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Editorial

Functional Foods have already been recognised by Indian government by including the category in the new food law Food Safety & Standards Act 2006. It has certain stipulations given in the definition as foods that are not conventional and are meant for oral administration but not parenteral and having several forms including powder, granule, tablets, liquids, jelly etc. These may not contain a drug as defined in ayurvedic, sidha, unani drugs as well as in Drugs & Cosmetic Act. Further they may not claim to cure or mitigate any specific disease, disorder or condition except certain health benefits.

In spite of these restrictions, functional foods will have a tremendous market in India and abroad. Already many food products have appeared having such benefits and claims. Products include high fibre, omega-3 fatty acids, antioxidants, probiotics etc. have been well accepted by Indian consumers. There is probably more demand for a lot more of such products. The well-known saying goes – prevention is better than cure. Hence, consumers would like to prevent onset of such diseases like hypertension, cardiovascular diseases, various types of cancers especially colon cancer, various age-related degenerative diseases etc. that have been known to be controlled by some of these phytochemicals.

Traditionally, our diets used to contain many of these ingredients through the use of herbs and spices known to exert protective effect by their inclusion in our diet. Now our lifestyle has not only changes our environment of work and leisure but also there have been drastic changes in our diets. So now there is a need for including some of these useful phytochemicals by preparing what are known as Functional Foods or Nutraceuticals. Such foods have become quite popular in Japan, Europe and in the US with the global market has grown to over 75 billion dollars.

This certainly had some reactions. Recently, in the US, there has been an amendment in the FDC Act that prohibits “addition to food of an approved drug, a licensed biological product, or a drug or biological product for which substantial clinical investigations have been instituted and their existence made public.” The last part about the clinical investigations removes a lot of flexibility that was present earlier. This will slow down the growth in the functional food industry. (Please see article in this issue on the subject.)

No doubt, there will be similar battles elsewhere between functional food and pharmaceutical industries as the latter may find their growth somewhat constricted by the rise of nutraceuticals and functional foods. Hippocrates had said “Let food be thy medicine and medicine by thy food”. Recently we seem to be departing from this tenet. In fact Ayurveda can provide innumerable hints for providing health and preventing ailments with the use of various plant materials in our food. However, this might be counterproductive for pharmaceutical industry that thrives on people falling ill and then curing them. Battle has already begun with one company filing a petition against marketing dietary supplements containing pyridoxal 5'-phosphate (P5P, a form of vitamin B6) in the US. Outcome of this would be interesting to many.

We welcome our new members who have joined us namely Envirocare Laboratories, MIT College of Food technology and Navhari Food products and hope that they have a long and highly useful membership with us. With seasons greetings to all,

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Proteins: the Vital Nutrient

By Prof. J. S. Pai

Proteins are large molecules made of amino acids joined by peptide bonds formed by carboxyl and amino groups of adjacent amino acids. Proteins in nature are mostly made up of 20 different amino acids arranged in a sequence typical of that protein. Like other large molecules, polysaccharides and nucleic acids, proteins are essential parts of all living beings and take part in all processes in their cells.

Proteins are necessary as enzymes that catalyse biochemical reactions vital to metabolism. They are also important as structural or mechanical components. They also have important roles in immune responses, cell signalling etc. Of the amino acids in proteins, some namely essential amino acids cannot be synthesised by body and hence must be obtained through food. Hence it is important that diets should have adequate amount of protein but also the quality of the protein in diet should be high.

When inadequate or poor quality proteins are consumed protein malnutrition is experienced with consequent loss of muscle mass, decreased immunity, weakening of heart and respiratory system and finally death. When infants and children experience protein malnutrition, serious added problems occur including mental retardation and growth failure. So it is essential to have adequate amount of good quality protein in the diet.

Indian scenario vs. world scenario

Around the world, millions of people do not get enough protein. Protein deficiency is a serious cause of ill health and death in developing countries. Protein-energy malnutrition affects 500 million people and kills 10 million annually. Although protein deficiency is rare in developed countries, it can affect people there who are dieting to lose weight or in older adults who may have a poor diet.

Indian diets especially in south and in rural areas are poor with respect to proteins as per the National Sample Survey Organisation's report on Nutritional Intake in India published in May 2007. Although national average for daily protein intake is about 57g (both urban & rural), it is far lower in states like Tamil Nadu, Andhra Pradesh, Karnataka and Orissa while the intake is much better in northern states like Haryana, Uttar Pradesh, Punjab and Rajasthan. The disparity is more in rural situation. The major source of protein for these southern states was pulses whereas Haryana, Punjab and Rajasthan were leaders in consumption of milk and milk products.

A disturbing trend was reported that protein intake declined since 1970s when the national average for protein intake was around 62g for rural although there is a slight increase from 56g for urban. This is further aggravated by fat intake that has increased from 24g to 35.5g for rural and from 36g to 47.5g for urban population upstaging the slight increase in protein intake.

This trend is possibly because of lower pulse production affecting the pulse intake in rural areas especially in southern states. Milk production has tremendously increased over the last few decades, increasing the consumption in the northern states that normally consumed good amounts of milk and its products. This trend must trickle down to southern states where milk consumption is low.

Another good source of protein is soya beans. Its production has increased in India recently and in 2006 India produced 8.3 million metric tonnes of soya beans ranking fifth in the world. However, after removing the oil, the cake is mostly used for animal feed or export so there is hardly any impact on intake by common people. A small portion is used in human foods, but this avenue is increasing as many companies are making products out of soya beans, including the soya nuggets, soya flour, soya milk, soya paneer, health foods etc.

Why are proteins needed?

Growth and maintenance	Building tissue to grow, or replace worn out or damaged tissue.
Enzymes	All enzymes are protein molecules.
Hormones	Some hormones are protein-based
Antibodies	Immunoproteins, synthesized in response to invasions.
Fluid and Electrolyte balance	Proteins regulate the amount of fluids in cells, also control electrolyte balance, and keep osmotic pressure low in cells.
Acid-base balance	Proteins keep body fluid pH at desirable values
Energy	Excess amino acids can be metabolized for energy
Transportation	Proteins act as transporters, or parts of transporters
Blood clotting	Fibrin molecules interlace to provide framework for clotting

Proteins have many functions. Some proteins are utilised in building tissues for growth. They may also be used in replacing worn out or damaged tissue. As was mentioned earlier many parts of the body including muscles, skin, hair etc. are proteins and many cellular structures contain proteins. Hence, when new cells and tissues are formed as in growth of children or in repair process in healing, large amount of proteins are needed.

Enzymes are partly or wholly proteins and there are thousands of enzymes present in cells catalysing various biochemical reactions including metabolic reactions necessary for digesting various foods and derive energy and useful materials from them as well as nuclear processes such as DNA replication, RNA synthesis etc. Enzymes accelerate these reactions enormously (as high as 10^{17} -fold in some cases) compared to those without enzymes so many reactions take place at sufficiently rapid rate even at mild conditions prevailing in body environment.

There are many proteins that act as hormones. Insulin is one example that regulates blood glucose levels. Without insulin, blood glucose will shoot up when sugars or most carbohydrates are consumed as in the case of diabetics. Insulin regulates glucose metabolism and does not allow levels in blood to go too high.

Antibodies are proteins and are extremely essential for immunity and health. Whenever we are infected by microbes our immune system produces antibodies in response to this attack that body senses as antigen. These antibodies if in sufficiently large amounts can neutralise pathogens and we are immune to the disease. Sometimes microbial attack may not give enough time for antibodies to form in large number so we fall ill but this attack prepares body's immune system so next attack can be nullified by the system which is now ready. Sometimes immunisation is done by injecting harmless antigen that readies immunity when an attack is imminent.

Proteins also act as transporters for oxygen, fat etc. These substances need to be transported through body fluids like blood which is aqueous and the solubility of these substances is low. So they combine with proteins (haemoglobin, lipoprotein etc.) so they could easily be transported through blood and taken to where they are needed.

Proteins are essential in blood clotting. Whenever there is a wound and blood flows out, the person can die of bleeding if there is no clot formation. This clot is facilitated by fibrin protein that forms interlacing network in which blood cells get caught and a clot is formed that plugs the opening through which bleeding occurs and consequently stops bleeding.

Proteins can also provide calories. When food has more protein than body needs then after using all amino acids to make the necessary proteins needed, the excess is utilised for energy purpose. Proteins have same calories as carbohydrates namely 4 kcal per gram. Proteins also helps maintain the desired environment needed such as the pH, fluid and electrolyte balance needed. Besides proteins have many other functions that make proteins as one of the most essential nutrients coming from foods.

Where are they found?

Proteins are present in all natural substances of plant, animal or microbial origin. Proteins can be synthesised by lower organisms from simple substances but animals like humans need either proteins or amino acids in food from which proteins may be synthesised in the body.

Humans obtain proteins mostly from protein rich foods including meats, eggs, grains, legumes, milk and milk products like cheese etc. Following table gives the protein contents of some of the common foods.

Dietary Sources of Protein

Food	Serving	Weight in grams	Protein grams
Chicken, roasted	6 ounces	170	42.5
Fish	6 ounces	170	41.2
Cottage cheese	1 cup	225	28.1
Cheese pizza	2 slices	128	15.4
Yogurt, low fat	8 ounces	227	11.9
Tofu	1/2 cup	126	10.1
Lentils, cooked	1/2 cup	99	9

Skim milk	1 cup	245	8.4
Split peas, cooked	1/2 cup	98	8.1
Whole milk	1 cup	244	8
Kidney beans, cooked	1/2 cup	87	7.6
Cheddar cheese	1 ounce	28	7.1
Macaroni, cooked	1 cup	140	6.8
Soymilk	1 cup	245	6.7
Egg	1 large	50	6.3
Whole wheat bread	2 slices	56	5.4
White bread	2 slices	60	4.9
Rice, cooked	1 cup	158	4.3
Baked potato	2x5 inches	156	3
Corn, cooked	1 ear	77	2.6

From: Nutritive Value of Foods, USDA

Food	g Protein/100g	Food	g Protein/100g
Bajra	11.6	Soyabean	43.2
Jowar	10.4	Almonds	20.8
Rice, milled	6.8	Cashewnuts	21.2
Whole wheat flour	12.1	Groundnut	25.3
Refined wheat flour	11	Groundnut cake	40.9
Bengal gram dal	20.8	Mackerel	18.9
Black gram (udad) dal	24	Pomfrets, white	17
Cow pea (chowli)	24.1	Prawn	19.1
Lentil	25.1	Chicken	25.9
Peas green	7.2	Mutton (lean)	21.4
Peas dry	19.7	Milk (buffalo)	4.3
Rajmah (kidney bean)	22.9	Milk (cow)	3.2

Nutritive Value of Indian Foods, Gopalan & others, 1989

Protein contents of different foods will vary with the variety of raw material and also due to the method of preparation. Milk from different species of animals or different wheat varieties will have different protein contents. Also whole wheat bread will have more protein than white bread and skimmed milk will have more protein compared to whole milk.

How are proteins digested?

Proteins in foods when eaten start getting digested in stomach and intestine by enzymes pepsin, trypsin and chymotrypsin that convert proteins to amino acids that are absorbed by the body in the intestine. Here also there is a small difference between digestibility of different proteins. The enzymes that digest proteins are called proteases and above enzymes are naturally present in the gastrointestinal tract. Different enzymes have different affinity for various peptide bonds so when there is a mixture of enzymes the digestion or hydrolysis of proteins is more complete.

Sometimes there is difficulty in digesting proteins especially when infants, children or older people have some stomach ailment. Foods with pre-digested protein are available especially as infant food. Such foods are also useful when children have allergy to some proteins. Allergy is normally due to intact protein molecule and when this is sufficiently hydrolysed or pre-digested commonly its allergenic property is lost and it becomes safer.

There are also some enzyme supplements available that aid digestion not only of proteins but in certain formulations may also help digest carbohydrates and fats as enzymes hydrolysing these components may be incorporated.

Dietary requirements of proteins

Group	Particulars	Body wt.	Net energy	Protein
		kg	Kcal/d	g/d
Man	Sedentary work		2425	
	Moderate work	60	2875	60
	Heavy work		3800	
Woman	Sedentary work		1875	
	Moderate work	50	2225	50
	Heavy work		2925	
	Pregnant woman	50	+300	+15
	Lactation			
	0-6 months		+550	+25
	6-12 months	50	+400	+18
Infants	0-6 months	5.4	108/kg	2.05/kg
	6-12 months	8.6	98/kg	1.65/kg
Children	1-3 years	12.2	1240	22
	4-6 years	19.0	1690	30
	7-9 years	26.9	1950	41
Boys	10-12 years	35.4	2190	54
Girls	10-12 years	31.5	1970	57
Boys	13-15 years	47.8	2450	70
Girls	13-15 years	46.7	2060	65
Boys	16-18 years	57.1	2640	78
Girls	16-18 years	49.9	2060	63

From: ICMR recommended dietary allowances (RDA) for Indians

As can be seen the protein requirements per kg body weight is highest among infants and young children that are actively growing and growth requires both protein and energy along with other nutrients. There is also higher requirements for pregnant and lactating women who have to support the growth of the baby. The requirements become less as the individual grows.

Protein quality

Different proteins contain different proportions of amino acids found in proteins. Some of these are called essential amino acids as these cannot be synthesised in the body from any other amino acid or other substances. Following amino acids are generally considered as essential for humans including infants and growing children and they are valine, threonine, isoleucine, methionine, phenylalanine, leucine, lysine, tryptophan and histidine. Sulphur-containing amino acids methionine and homocysteine are interconvertible and cysteine can be made from homocysteine. So for convenience, sulphur-containing amino acids are considered a single pool of amino acids. Similarly, aromatic amino acid pair, phenylalanine and tyrosine are also considered together. Essential amino acids are so called not because these are more important to life than other amino acids, but because body does not synthesise them, so these must be available through diet.

Since different dietary proteins have different compositions of amino acids, especially the essential amino acids and these amino acids are needed by the body for making the desirable proteins for various functions of the body and have to be supplied only through diet; quality of each dietary protein would vary. Some will have more suitable composition than the others. Considering this, the protein quality has been evaluated.

Methods of Assessing Protein Quality

The five methods described below are the ones most often used to assess protein quality.

1. **Protein Digestibility Corrected Amino Acid Score* (PDCAAS):** The Amino Acid Score with an added digestibility component. The PDCAAS is the current accepted measure of protein quality as it closely compares to determinations done

with animals. A number of nutrition experts feel this method needs further refinement and additional changes may be seen in the future.

2. **Amino Acid Score (AAS):** A chemical technique considered fast, consistent, and inexpensive. It measures the indispensable amino acids present in a protein and compares the values with a reference protein. The protein is rated based upon the most limiting indispensable amino acid.

➤ Values greater than 1.0 for both the AAS and the PCDAAS are considered to indicate that the protein contains essential amino acids in excess of the human requirements. Therefore, in 1990 at a FAO/WHO meeting it was decided that proteins having values higher than 1.0 would be rounded down to 1.0. This point is under debate as experts feel that the rounding down of high quality proteins fails to reflect the ability of the protein to complement the nutritional value of a lower quality protein.

3. **Protein Efficiency Ratio (PER):** Measures the ability of a protein to support the growth of a weanling rat. It represents the ratio of weight gain to the amount of protein consumed. This method has two major concerns. First is the concern that it may not be applied to growing infants and children as the amino acid growth requirement for infants is less than those for rats. Second, the PER measures growth but not maintenance so it may be of limited use in determining the protein needs of adults.

4. **Biological Value (BV):** Measures the amount of nitrogen retained in comparison to the amount of nitrogen absorbed. The BV and the NPU methods reflect both availability and digestibility and they give an accurate appraisal of maintenance needs.

5. **Nitrogen Protein Utilization (NPU):** The ratio of the nitrogen used for tissue formation versus the amount of nitrogen digested.

From: <http://www.wheyoflife.org/facts/ProteinQualityWeb.pdf>

Following chart gives comparison of proteins from different sources using different methods of quality evaluation.

Protein Quality Comparison Chart

Protein Type	Protein Digestibility Corrected Amino Acid Score (PDCAAS) ¹	Amino Acid Score	Protein Efficiency Ratio (PER) ²	Biological Value (BV)	Protein Digestibility (%) (PD)
Whey Protein	1.00	1.14	3.2	100	99
Whole Egg	1.00	1.21	3.8	88-100	98
Casein	1.00	1.00	2.5	80	99
Soy Protein Concentrate	1.00	.99	2.2	74	95
Beef Protein	0.92	.94	2.9	80	98
Wheat Gluten	0.25	.47	NA	54	91

Source:

¹ Protein Quality Evaluation, Report of the Joint FAO/WHO Consultation

² Reference Manual for U.S. Whey Products, 2nd Edition, U.S. Dairy Export Council

Proteins from Foods

Proteins are important nutrients that are obtained from daily diet. As could be seen different sources have different protein quality. There are many places in the world where people do not get enough proteins and commonly enough food to sustain. Protein deficiency causes various diseases especially among children. Protein deficiency plays a big part in kwashiorkor and severe protein and energy malnutrition causes marasmus. Protein deficiency can lead to mental retardation. Protein deficiency diseases are seen in many African and Asian countries.

Protein deficiency not associated with poverty is seen when people are crash dieting to lose weight or in older people who have poor diet. Convalescing patients also need extra protein during recovery and are prone to protein deficiency. Deficiency may also occur if people do not consume high quality protein. The essential amino acids may not be supplied adequately. One needs

to consume more of lower quality protein in order to supply all the essential amino acids in sufficient quantities as does a high quality protein.

Animal proteins tend to be higher quality or complete proteins. Proteins from plant sources usually supply lower amounts of some of the essential amino acids and are called incomplete proteins. Vegetarians do not eat meat, fish, poultry and eggs. They should consume either enough of milk or soya products that would complement the essential amino acids lacking.

It must also be remembered that animal and vegetable proteins have the same effects on health. It is what comes with protein that needs to be examined. A 6-ounce (170g) broiled steak is a very good source of complete protein providing 38g. However, it also provides 44g fat (containing 16g saturated fat). The same weight of fish like salmon gives 34g protein but only 18g fat containing just 4g saturated fat. One cup (200g) of cooked lentils has 18g proteins but less than 1g fat. It also provides excellent source of fibre that is lacking in both meat and fish.

Cereals like wheat and rice are commonly deficient in lysine, while legumes and pulses have tryptophan and/or methionine as limiting amino acid. When the two are combined the quality of protein improves considerably. It is important to get enough of good quality protein in the diet along with other nutrients.



Novel Foods for Modern Consumers: Fi-India 2008

Conference Report by Ms. Ummeayman Rangwala, Nutritionist, PFNDAI

PFNDAI co-organised with CMP –UBM India, the Conference for Fi India 2008. This was the third exhibitions and conference being organized by CMP in India .Like every consecutive year this has kept on growing and every year more and more delegates register for the conferences and many companies participate for the exhibitions. With eminent speakers from the Food Industry, the conference turned out to be a huge success.Fi India is now a part of must to attend events for the Food Ingredient sector.

Conference on Novel foods for modern consumers was inaugurated by Dr. G.M. Tewari (Chairman –PFNDAI). He focused on Fortification as it is the need for the day. Globally there are many cases related to vitamin and mineral deficiency but a minor development in fortification. However today Phytosterols are finding more applications in food and cosmetic products .Also there are many new products for sports and other activities that are being launched. With the application of newer ingredients there are also newer techniques coming up and one such technique discussed was Nanotechnology, which is also making its existence felt in Food Industry. Many nanotechnological compounds are coming up and more nanoencapsulated compounds are being used in food.

With new technological advances and rapid growth in Functional Foods the burden on the laws of PFA is also increasing. Thus to handle all this efficiently there is a need to reevaluate Food Laws. With the growing demand for safe food and to tackle not only the major issues of Food Safety & Regulations but also the minor issues of concern that it may not, there needs to be a much reliable traceability system in food Industry.

According to Dr. Sinkar (Head, Unilever Food & Health Research Inst.) the trend drivers, in 1798 had predicted there would be rapid population increase and so would lead to food shortage. However no such thing has happened as yet in fact it is now predicted that the World Food production would increase in the years to come. Population would increase and would be more urbanized. With the increase in the global population, average Food intake /calories intake would also increase. We can predict what kind of eating habits would prevail and what food would be consumed. At the bottom of pyramid was the basic carbohydrates and it was the basic requirement of the population but with the changing scenario, there has been a shift towards the top of the pyramid.

When we view the socio demographic front, the global trends say that by 2015 there would be 750 million people and 97% of this population would be in developing world. We are getting old in one side but on the other side there is increasing population too so other than concern for safe and nutritious food there would be concern for safe drinking water too and other basic amenities. There is huge global issue in front of all and this concern varies depending on the region .In times to come there would be low deaths due to communicable diseases and more deaths due to non communicable diseases like cardiovascular heart diseases and diabetes etc. It is thought that 3/4 of the deaths would be due to non communicable diseases as these are food related issues whereas the communicable diseases are detected by Pharma Industry.

Nutrigenomics is a new area which is being looked upon, it is personalized food as per the genes. This will make the saying "Let food be thy medicine and medicine be thy food" come true. These personalized approaches will give way to development of personalized products.

More thought provoking ideas on innovative foods was provided by Ms. Gayatri Yadav (Marketing Director, General Mills) There is a large global influence on every sector including Food Industry. However, when we look at the Indian food, it is not in pace with the world growth. We have created barriers in our minds and are not opening up to newer innovative ideas, now it is time to explore beyond just low fat ice creams. As compared to few decades ago, today India has to face a lot of challenges in terms of market growth. With nuclear families in India, there are less helping hands at home. But with the rapid growth in population, it is predicted that the middle class will go from 5% to 41% of the world population so the balance is shifting from the poor to middleclass and making the structure of society look from pyramid to more rhombic. Also population is becoming more health concerned and other than few general health concerns, consumers are looking for beauty, kid alertness and FRESH products which are more farm fresh and much of the nutrients are intact. Additionally portability and simplification of use is also looked for and this is observed from the fact that consumer prefer more of baked goods and crunchy bars that are easier to carry, concentrates and freeze to oven products.

Dr K.D.Yadav (V.P-Tech, Kamani Oil Industries) talked about the benefits of fat in his presentation on 'Healthier Fat products and Substitutes'. Today any fat containing product is looked upon as unhealthy product but fat is actually required by our body. Fat are the highest source of energy providing 9Kcal/gm and they provide us with essential fatty acids (Linoleic acid and linolenic acid).

Also fat act as carrier for oil soluble vitamins .Other than the amount of fatty acid we consume, the source of fatty acid is also important. It has been observed that plant derived n-3 fatty acids is not equivalent to marine based acids .Since there are many benefits of omega-3 fatty acids many products like ice creams , mayonnaise, yoghurt, cheese, fortified milk are being enriched with omega-3 fatty acids. Products are also being made with reduced trans fatty acid since trans-fat increases low density lipoprotein and decreases high density lipoprotein causing cardio vascular diseases, it also reduces the conversion of EPA like (LA, ALA) to the long chain metabolites like AA, EPA & DHA. Low trans products can be achieved by incorporating fat replaces like fat substitutes, fat mimetics or low-calories fat designed to replace fat in a product with minimum impact on the organoleptic quality of food product. Medium chain triglycerides are advantageous for cystic fibrosis, ketogenic diet, infant nutrition, sports nutrition. Development of better innovative product for the future by incorporating these would make the bakery industry grow with much faster rate.

Continuing with the Technical session on Bakery Products & Ingredients, Ms. Mallika Varma (Sec. General All India Bread Manufacturers Association) presented her ideas on Bakery Products for Modern consumers Nutritional Needs . Indian bakery sector has experienced significant growth both in terms of volumes and customer base. The sector is estimated Rs 3500 Crores. In the present scenario there are two major factors that are driving the bakery industry and they are disposable income and time constrain. The breakfast palates at households constitute bakery products and this is preferred not only in metros but is a trend in towns too. It has been found that Indian consumers are far more adventurous as far as tasting new products is concerned. Thus bakery products can act as a vector in fighting against disease caused by malnutrition. These products can very well be fortified with micronutrients, high fiber flour and the product can further be innovated .Further more healthy products like fruit and vegetables rolls, breads containing herbs etc can be thought of. Today market trend is more towards whole grain, multigrain and other such high fiber products .Also natural and organic bakery products are preferred much. This gives the industry a chance to further enhance bakery products by making them much healthier with incorporation of wheat germ, rice bran, soy flour, fenugreek, rye, oats etc in breads and other much liked products.

Dr. Huaying Zhang(Director, Beverage Institute of Health and Wellness , Coca Cola) explained 'Managing Supply Chain of Herbal Ingredients'. Herbal ingredients are added to food products for their health benefits , however managing the herbal ingredients supply chain is a complicated task .There has to be proper management from the point of origin to the point of consumption, as there are a lot of losses during each intermediate steps .

Survey showed that consumers in many developed countries like USA, Sweden, Mexico, Italy, Japan, France, China, etc, believe that their overall diet is healthy but still they are dissatisfied with their eating habits. For this reason traditional Chinese medicine non alcoholic beverages are consumed in these countries with USA leading all with around 800 variants. To maintain the efficacy of the herbal ingredient good agricultural practices (GAP) has to be followed. From the herbal seedling selection, identification to location of planting (i.e. earth conditions , water source etc..) time of harvesting , cultivation technique , processing , packaging , storage and transportation all play a role in the authenticity and efficacy of herbs and in managing contamination. Since this is a herculean task, it depends on the manufacturer whether to work directly with growers or buy from the open market. However with changing times one has to continuously improve on the cycle time, cost, quality and delivery performance to meet the rapid product and development change while demanding for high reliability and keeping in mind the increased expectation for environmental sustainability and ethical labour practices.

Dr Marie Helen Saniez (Corporate Nutrition Director, Roquette) presented “Newer Ingredients for Health and Convenience”. Her special attention was on oral health as there is an increasing awareness of health, especially oral health. Dental decay is caused by cariogenic bacteria as *Streptococcus sp.* and *Lactobacillus* and fermentable sugars such as sucrose are needed. However gum disease is a major cause of tooth loss in adults and since it is usually painless and develops slowly a person may not be aware of infection. Diabetics are more prone to gum disease and tooth decay as glucose present in saliva increases carious risk, more over diabetics are in continuous inflammation state, their immunity is reduced and there is difficulty in wound healing. Parodontal risk is enhanced by 3 to 4 times when diabetes is not controlled. Thus products targeted at diabetic population can have polyols incorporated as they are few or not carcinogenic and also do not favour formation of tooth decay.

Chlorella can also be used as a preventive ingredient as it has anti-pathogenic, anti-inflammatory activity, provides Vit B12, omega-3 and proteins. It also gives the product a vegetal trend and improves the wound healing too. Chlorella is a sustainable vegetal source which needs less surface to grow, there is no contaminant present and the growth is controlled in a closed process. Innovation inspired by better health has led to production of a sugarless chewing gum tablet containing polyols and micro algae (chlorella) for prevention of oral infection.

Ms Ana A. Sinha (Head of Corporate Wellness and Consumer Concern, Nestle,) presented ‘Incorporating Health and Wellness into common foods’.

Demographic lifestyle is changing and the world is concerned about increase in the ageing population along with obese population. The percentages of obesity and overweight have reached epidemic proportions worldwide. In the forward block it is roughly 70% and in European countries, it is about 50%. Consumers are concerned of their health and therefore indulge into eating a diverse range of food products specially fresh food, also the consumption of fiber containing products and water intake has increased. Life expectancy around the world is increasing, so to enjoy the long life consumer wants to be disease free. He wants to be fit and well. So Health and Wellness is a need state in the minds of consumer. Consumers are moving away from supplements towards fresh and whole food solutions. In both US and Europe eating fresh and drinking plenty of water were considered to be the most important factors in maintaining a healthy diet. However with all these concerns in mind the consumer still prefers not to compromise on taste, there is a challenge for the companies to improve the nutritional value of the product without compromising on taste.

Providing an insight into the beverages sector in his presentation ‘New Trends in Health Beverages and Regulatory Aspects’, Dr. Deepak Gunavante (G.M.-R&D Innovations & Regulatory Affairs, GSK) said, globally there has been an increase in the launch of Health beverages. Consumers are making a healthier choice; they are giving more preference to health beverages over soft drinks. There is also a rising demand for instant convenient prepackaged food and beverages. This trend has brought a shift in the claim positions from a food minus claims like low/no/reduced to a natural balance claims like all natural/no synthetic/organic claims. Today a large contribution has been made by India and China in the growth of global beverage market and it is hoped that in the years to come there would be an increased activity in terms of production and demand in the Asia-Pacific region. In India, during the last 6 years there has been an increase in the demand for health beverages like malt based beverages, fruit juices, probiotic fermented milk and traditional drinks like buttermilk, panna, etc. Due to the vast population base with around 350 million middle class population, India is set to experience a retail boom.

Beverages are made healthier through addition of novel bioactive ingredients. Some of the developed countries have paved the path for innovation and are further encouraging innovations in food products through improvement in their regulations. Japan is one such country with FOSHU ‘Food for special health uses’ which has already approved 422 products and has a positive list of Food additives. China has health food regulation SFDA with over 4000 health foods whereas Indian regulatory is still in transient state. Regulations should be such that they protect the consumer’s interest and give freedom to the companies to innovate the products.

Eminent speaker Mr. Ram Nimmaguddu (Director-Functional Foods, DSM) gave an insight into ‘Role of Nutraceuticals in Functional Foods’.

The recognition that it is better and cheaper to keep people well rather than take care of the sick is on the rise globally. Based on all shoppers survey in 2006 it was concluded that 89% are concerned of cancer and 87% of CHD, 81% are concerned of eye health. There are supplementations taken for various disease conditions and a very effective score was observed in a survey wherein health benefits were associated with specific nutrients. 39% of adults could co-relate fiber with colon health and 35% identified Vit C to be beneficial for immune health. Even physicians are recommending specialty dietary supplement for arthritis, menopause, diabetes, CHD and age related conditions.

The interest is so much on rise that label claims increase the purchase interest of the consumer. Labels such as ‘Contains whole grains, excellent source of Vitamin C, high in antioxidants, excellent source of fiber, all natural ingredients etc’, have a high consumer appeal. Today the consumption of functional food is on a rise and 40% consumers indicate that consumption of functional food is extremely important for maintaining a healthy lifestyle.

Dr. S.K. Samant (V.P-Technical, Cadbury India) presented his expert opinion on 'New Healthier Confectionery Products'. Consumer before wanted to have confectionery products for pleasure but now they look forward to health and physical & mental well being claims. Emerging trends are of functional well being. However today there are many myths about confectionery. Many believe that chocolates are only empty calories and have no nutritional value and eating chocolates causes obesity, tooth decay, allergy . However there has been no direct link between prevalence of obesity and consumption of confectionery .Infact there is a healthy side of the story. Chocolate is a source of vitamins and minerals like Ca, Zn, K, Mg. etc .Also cocoa contains tannins which inhibit plaque formation and polyphenols in cocoa has strong antioxidant activity which can play role in reducing stress. Cocoa from what chocolate is made is full of healthy nutrients its husk & shell contain fiber, minerals and flavonoids. Cocoa pulp contains sugar, pectin and cotyledons contain protein, cocoa butter, vitamins and minerals.

Globally the launch of confectionery product is increasing with the type of health claims made. Market trend is energy booster bars, gut health bars. However food products by the end of the day should still be food and not medicine, thus one should always keep in mind not to overdo health claims as this can put consumers off.

Prof. Lutz Stoesser (Univ. of Jena, Germany) gave a brief insight on 'Sugar free sweets and their role in Dental Health and Healthy Lifestyle'. Sugar consumption was always on a high since the last century .However, with the development of fluoride toothpaste, there has been a decline in the caries. Sugar metabolism leads to dental plaque formation by the release of protons due to action of saliva on sugar /starch and amylase which cause demineralization of the tooth enamel. The longer time carbohydrate sticks to the tooth, the more caries are observed. There is a continuous process of demineralisation and remineralisation taking place but plaques are visible only after demineralisation is greater than mineralization. In past decades there has been increase in the consumption of confectionery but caries have declined, this can be correlated to the type of sugar used for confectionery .Although social class of the consumer, his knowledge, behavior, income etc. also play a vital role.

Since the solubility of calcium from the tooth enamel and formation of plaque is rapid at acidic pH, a study was carried out for measuring the acid production of dental plaque bacteria using broth containing different sugars. It was observed that xylitol and isomalt do not let the pH decrease from pH-8 to pH-7 even after 60 hours, where as the pH of sucrose decreases to 5 in less than 12hrs .Isomalt (as xylitol) could thus be recommended in the human diet as a sugar replacer in sweets for snacking in order to stimulate saliva, to enhance remineralisation, to replace sugar and reduce its consumption.

Bio terrorism has influenced the safety issue much deeper and not only importing countries but also the common consumer is demanding for traceability as he wants to know whether what he is eating is safe and of the best quality .This issue may seem simple to most of us and we know it is achieved through proper documentation. However traceability is not only important to gain consumers confidence but also make it easier for the company to trace back the unsafe food and also know its point of origin. To further enlighten all on this topic Mrs. Shashi Sareen (Head-Quality, Aditya Birla Retail) gave a presentation on 'Traceability in Food Industry'

WTO was established with objective to dismantle the barriers for free flow of trade and creating a global market with equal access to all countries. However governments are still concerned of health and safety and so are imposing regulations. Traceability plays an important role in such situation and provides reliable information to consumers. Major role of traceability is during food safety crisis, it enables to trace the unsafe food minimizing the product losses; also the source of problems can be identified and dealt with. The principle of traceability should be applied to all or specified stages of food chain as appropriate to objective to be able to identify one step back and one step forward. It should also be economically viable and practical.

This is a very important step for India if it wants to improve on its exports .EU rejects most of its import products due to antibiotic residues and US requires registration of all facilities and complete record of traceability, Russia requires pesticide usage details and current Indian scenario is such that it lacks to provide many of this details. A Major key- point in traceability is having a system linking the data collected at key stages in production and supply process. However the major concern is middleman or agents causing breaks in traceability and also blending of products makes it difficult to identify the source of origin. However a reliable traceability system can be achieved through proper documentations and act as a good tool for minimizing losses and bringing efficiency in production.

Mr. Bruno Gehin (Roquette, France) presented on 'Pea Protein'. Vegetable eating population globally is only 31% of the total population and the rest gets its protein content from animal source. Though animal protein is a cheap source of protein but protein from vegetable source is more appealing to the modern consumer as it is ecofriendly and also with improved techniques this can be a cheaper source of protein.

Pea protein provides functionality, nutritional benefits and clean labeling .The demand for vegetable protein is rising and this can be observed from new product launches containing veg. protein as an ingredient .In 2001 there were 2000 products

launched and in 2007 it has gone up to 5500+ products. Pea protein is also much accepted and preferred choice as there is a growing need for non-soya-gluten-free products and traceability is also a major issue of concern.

Vegetable protein provides an opportunity for innovation and gives a healthy image to the product as there is a reliable source of origin and unlike animal protein there is no major food safety crisis. Also the extraction process of pea protein is simple and chemical solvent free. Use of pea protein for innovation is further acceptable as pea protein isolates price is 1/2 to 1/3 of dairy protein price as well as a good source of essential amino acids. Pea protein production is an environmental friendly process as it consumes only 0.8 hectares of land per tones of protein as compared to beef or milk which consumes 5.9 and 4.6 ha/ tonne. Also irrigation is not necessary as compared to beef or dairy products which require 80-120 Liters of water /Kg protein. Pea protein provides a great opportunity to create healthy snacks as it is easily digested and it limits hunger sensation also. It is a good source of amino acid and it reduces saturated fatty acids with meat substitution. Most importantly it gives a green image to the label which makes the product more consumer acceptable.

Mr Sanjiv Avashia (Sr. Food Scientist, Tate & Lyle) presented his insight on 'Novel Fiber for Health and Wellness'.

Health and wellness sector is growing in India. Consumers are looking for products high in fiber because currently Indian population is consuming only 14g/day where as the Dietary Reference Intake for fiber as per US Fiber Guidelines is 25g/day for women and 38g/day for men. A Consumers survey showed that in US, 77% consumers are trying to consume more fiber and 67% consumers know that fiber is useful in maintaining or controlling digestive health and immune system. Fiber has many potential physiological benefits. It helps in blood glucose control, lowers blood cholesterol, provides laxation, helps in weight management, satiety and it has prebiotic effects and improves bone density. With its prebiotic effects it stimulates the growth and activity of beneficial microbiota and inhibits growth of harmful microbiota. These beneficial microbes produce vitamin K and provide us for utilization and lowers intestinal pH which enhances absorption of minerals like Ca, Mg and Fe.

Using fiber in formulation gives a labeling advantage too. As per US FDA regulations when a product contains ≥ 2.5 g fiber per serving, it can be labeled as "Good source" of fiber and when there is ≥ 5 g fiber per serving, it is labeled as "Excellent source" of fiber. Use of resistant starch in snacks, cookies and bakery products is also recommended as resistant starch provides low water holding and so the dough easily release water during baking so products are crisp also fat absorption is reduced during frying.

Dr. J.I. Lewis (Head-R&D, Marico) presented his opinion on 'New Food Regulation in India'. Regulations governing the food industry should be such that they provide flexibility and give space for innovation, only then novel foods would be able to develop. Today the consumer's choice is limited but in future this might not be the case, so looking at the developmental trends, the framing of regulations should be done after keeping in mind that consumer would want a clearer information and also we need to compete with other developed countries and follow their laws too if we want to export our products. Thus there should be food laws at par with developed countries. The developmental trend says that we need to shift from being concerned of adulteration in the food to looking at the safety aspect of food. We should also be more focused on monitoring and surveillance system rather than just on inspection system. The focus needs to be shifted from Enforcement to Improvement of the products.

Navigating through the new rules would be much easier if there are chapters such as Administration- which would have all acts, procedures, licensing, penalties etc, General Standards- containing general provision for labeling, food additives etc and a chapter of Compositional standards containing specifications.



Great Ideas from Around the World

Diverse regions of the world often have common issues; major concerns of consumers (AC Nielsen, 2007a) include the economy, health, job security, and global warming. Two in five consumers around the world want their government to invest in environmentally-friendly and energy-saving solutions.

The global food industry is mainly driven by the factors of:

- Health
- Convenience
- Private label
- Taste

Food Categories with Fastest Overall Growth

Following are food categories by world region with the fastest overall growth (indicated by numbers in parenthesis) worldwide in 2006 (AC Nielsen, 2006a):

Total Food and Beverage Growth				
Europe	North America	Asia Pacific	Latin America	Emerging Markets
3%	4%	4%	10%	12%

Growth in Individual Food/Beverage Categories				
Europe	North America	Asia Pacific	Latin America	Emerging Markets
Fresh herbs/spices (15%)	Frozen meal starters (95%)	Frozen meal starters (48%)	Frozen meat substitutes (66%)	Alcoholic cider (50%)
Drinkable yogurt (14%)	Sports/energy drinks (51%)	Fresh herbs/spices (47%)	Dairy substitute drinks (40%)	Baby juice & juice drinks (49%)
Dairy substitute drinks (14%)	Fresh soup/bouillon/stock (45%)	Frozen fruit (33%)	Baby food (35%)	Pre-mix alcoholic beverages (40%)
Sports/energy drinks (13%)	Baby snacks (25%)	Fresh fruit/nuts (31%)	Pre-mix alcoholic beverages (34%)	Shelf-stable dips (39%)
Fresh fish/shellfish/seafood (12%)	Frozen dips (23%)	Drinkable yogurt (28%)	Shelf-stable savory fillings/pastes (32%)	Shelf-stable meat products (37%)
Cooking/edible oils (12%)	Water (22%)	Baby formula (24%)	Sports/energy drinks (23%)	Shelf-stable dessert sauces (27%)
Fresh soup/bouillon/stock (12%)	Fresh, ready-to-eat salads (19%)	Fresh soup/bouillon/stock (23%)	Water (22%)	Fresh noodles/pasta/rice (27%)
Fresh sweet pastries (12%)	Fresh savory fillings/pastes (15%)	Fresh dips (22%)	Fresh meat products (22%)	Fresh cheese (27%)
Breakfast/toaster pastries (11%)	Fresh herbs/spices (14%)	Fresh salad dressings (19%)	Cereal/muesli/fruit bars (21%)	Mineral supplements (25%)
Alcoholic cider (11%)	Non-ready-to-drink coffee (11%)	Fresh pickled vegetables (19%)	Baby formula (20%)	Baby food (25%)

A country with one of the highest life expectancies, Japan, has set a rapid pace in the functional food/beverage area. Europe is considered to be a strong barometer for environmental/humane issues and organic/natural foods. Product concepts, positionings, flavors, and foods that will attract consumer attention will be presented here.

Flavorable Directions

While traditional flavors still dominate new snack product activity worldwide, savory flavors representing specific recipes are new innovations in the snack sector. Snack flavor combinations from the Far East such as Thai Sweet Chilli and Lemongrass, Wasabi and Soy etc. are gaining popularity. Not surprising when focusing on an observation made by Innova (2007) that 39% of new global ethnic products launched in 2006 contain Asian flavors. Emerging flavors for snacks and meals aim for authenticity and provenance as illustrated by snacks containing a blend of Tuscan spices and herbs or Greek-style yogurt and mint flavor. Also, contrasting taste sensations include Balsamic Vinegar and Mint, and Cool Yogurt and Cucumber.

Other new trends include vegetable, mint, tea, flower and herb flavors in the dairy sector.

- In Italy, yogurt products contain fruits and vegetables: Strawberry and Tomato, Pineapple and Fennel being some examples
- In the Netherlands, a dairy product contains the combination of cherry, tomato, and pumpkin.

Products containing vegetables are positioning themselves as meal substitutes.

Other flavor combinations in low-fat yogurt include:

- Lemon and mint flavors in Italy
- Green tea and lychee pieces in Spain
- Roasted sweet potato and coconut fruit in China

Innovations in the dairy products sector include:

- Drinkable cheese – a concept that originates from Japan. The beverage is a fresh, natural drinkable cheese made from fresh milk.
- Lassi – an Indian beverage made with yogurt, salt, water and spices, the latest addition being fruit. Lassi with lime juice and green tea powder is an example.
- Flavored butters – including a mild mustard seed, tomato and parsley butter in Germany and a hazelnut-flavored healthy spread in France.

Emerging Trends

Flavors of chocolate, sweet chili, mushroom, wine, vegetables, and cucumber are being used for cheese. Another fast emerging trend is the use of flowers to flavor food.

- Yogurts contain flavors such as Mango and Orange blossom.
- A beverage line in Austria uses hibiscus, dandelion, marigold, rose petals and other flower flavors.
- Japan has a yogurt product flavored with rose petal sauce.

Scented confectionery, a perfume alternative, is best exemplified by a crunchy functional candy in Japan. This candy while being rich in collagen, Vitamin C, and hyaluronic acid flavored with linalool from citrus oil enables the consumer to emit a rose or lemon aroma for 30 minutes after eating it. Despite the popularity of fruit and flower flavors, strong dark chocolate continues to be the flavor preference in the global confectionery arena. While most coffees remain blends, a premium coffee sourced from one plantation was introduced into the Dutch market possibly paving the way for non-blended coffees.

The table below gives an idea of the popular dairy flavors on a global level.

Top Global Dairy Flavors – Number of Product Introductions in 2006

- Innova 2007

Fruit	5,552
Dairy	1,670
No flavor	1,454
Brown	1,041
Vanilla	505
Nut	316
Tea	99
Vegetable	73
Spices & seeds	61
Fantasy	28
Mint	22
Ethnic	17
Flowers	12
Herbs	11
Herbal	10

Exotic Flavors

Exotic flavors are going beyond pomegranate and açai. Some examples are:

- Goji berry
- Mangosteen
- Acerola berries
- Honeybush

- Guanabana fruit
- Prickly pear

Also, Innova (2007) reports an increase in the use of African flavors and health extracts in products. Examples include baobab (*Adansonia digitata*) and marula (*Sclerocarya birrea*).

- Baobab has benefits including high levels of calcium and Vitamin K among others and is also a potent antioxidant.
- Marula is an ingredient used extensively in liqueurs and candy in South Africa.

Cunning and Convenient

The following needs continue to accelerate:

- Demand for convenient meal solutions without compromise on health, taste, or culinary adventure
- Packaging developments that enhance preparation of meals
- Eating away from home

The ready-meals market in Germany, France, the UK, Italy, and Spain estimated at €8.4 billion in 2006 is projected to rise 18% in €9.9 billion by 2011 (Datamonitor, 2007). The fastest growth is expected to be Germany's with a projection of 44%.

The strongest growth will be experienced by premium products with:

- More-sophisticated recipes
- High-quality, fresh, natural ingredients that are:
 - Organic, and/or
 - Lower in salt, fat, and calories

Salmon Marinated in Ginger with Quinoa and Pineapple Chili Dressing is one example of an upscale recipe for a brand of chilled prepared meals for one in the UK. These meals are free of additives, preservatives and hydrogenated oil and offer at least one serving of vegetables.

In demand are products that enhance:

- Preparation of fresh fruits and vegetables, and/or
- Deliver one or more servings of the day's fruit or vegetable requirements

Some products that deliver these requirements comprise:

- A drink/shot in the Netherlands, which promises to deliver two of the five-a-day recommended servings for fruits and vegetables
- A new, satiating fruit-based drink in Denmark with added natural fibers and milk protein that can replace a light breakfast or a snack meal

Presentation

A new global product dimension is "presentation" increasing the attractiveness of food products, mainly dessert.

- A yogurt in a mountain-shaped package, in France, that on opening can be turned over a plate to have the fruit topping run down its side
- A brand of butters is sold in small upside-down "frilly" tubs whose lids function as plates

On-the-Go Beverages

- Self-heating cans are a welcome innovation: A brand in Australia launched a line of self-heating drinks in April 2007.
- Soon to be introduced in Spanish markets is a self-heating concept using a metal rather than plastic exterior.
- A drink in Japan contains green tea powder in the bottle's cap which is released on twisting.

Happy, Healthy Kids

The World Health Organization's charter to fight obesity was endorsed by 53 European health ministers in November 2006.

They called for laws to ban advertising of less-healthy foods to kids. There is a strong motivation for purchasing:

- Organic/natural foods
- Products free from additives and preservatives, hydrogenated oils and artificial sweeteners
- Products low in sugars, fats, and sodium

A trend of healthy food and snack options have been introduced, that include:

- New, organic "children's cheese" made from skim milk and containing, among other things, iron, calcium and various nucleotides good for the brain, bones, teeth, and immunity

- Carrot-and-broccoli fusilli provided in schools in France to counter the problem of ensuring children get their daily requirements of fruits and vegetables
- Popular fruits combined with different flavors to attract children:
 - In France, fresh mini fruits packed in colorful bags for kids
 - Creative dried mix fruit snacks
 - Freeze-dried fruit chips (organic apples)
- In the Netherlands, fresh crispy cocktail cucumbers and sweet snack capsicums, and traditional Dutch mixed vegetables cut into fun shapes without preservatives or colors
- Another opportunity is for products that aid in the mental and vision development of children and improve brain function, learning, and cognition with DHA, omega-3s and ARA in the case of infants

Products also target the 'fun' aspect for kids.

- In Italy, chocolate-covered ice cream novelties fit on the thumb for interactive enjoyment.
- Finland has yogurt and pudding dessert multipacks that can be made into a farm house including cardboard figurines of dairy cows.
- Poland offers a real cheese snack the portions of which are shaped like soccer balls packaged in a small net bag.

Looking Good

According to a report by ACNielsen (2007c, 2004), more people in many Pan-Asian countries are trying to lose weight than are actually overweight.

Satiety

This is the hottest global weight-control trend. Products also carry claims for appetite suppression, lasting satisfaction, and sustained energy.

Prebiotics

A large range of foods including cookies, ice creams and breakfast cereals have added prebiotics to increase satiety.

Fat Burners

Another popular approach consists of fat burners and metabolism boosters. Examples are green tea's epigallocatechin gallate (EGCG) and alpha-lipoic acid. A brand in Japan offers a calorie-controlled green tea ice cream. Norway has an innovation consisting of an extract from green coffee beans supposed to help weight loss by lowering peak blood sugar levels after meals.

Low-Glycemic Foods

Products carrying a low GI (glycemic index) symbol are popular, particularly in Australia. The UK has low GI milk chocolate, Mexico has low GI honey, and Japan has low GI fruit drinks.

Conjugated Linoleic Acid

Conjugated linoleic acid is also gaining momentum. This element reportedly converts body fat into lean muscle mass.

Foods and Beverages Promoting 'Inner Beauty' Health

Another fast-emerging opportunity is in the form of food and drink products that promote "inner beauty" or healthy skin, nails, and hair from the "inside out."

- A yogurt designed to "nourish skin from the inside" contains omega-6/borage oil (a good source of gamma-linolenic acid), vitamin E, and green tea polyphenols.
- A brand of snacks in Austria contains dried fruits that are naturally high in antioxidants/phytochemicals that promote healthy skin.

Functional Favorites

Nutritional ingredients and strong focus on enhanced bioavailability are leading functional food marketers internationally towards an exciting end list of health benefits.

Higher Nutritional Value

Super high-calcium cookies in New Zealand and high-calcium milks in France are becoming very popular. Dairy products in New Zealand are fortified with vitamins D and A and minerals promising greater bone strength for older women and athletes.

Omega-3s

Breaking new ground in Ireland, England and Canada are dairy products and eggs that are naturally high in omega-3s (from the use of high omega-3 feeds). Also, UK continues to fortify products ranging from extra virgin olive oil to frozen meals and baked beans with omega-3.

Equally important are:

- Omega-6 and -9
- Omega fatty acids from flaxseed/plant sources
- Alpha-linolenic acid (ALA)
- Gamma-linolenic acid (GLA)

Fortified Products for Pregnant Women and Toddlers

Fortified milks, beverages, and bars for pregnant women are becoming increasingly popular.

- In Russia, a drink for pregnant women contains vitamins, taurine, and omega-3s.
- “Follow-on” fortified milks for toddlers in the UK contain omega-3 and DHA.

Iron-Enriched Milk

In Japan, milk has added iron for extra energy. It also has lactoferrin for increased iron absorption and an immunity boost. Coenzyme Q10 – a best selling supplement in the US for heart health, energy, and skin care – is flourishing in Japanese beverages.

Probiotics for Digestive and Heart Health

Mintel (2007) foresees digestive health as the future biggest segment of the functional food market worldwide. Although a brand of yogurt in the US focusing on probiotics/digestive health had a successful launch, the major part of the probiotic market remains overseas.

- Probiotic Cheddar cheese in the UK
- Probiotic butter in Ireland

Dairy health shots containing probiotics and/or offering cholesterol and blood pressure reducing benefits are also popular. According to Innova (2007), international sales reached \$2.1 billion in 2005.

Prebiotics are being increasingly added to probiotic foods. They are non-digestible fibers stimulating the growth of good bacteria in the colon. The Netherlands launched a yogurt with five varieties of fibers.

Heart Healthy Foods

Japan and Spain are among the strongest markets for heart-healthy foods, which form the second-largest global category.

- A new dairy blood-pressure lowering drink in Spain contains dairy peptides, calcium, and potassium.
- A yogurt in Germany lowers cholesterol using phytosterols.
- In Japan, a FOSHU-approved fermented milk counters hypertension.

Functional Foods and Beverages Targeting Mental Health and Development

According to Mintel (2006), the third largest functional food category is made up of functional foods and beverages that enhance brain health, mental sharpness, cognition, and enhanced learning in children. Ingredients that are frequently used as brain boosters comprise choline, lecithin, taurine, phosphatidylserine, guarana, ginseng, and flavanols. Japan, having moved on to mood foods, uses key ingredients such as theanine and GABA.

Sleep Category

The sleep category is a fast-emerging opportunity with sleep problems prevalent amongst half the American adults and mounting concerns about side effects of prescription sleep aids. This has given rise to various food products in Japan including:

- A night-time yogurt with relaxing theanine and collagen for healthy skin
- Milk taken from cows milked at night when their melatonin levels are 3-4 times higher

Opportunities Ahead

Emerging markets at present are set to become core markets over the next few decades. By 2050, Western and Eastern Europe will experience a population reduction by 37 million, while Africa’s population will increase by 1 billion. India will overtake China before 2050, making it and Africa the two largest populations in the world. It need not be particularly stated that there are opportunities ahead.



In The News

“Western” diet blamed for a third of heart attacks

A new study finds that diets that include large amounts of meat, fried food and salty snacks contribute to 35 percent of heart attacks worldwide.

Researchers at McMaster University in Canada looked at the eating habits of 16,000 people in 52 countries. About 5,700 of the subjects had just suffered a first heart attack. They found that those who ate what is considered a traditionally “Western” diet of meat, junk food and eggs had higher heart attack rates than those who ate diets rich in fruits and vegetables.

The results were published in the journal *Circulation*.

<http://circ.ahajournals.org/cgi/content/abstract/CIRCULATIONAHA.107.738716v1>

Obesity and lower food enjoyment linked

New research indicates that overeating may be connected to the ability to derive enjoyment from food.

The study of women found that those who get less pleasure from eating may overeat to compensate. Researchers also linked a genetic trait to the relationship between feeling less rewarded and eating more. Women were given chocolate milkshakes or a tasteless solution while magnetic resonance images were taken to measure brain activity. Obese women had lower activity in the pleasure areas of the brain than subjects of normal weight.

The findings appear in *Science* magazine.

<http://www.sciencemag.org/cgi/content/short/322/5900/449>

Grocer offers fresh meal combinations

Fresh & Easy Neighborhood Market introduced a new line of ready-to-eat products that can be combined to create more than 200 meal ideas. The mix-and-match line includes 30 different varieties of fresh pastas, sauces, meat and vegetarian dishes and sides that pair to create meals for two for about \$10. All Fresh & Easy products contain no added *trans* fats, no artificial flavors and colors and only use preservatives when absolutely necessary. The products are prepared fresh every day.

[http://www.freshandeasy.com./](http://www.freshandeasy.com/)

Keeping food fresh from farm to table (see story)

As more consumers demand more fresh-like foods, scientists are finding new ways to extend the shelf life of perishables and get them to market faster and fresher.

Suppliers are constantly looking for new ways to move food over long distances while reducing spoilage and waste. Computer programs have helped speed the process to optimize timing, but researchers are still looking to find ways to keep the fruits and vegetables as fresh as if they were just picked.

The Associated Press takes a look at the challenges and obstacles facing the food industry in meeting world demand for fresh food. New innovations in packaging, preserving and shipping are some of the ways suppliers are tackling the issue. Reducing carbon emissions and finding “green” ways of transporting products are also a concern.

The article gives a detailed look at some of the new technologies and processes utilized to ensure freshness:

<http://www.miamiherald.com/business/story/762145.html>

The Truth About Sweeteners - Moms Express Nutrition Concerns, Yet Real Culprits Overlooked

17 Nov 2008

A recent national survey revealed that moms are more concerned with individual ingredients rather than their children's overall caloric intake. Since total calories typically determine weight gain and even obesity, parents must understand the basic nutritional facts to keep their kids healthy.

"Many accusations today rely on speculation that tries to link single ingredients, including sweeteners such as high fructose corn syrup, to obesity," said Dr. James M. Rippe, cardiologist and biomedical sciences professor at the University of Central Florida. "Americans are eating more of everything -- it's the excess calories and sedentary lifestyle that are having the greatest impact."

In this video, Dr. Kristine Clark, assistant professor at Penn State University, who is working with the Corn Refiners Association discusses the topic in more depth, including the role that sweeteners play in our diet.

From: <http://www.medicalnewstoday.com/articles/129646.php>



Nutrition & Health Research

Acrylamide doesn't increase gastrointestinal cancer risk

The results of a Dutch study found no link between acrylamide and the risk of gastrointestinal cancer.

Acrylamide, a chemical that forms when high-carbohydrate foods are cooked at high temperatures, is found in foods such as cereal, cake, French fries, potato chips and coffee. Researchers looked at more than 120,000 men and women ages 55 to 69 who participated in the Netherlands Cohort Study on diet and cancer. They found no association between acrylamide intake and the risk of cancer in the gastrointestinal tract.

The scientists said that doesn't mean people shouldn't restrict their intake of foods that contain acrylamide for other reasons, including their tendency to be high in fat and calories. The results appear in the November issue of *The Journal of Nutrition*.

<http://jn.nutrition.org/cgi/content/abstract/138/11/2229>

Appetite-suppressing foods could be on the horizon

The future of food could include products that are specifically designed to trick you into feeling full.

The Associated Press takes a look at research into designing foods to regulate appetite. The article looks at research conducted at the Institute of Food Research in Norwich, England, where scientist Peter Wilde and his team are creating foods that trigger satiety responses within the body, making it think it's eaten too much, when in reality it hasn't.

“Wilde’s research hinges on the body’s mechanisms for digesting fat,” the article states. “Fat normally gets broken down in the first part of the small intestines. When you eat a high-fat meal, however, the body can only digest the fat entirely further down in the intestines. That sparks a release of hormones that suppress appetite.”

By coating fat droplets in foods with modified proteins from plants, Wilde’s method makes it take longer for the fat to be digested. The fat isn’t digested until it reaches farther into the intestines, which is when intestinal cells signal the brain that it’s full.

“Even though the body hasn’t had a high-fat meal, it suppresses the appetite as if it has,” the article states. “If the fat had been digested earlier in the intestines, no such signal would be sent.”

Wilde and his team hope food products involving his method could be on store shelves in the next few years.

<http://www.msnbc.msn.com/id/27336651/>

Scientists engineer purple tomato to fight cancer

The results of a new study show that a tomato engineered to produce anthocyanins, antioxidants found in dark berries, may help prevent cancer.

Researchers at the John Innes Center in Great Britain used genes from snapdragon flowers to create a tomato that produced anthocyanins, which are commonly found in blackberries and blackcurrants and have been linked to lowering risks for cancer as well as heart disease and some neurological diseases. Scientists fed the purple tomato to mice that were genetically engineered to develop cancer. Those that ate the engineered tomatoes lived an average of 182 days, while those that ate the standard diet lived 142 days.

The findings appeared in the journal *Nature Biotechnology*.

<http://abcnews.go.com/Health/wireStory?id=6114713>

Calcium, exercise lower risk of metabolic syndrome

A new study of Illinois adults shows that exercising and eating a diet rich in calcium can lower the risks of metabolic syndrome.

A group of 5,077 participants responded to a series of questions concerning chronic health conditions, exercise habits and diet in a 2005 telephone survey. Researchers then identified which participants had the condition. They found that metabolic syndrome was more prevalent in people who were less physically active, consumed lower amounts of calcium-rich foods and had hypertension and hypercholesterolemia. Those who said they participated in little or no exercise had almost twice the risk of developing the condition.

The findings appear in the *American Journal of Health Promotion*.

http://healthpromotionjournal.com/mm5/merchant.mvc?Screen=PROD&Store_Code=AJHP&Product_Code=JV23I2130&Category_Code=

How Excessive Drinking is Associated to Heart Disease

Nov 27, 2008-Researchers has identified the precise mechanisms by which binge drinking contributes to clogs in arteries that lead to heart attack and stroke, according to a study published in the journal *Atherosclerosis*.

27/11/08 As the holidays arrive, a group of researchers has identified the precise mechanisms by which binge drinking contributes to clogs in arteries that lead to heart attack and stroke, according to a study published in the journal *Atherosclerosis*. The works adds to a growing body of evidence that drinking patterns matter as much, if not more, to risk for cardiovascular disease than the total amount consumed.

According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), going on a 'binge' means having five or more drinks for men, and four or more drinks for women, in two hours. Many studies suggest that an irregular pattern of heavy drinking brings about a two-fold increase in risk for a fatal heart attack, even as moderate drinking has been shown to reduce risk (the red wine effect). About 65 percent of Americans drink alcohol, with 15 percent reporting binge patterns in a national survey of problem drinkers.

Alcoholic beverages contain ethanol, which is mostly converted into acetaldehyde once in the human system at 'binge' levels, with the levels of acetaldehyde remaining high for many hours after the binge has ended. The current study clarified for the first time that binge levels of acetaldehyde cause an important type of immune cell, the monocyte, to become better able to stick to blood vessel walls, an important step in initiating atherosclerotic disease. Clarifying these mechanisms promises to empower the design of new treatments to counter the effects when combined with lifestyle change, researchers said.

In the past, experts believed that atherosclerosis developed when too much cholesterol clogged arteries with fatty deposits called plaques. When blood vessels became completely blocked, heart attacks occurred. Now most believe that the reaction of the body's immune system, more than the build-up itself, creates heart attack risk. Vessel walls mistake fatty deposits for intruders, akin to bacteria, and call for help from the immune system. Among other cell types, monocytes arrive with the goal of preventing infection, but end up causing inflammation that drives blood vessel blockage.

"Factors like binge-drinking have been linked to increased risk for heart disease, and the newer inflammatory model is beginning to explain how," said John Cullen, Ph.D., assistant professor in the Department of Surgery at the University of Rochester Medical Center. "One of our experiments found that acetaldehyde, at levels found in the blood after binge drinking, increased the number of monocytes that can adhere to cells lining blood vessels by 700 percent," said Cullen, who led the study.

Health psychologists argue that motivating people to stop bingeing depends upon their belief that it is harming them. Thus, the authors of the current study hope the results empower public health campaigns that discourage binge drinking.

<http://www.nutritionhorizon.com/home/viewhealthnutrition.rails?Id=&pageNo=40>

Drink Brewed Tea To Avoid Tooth Erosion, Study Suggests

When deciding between the many options available, the best thing to drink to avoid tooth erosion is brewed tea.

ScienceDaily (Nov. 28, 2008) — Today, the average size soft drink is 20 ounces and contains 17 teaspoons of sugar. More startling is that some citric acids found in fruit drinks are more erosive than hydrochloric or sulfuric acid—which is also known as battery acid. These refined sugars and acids found in soda and citrus juice promote tooth erosion, which wears away the hard part of the teeth, or the enamel. Once tooth enamel is lost, it's gone forever.

There is a beverage that does not produce such irreversible results. When deciding between the many options available, the best thing to drink to avoid tooth erosion is brewed tea, according to a study in the July/August issue of *General Dentistry*, the clinical, peer-reviewed journal of the Academy of General Dentistry (AGD).

Apart from tasting good, brewed tea has many health benefits. Tea is loaded with natural antioxidants, which are thought to decrease incidence of cancer, cardiovascular disease, and diabetes.

Mohamed A. Bassiouny, DMD, BDS, MSc, PhD, the lead author of the study, compared green and black tea to soda and orange juice in terms of their short- and long-term erosive effect on human teeth. The study found that the erosive effect of tea was similar to that of water, which has no erosive effect. And, when comparing green versus black, he discovered that there is a better option among those as well.

Dr. Bassiouny says that "when we look at tea and read about the benefits, it's amazing—not because green tea is 'the in thing'—but because there are advantages." He adds that much research done overseas, in countries such as Japan and Europe, found that green tea was identified to being superior over black due to its natural flavonoids (plant nutrients) and antioxidants.

But, if you do drink tea, experts suggest avoiding additives such as milk, lemon, or sugar because they combine with tea's natural flavonoids and decrease the benefits. In addition, stay away from prepackaged iced teas because they contain citric acid and high amounts of sugars. It does not matter whether the tea is warm or cold—as long as it is home brewed without additives.

Kenton Ross, DMD, FAGD, AGD spokesperson, sees patients' erosion problems on a daily basis in his practice. "Severe cases of erosion occur monthly and are frequently associated with high rates of soft drink consumption," he says. "This study clearly shows that brewed teas resulted in dramatically less enamel loss than soft drinks and acidic juices," says Dr. Ross. "I would highly recommend patients choose tea as an alternative to more erosive drinks like soda and fruit juice."

Tips to decrease erosion:

- Reduce or eliminate carbonated beverages. Instead, drink water, milk, or tea
- Skip the additives such as sugar, lemon, and milk
- Drink acidic drinks quickly and through a straw
- Chew sugar-free gum to increase saliva flow in your mouth
- Rinse with water to neutralize the acids, and wait an hour before brushing

From: <http://www.sciencedaily.com/releases/2008/11/081125132514.htm>

Glass of Skim Milk a Day Keeps the Appetite at Bay

Nov 25, 2008-The findings revealed the men and women who included the high-protein BROWNES skim milk for breakfast ate almost 10 per cent less on average when compared to those who included a juice drink.

Western Australians who substitute their morning glass of orange juice with skim milk eat significantly less at lunch according to research commissioned by the University of Western Australia.

The recent local study took a sample of overweight men and women and gave half the group a glass of BROWNES skim milk and the other half a sugar-based fruit juice drink. They were then asked to record how hungry they felt leading up to and during lunch.

The findings revealed the men and women who included the high-protein BROWNES skim milk for breakfast ate almost 10 per cent less on average when compared to those who included a juice drink. They also indicated they felt less hungry after consuming a glass of skim milk with their breakfast.

Fonterra's Nutritionist and an Accredited Practising Dietitian, Jacinta Orr said many people cut back on dairy as they mistakenly believe this food group to be fattening.

"This can also mean missing out on the important nutrients that dairy foods provide.

"The need to reduce calories, together with including regular physical activity, has long been key to a successful weight management plan. However, managing appetite and resisting urges to eat can be a challenge.

"It is interesting that those men and women drinking skim milk at breakfast recorded feeling more satisfied and less hungry – across a few hours, and closer to lunch. BROWNES skim milk is a real hunger busting choice to save on calories later.

"This study debunks the myth that dairy should be one of the food groups to cut back on if you are concerned about your weight.

"By consuming a glass of BROWNES skim milk, it will not only keep you feeling fuller for longer, subsequently it may help you to manage your appetite and eat less."

Senior Research Fellow, Dr Trevor Mori, explained that the uniqueness of the trial was the study design. It was designed such that the time between drinking the skim milk and the following meal represented the typical timeframe between meals of 3-4 hours.

"Other studies have not shown a difference with smaller time lapses. You can see that the timing is important for higher reported satiety with skim milk; that is feelings of fullness, being less hungry and eating less," Dr Mori said.

The study will be presented by the University of Western Australia's Postdoctoral Research Associate, Dr Emma Dove at the 2008 Obesity Society Annual Scientific Meeting on Thursday November 20.

<http://www.nutritionhorizon.com/home/viewhealthnutrition.rails?Id=&pageNo=45>

Dairy May Help with Weight Management

A diet high in dairy calcium may aid weight loss, according to a recent study published in the International Journal of Obesity.

Dr Judith Bryans, Director of the Dairy Council and Registered Nutritionist says: “Previous studies have shown that consuming low-fat dairy, as part of a calorie controlled diet, may have a beneficial effect on weight, but how it may do this is unclear. It has been proposed that calcium may reduce fat absorption. This study therefore investigated the effect of dairy calcium on fat excretion.”

In this study the Danish men and women were given a high-calcium diet for seven days, followed by a one-week break, and then a low calcium diet for a further seven days. The fat levels excreted by the participants during both calcium diets were analysed and recorded.

Low-fat dairy foods were the main source of calcium given to the participants, and the researchers found that increasing dairy calcium from 700mg/day to 2300mg/day more than doubled the fat excreted by the participants. They suggested that the calcium may decrease the amount of fat absorbed by the body and this could potentially lead to weight loss.

Another new study, published in Nutrition & Metabolism, found that consuming three portions of dairy a day, as part of a healthy balanced diet may help with weight maintenance.

The subjects were put on a weight-loss diet for the first three months. Those who lost 10kg or 10% of their body weight, were then divided into two groups and followed for a further six months to see if they would maintain their weight. The first group ate three servings of dairy each day, while the second group ate less than one.

At the end of the study, both groups had similar weight and body composition despite a greater calorie intake by the group which had more dairy.

Dr Bryans continued: “This is another very positive study, as the researchers concluded that recommended levels of dairy may be included as part of a weight maintenance diet without contributing to weight gain.”

In this study a serving of dairy was 1 glass (240ml) milk, 1 pot (227g) yogurt or 42g hard cheese. In the UK, the Reference Nutrient Intake (RNI) of calcium for adults is 700mg per day, and to achieve this The Dairy Council recommends 200ml of milk, 150g of low-fat yogurt or 30g (matchbox size) of hard cheese.

Unfortunately, 1 in 5 men and 2 in 5 women in the UK are failing to meet the recommended daily intake for calcium of 700mg/day.

From: <http://www.milk.co.uk/page.aspx?intPageID=316>



Regulatory News

Canada declares BPA toxic

Canada has become the first country to officially classify bisphenol A (BPA) as a toxic substance. The Canadian government issued a toxic classification for BPA, a chemical used in many food packaging materials and household items. A ban on use of BPA in plastic baby bottles is in the works.

“Many Canadians ... have expressed their concern to me about the risks of bisphenol A in baby bottles,” said Environment Minister John Baird. “Today’s confirmation of our ban on BPA in baby bottles proves that our government did the right thing in taking action to protect the health and environment for all Canadians.”

<http://www.msnbc.msn.com/id/27266627/>

Chinese melamine scare moves to eggs

Some Chinese grocery stores such as Wal-Mart removed some eggs from store shelves after tests in Hong Kong detected melamine, the toxic chemical that has sickened thousands of babies.

Wal-Mart stores in China pulled the Select brand of eggs produced by China's Dalian Hanwei Enterprise Group. The company has issued a recall for the eggs.

Discovering melamine, a plasticizer that has been found in powdered infant formula and other products containing milk-based ingredients from China, in eggs raises concerns about how far the contamination has penetrated China's food chain. In Hong Kong, tests found melamine in eggs at nearly twice the legal limit for food. Based on these findings, Hong Kong officials have decided to begin testing Chinese meat imports as well.

<http://www.msnbc.msn.com/id/27421692/>

Foodmakers come up with 'Smart Choice' label to denote healthier fare

By Mike Hughlett

October 24, 2008

Several of the nation's biggest food makers, including Northfield-based Kraft Foods, have created a common nutrition label that will be featured on the packaging of their products. The label, which was developed with the input of academic nutritionists, is aimed at helping consumers make sense of the competing claims made by individual companies, a jumble that has been criticized by nutrition labeling watchdogs. The label, dubbed "Smart Choices," will be featured on products made by General Mills, Unilever, Coca-Cola, Pepsico, Kellogg and Con-Agra, as well as Kraft. Wal-Mart, the nation's leading grocery retailer, also played a role in developing the program, though the label will be carried on products sold at all grocery stores.

The Smart Choice label, which will begin appearing on products in mid-2009, is aimed at providing easy-to-understand, at-a-glance guidance, the companies said in a press release. To qualify for the Smart Choice label, products cannot exceed certain levels of fat, cholesterol, sugar and sodium. In addition, they for the most part must provide such positive nutrients as calcium, fiber and vitamin C; or be in healthy food groups, such as fruits and vegetables and low-fat dairy. Products with the Smart Choice label will also have a front-of-the-package display of calories per-serving the number of servings per container.

The companies plan to formally roll out the program Monday at a conference of the American Dietetic Association in Chicago.

<http://archives.chicagotribune.com/2008/oct/24/business/chi-smart-choice-food-label-oct24>

FDA announces food additives permitted in animal feed and drinking water

The U.S. Food and Drug Administration amended the regulations for food additives permitted in feed and drinking water of animals to provide for the safe use of methyl esters of conjugated linoleic acid (cis-9, trans-11 and trans-10, cis-12 octadecadienoic acids) as a source of fatty acids in swine diets.

This action is in response to a food additive petition filed by BASF Corp. The rule is effective October 29, 2008. Written or electronic objections and requests for a hearing must be submitted by December 29, 2008.

<http://edocket.access.gpo.gov/2008/E8-25719.htm>

China promises to improve food safety

China's Premier Wen Jiabao pledged that the country will take steps to improve its food safety system by introducing China's first major food safety law.

The official said the recent melamine-tainted milk scandal represented a failure of regulation. The country is committed to meeting international standards for all its food exports, he said.

"Food involves a full process from the farmland to the table. It involves many links and many processes," he said, speaking at the Asia-Europe Meeting summit in Beijing. "In every link and every process, we need to put in place effective and powerful regulatory measures."

State television also showed authorities destroying 32,200 tons of contaminated products. About a third of the products burned consisted of infant formula made by Shijiazhuang Sanlu Group, whose products were the most heavily tainted. Four babies have died and thousands were sickened by the products.

With the recent discovery of melamine in eggs, the Associated Press is also reporting that since the chemical is often added to animal feed in China, it may already be in the global food chain. But experts say the levels are likely low enough to pose no risk to humans.

<http://www.washingtonpost.com/wp-dyn/content/article/2008/10/25/AR2008102502093.html>

Jacobina Biscuits recalled due to melamine

Everlasting Distributors Inc. recalled its 3.88 oz (110 g) packages of Fresh and Crispy Jacobina Biscuits because the product may be contaminated with melamine.

The product was distributed nationwide in Asian grocery stores and comes in a blue and red clear plastic packaging labeled "JACOBINA." No illnesses associated with this product have been reported to date.

The recall was initiated after FDA testing discovered that product contained melamine.

http://www.fda.gov/oc/po/firmrecalls/everlasting10_08.html

EFSA releases labeling decision on plant stanol esters

The European Food Safety Authority's Panel on Dietetic Products, Nutrition and Allergies released an opinion stating that there is evidence that the risk of coronary heart disease can be decreased by cholesterol-lowering therapy including dietary intervention strategies.

The Panel determined that products that contain added plant stanol esters should be consumed only by people who need and want to lower their blood cholesterol. Patients on cholesterol-lowering medication should only consume the products under medical supervision.

The panel also approved specific label wording, which it felt reflected the available scientific evidence—"Plant stanol esters have been shown to lower/reduce blood cholesterol. Blood cholesterol lowering may reduce the risk of coronary heart disease."

http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1211902157684.htm

Philadelphia to require nutrition menu labeling

Philadelphia has become the latest U.S. city to require food establishments to list calories on their menus.

Philly joins New York and Los Angeles in its move to make caloric information available to restaurant patrons. The city council approved an ordinance that requires food establishments with 15 or more outlets to list the total number of calories, saturated fat, *trans* fat, carbohydrates and sodium in foods and beverages for sale.

Restaurants that fall under the ordinance must comply by January 1, 2010.

[http://www.philly.com/philly/news/breaking/20081106 Philadelphia to require menu labeling.html](http://www.philly.com/philly/news/breaking/20081106_Philadelphia_to_require_menu_labeling.html)

UK food agency advises pregnant women to limit caffeine

The United Kingdom's Food Standard's Agency (FSA) is advising pregnant women to limit caffeine intake to 200 mg a day.

The new guidelines are in response to a recent study that linked caffeine consumption while pregnant to low-birth weight. The FSA had previously advised expectant women not to exceed 300 mg of caffeine. One cup of instant coffee contains about 100 mg of caffeine, with filtered coffee containing about 140 mg per cup.

"This new advice doesn't mean that pregnant women have to cut out caffeine completely, simply that they should be careful and make sure they don't have too much," said Andrew Wadge, FSA chief scientist. "We would emphasize that the risks are likely to be very small and believe our new advice, which is based on new research and has been considered by leading independent scientists, is sensible and proportionate."

<http://www.food.gov.uk/news/pressreleases/2008/nov/caffeineadvice>

First EU-Funded Research Programme on Nutrition Labelling Launched

Nov 25, 2008-Nutrition labelling may be a quick guide to inform consumers about the nutrition content of different products, yet current use and actual effects on shopping basket composition remain largely unknown.

25/11/08 FLABEL (FOOD LABELLING TO ADVANCE BETTER EDUCATION FOR LIFE), the first EU-funded research programme on nutrition labeling has been officially launched. This 3-year EU 7th Framework small collaborative FLABEL project, will provide state-of-the-art science on nutrition labels and consumer behaviour as well as best practice guidelines for future research, industry and policy-makers.

In response to the prevalence of diet-related diseases, governments and food companies increasingly promote nutrition information on food labels to help the consumer make healthy, informed food choices. Nutrition labelling may be a quick guide to inform consumers about the nutrition content of different products, yet current use and actual effects on shopping basket composition remain largely unknown. Additionally, the different formats already in place (Nutrition table, Traffic Light scheme, Guideline Daily Amounts (GDA), Health Logos etc.) may stimulate different behaviours.

To thoroughly address the potential of food labelling as a useful source of nutrition information, FLABEL will fully examine the aspects that lead from label availability to effects on dietary intake.

Comprised of 12 partners from 8 countries, ranging from academic experts, retailers, SME-representatives to not-for-profit organisations, the FLABEL research consortium is well placed to provide key insights on the role that nutrition information on food labels plays.

FLABEL has two key research objectives:

1. To determine how nutrition information on food labels can affect dietary choices, consumer habits and food-related health issues by researching both the label and other factors/influences.
2. To provide the scientific basis on use of nutrition information on food labels, including scientific principles for assessing the impact of different food labelling schemes, to be shared with the EU institutions, the food industry, especially SMEs, and other stakeholders.

Amongst the many research findings, the consortium will achieve the following:

- An EU-wide map of nutrition information on food labels, showing to what extent nutrition labelling is currently available in all EU countries.

- Knowledge on:

 - o how consumers actually become aware of and read the food labels,

 - o which labels are most appealing and informative, and

 - o how to best strike a balance between simple and complete nutrition information, facilitating an informed choice.

- Information on actual nutrition label use in the “real world”. This will be based on in-store observations and retail scanner data, leading to solid insights into how nutrition labels may shape behaviour and affect consumption patterns.

- Evidence on how consumers form opinions about the healthiness of products, and how the nutrition label information interacts with other information in this process, including media, advertising and school education.

- Evidence on how nutrition labels can be used to positively influence children’s dietary intake, based on the role nutrition information on food labels plays in food decision-making in families with children.

- Research-based best practice proposal for nutrition labelling, tested in a real-world store environment.

- Set of best practice methods for assessing the impact of nutrition labelling on consumer’s product choice.

www.flabel.org