rules or standards, which require legal compliance or codes of practice, analytical capabilities for which there is a reasonable expectation of compliance.

When a regulation is legislated, two factors become operative - compliance costs and consumer benefits. Hence the regulator before taking the legislative step conducts a regulatory impact analysis to ensure public money is well spent as well as the regulatory burden on industry yields genuine benefits to consumer or the community.

Costs allocable to government are those incurred in surveillance and monitoring, laboratory, equipment, litigation and many others that can be characterized as specific or additional or consequential to the regulation. Added to these are costs incurred by Industry in terms of additional business costs from manpower, quality control, packaging changes, reformulation and litigation. These costs get lodged in cost of the product and ultimately the consumer pays for the regulation. Against these quantified costs are benefits flowing on to consumers and society in general from reduction in incidence of food borne illness, or diet related diseases. The task of Regulatory Impact Analysis is to ensure that regulations are working effectively and regulators acting responsibly.

How does one begin a regulatory impact analysis? It begins by asking fundamental questions for which data is sought and analyzed **[fig 1]**. Let's take the example of the labelling declaration of sugar. The fundamental questions are:

- What is the problem that the government is addressing here?
- Is the Indian population consuming alarming levels of sugar from prepackaged foods?
- What is the major source of sugar intake?
- What alternative approaches are available – regulatory and non regulatory
- What are the costs to government and industry and benefits for consumers in each option?
- What is the need for government to intervene?
- How and when should the government measure achievement of the objective of the regulation?

Asking such pertinent questions and collecting data should have been a prerequisite when government required inclusion of sugar in nutritional labelling on prepackaged foods. It neither determined if sugar consumption is high, nor identified the source of high intakes, nor evaluated whether effective alternatives to labelling exist, nor calculated what health benefits would accrue to the consumer.

To provide a brief insight to the process of regulatory impact analyses consider the evidential consumption of sugar. Market data reports prepared by various agencies are reliable inputs to consumption patterns. According to an A C Nielsen report of the total non levy sugar consumption of 17.52 million metric tones [mmt] in 2007, 2.24mmt is directly consumed by households with income greater that Rs. 5000 per month, the demographic group in the packaged foods space **[SEE TABLE 1, 2, 3].** Industrial and small businesses consume 5.26mmt and 5.51mmt respectively. Sweet meat vendors are the largest consumers accounting for 58% of total consumption by small businesses. In the industrial sector, confectionery, bakery and carbonated beverage sector consume 2.67mmt, less that the sweet meat sector, 3.2mmt alone. The total consumption arising from the unregulated sector is 7.75mmt compared to the industrial sector 2.67mmt, about 3 times more than what the new labelling regulation hopes to control. Consumption data suggests that major exposure lies in the sector where labelling regulations has no writ – in fact GSR 664 exempts sweet meat vendors, catering services from labelling rules. The legislative option of requiring prepackaged foods label sugar is not the preferred option of obtaining consumer benefits.

The key point here whether the per capita consumption of sugar in an Indian household around 60kg is considered excessive and if any recommended daily intake from the food pyramid is available as information to consumers. If an impact analysis were done the Government would have arrived at a non regulatory option of educating the consumer rather than requiring labelling of prepackaged foods.

Prepackaged foods account for only 3-5% of all foods consumed and is not the major source of sugar consumed. The kinds of foods consumed are not daily requirements nor consumed excessively. Labelling of prepackaged foods as information for diabetics may be a presumption and needs validation. A rough off the surface take on the consumption data reveals that the Indian per capita consumption of biscuits, according to the Federation of Biscuit Manufacturers of India is 2.1kg. Chocolates consumed are around 0.3kg per year. Compare this with per capita consumptions of 10kg biscuits and 11kg chocolates per annum in Europe. If one were to apply the impact analysis principle it makes eminent sense for labelling requirements for sugar declaration in Europe, since prepackaged foods form a major source of sugar intakes. In this case label disclosures of the amount of sugar would significantly contribute to consumers being able to compare foods based on the sugar contained in them. It is another matter that nutritional labelling in EU is voluntary unless a claim is made.

Regulatory impact analysis raises the process of rulemaking as being open, transparent, and an empirically based system. It explains how the government has arrived at the preferred regulatory option, thereby building confidence in government's internal processes. The US FDA is subject to an annual performance appraisal and publishes its achievements against the objectives and goals its sets for itself derived from government policy. Indian food regulations need to provide a completion of the purpose on which rules are made, the absence of which suggests a simplistic copy of rules existing internationally.

Fig 1

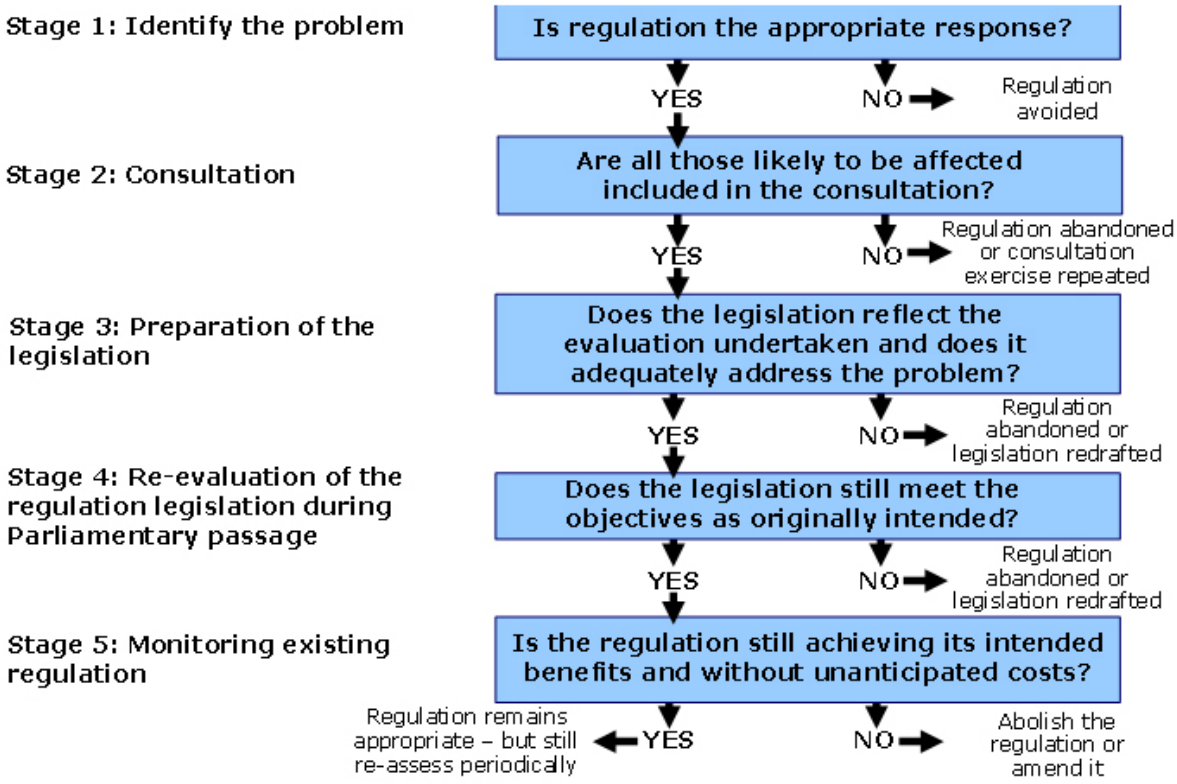
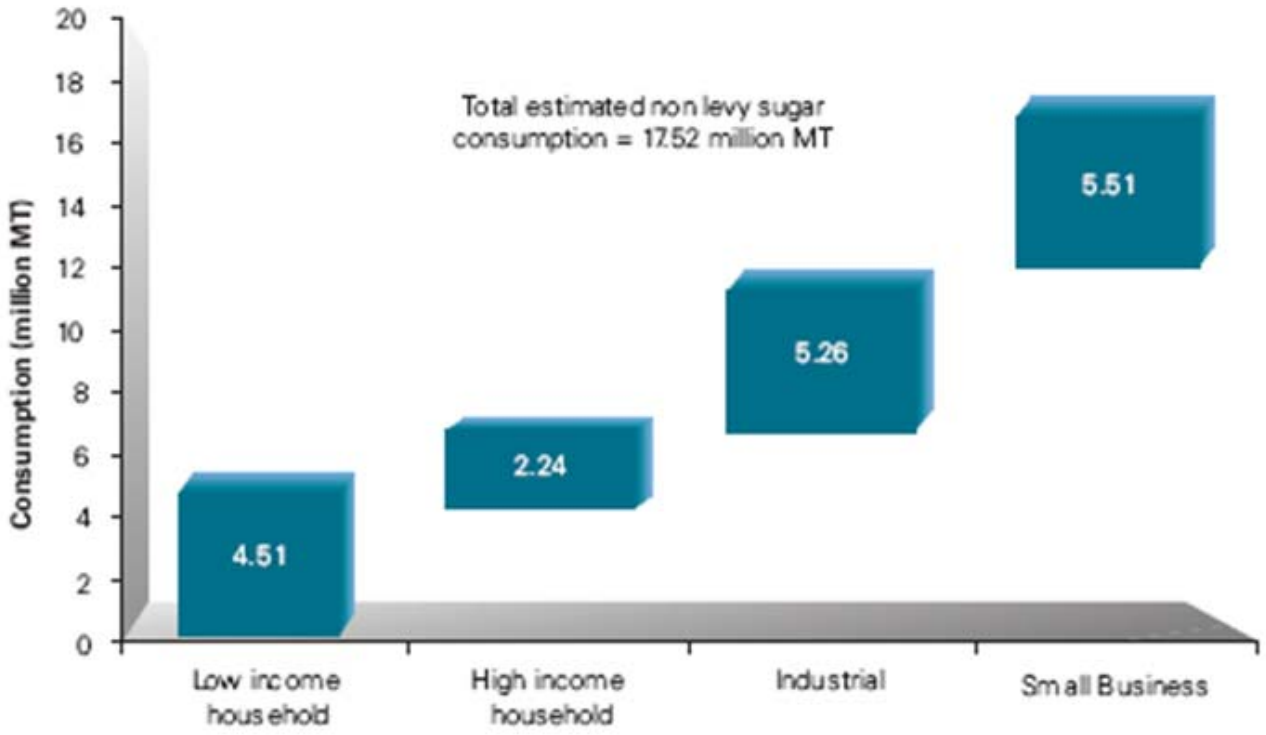
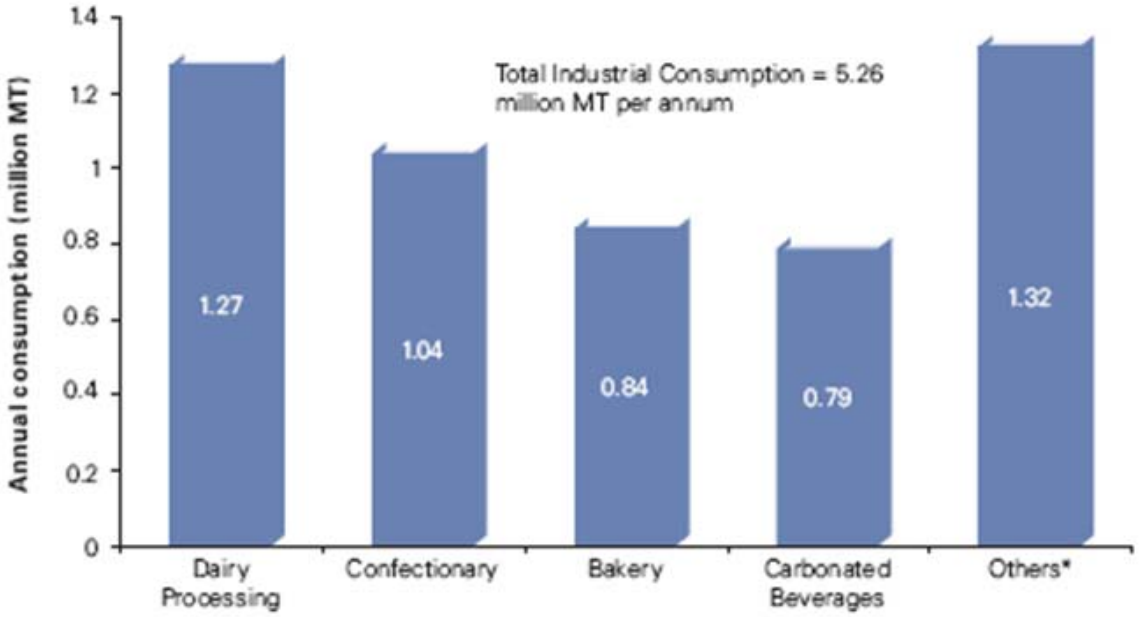


Table 1



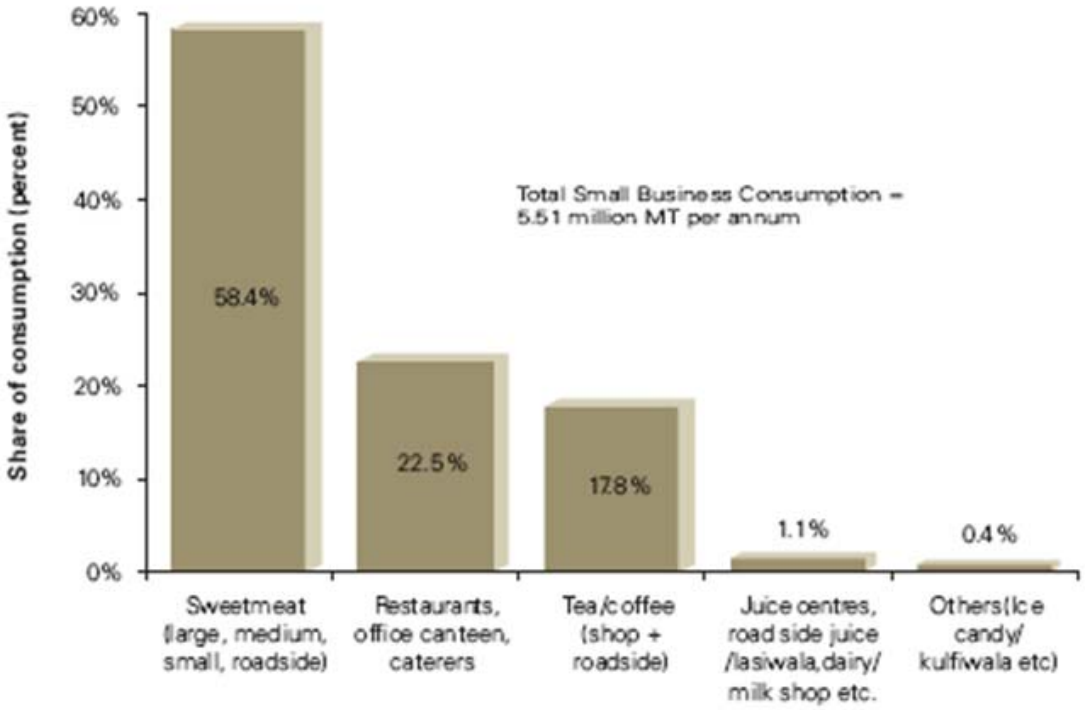
Source: AC Nielsen survey conducted in March 2007, KPMG analysis

Table 2



Source: AC Nielsen survey conducted in March 2007, KPMG analysis

Table 3



Source: AC Nielsen survey conducted in March 2007, KPMG analysis

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Research in Health & Nutrition

Colon Cancer Link to Obesity Uncovered

A new study reveals the first-ever genetic link between obesity and colon cancer risk, a finding that could lead to greater accuracy in testing for the disease, said a researcher at the University of Alabama at Birmingham (UAB). The discovery also may improve efforts to ward off colon cancer with obesity-fighting activities like exercise, weight loss and healthy eating.

"Our hope is that we can significantly improve the screening and early detection for this disease, and open new avenues for better understanding the genetic and lifestyle factors that influence colon cancer risk," said Boris Pasche, M.D., Ph.D., director of the division of hematology and oncology at the UAB Comprehensive Cancer Center and lead author of the JAMA study.

The research focuses on a gene called ADIPOQ that results in the formation of a fat hormone called adiponectin. It shows those who inherit a common genetic variant of ADIPOQ carry up to 30 percent reduced risk of colon cancer compared to others. In other words, Pasche said, those identified without the gene variant or those who have unhealthy blood levels of adiponectin may benefit from early colorectal testing. Additional studies are needed to confirm whether those without the variant benefit from cancer-prevention lifestyle changes such as diet and exercise.

Colon cancer is the third-leading cancer killer of Americans. This year 149,000 people will be diagnosed with colon cancer and 50,000 will die from the disease, according to estimates from the American Cancer Society. One-third of people with colon cancer have a clear family history of the disease, and now scientists are homing in on the exact DNA sequences or mutations within the ADIPOQ gene that influence colon cancer risk, Pasche said.

It has already been proven that obesity is influenced by genetics, and colon cancer is influenced by genetics. The JAMA study is the first to make a three-way scientific connection between genetic variation, obesity and colon cancer risk. Other research has shown adiponectin is associated with diabetes, insulin resistance, cardiovascular disease and with influencing cell growth in colonic tissues. Exactly how adiponectin or its genes directly impact tumor growth is still unknown, but those cell pathways are being widely studied, Pasche said.

A separate gene variant in ADIPOQ is a known modifier for breast-cancer risk, according a recent study in the journal Cancer Research that was co-authored by Pasche.

The new JAMA study was performed with blood samples taken from 1,497 participants, including healthy volunteers and colon cancer patients. It includes both sexes and a mix of age, race and ethnicity.

The study's collaborators include researchers from Northwestern University in Chicago, the University of Chicago, Harvard Medical School in Boston, Memorial Sloan-Kettering Cancer Center in New York and Dartmouth Medical School in Hanover, N.H. Funding was provided by the Walter S. Mander Foundation, the Lynn Sage Foundation, the Niehaus Clinical Cancer Genetics Initiative, the National Institutes of Health, a Jeannik M. Littlefield grant from the American Association for Cancer Research and the American Society of Clinical Oncology.

http://www.sciencedaily.com/releases/2008/09/080930154831.htm

Drinking Milk To Ease Milk Allergy? Oral Immunotherapy Study Shows Promise -- But Do Not Try This At Home

A new study suggests that giving children with milk allergies increasingly higher doses of milk over time may ease, and even help them completely overcome, their allergic reactions.

Giving children with milk allergies increasingly higher doses of milk over time may ease, and even help them completely overcome, their allergic reactions, according to the results of a study led by the Johns Hopkins Children's Center and conducted jointly with Duke University.

Despite the small number of patients in the trial – 19 – the findings are illuminating and encouraging, investigators say, because this is the first-ever double-blinded and placebo-controlled study of milk immunotherapy. In the study, the researchers compared a group of children receiving milk powder to a group of children receiving placebo identical in appearance and taste to real milk powder. Neither the patients nor the investigators knew which child received which powder, a rigorous research setup that minimizes the chance for error and bias.

The findings of the study are reported online ahead of print, Oct. 28, in the Journal of Allergy & Clinical Immunology

"Our findings suggest that oral immunotherapy gradually retrains the immune system to completely disregard or to better tolerate the allergens in milk that previously caused allergic reactions," says Robert Wood, M.D., senior investigator on the study and director of Allergy & Immunology at Hopkins Children's. "Albeit preliminary and requiring further study, these results suggest that oral immunotherapy may be the closest thing yet to a 'true' treatment for food allergy."

Currently, food allergy management involves complete avoidance of the trigger foods, waiting for the child to outgrow the allergy or treating allergic reactions if and when they occur. The latter could be dangerous, investigators say, because these common foods are difficult to avoid and some reactions can be severe and even life-threatening.

In a report released Oct. 22, the Centers for Disease Control and Prevention estimates that food allergies are on the rise with three million children in the United States now having at least one food allergy, an 18 percent jump from 10 years ago. Milk allergy is the most prevalent type of food allergy.

"Given that the quality of life of a child with a food allergy is comparable to the quality of life of a child with diabetes, we urgently need therapies that go beyond strict food avoidance or waiting for the child to outgrow the allergy," Wood says.

Researchers followed allergic reactions over four months among 19 children with severe and persistent milk allergy, 6 to 17 years of age. Of the 19 patients, 12 received progressively higher doses of milk protein, and seven received placebo. At the beginning of the study, the children were able to tolerate on average only 40 mg (.04 ounces or a quarter of a teaspoon) of milk.

At the end of the four-month study, both groups were given milk powder as a "challenge" to see what dose would cause reaction after the treatment. The children who had been receiving increasingly higher doses of milk protein over a few months were able to tolerate a median dose of 5, 140 mg (over 5 ounces) of milk without having any allergic reaction or with mild symptoms, such as mouth itching and minor abdominal discomfort. Those who had been getting the placebo remained unable to tolerate doses higher than the 40 mg of milk powder without having an allergic reaction. In the group receiving milk protein, the lowest tolerance dose was 2, 540 mg (2.5 ounces) and the highest was 8,140 mg (8 ounces). Lab tests showed the children who regularly drank or ate milk had more antibodies to milk in their blood, yet were able to better tolerate milk than those who took the placebo. Researchers say, tolerance in children treated with milk continued to build over time, and recommend that these children continue to consume milk daily to maintain their resistance. The researchers caution that it remains unclear whether the children would maintain their tolerance once they stop consuming milk regularly. "It may very well be that this tolerance is lost once the immune system is no longer exposed to the allergen daily," Wood says.

The Hopkins group is currently studying oral immunotherapy in children with egg allergy to determine whether increasingly higher doses of egg protein can help resolve their allergy, and have recently started another study of milk immunotherapy.

Wood emphasizes the findings require further research and advises parents and caregivers not to try oral immunotherapy without medical supervision.

From: **Science Daily (Oct. 31, 2008)**

New Research: Early Peanut Consumption May Prevent Allergy

New research casts doubt on government health recommendations that infants and new mothers avoid eating peanuts to prevent development of food allergy.

The study, published in the November issue of *The Journal of Allergy and Clinical Immunology,* shows that children who avoided peanut in infancy and early childhood were 10 times as likely to develop peanut allergy as those who were exposed to peanut.

Researchers measured the incidence of peanut allergy in 8,600 Jewish school-age children in the United Kingdom and Israel. They compared these results with data on peanut consumption collected from mothers of infants age 4 to 24 months.

Prevalence of peanut allergy in the United Kingdom was estimated at 1.85 percent, versus .17 percent in Israel.

"The most obvious difference in the diet of infants in both populations occurs in the introduction of peanut," lead author George Du Toit, MD, FAAAAI, wrote in the article. At 9 months of age, 69 percent of Israeli children were eating peanut, compared to 10 percent of those in the U.K.

Dietary guidelines in the United Kingdom, Australia and - until earlier this year - the United States advise avoidance of peanut consumption during pregnancy, breastfeeding and infancy. While researchers suggest these recommendations could be behind the increase in peanut allergy in these countries, they cautioned that further evidence is needed before those guidelines should be changed.

The American Academy of Allergy, Asthma & Immunology (AAAAI) cautions that although the results are promising, they shouldn't translate to changes in treatment just yet. There are a number of other factors that could account for the difference in peanut allergy prevalence between the two countries.

"While this study's findings provide optimism for prevention of peanut allergy in the future, randomized, controlled trials are needed to verify that early introduction of peanut is indeed effective," said Jacqueline A. Pongracic, MD, FAAAAI, vice chair of the AAAAI Adverse Reactions to Foods Committee.

The Learning Early about Peanut Allergy (LEAP) study, a large randomized study in the U.K., is currently testing the effects of early peanut exposure.

Researchers selected the two Jewish populations due to their similar genetics, rate of atopy, and environmental and socioeconomic backgrounds. These similarities help eliminate other factors that could account for the difference in peanut allergy rates.

Peanut allergy affects an estimated 3 million Americans, according to the AAAAI. It is one of the most common triggers of anaphylaxis, a potentially life-threatening reaction. The incidence of peanut allergy has been on the rise in the United States, doubling in the five-year period from 1997-2002.

From: Medical News Today 31 Oct 2008

Eating Whole Grains Lowers Heart Failure Risk, According To New Study

About 5 million people in the United States suffer from heart failure (HF). While some reports indicate that changes to diet can reduce HF risk, few large, prospective studies have been conducted. In a new study researchers observed over 14,000 participants for more than 13 years and found that whole grain consumption lowered HF risk, while egg and high-fat dairy consumption raised risk. Other food groups did not directly affect HF risk. The results are published in the November 2008 issue of the *Journal of the American Dietetic Association*.

Diet is among the prominent lifestyle factors that influence major HF risk factors: coronary artery disease, obesity, diabetes and insulin resistance and hypertension. Using data from the Atherosclerosis Risk in Communities (ARIC) study, researchers from the Division of Epidemiology and Community Health, University of Minnesota and the Department of Epidemiology and Cardiovascular Diseases Program, University of North Carolina, analyzed the results of baseline exams of more than 14,000 White and African American adults conducted in 1987-89, with follow-up exams completed during 1990-92, 1993-95, and 1996-98. Four field centers participated in the study: Forsyth County, NC; Jackson, MS; northwest Minneapolis suburbs, MN; and Washington County, MD. The study also collected demographic characteristics and lifestyle factors, as well as other medical conditions such as cardiovascular disease, diabetes and hypertension.

Writing in the article, Jennifer A. Nettleton, Ph.D., states, "Although risk estimates were modest (7% lower risk per 1-serving increase in whole grain intake; 8% greater risk per 1-serving increase in high-fat dairy intake; 23% greater risk per 1-serving increase in egg intake), the totality of literature in this area suggests it would be prudent to recommend that those at high risk of HF increase their intake of whole grains and reduce intake of high-fat dairy and eggs, along with following other healthful dietary practices consistent with those recommended by the American Heart Association."

The article is "Incident heart failure is associated with lower whole grain intake and greater high-fat dairy and egg intake in the Atherosclerosis Risk in Communities (ARIC) study" by Jennifer A. Nettleton, Ph.D.; Lyn M. Steffen, Ph.D.; Laura R. Loehr, MD; Wayne D. Rosamond, Ph.D; and Aaron R. Folsom, MD. It appears in the Journal of the American Dietetic Association, Volume 108, Issue 11 (November 2008) published by Elsevier.

From: Eurekalert October 27, 2008

Fructose Sets Table for Weight Gain without Warning

Eating too much fructose can induce leptin resistance, a condition that can easily lead to becoming overweight when combined with a high-fat, high-calorie diet, according to a new study with rats.

Although previous studies have shown that being leptin resistant can lead to rapid weight gain on a high-fat, high-caloric diet, this is the first study to show that leptin resistance can develop as a result of high fructose consumption. The study also showed for the first time that leptin resistance can develop silently, that is, with little indication that it is happening.

The study, "Fructose-induced leptin resistance exacerbates weight gain in response to subsequent high-fat feeding," was carried out by Alexandra Shapiro, Wei Mu, Carlos Roncal, Kit-Yan Cheng, Richard J. Johnson and Philip J. Scarpace, all at the University of Florida College of Medicine in Gainesville. The study appears in the *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology*, published by The American Physiological Society.

Leptin is a hormone that plays a role in helping the body to balance food intake with energy expenditure. When leptin isn't working -- that is, when the body no longer responds to the leptin it produces -- it's called leptin resistance. Leptin resistance is associated with weight gain and obesity in the face of a high-fat, high-calorie diet.

Obesity has been a growing problem in the U.S. and in other parts of the world and fructose has been suspected of playing a role. Fructose is the sugar found in fruit, but it's not the normal consumption of fruit that is the problem. Table sugar and high-fructose corn syrup are about 50% fructose and these ingredients have become increasingly common in many foods and beverages. With sugar and high-fructose corn syrup being added to many foods, people now eat much more fructose than ever before.

The University of Florida researchers hypothesized that a high-fructose diet could lead to leptin resistance, which in turn could lead to exacerbated weight gain in the face of a high-fat, high-calorie diet, a typical diet in industrialized countries. To test their hypothesis, the research team performed a study with two groups of rats. They fed both groups the same diet, with one important exception: one group consumed a lot of fructose while the other received no fructose.

During these six months, there were no differences in food intake, body weight, and body fat between rats on the high-fructose and the rats on the fructose-free diets. In addition, there was no difference between the two groups in the levels of leptin, glucose, cholesterol or insulin found in their blood. There was only one difference at the end of the six months: The rats on the high-fructose diet had higher levels of triglycerides in their blood.

The researchers next tested the animals to see if they were leptin resistant. They injected all the animals with leptin, to see if they would respond by eating less. Animals whose leptin response is functioning normally will lower their food intake. The researchers discovered that the rats on the high-fructose diet were leptin resistant, that is, they did not lower their food intake when given leptin. The no-fructose animals responded normally to leptin by eating less.

This first six months of the study showed that leptin resistance can develop silently. "Usually, leptin resistance is associated with obesity, but in this case, leptin resistance developed without obesity," Shapiro said. "This was very surprising."

Role of diet

Having seen that leptin resistance could develop silently, the researchers next wanted to find out what would happen if they switched the rats to a high-fat, high-calorie diet -- the kind many Americans eat. They found that the animals exposed to the high-fructose diet, the leptin resistant rats, ate more and gained much more weight and fat than the leptin responsive animals on the fructose-free diet. All told, this study showed that leptin resistance can:

• develop by eating a lot of fructose
• develop silently, that is, with very little indication it is happening
• result in weight gain when paired with a high fat, calorie dense diet

Scarpace said the study suggests it is the interaction between consumption of large amounts of fructose-containing foods and eating a high-fat, high-calorie diet that produces the weight gain. "This study may explain how the global increase in fructose consumption is related to the current obesity epidemic," Shapiro said.

Other studies have shown that elevated triglycerides impair the transport of leptin across the blood brain barrier. The researchers hypothesize that the elevation in triglycerides produced by fructose prevented leptin from reaching the brain. If leptin does not reach the brain, the brain will not send out the signal to stop eating.

"The presence of high fructose alters the way leptin works, fooling the brain so that it ignores leptin," Scarpace said. Consumers should be cautious about what they eat, checking labels to see how much sugar the items contain, Shapiro said.

The researchers hope to perform future studies to find out if leptin resistance can be reversed by removing or reducing the fructose content of the diet.

From: American Physiological Society 16 Oct 2008

Grapes May Aid a Bunch of Heart Risk Factors, U-M Animal Study Finds

Research shows that grape intake lowered blood pressure and signs of heart muscle damage, and improved heart function in lab rats

Could eating grapes help fight high blood pressure related to a salty diet? And could grapes calm other factors that are also related to heart diseases such as heart failure? A new University of Michigan Cardiovascular Center study suggests so.

The new study, published in the October issue of the Journal of Gerontology: Biological Sciences, gives tantalizing clues to the potential of grapes in reducing cardiovascular risk. The effect is thought to be due to the high level of phytochemicals – naturally occurring antioxidants – that grapes contain.

The study was performed in laboratory rats. The researchers noted that while these study results are extremely encouraging, more research needs to be done.

The researchers studied the effect of regular table grapes (a blend of green, red, and black grapes) that were mixed into the rat diet in a powdered form, as part of either a high- or low-salt diet. They performed many comparisons between the rats consuming the test diet and the control rats receiving no grape powder — including some that received a mild dose of a common blood-pressure drug. All the rats were from a research breed that develops high blood pressure when fed a salty diet.

In all, after 18 weeks, the rats that received the grape-enriched diet powder had lower blood pressure, better heart function, reduced inflammation throughout their bodies, and fewer signs of heart muscle damage than the rats that ate the same salty diet but didn't receive grapes. The rats that received the blood-pressure medicine, hydrazine, along with a salty diet also had lower blood pressure, but their hearts were not protected from damage as they were in the grape-fed group.

Says Mitchell Seymour, M.S., who led the research as part of his doctoral work in nutrition science at Michigan State University, "These findings support our theory that something within the grapes themselves has a direct impact on cardiovascular risk, beyond the simple blood pressure-lowering impact that we already know can come from a diet rich in fruits and vegetables." Seymour manages the U-M Cardioprotection Research Laboratory, which is headed by U-M heart surgeon Steven Bolling, M.D.

Bolling, who is a professor of cardiac surgery at the U-M Medical School, notes that the animals in the study were in a similar situation to millions of Americans, who have high blood pressure related to diet, and who develop heart failure over time because of prolonged hypertension.

"The inevitable downhill sequence to hypertension and heart failure was changed by the addition of grape powder to a high-salt diet," he says.

"Although there are many natural compounds in the grape powder itself that may have an effect, the things that we think are having an effect against the hypertension may be the flavanoids – either by direct antioxidant effects, by indirect effects on cell function, or both. These flavanoids are rich in all parts of the grape - skin, flesh and seed, all of which were in our powder." Bolling explains.

Such naturally occurring chemicals have already been shown in other research, including previous U-M studies, to reduce other potentially harmful molecular and cellular activity in the body.

Although the current study was supported in part by the California Table Grape Commission, which also supplied the grape powder, the authors note that the commission played no role in the study's design, conduct, analysis or the preparation of the journal article for publication. Seymour also receives funding from the National Heart, Lung and Blood Institute, part of the National Institutes of Health, through a National Research Service Award.

"Though it's true that your mom told you to eat all your fruits and your vegetables, and that we are learning a lot about what fruits, including grapes, can do in this particular model of hypertension and heart failure, we would not directly tell patients to throw all their pills away and just eat grapes," says Bolling.

However, research on grapes and other fruits containing high levels of antioxidant phytochemicals continues to show promise. So does research on the impact of red wine on heart health, though that issue is also far from settled.

The U-M team notes that a clinical research on grapes may be a possibility in the future, but is not currently planned.

In the meantime, Bolling says, people who want to lower their blood pressure, reduce the risk of heart failure, or help their weakened hearts retain as much pumping power as possible should follow tried-and-true advice: Cut down on the amount of salt you get through your food and drink.

"There is, as we now know, a great variability, perhaps genetic even, in sensitivity to salt and causing hypertension," he says. "Some people are very sensitive to salt intake, some are only moderately so, and there are perhaps some people who are salt resistant. But in general we say stay away from excess salt."

He notes that the popular DASH diet, which is low in salt and high in fruits and vegetables, has been proven to reduce mild high blood pressure without medication. The dose of whole table grape powder that was consumed in the study was roughly equivalent to a person eating nine human-sized servings of grapes a day. Currently, five to nine servings of fruits and vegetables are recommended as part of the DASH diet.

The rats in the study were from a strain called Dahl rats, which have been specially bred to all be susceptible to salt-induced hypertension. This allowed the researchers to look at a uniform sample of rats that would be affected in the same way by their diet, so that the effects of the salt level, grape powder and hydrazine could be seen clearly.

Each group of 12 rats was fed the same weight of food each day, with powdered grapes making up 3 percent of the diet (by weight) for rats that received grapes as part of either a low-salt or high-salt diet. The rats that received hydrazine were fed it through their water supply in a dose that has been previously shown to be effective in reducing blood pressure.

The rats in the high-salt grape and high-salt hydrazine groups did develop high blood pressure over time, but they had lower systolic blood pressures than the high-salt rats that did not receive grapes.

The researchers also measured the distortion of the heart size, weight and function that occurred over time – characteristics of heart failure – and found that the high-salt grape group had less of a change than the high-salt hydrazine group. Parameters related to the diastolic blood pressure – an important factor in human heart failure — and to the heart's relaxation during the diastolic phase also changed in just the high-salt grape group. Finally, the grape-fed rats had improved cardiac output, or more blood pumped per unit of time.

The researchers also looked for signs of inflammation, oxidative damage and other molecular indicators of cardiac stress. Again, the rats that received the high-salt grape diet had lower levels of these markers than rats that received the high-salt diet with hydrazine – and even the low-salt grape-eating rats had lower levels than the rats that received a low-salt diet alone.

In all, the researchers say, the study demonstrates that a grape-enriched diet can have broad effects on the development of hypertension and the risk factors that go along with it. Whether the effect can be replicated in humans, they say, remains to be seen.

Reference: Journal of Gerontology: Biological Sciences, 2008, Vol. 63A, No. 10, October 2008
From: Univ. of Michigan, Health System: News Room October 29, 2008

Resveratrol, Red Wine Compound linked to Health, also found in Dark Chocolate and Cocoa

Hershey's Center for Health and Nutrition announced the publication of a study that shows resveratrol, the compound often associated with the health benefits of red wine, is also found in cocoa and dark chocolate products. In the September 24 edition of the *Journal of Agricultural and Food Chemistry,* scientists report that cocoa powder, baking chocolate and dark chocolate all have significant levels of resveratrol, a naturally occurring antioxidant. "This study shows that the levels of resveratrol found in cocoa and chocolate products is second to red wine among known sources of resveratrol and forms yet another important link between the antioxidants found in cocoa and dark chocolate to other foods," says David Stuart, PhD, Director of Natural Product Science at The Hershey Company who partnered with Planta Analytica to conduct this study.

In the study, top selling retail products from six categories were tested for the level of resveratrol and its sister compound, piceid. The six product categories included cocoa powder, baking chocolate, dark chocolate, semi-sweet baking chips, milk chocolate and chocolate syrup. Gram for gram, cocoa powder had the highest average amount of resveratrol and piceid, followed by baking chocolates, dark chocolates, semi-sweet chips, milk chocolate and then chocolate syrup. In the products studied, the level of piceid was 3 to 6 times the level of resveratrol.

When the cocoa and chocolate levels were compared to published values for a serving of red wine, roasted peanuts and peanut butter, resveratrol levels of cocoa powders, baking chocolates and dark chocolate all exceeded the levels for roasted peanuts and peanut butter per serving, but were less than California red wine.

"Resveratrol gained widespread attention in the early 1990s when it was identified in relatively high amounts in red wine, which is associated with the French Paradox," says Debra Miller, PhD, Director of Nutrition for The Hershey Company. "Despite eating a diet equally high in saturated fat as the typical American diet, the French were shown to have about one-third the level of cardiovascular disease. Continued research indicates that moderate consumption of red wine, along with fruits, vegetables, nuts and lower amounts of red meat, may contribute to this lower risk of heart of disease."

According to a review article published this month in Nutrition Reviews, resveratrol, a naturally occurring antioxidant, was shown to improve insulin sensitivity, blood cholesterol levels and have neuroprotective actions in animal studies. Further, the article states, studies in mice indicate that diets high in resveratrol were associated with increased longevity..

"Cocoa is a highly complex natural food which contains in excess of seven hundred naturally occurring compounds, with many more yet to be discovered," explains Jeff Hurst, the lead chemist on the project. "For years, flavanols, a different class of compounds in chocolate, received most of the attention, but these are quite different than resveratrol. It is exciting to see additional antioxidants identified in cocoa and chocolate."

The results of the survey show that cocoa powder, baking chocolate and dark chocolate contain on average 14.1 to 18.5 micrograms of resveratrol per serving while the level found in the average California red wine is 832 micrograms per glass. Roasted peanuts have an average of 1.5 micrograms and peanut butter13.6 micrograms of resveratrol per serving, demonstrating that cocoa and dark chocolates are meaningful sources of resveratrol in the US diet.

From: E! Science News October 14, 2008

Pregnant Women Consuming Flaxseed Oil Have High Risk Of Premature Birth

In Canada, 50 percent of pregnant women take prescription medication. Yet many of them prefer to use natural health products during the pregnancy. "We believe these products to be safe because they are natural. But in reality, they are chemical products and we don't know many of the risks and benefits of these products contrarily to medication," says Bérard.

Bérard and Moussally set out to conduct one of the largest studies ever undertaken on by analyzing data from 3354 Quebec women. The first part of the research established that close to 10 percent of women between 1998 and 2003 used natural health products during their pregnancy. Before and after pregnancy they were respectively 15 and 14 percent to use these products. The increase means that about a third of women consuming natural health products stopped during the pregnancy.

The most consumed natural health products by pregnant women are chamomile (19 percent), green tea (17 percent), peppered mint (12 percent), and flaxseed oil (12 percent). Bérard and Moussally correlated these products to premature births and only one product had a very strong correlation: flaxseed oil.

"In the general population, the average rate of premature births is 2 to 3 percent. But for women consuming flaxseed oil in their last two trimesters that number jumps up to 12 percent," says Bérard. "It's an enormous risk."

The correlation existed only with flaxseed oil, yet women consuming the actual seed were unaffected. Even if more studies must be undertaken to verify these results, Bérard recommends caution when it comes to consuming flaxseed oil.

From: Science Daily (Oct. 29, 2008)

Study Confirms Insufficient Iodine In Our Food

The Parliamentary Secretary for Health and Ageing, Senator Jan McLucas, said today Food Standards Australia New Zealand's latest Australian Total Diet Study confirms that many Australians are not getting enough iodine in their food.

"Insufficient iodine intake, particularly in groups such as pregnant women, babies, and young children, is of great concern," Senator McLucas said.

"Mild to moderate iodine deficiency can result in children having learning difficulties and can affect the development of motor skills and hearing. In extreme cases it can result in severe intellectual disability.

"The findings of the study confirm the necessity of the mandatory addition of iodine to bread, which is to be introduced by FSANZ by September next year. About 43 per cent of Australians have an inadequate intake of iodine, and FSANZ estimates that this will drop to no more than five per cent after iodine fortification of bread."

Women aged 19 to 49, which covers most of their childbearing years, need between 100 and 200 micrograms of iodine a day and the study showed 70 per cent were not getting enough. Ten per cent of children aged two to three years were not getting enough.

Ninety-six types of food were tested in a "table-ready" state for the trace elements selenium, chromium, molybdenum and nickel as well as iodine. While the survey showed that most Australians have adequate dietary intakes of three of the other four nutrients, selenium intake needs further investigation.

The FSANZ Chief Scientist, Dr Paul Brent, said that the agency had taken a new approach in producing a world-leading total diet study focussed exclusively on nutrients. “It is the first major study to assess nutrition against Nutrient Reference Values for Australia and New Zealand, recently released by the National Health and Medical Research Council,” Dr Brent said.

He said FSANZ had broadened the scope of the study to include a wider range of substances, including additives and nutrients, as the more traditional testing of pesticide residues and contaminants continually showed that levels of these chemicals in the Australian food supply were safe. FSANZ will continue to monitor pesticide residues, although on a less frequent basis every five years.

The ATDS is conducted about every two years to ensure the Australian food supply is safe and nutritious. The 23rd ATDS is already under way and will cover a large range of pesticide residues and veterinary chemicals, as well as selenium, fluoride, aluminium, arsenic, cadmium, copper, iron, lead, mercury and zinc, and toxins present in fungus and mould.

The full report can be found on the Food Standards Australia New Zealand website www.foodstandards.gov.au
From: http://www.health.gov.au/internet/ministers/publishing.nsf/Content/mr-yr08-jm-jm017.htm

Lack of vitamin D linked to Parkinson's disease

A majority of Parkinson's disease patients had insufficient levels of vitamin D in a new study from Emory University School of Medicine. The fraction of Parkinson's patients with vitamin D insufficiency, 55 percent, was significantly more than patients with Alzheimer's disease (41 percent) or healthy elderly people (36 percent). The results are published in the October issue of

Archives of Neurology. The finding adds to evidence that low vitamin D is associated with Parkinson's, says first author Marian Evatt, MD, assistant professor of neurology at Emory.

Evatt is assistant director of the Movement Disorders Program at Wesley Woods Hospital. The senior author is endocrinologist Vin Tangpricha, MD, assistant professor of medicine at Emory and director of the Endocrine Clinical Research Unit. Evatt says her team compared Parkinson's patients to Alzheimer's patients because they wanted to evaluate the possibility that neurodegenerative diseases in general lead to vitamin D insufficiency.

Most Americans get the majority of their vitamin D from exposure to sunlight or by dietary supplements; fortified foods such as milk and packaged cereals are a minor source. Only a few foods in nature contain substantial amounts of vitamin D, such as salmon and tuna. The body's ability to produce vitamin D using UV-B radiation from the sun decreases with age, making older individuals at increased risk of vitamin D deficiency. "We found that vitamin D insufficiency may have a unique association with Parkinson's, which is intriguing and warrants further investigation," Evatt says. The connection could come partly because patients with Parkinson's have mobility problems and are seldom exposed to the sun, or because low vitamin D levels are in some way related to the genesis or progression of the disease. She says her team saw their results as striking because their study group came from the Southeast, not a region with long gloomy winters, where vitamin D insufficiency is thought to be more of a problem.

In addition, the study found that the fraction of patients with the lowest levels of vitamin D, described as vitamin D deficiency, was higher (23 percent) in the Parkinson's group than the Alzheimer's group (16 percent) or the healthy group (10 percent). The retrospective study examined 100 people in each group, who were recruited between 1992 and 2007. Every fifth Parkinson's patient from Emory's clinical neurology database was selected, then healthy controls and patients with Alzheimer's disease were matched on age and state of residence.

Vitamin D insufficiency is frequently defined as less than 30 nanograms per milliliter of blood of the 25-hydroxy form (the major storage form) of the vitamin and deficiency as less than 20 nanograms per milliliter. However, most experts agree insufficiency warrants treatment and should not be ignored.

Doctors have known for decades that vitamin D plays a role in bone formation, Evatt says. More recently, scientists have been uncovering its effects elsewhere, including producing peptides that fight microbes in the skin, regulating blood pressure and insulin levels, and maintaining the nervous system. Low vitamin D levels also appear to increase the risk of several cancers and auto-immune diseases such as multiple sclerosis and diabetes.

Parkinson's disease affects nerve cells in several parts of the brain, particularly those that use the chemical messenger dopamine to control movement. The most common symptoms are tremor, stiffness and slowness of movement. These can be treated with oral replacement of dopamine. Previous studies have shown that the part of the brain affected most by Parkinson's, the substantia nigra, has high levels of the vitamin D receptor, which suggests vitamin D may be important for normal functions of these cells, Evatt says.

Emory clinicians are conducting further research to investigate whether vitamin D insufficiency is a cause or possibly a result of having Parkinson's. In a pilot study, Parkinson's patients are receiving either standard or larger doses of vitamin D, with an eye towards possibly reducing the severity of their condition.
from: Bio-Medicine 13 October 2008

http://www.bio-medicine.org/biology-news-1/Lack-of-vitamin-D-linked-to-Parkinsons-disease-5347-1/

Link Between Weight Gains During Pregnancy and Dieting History – Study

Women who have a history of dieting or other restricted eating practices are at risk of gaining an inappropriate amount of weight during pregnancy. In a study published in the October 2008 issue of the Journal of the American Dietetic Association,

researchers from the University of North Carolina at Chapel Hill report that restrained eating behaviors prior to pregnancy were associated with weight gains above the Institute of Medicine recommendations for normal, overweight and obese women, and weight gains below the recommendations for underweight women.

Concern over low birth weight and preterm birth led many to focus attention on determinants of inadequate weight gain during pregnancy. However, with the rising prevalence of obesity among women of childbearing age and the high proportion of women who are gaining in excess of recommendations during pregnancy, the paradigm has shifted to a focus on the determinants of excessive weight gain during pregnancy.

Over 1200 women participated in the study, which was designed to determine whether a history of preconception dieting practices and restrained eating were related to higher weight gains in pregnancy, and whether this differed by prepregnancy BMI status. To assess behaviors associated with restrained eating patterns such as a history of dieting, concern about eating too much food and weight fluctuations, women completed a questionnaire that focused on their preconception habits. Women who were more overweight or obese tended to be classified as restrained eaters, dieters or weight cyclers.

The Institute of Medicine suggests that women should gain 28 to 40 lbs, 25 to 35 lbs, 15 to 25 lbs and at least 15 lbs for underweight, normal weight, overweight and obese women, respectively. The study found that restrained eating behaviors were associated with not gaining within the targeted weight gains. Most importantly, the effect of restrained eating on maternal weight gain varied by pre-pregnancy weight status. Restrained eaters and dieters in the normal, overweight and obese categories tended to gain in excess of recommendations, whereas underweight women gained below the recommendations, when compared to women who did not display restrained eating behaviors.

Co-author Anna Maria Siega-Riz, PhD, RD, suggests that the information from this study "could potentially be used by dietitians and health care providers at a preconception care visit or during family planning to identify women at risk for unhealthy eating behaviors. Women who are identified, particularly those who are underweight, should be followed up for potential eating disorders. For women who are not underweight, counseling and extra support could be given on healthy eating behaviors, increasing physical activity levels, and ways to eliminate stress which may increase the consumption of foods in certain social settings or in reaction to life events. During pregnancy it would be useful to target these women with similar nutritional and physical activity strategies in order to avoid excessive weight gain and adverse pregnancy outcomes such as caesarean sections, Macrosomia, and large-for-gestational age (LGA) as well as shorter duration of breastfeeding and higher weight retention in the postpartum period."

From: Science Daily (Oct. 3, 2008)

New Approach To Food Safety Testing Discovered

Thanks to research on the way pigment-bearing cells change color in Siamese fighting fish, scientists have developed a new technology for detecting bacteria that cause illness. The new, patented method developed by microbiologists at Oregon State University is said to be faster and easier than conventional approaches to assessing toxicity, although further studies are needed before it can be applied to commercial use.

In the study, Siamese fighting fish exhibited a change in the appearance and pigment pattern of pigment-bearing cells called erythrophores when the fish were exposed to threatening environmental conditions, including toxic exposure from illness-causing bacteria. Researchers found the erythrophores responded to bacteria associated with causing foodborne illness. They believe the method can be developed so that the toxic behavior of bacteria and not just the presence of bacteria can be detected. The findings were published in *Microbial Biotechnology*.

From: IFT News Letter October 1, 2008

Soy May Help Men Protect Against Baldness, Prostate Cancer and Heart Disease: Nutrition Expert

Soy may provide men protection against prostate cancer, heart disease, and even baldness, according to Suzanne Dixon MPH, MS, RD, an internationally recognized expert in chronic disease prevention, public health, nutrition and epidemiology.

Writing in the October "To Your Health," Vitasoy's health professionals quarterly, (www.vitasoy-usa.com), Dixon said that soy appears to protect against prostate cancer and may provide protection against hair loss, too. She said, "Male pattern baldness is

associated with higher risk of prostate cancer and there may be a 'common pathway' through which soy protects against both prostate cancer and hair loss in men."

Soy consumption and reduced risk of prostate cancer are linked, noted Dixon. "Men who live in countries with higher soy consumption have lower risk of prostate cancer. This tells us that soy is a possible dietary component that may protect the prostate against cancer development."

Research in men with prostate cancer has shown that soy can reduce the rate at which prostate specific antigen (PSA) increases. According to Dixon, "This is good news because PSA is used to track how prostate cancer may be progressing in men with the disease. The slower PSA goes up, the better."

While recent research claims that soy decreases fertility in men, "this is preliminary and shouldn't keep men away from soy," notes Dixon. Also important to note is that more than two-thirds of the men studied were overweight or obese, conditions linked to decreased fertility. "It would be premature to tell men to avoid soy for fertility reasons at this point," explained Dixon.

How soy contributes to heart health has been controversial, but Dixon put it into perspective: "Whole soy foods, such as tofu and soy milk, are moderate to high in protein, contain no saturated fat, and provide important heart healthy nutrients such as calcium. If soy replaces foods that are higher in saturated fat, for example, this substitution alone can provide measurable heart health benefits."

From: http://www.soyatech.com/news_story.php?id=10575

Plant Sterol-Enriched Soy Drink Significantly Reduces Bad Cholesterol: New French Study

Press Release -- Lipids in Health and Disease -- Oct. 6 -- Plant sterols are an established non-pharmacological means to reduce total and LDL blood cholesterol concentrations and are therefore recommended for cholesterol management by worldwide-renown health care institutions. Their efficacy has been proven in many types of foods with the majority of trials conducted in spreads or dairy products. As an alternative to dairy products, soy based foods are common throughout the world. Yet, there is little evidence supporting the efficacy of plant sterols in soy-based foods. The objective of this study was to investigate the effect of a soy drink enriched with plant sterols on blood lipid profiles in moderately hypercholesterolemic subjects.

Methods: In a randomized, placebo-controlled double-blind mono-centric study, 50 subjects were assigned to 200 ml of soy drink either enriched with 2.6 g plant sterol esters (1.6 g/d free plant sterol equivalents) or without plant sterols (control) for 8 weeks. Subjects were instructed to maintain stable diet pattern and physical activity. Plasma concentrations of lipids were measured at initial visit, after 4 weeks and after 8 weeks. The primary measurement was the change in LDL cholesterol (LDL-C). Secondary measurements were changes in total cholesterol (TC), non-HDL cholesterol (non-HDL-C), HDL cholesterol (HDL-C) and triglycerides.

Results: Regular consumption of the soy drink enriched with plant sterols for 8 weeks significantly reduced LDL- C by 0.29 mmol/l or 7% compared to baseline ($p<0.05$). TC and non-HDL-C concentrations decreased by 0.26 mmol/l and 0.31 mmol/l (each $p<0.05$), respectively. Mean reductions in total, LDL and non-HDL cholesterol were significantly greater than in the placebo group ($p<0.05$). HDL-C and triglycerides were not affected. Compliance was very high (>96%), and products were well tolerated.

Conclusion: Daily consumption of a plant sterol-enriched soy drink significantly decreased total, non-HDL and LDL cholesterol and is therefore an interesting and convenient aid in managing mild to moderate hypercholesterolemia.

From: Soyatech ENews October 7, 2008

Regulatory News

HHS Preparing to Open FDA Offices in China, India, Europe, and Latin America This Year

The U.S. Department of Health and Human Services will send the first U.S. Food and Drug Administration (FDA) staff to China, India, Europe, and Latin America before the end of 2008, HHS Secretary Mike Leavitt announced today. "We're making steady progress to better safeguard our supply of food and medicines, though much work remains," Secretary Leavitt said. "In the past year, we've upgraded labs and equipment, hired additional staff, and begun implementing product safety agreements with key trading partners, including China.

"Increasing our presence overseas will provide greater protections to American consumers at home and benefit our host countries as well," Secretary Leavitt added. "Opening these offices will mark a key milestone in the globalization of our efforts to enhance the safety of imported food and medical products."

"The globalization of the food supply and medical product manufacturing has demanded that we do things differently," said FDA Commissioner Andrew C. von Eschenbach. "Through our Beyond our Borders initiative, we won't have to send our experts to another country to work with foreign governments and regulated industry to improve our oversight -- we'll have staff living there and working on the ground 365 days a year."

The first overseas office will be in China. The U.S. government recently secured formal approval for the office from the People's Republic of China. The first staff will be in place in Beijing this year, with additional staff to be posted in 2009. Staff is also scheduled to be posted in Shanghai and Guangzhou next year. The department anticipates a total of eight U.S. nationals in China. Secretary Leavitt is scheduled to travel to China in November to meet with Chinese health officials to review mutual efforts to ensure the safety of food and medical products consumed by the two nations, particularly imported goods.

HHS/FDA plans on establishing its second overseas office in the Republic of India, with staff first posting to New Delhi in 2008 and at least one additional office to follow in 2009. Plans at present are for 10 U.S. nationals to be posted in India. The U.S. government is in the process of pursuing India's formal approval.

In both nations, personnel would work closely with local authorities as well as industries that ship food and medical products to the United States to improve safety efforts. Their activities will include providing technical advice, conducting additional inspections, and working with government agencies and private sector entities interested in developing certification programs. HHS/FDA will also be opening overseas offices in Europe and Latin America before the end of 2008, with a fifth office in the Middle East to follow soon in early to mid-2009.

Department officials are also working to conclude Memoranda of Understanding with Belize, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama to work together on product safety. Their collaborations could include information-sharing on their respective regulatory systems and joint workshops and training on the safety of food and medical products. The parties will also make efforts to find opportunities for joint training for food-borne illnesses and the oversight of food traded internationally.

Increased collaboration and coordination with trading partners and companies exporting goods to the United States is a central component of the Import Safety Action Plan proposed in November 2007 by an interagency working group led by Secretary Leavitt. Previously, federal officials relied extensively on inspections at the border to ferret out unsafe goods, an approach that has not kept up with the exponential growth in global commerce. In addition to border checks, the plan called for partnering with producers of goods overseas to build in quality every step of the way. Some proposals in the action plan require new authorities to be granted by Congress. The Administration has repeatedly urged congressional action on these, but to date no legislation has passed. Examples include the following:

- Authorizing the department to accredit highly qualified third parties to evaluate compliance with HHS/FDA requirements.
- Authorizing HHS/FDA to require certification of designated high-risk products as an additional condition of importation.
- Authority to refuse admission of imports from a firm that delays, limits, or denies HHS/FDA access to its facilities.
- Empowering HHS/FDA to issue a mandatory recall of food products when voluntary recalls are not effective.

Last year, the United States imported more than $2 trillion worth of products, from roughly 825,000 importers, through over 300 Ports–of-Entry. All projections indicate this volume will continue to rise sharply over the coming years as the scale and complexity of international trade multiplies.

From: http://www.npicenter.com/anm/anmviewer.asp?a=22447

AHPA Provides Herbal Industry with Draft Guidance on REACH

The American Herbal Products Association (AHPA) announces the publication of the draft document, "Understanding REACH Regulations and Their Impact on the Herbal Products Industry," in advance of the Nov. 30, 2008 deadline to pre-register substances under the new regulation.

The European Union's (EU) Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation, which took effect June 1, 2007, was developed and implemented to replace about 40 other legislative controls in an effort to streamline and improve the former legislative framework on chemicals marketed in the EU. REACH places greater responsibility on industry to manage the risks that chemicals may pose to consumer health and environment.

Companies manufacturing products made and sold as either dietary supplements, food, feedingstuffs or medical devices have no requirement under REACH. However, marketers or producers of personal care and cosmetics products may need to register. Suppliers of ingredients used in the manufacture or sale of these products may also need to register.

AHPA's new draft document discusses such issues as the data that needs to be registered; chemicals and substances exempt from registration, and the impact of REACH on herbal products such as cosmetics. Links are also provided to the helpdesks in various countries. "Understanding REACH Regulations and Their Impact on the Herbal Products Industry" is available online: http://www.ahpa.org/portals/0/pdfs/08_1009_Understanding_REACH_Regulations_DRAFT_AHPA.pdf

From: http://www.npicenter.com/anm/anmviewer.asp?a=22495

Ban on milk products from China

The Centre has banned the import of dairy products (including milk and milk products) from China with immediate effect for the next three months. The Directorate General of Foreign Trade, Ministry of Commerce and Industry, has issued a notification prohibiting Chinese dairy products in the wake of reported deaths and hospitalisation of infants from milk tainted with the chemical melamine.

Other countries including South Korea, Bangladesh, Canada, France, Japan, and Taiwan amongst many other have banned the import of Chinese dairy products or foods containing the same. Others are also checking contents in popular biscuit brands for example that may contain Chinese milk products. British supermarket chain, Tesco reportedly took Chinese-made White Rabbit Creamy Candies off shelves.

Melamine, used for making plastics and fertiliser, was found in infant milk and other dairy products of several Chinese firms. The dangerous chemical can cause kidney stones as well as failure of the organ. China exported dairy products worth $359 million last year.

The ban on milk and milk products comes two days after the Government slapped a similar prohibition on poultry and meat products from Avian Influenza-affected countries. While India does not import milk products from China, the ban is being seen as a preventive measure.

http://www.thehindubusinessline.com/2008/09/26/stories/2008092650771100.htm

Vitamin D Added to Osteoporosis Claim

FDA has amended its osteoporosis risk reduction health claim to reflect the importance of vitamin D, in combination with calcium, in promoting long-term bone health.

The amended labeling regulation explains that vitamin D is required for the normal absorption of calcium, and authorizes the

health claim: "Adequate calcium and vitamin D throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis."

The amended rule also includes a broader definition of the populations that could benefit from consuming calcium and vitamin D to include both men and women of all ages and races. The agency's action comes as a result of a 2004 petition from the Beverage Institute for Health & Wellness of The Coca-Cola Company.

The U.S. National Osteoporosis Foundation predicts that by 2010, about 12 million people over the age of 50 will have osteoporosis, and another 40 million will have low bone mass. To help address this public health issue, FDA developed this health claim for manufacturers to include on labels of appropriate foods and dietary supplements. The new labeling can help consumers identify products with adequate calcium and vitamin D that can help to reduce their risk of osteoporosis.

The Coca-Cola Company sought approval to add vitamin D to calcium-fortified juices and juice drinks from FDA through research it sponsored at the Vitamin D and Bone Health Research Laboratory at Boston University Medical School. Results indicated that vitamin D is readily absorbed by the body when added to skim milk and orange juice. FDA approved the addition of vitamin D to calcium-fortified juices in 2003.

From: Nutraceuticals World September 29, 2008

Country of Origin Labeling goes into effect

As the new Country of Origin Labeling (COOL) regulations are put into practice this week in the United States, a number of media outlets are covering the issues surrounding the new rules and what they mean for consumers.

CNN addresses the major questions and concerns posed by consumers. With the recent Chinese milk contamination scandal, the new regulations are very timely as Americans become more attentive to where their products are made. However, the news network points out that many recent outbreaks of foodborne illness have originated from foods produced in the United States, as in the California-grown spinach scare.

Although the COOL regulations help consumers determine where the foods they purchase come from, there are still some loopholes in the rules that could hinder their efforts. Bloomberg reports that consumer advocates say there are areas of the COOL rules that allow meatpackers to "blur the distinction between foreign and domestic meat." Mixed vegetables and processed foods (including meat products) are exempt from the rules, prompting some lawmakers to call for more regulations.

From: IFT News Letter October 1, 2008

Some 'Ignore Food Label Schemes'

Food labelling could end up being ignored by a large number of shoppers, experts suggest.

A "significant" proportion did not take them into account when buying treats such as cakes, show early results from a Food Standards Agency-funded study. Researchers said this was because shoppers knew they were bad for them but wanted to "indulge" themselves. They also found a trend for ignoring them when buying supposedly basic essentials such as flour and butter. Those surveyed said this was because these ingredients were needed and could not be avoided.

The FSA has funded a group of experts led by Sue Duncan, a former chief social researcher for the government, to look at the influence of the variety of food labelling schemes in existence. The independent group has also been given the backing of industry and campaigners in an attempt to find a consensus on the issue. It comes after retailers have adopted a range of approaches.

Some, including the supermarket chain Tesco, are using guideline daily amounts showing the percentage of daily recommended fat, sugar and salt intake each serving contains. But the FSA has already said it favours a traffic light system where red means high levels of fat or sugar. And other groups, such as Asda or Sainsbury's, have adopted a hybrid of the two. The group is not due to publish its final report based on an in-depth survey of 3,000 people until next year.

Claims

But the early findings, based on snapshot surveys involving 200 people, found a number of issues. As well as a tendency for some to ignore labelling when buying treats or basic ingredients, researchers also found people were likely to be influenced by manufacturers' health claims such as the product being "low in fat". To add to the problem, while people took the nutritional information into account when shopping, some were less likely to do so when putting together a meal at home.

The study also showed there was a degree of confusion about the labels being used. Part of this is down to the variation in schemes, but researchers also said some of it was down to the labelling system itself. Ms Duncan said: "It is too early to draw any firm conclusions, but some trends are emerging."

A spokesman for the FSA said: "From the research so far it's clear that consumers welcome, and want, front-of-pack labelling and are frequently using them to inform their choices."

Jane Holdsworth, the director of the GDA campaign, a coalition of manufacturers and supermarkets, said: "The debate about which labelling format is preferable could continue indefinitely but clearly, the real challenge here is reaching consumers who simply do not look for nutrition information at all. "This is where we should all focus our efforts going forward."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7641476.stm

Health News

Green Tea May Delay Onset of Type 1 Diabetes

A powerful antioxidant in green tea may prevent or delay the onset of type 1 diabetes, Medical College of Georgia researchers say. Researchers were testing EGCG, green tea's predominant antioxidant, in a laboratory mouse with type 1 diabetes and primary Sjogren's syndrome, which damages moisture-producing glands, causing dry mouth and eyes. "Our study focused on Sjogren's syndrome, so learning that EGCG also can prevent and delay insulin-dependent type 1 diabetes was a big surprise," says Dr. Stephen Hsu, molecular/cell biologist in the School of Dentistry. They found it also worked well in their original disease focus.

In the mouse, EGCG reduced the severity and delayed onset of salivary gland damage associated with Sjogren's syndrome, which has no known cure. "EGCG modulates several important genes, so it suppresses the abnormality at the molecular level in the salivary gland. It also significantly lowered the serum autoantibodies, reducing the severity of Sjogren's syndrome-like symptoms," Dr. Hsu says. Autoantibodies are antibodies the body makes against itself.

Both type 1 diabetes and Sjogren's syndrome are autoimmune diseases, which cause the body to attack itself. Autoimmune disorders are the third most common group of diseases in the United States and affect about 8 percent of the population, says Dr. Hsu. Sjogren's syndrome can occur alone or secondary to another autoimmune disease, such as lupus, rheumatoid arthritis or type 1 diabetes.

The study, published in the Oct. 24 issue of Life Sciences, supports earlier research showing EGCG's impact on helping prevent autoimmune disease. Researchers treated a control group of mice with water and a test group with a purified form of EGCG dissolved in the drinking water. At 16 weeks, the EGCG-fed mice were 6.1 times more likely to be diabetes-free than the water-fed group, and 4.2 times more likely at 22 weeks.

"Previous studies used another animal model that developed type 1 diabetes only after an injected chemical killed the insulin-producing cells. That may not accurately resemble disease development in humans, because type 1 diabetes is a genetic disease," says Dr. Hsu, the study's corresponding author. "Our study is significant because we used a mouse model with the genetic defects that cause symptoms similar to human type 1 diabetes and Sjogren's syndrome, so the immune cells attack the pancreas and salivary glands until they are no longer functional."

Another related finding was that even when salivary cells were under attack, they seemed to be rapidly reproducing in the control group. The proliferation was suppressed in the EGCG-fed group. "It's kind of counterintuitive – why would there be proliferation of the glandular cells occurring when the present cells are not secreting saliva?" says Dr. Kevin Gillespie, first author of the study he conducted for his master's research project at MCG.

The proliferation phenomenon also can be observed in psoriasis, an autoimmune disease affecting the skin and joints, says Dr. Hsu. "Normal skin cells turn over every 30 days or so, but skin cells with psoriasis turn over every two or three days." Dr. Hsu's group previously found that green tea polyphenols, including EGCG, inhibited rapid proliferation in an animal model for human psoriasis. "We never thought proliferation was going on to this extent in the salivary gland, but we now believe it is tightly associated with Sjogren's syndrome," he says.

The next step is to observe Sjogren's syndrome in human salivary gland samples to determine whether the study findings hold up in humans. "If the abnormal expression of these genes is the same in humans as in the animal model, then the second stage will be intervention and treatment with a pure form of EGCG," says Dr. Hsu.

"The benefit of using green tea in preventing or slowing these autoimmune diseases is that it's natural and not known to harm the body," says Dr. Gillespie, periodontics chief resident at Fort Gordon's Tingay Dental Clinic. "EGCG doesn't have the negative side-effects that can be associated with steroids or other medications that could otherwise be prescribed."

From: Science Daily (Oct. 26, 2008)

Mounting Evidence Shows Health Benefits Of Grape Polyphenols

Grapes and grape extracts may lower cardiovascular disease risk, says review in Nutrition Research

A growing body of research data suggests that consuming foods rich in polyphenols from grapes, including red wine, helps reduce the risk of heart disease, according to a review article in the November issue of *Nutrition Research*.

"Consumption of grape and grape extracts and/or grape products such as red wine may be beneficial in preventing the development of chronic degenerative diseases such as cardiovascular disease," write Wayne R. Leifert, Ph.D., and Mahinda Y. Abeywardena, Ph.D., of Commonwealth Scientific and Industrial Research Organisation in Adelaide, Australia.

The authors review the accumulating evidence that grape polyphenols work in many different ways to prevent cardiovascular and other "inflammatory-mediated" diseases. Polyphenols are natural antioxidants found in grapes and some other plant foods. Their types and actions vary, depending on where in the grape they are found. Grape seeds, grape skin, and grape juice contain several types of polyphenols, including resveratrol, phenolic acids, anthocyanins, and flavonoids.

Through their antioxidant effects, grape polyphenols help to slow or prevent cell damage caused by oxidation. Polyphenols decrease oxidation of low-density lipoprotein cholesterol ("bad" cholesterol)—a key step in the development of atherosclerosis (hardening of the arteries). Grape polyphenols also have other protective effects on the heart and blood vessels, including actions to reduce blood clotting, abnormal heart rhythms, and blood vessel narrowing. It's not yet clear exactly how these benefits of polyphenols occur, although there is evidence of effects on cellular signaling and on the actions of certain genes. The wide range of health-promoting effects suggests that several different, possibly interrelated mechanisms may be involved.

So far, most of the evidence on grape polyphenols comes from laboratory experiments and animal studies. However, a few studies support the disease-preventing benefits of grapes in humans. Studies in patients treated with grape seed extracts have shown improvements in blood flow and cholesterol levels. In other studies, drinking Concord grape juice has improved measures of blood flow in patients with coronary artery disease and lowered blood pressure in patients with hypertension.

Studies investigating the lower rates of heart disease in France—the so-called "French paradox"—first raised the possibility that red wine might have health benefits. The subsequent research reviewed by Drs. Leifert and Abeywardena helps build the case that grapes and grape products might be a useful part of strategies to lower the high rate of death from cardiovascular disease.

At a time of growing interest in the use of "functional foods and nutraceuticals" to promote heart health, grapes and grape polyphenols are "attractive candidates" for use in such supplements, Drs. Leifert and Abeywardena believe. "Therefore," they conclude, "supplementation with grape seed, grape skin or red wine products may be a useful adjunct to consider for a dietary approach in the prevention of cardiovascular diseases, although additional research is required to support such a strategy."

From: Eurekalert 28 October 2008

Peanuts Prove A Healthy Handful

Leading nutrition researchers at the 2nd International Nuts and Health symposium have recommended increased peanut and nut snacks consumption as a more effective step to improve dietary health and reduce risk of heart disease and type 2 diabetes. Proceedings published in the Journal of Nutrition concluded that replacing snacks high in refined carbohydrates with nuts could have a high impact on nutrient density and risk of chronic disease. This encouraging news will benefit manufacturers already using peanuts in their applications, and will doubtless appeal to those wishing to tap into the booming healthy snacking trend.

Held at the University of California's Western Human Nutrition Research Centre at Davis, the 2½ day meeting also concluded that eating a portion of nuts, peanuts or peanut butter as part of a balanced diet can markedly benefit health without leading to weight gain. In fact, studies have shown that inclusion of nuts and peanuts in moderate weight loss diets improves compliance and leads to greater weight loss compared to traditional low fat diets. The scientists also highlighted that nuts are an excellent source of protective phytochemicals, their total antioxidant capacity being comparable to broccoli and tomatoes and that roasting peanuts further raises their antioxidant levels by as much as 22%.

Dr Andrew Craig, Health Education Advisor for the American Peanut Council, commented: "The results of this symposium prove what we have always communicated – nuts are a delicious and healthy snacking option. Given the clear health benefits to be gained from regularly including even just a handful (30g, 1oz) of peanuts, or a good spoonful (15g, ½oz) of peanut butter

into our diet, it is no wonder that these scientists have encouraged their more widespread consumption. Manufacturers can harness the taste and appeal of peanuts to create new and innovative snacks that offer consumers real health benefits – all from a natural, premium quality ingredients.

“However, products will only secure repeat purchase if they can offer great taste as well as advantages to health. American Peanuts in particular offer consistent high quality and a distinctly fresh, “peanutty” taste. Popular with a wide consumer base, American peanuts can be used in a wide variety of applications, and offer unparalleled quality and value.”

From: What’s New In Ingredients 15/10/2008

'Friendly' Bacteria Can Benefit Health Throughout The Lifecycle

New research on the benefits of probiotics in children and seniors was presented at The American College of Nutrition (ACN) Annual Meeting in a symposium, "Practical Applications of Probiotics in Health and Disease." Scientific experts in the fields of pediatrics, aging, and nutrition discussed the potential uses for probiotics in children as well as the elderly, and for health conditions such as Inflammatory Bowel Disease (IBD).

Probiotics are used worldwide and in the US they are one of the most rapidly growing categories of functional food. Probiotics are living "friendly" bacteria, like those in certain active-culture dairy drinks that can provide health benefits. Evidence is showing that specific strains of probiotics can improve digestive health and enhance immune function when consumed regularly.

Dr. Allan Walker, Professor of Nutrition and Pediatrics at Harvard Medical School, led a world class panel of speakers in summarizing the role of probiotics in pediatrics. "Infants don't have all of their gut bacteria at birth as they acquire it up until about 2 years of age. Probiotics are 'good' bacteria, which can promote healthy colonization of bacteria in the gut during this time, leading to enhanced immunity," said Walker.

Dr. Mary Ellen Sanders, a consultant specializing in probiotics, provided an overview of the studies showing the benefits of probiotics and health. She said, "compelling new studies are showing how probiotics can help keep healthy people healthy. One study showed a decreased incidence of common infectious diseases among kids in day care." She stressed the fact that each individual strain of probiotic can act differently, so a probiotic that helps with digestion may be different from one that supports the immune system.

Dr. Stefano Guandalini, Professor of Pediatrics and Director of the University of Chicago Celiac Disease Center shared the newest research on probiotics and inflammatory bowel disease. "Inflammatory bowel disease is a condition that affects approximately 1 million adults and 150,000 children in the US. Emerging studies are showing promise in children and will continue to help determine how we can be using probiotics practically for such serious conditions."

About 70 percent of our body's immune system is located in the digestive tract and as we age, our immune function weakens. Dr. Simin Meydani, Associate Director of the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University presented cutting-edge data, which helps in answering the question, could probiotics help the elderly? "The idea is that taking in certain probiotics on a regular basis might positively change the bacterial populations in the gut in older people," she said.

Under normal circumstances in our gastrointestinal systems, there are many more "friendly" bacteria than "bad" bacteria. If this balance shifts, however, the functioning of the gastrointestinal tract may be affected. Research suggests that adding probiotics to the diet can help optimize the functioning of the intestinal lining, as well as, the immune system. The role of probiotics in health may be greater than what we once thought.

Medical News Today 07 Oct 2008

Wholegrains for Whole Health

Grain foods a day wholegrain can help reduce the risk of chronic diseases such as heart disease, type 2 diabetes and certain cancers, plus it can also help with weight management.

Making half of your 4+ serves of grain foods a day wholegrain can help reduce the risk of chronic diseases such as heart disease, type 2 diabetes and certain cancers, plus it can also help with weight management. This is the compelling evidence for the role of wholegrains that was heard in Sydney at the Go Grains Health & Nutrition first annual conference, – Harvesting the Science, Refining the Facts.

Keynote speaker at the Conference, Professor Chris Seal from Newcastle University, UK says, "The consensus view of scientists worldwide is that the evidence clearly shows the link between wholegrain consumption and reduced disease risk. 'Make half of them (grains consumed) whole' is the key message.

The strongest relationship between wholegrains and health has been found for cardiovascular disease (CVD), where the risk of developing CVD can be reduced by 20-40% with adequate daily consumption of wholegrains. Reductions in risk for some cancers are of a similar magnitude. This evidence is a wake-up call for countries to develop dietary recommendations for wholegrain–intake".

Australian dietary guidelines specifically recommend 'we eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain, but experts say many Australians are not eating the recommended 4 or more daily serves of the core grain-based foods and risk missing out on the essential nutrients and health benefits they provide.

The Go Grains '4+ serves a day' program promotes the health benefits of eating a balanced diet containing at least 4+ servings of grain foods every day, and encourages at least two of these to be wholegrain.

Addressing the Conference, Professor Peter Williams, School of Health Science, University of Wollongong, delivered strong evidence that a diet high in wholegrains is associated with a lower body mass index (BMI) and waist circumference and that a balanced diet including carbohydrates from grains, legumes, fruits and vegetables is the best way to lose weight and keep it off.

Professor Linda Tapsell, Director of the Smart Foods Centre, University of Wollongong presented facts about wholegrains and diabetes. There is strong evidence that wholegrains and cereal fibre are beneficial in the prevention of type 2 diabetes and this is now being confirmed through intervention studies.

The one-day conference addressed topical issues including the relationship between grains, climate change and health equity and presented data on trends in consumption of grain foods and legumes over the past decade.

The Future of Grains and tailoring grains for extra health benefits is another exciting area. Dr David Topping from CSIRO Human Nutrition & Preventative Health / Food Future Flagships enlightened delegates on current developments of new cereals that can improve human health, that have low glycemic and insulin responses and yet are also high in total dietary fibre.

As climate change is taking place at a time of increasing demand for food, feed, fibre and fuel the issue of sustainability could not be left off the agenda. The challenges for the grain sector were explored, highlighting its potential contribution towards environmental sustainability, food security and an enjoyable dietary experience for all.

The '4+ serves a day' program that is being promoted by Go Grains Health & Nutrition aims to make it easier for people to identify and enjoy healthy grain-based foods. The program promotes the health benefits of eating a balanced diet containing the recommended 4+ servings of grain-based foods every day.

The '4+ serves a day' logo is available to food manufacturers for use on food labels to highlight healthy grain-based foods. All food products that display the '4+ serves a day' logo on their pack will meet strict criteria to ensure foods carrying the logo are nutritionally sound and consistent with established healthy dietary principles.

From: Nutrition Horizon News October 1, 2008

Vitamin D Intake Guidelines Doubled for Youngsters

The American Academy of Pediatrics (AAP) has doubled the amount of vitamin D recommended for infants, children and adolescents, from 200 IU to 400 IU starting in the first few days of life. The previous recommendation, issued in 2003, was amended following a review of new clinical trials on vitamin D and evidence suggesting the safety of giving 400 IU per day to the pediatric population. Clinical data indicates that 400 units of vitamin D a day will prevent and treat rickets, a bone-weakening disease. Adequate vitamin D throughout childhood may also reduce the risk of osteoporosis.

Vitamin D is essential for promoting calcium absorption in the gut and maintaining adequate serum calcium and phosphate

concentrations to enable normal mineralization of bone. It plays other roles in human health as well, including modulation of neuromuscular and immune function and reduction of inflammation. Dietary sources of vitamin D are limited, however, and it is difficult to determine a safe amount of sunlight exposure for the body to synthesize vitamin D.

The new clinical report, titled "Prevention of Rickets and Vitamin D Deficiency in Infants, Children, and Adolescents," is expected to be published in the journal *Pediatrics*.

The new recommendations include:

- Breastfed and partially breastfed infants should be supplemented with 400 IU a day of vitamin D beginning in the first few days of life.
- All non-breastfed infants, as well as older children, who are consuming less than one quart per day of vitamin D-fortified formula or milk, should receive a vitamin D supplement of 400 IU a day.
- Adolescents who do not obtain 400 IU of vitamin D per day through foods should receive a supplement containing that amount.
- Children with increased risk of vitamin D deficiency, such as those taking certain medications, may need higher doses of vitamin D, but this should only be done in consultation with a health-care professional.

Given the growing evidence that adequate vitamin D status during pregnancy is important for fetal development, the AAP also recommends that providers who care for pregnant women consider measuring vitamin D levels in this population.

From: Nutraceuticals World October 14, 2008