



The Vitamin & Herb Stores

Human Technology Research Synopsis

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Compiled By Ralph Turchiano

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3. Study reveals new role of vitamin C in skin protection
4. 'Dung of the devil' plant roots point to new swine flu drugs
5. Popular stomach acid reducer triples risk of developing pneumonia

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Public release date: 1-Sep-2009

Biotransformed blueberry juice fights fat and diabetes

New study published in the International Journal of Obesity
This press release is available in French.

Montreal, September 1, 2009 – Juice extracted from North American lowbush blueberries, biotransformed with bacteria from the skin of the fruit, holds great promise as an anti-obesity and anti-diabetic agent. The study, published in the International Journal of Obesity, was conducted by researchers from the Université de Montréal, the Institut Armand-Frappier and the Université de Moncton who tested the effects of biotransformed juices compared to regular blueberry drinks on mice.

"Results of this study clearly show that biotransformed blueberry juice has strong anti-obesity and anti-diabetic potential," says senior author Pierre S. Haddad, a pharmacology professor at the Université de Montréal's Faculty of Medicine. "Biotransformed blueberry juice may represent a novel therapeutic agent, since it decreases hyperglycemia in diabetic mice and can protect young pre-diabetic mice from developing obesity and diabetes."

The scientists tested the effect of biotransformed blueberry juice on a group of mice prone to obesity, insulin resistance, diabetes and hypertension. Incorporating biotransformed blueberry juice into the water of mice reduced their food intake and their body weight. "These mice were an excellent model that closely resembles obesity and obesity-linked type 2 diabetes in humans," says Dr. Haddad, who is also director of the CIHR Team in Aboriginal Anti-Diabetic Medicines at the Université de Montréal.

Biotransformation of the blueberry juice was achieved with a new strain of bacteria isolated from the blueberry flora, specifically called *Serratia vaccinii*, which increases the fruit's antioxidant effects. "The identification of the active compounds in biotransformed blueberry juice may result in the discovery of promising new antiobesity and antidiabetic molecules," says Dr. Haddad.

As for the impact of blueberry products on diabetes, says Tri Vuong, lead author and recent PhD graduate from the Université de Montréal's Department of Pharmacology: "Consumption of fermented blueberry juice gradually and significantly reduced high blood glucose levels in diabetic mice. After three days, our mice subjects reduced their glycemia levels by 35 percent."

Public release date: 1-Sep-2009

Exercise Minimizes Weight Regain By Reducing Appetite, Burning Fat, And Lowering 'Defended' Body Weight

BETHESDA, Md. (September 2, 2009) — Exercise helps prevent weight regain after dieting by reducing appetite and by burning fat before burning carbohydrates, according to a new study with rats. Burning fat first and storing carbohydrates for use later in the day slows weight regain and may minimize overeating by signaling a feeling of fullness to the brain.

The University of Colorado Denver study also found that exercise prevents the increase in the number of fat cells that occurs during weight regain, challenging the conventional wisdom that the number of fat cells

is set and cannot be altered by dietary or lifestyle changes.

These coordinated physiological changes in the brain and the body lower the 'defended' weight, that is, the weight that our physiology drives us to achieve, and suggest that the effects of exercise on these physiological processes may make it easier to stay on a diet.

The study is "Regular exercise attenuates the metabolic drive to regain weight after long term weight loss." Paul S. MacLean, Janine A. Higgins, Holly R. Wyatt, Edward L. Melanson, Ginger C. Johnson, Matthew R. Jackman, Erin D. Giles, Ian E. Brown and James O. Hill, all of the University of Colorado Denver, conducted the study. The American Physiological Society published the research in the American Journal of Physiology – Regulatory, Integrative and Comparative Physiology.

How exercise works

Weight gain is, on the surface, remarkably simple, occurring when the calories consumed exceeds the calories expended. On closer examination, the process is remarkably complex. Laboratory animals eat according to physiological signals that may suppress appetite or arouse the desire to eat. These signals are relatively weak in humans, as their intake is largely influenced by psychological, cognitive and lifestyle factors. After dieting, however, the physiological signals emerge to play a more substantial role in controlling intake. Being persistently hungry after losing weight with restricted diets is a big part of the weight regain problem. Most people are unable to ignore this physiological cue and are pushed by their biology to overeat and regain the weight they worked so hard to lose.

Some people are successful at keeping the weight off, and those tracked by The National Weight Control Registry share a number of common characteristics, including a program of regular exercise. The aim of this investigation was to uncover how exercise affects the body's physiology to minimize weight regain.

The researchers used obesity-prone rats. For the first 16 weeks, the rats ate a high-fat diet, as much as they wanted, and remained sedentary. They were then placed on a diet. For the following two weeks, the animals ate a low-fat and low-calorie diet, losing about 14% of their body weight. The rats maintained the weight loss by dieting for eight more weeks. Half the rats exercised regularly on a treadmill during this period while the other half remained sedentary.

In the final 8-weeks, the relapse phase of the study, the rats stopped dieting and ate as much low-fat food as they wanted. The rats in the exercise group continued to exercise and the sedentary rats remained sedentary.

Compared to the sedentary rats, the exercisers:

regained less weight during the relapse period

developed a lower 'defended' body weight

burned more fat early in the day, and more carbohydrates later in the day

accumulated fewer fat cells and less abdominal fat during relapse

reduced the drive to overeat

enhanced the ability to balance energy intake with energy expended

During feeding, the sedentary group preferentially burned carbohydrates while sending fat from the diet to fat tissue. This preferential fuel use stores more calories because it requires less energy to store fat than to store carbohydrates. In addition, burning away the body's carbohydrates may contribute to the persistent feeling of hunger and large appetite of the sedentary animals.

Exercise blunted this fuel preference, favoring the burning of fat for energy needs and saving ingested carbohydrates so that they could be used later in the day. Taken together, the exercise led to a much lower appetite and fewer calories ending up in fat tissue.

The researchers also found that exercise prevented the increase in the number of fat cells observed with weight regain in sedentary rats. In sedentary rats, a population of very small, presumably new, fat cells appears early in the relapse process. Small, new fat cells would not only accelerate the process of regain, but also increase fat storage capacity in the abdomen. It would also explain why sedentary rats overshoot their previous weight when they relapse.

Conventional wisdom holds that the number of fat cells is determined by genetics, rather than being regulated by diet or lifestyle. Because this effect of exercise is a novel finding, the team will do further research to demonstrate that exercise is, indeed, preventing the formation of new fat cells early in relapse and not simply altering the size of pre-existing fat cells.

Public release date: 1-Sep-2009

Vitamin C deficiency impairs early brain development -

Guinea pigs - like humans - are dependent on getting sufficient vitamin C through their diet. Studies show that new-born guinea pigs subjected to vitamin C deficiency have a markedly worse memory than guinea pigs given enough vitamin C. Maybe this also applies to human beings?

New research at LIFE – Faculty of Life Sciences at University of Copenhagen shows that vitamin C deficiency may impair the mental development of new-born babies.

In the latest issue of the well-known scientific journal *The American Journal of Clinical Nutrition*, a group of researchers headed by professor Jens Lykkesfeldt shows that guinea pigs subjected to moderate vitamin C deficiency have 30 per cent less hippocampal neurones and markedly worse spatial memory than guinea pigs given a normal diet. Like guinea pigs, human beings are dependent on getting vitamin C through their diet, and Jens Lykkesfeldt therefore speculate that vitamin C deficiency in pregnant and breast-feeding women may also lead to impaired development in foetuses and new-born babies.

The brain retains vitamin C

Several factors indicate that the neonatal brain, in contrast to other tissue, is particularly vulnerable to even a slight lowering of the vitamin C level. The highest concentration of vitamin C is found in the neurons of the brain and in case of a low intake of vitamin C, the remaining vitamin is retained in the brain to secure this organ. The vitamin thus seems to be quite important to brain activity. Tests have shown that mouse foetuses that were not able to transport vitamin C develop severe brain damage. Brain damage which resembles the ones found in premature babies and which are linked to learning and cognitive disabilities later in life.

Vitamin C, or L-ascorbic acid, is essential for a number of bodily functions. In the adrenal glands, vitamin C is required for the production of the hormone adrenaline which the body uses in stress situations and for physical activities. Vitamin C is also necessary to form the protein collagen which is an important

constituent part of sinews, gum, cartilage and bones. Vitamin C is also vital to the immune system. Humans and guinea pigs are among the few mammals that cannot produce vitamin C themselves but are entirely dependent on having it supplied through their diet.

Widespread vitamin C deficiency

In some areas in the world, vitamin C deficiency is very common – population studies in Brazil and Mexico have shown that 30 to 40 per cent of the pregnant women have too low levels of vitamin C, and the low level is also found in their fetuses and new-born babies. It is not yet known to what extent new-born babies in Denmark or the Western World suffer from vitamin C deficiency but a conservative estimate would be 5 to 10 per cent based on the occurrence among adults.

“We may thus be witnessing that children get learning disabilities because they have not gotten enough vitamin C in their early life. This is unbearable when it would be so easy to prevent this deficiency by giving a vitamin supplement to high-risk pregnant women and new mothers” says Jens Lykkesfeldt whose research group is currently studying how early in pregnancy vitamin C deficiency affects the embryonic development of guinea pigs and whether the damage may be reversed after birth.

Read more in the scientific article Vitamin C deficiency in early postnatal life impairs spatial memory and reduces the number of hippocampal neurons in guinea pigs in the online edition of American Journal of Clinical Nutrition.

Public release date: 2-Sep-2009

UAB Researchers Find Possible Use for Kudzu, the Vine That Ate the South

- Kudzu is potential dietary supplement
- Southeastern nuisance vine may lower blood sugar, blood pressure, cholesterol
- Long used as herbal medicine in Asia

BIRMINGHAM, Ala. - Kudzu, the fast-growing vine that has gobbled up some 10 million acres in the Southeast, may prove to be a valuable dietary supplement for metabolic syndrome, a condition that affects 50 million Americans, say researchers at the University of Alabama at Birmingham (UAB).

In findings published in the latest Journal of Agriculture and Food Chemistry, the researchers say studies on animal models showed that substances called isoflavones found in kudzu root improved regulation of contributors to metabolic syndrome, including blood pressure, high cholesterol and blood glucose. One particular isoflavone, called puerarin and found only in kudzu, seems to be the one with the greatest beneficial effect.

"Our findings showed that puerarin helps to lower blood pressure and blood cholesterol," said J. Michael Wyss, Ph.D., a professor of in the UAB Department of Cell Biology and lead author on the study. "But perhaps the greatest effect we found was in its ability to regulate glucose, or sugar, in the blood."

An excessive amount of glucose in the blood is linked to both diabetes and obesity. Wyss says puerarin seems to regulate glucose by steering it to places where it is beneficial, such as muscles, and away from fat cells and blood vessels.

Wyss and colleagues added a small amount of kudzu root extract to the diets of lab rats for about two

months. Compared to a control group that did not get the extract, the rats had lower cholesterol, blood pressure, blood sugar and insulin levels. No side-effects were noted.

"We need to better understand the mechanism by which kudzu root has these effects and then conduct human trials before we can recommend it as a supplement," Wyss said. "We also need a better understanding of who would most benefit. Is this something that children should take or perhaps those at risk for stroke or heart disease?"

"Puerarin, or kudzu root, may prove to be a strong complement to existing medications for insulin regulation or blood pressure, for example," said Jeevan Prasain, Ph.D., an assistant professor in the UAB Department of Pharmacology and Toxicology and a study co-author. "Physicians may be able to lower dosages of such drugs, making them more tolerable and cheaper."

Kudzu has long been used as a dietary supplement in Asian countries, most commonly as a tea or a powder. The climate of the American Southeast is ideal for kudzu, which is native to China and Japan and was brought to the United States in the 1930s for erosion control. Kudzu vines can grow as much as a foot per day during the summer and can overwhelm trees, power poles and buildings if left unchecked.

This research was supported by the National Center for Complementary and Alternative Medicine and the Office of Dietary Supplement Grants, parts of the National Institutes of Health. Collaboration came from the UAB departments of Cell Biology and Pharmacology and Toxicology, the Purdue-UAB Botanicals Center and the Department of Biology, Luther College, Decorah, Iowa.

Public release date: 3-Sep-2009

Was the public health response to swine flu alarmist?

The public health measures taken in response to swine flu may be seen as alarmist, overly restrictive, or even unjustified, says a US expert in a paper published on bmj.com today. The public health measures taken in response to swine flu may be seen as alarmist, overly restrictive, or even unjustified, says a US expert in a paper published on bmj.com today.

Peter Doshi, a doctoral student at the Massachusetts Institute of Technology, argues that our plans for pandemics need to take into account more than the worst case scenarios, and calls for a new framework for thinking about epidemic disease.

Over the past four years, pandemic preparations have focused on responding to worst case scenarios. As a result, we responded to the H1N1 outbreak as an unfolding disaster. Some countries erected port of entry quarantines. Others advised against non-essential travel to affected areas and some closed schools and businesses.

Pandemic A/H1N1 is significantly different than the pandemic that was predicted, says Doshi. Pandemic A/H1N1 virus is not a new subtype but the same subtype as seasonal H1N1 that has been circulating since 1977. Furthermore, a substantial portion of the population may have immunity.

Actions in response to the early H1N1 outbreak were taken in an environment of high public attention and low scientific certainty, he argues. The sudden emphasis on laboratory testing for H1N1 in the first weeks of the outbreak helped to amplify the perceived risk.

He also points out that, since the emergence of A/H1N1, the World Health Organisation has revised its definition of pandemic flu.

The wisdom of many of these responses to pandemic A/H1N1 will undoubtedly be debated in the future, he writes. What the early response to the pandemic has shown, however, is that the public health response to, as well as impact and social experience of a pandemic, is heavily influenced by longstanding planning

assumptions about the nature of pandemics as disaster scenarios.

If the 2009 influenza pandemic turns severe, early and enhanced surveillance may prove to have bought critical time to prepare a vaccine that could reduce morbidity and mortality, says Doshi. But if this pandemic does not increase in severity, it may signal the need to reassess both the risk assessment and risk management strategies towards emerging infectious diseases.

He suggests that future responses to infectious diseases may benefit from a risk assessment that broadly conceives of four types of threat based on the disease's distribution and clinical severity.

For example, the 1918 pandemic was a type 1 epidemic (severe disease affecting many people), while SARS was a type 2 epidemic (infecting few, mostly severe disease), and the H1N1 pandemic may prove to be type 3 (affecting many, mostly mild).

Public health responses not calibrated to the threat may be perceived as alarmist, eroding the public trust and resulting in the public ignoring important warnings when serious epidemics do occur, he warns.

The success of public health strategies today depends as much on technical expertise as it does on media relations and communications. Strategies that anticipate only type 1 epidemics carry the risk of doing more harm than they prevent when epidemiologically limited or clinically mild epidemics or pandemics occur, he concludes.

Public release date: 3-Sep-2009

People with type 2 diabetes not meeting important nutritional recommendations

WINSTON-SALEM, N.C. – People with type 2 diabetes are not consuming sufficiently healthy diets and could benefit from ongoing nutritional education and counseling, according to a new study by researchers at Wake Forest University School of Medicine and colleagues.

The study appears in the August issue of the Journal of the American Dietetic Association.

"The most important thing about controlling diabetes, especially type 2 diabetes, is being able to manage energy in and energy out, and the best way to do that is through the diet," said Mara Z. Vitolins, Dr.P.H., M.P.H., R.D., lead author on the study and an associate professor in the department of epidemiology and prevention, part of the School of Medicine's Division of Public Health Sciences.

The study was done to see what people with type 2 diabetes were eating to make them overweight, Vitolins said. The results were surprising, she added, because researchers found that a majority of the group was not meeting food intake recommendations outlined in national dietary guidelines.

"I thought we were going to find people who, because they have a chronic disease, were more educated about and more motivated than the average American to eat healthy, but that's not the case," she said.

For the study, researchers used a detailed survey to assess the regular food consumption of 2,757 people with type 2 diabetes as they entered into a national study evaluating the effects of a lifestyle intervention, involving weight loss and physical activity, on cardiovascular disease. The goal was to find out what the participants were eating on a regular basis that led them to being overweight before any intervention.

The study showed that 93 percent of participants exceeded the recommended percentage of daily calories from fat, 85 percent exceeded the saturated fat recommendation and 92 percent consumed too much sodium in their regular diets. Additionally, less than half of the participants met the minimum recommended daily servings of fruits, vegetables, dairy products and grains based on the year 2000 version of the Food Guide Pyramid recommendations. Intake of diets rich in fruits and vegetables have been shown to prevent heart disease, the leading cause of death in people with type 2 diabetes.

"The way that the 2000 food guide pyramid was set up is really clever," Vitolins said. "It was meant to be a visual reminder that if you take out one of the blocks, or food groups – if you're missing any of the bricks – the pyramid collapses. It just crumbles. It's important that people with type 2 diabetes follow the recommendations. They can't afford to let their pyramids fall."

Only a limited number of participants met nutrient intake recommendations for total fat, saturated fat, sodium and fiber. Overall, the participants consumed a diet that provided approximately 44 percent of calories from carbohydrates, 40 percent from fat and 17 percent from protein.

Optimizing control of blood sugar, lipids, blood pressure and weight in people with type 2 diabetes is essential to reduce the risk for long-term complications and chronic disease, including cardiovascular disease. Consuming a low-saturated fat, high-fiber diet that includes high quality, nutrient-dense foods can aid in achieving and maintaining that type of metabolic control. Evidence-based nutrition principles and recommendations, as well as national guidelines, have been established to help inform and educate the public on healthy eating practices. Still, the study showed that these participants fell short of consuming foods that would help them meet those guidelines.

"It would seem likely that participants who had managed diabetes over a greater length of time would be more likely to understand the importance of consuming a healthful diet, but this was not supported by the data," the researchers wrote.

"The findings clearly illustrate a need to provide ongoing nutrition education for people with diabetes regardless of the amount of time they've had the disease," Vitolins said. "We can't continue to assume that people know how to follow an eating pattern that is healthy if they have type 2 diabetes. These people have, within their cupboards and refrigerators, the potential to really manage their diabetes well. Day to day, the foods they are eating should be considered a vital part of their treatment."

Additionally, Vitolins added, research efforts are needed to better understand the types of barriers that overweight people with type 2 diabetes face in their attempts to consume a healthy diet.

Public release date: 4-Sep-2009

Anticancer compound found in American may apple

Mayapple shows potential as cash crop in US

VERONA, MS—A common weed called American mayapple may soon offer an alternative to an Asian cousin that's been harvested almost to extinction because of its anti-cancer properties. The near-extinct Asian plant, *Podophyllum emodi*, produces podophyllotoxin, a compound used in manufacturing etoposide, the active ingredient in a drug used for treating lung and testicular cancer. *Podophyllum emodi* is a cousin of the common mayapple weed found in the United States.

Podophyllotoxin is found in Indian mayapple (*Podophyllum emodii* Wall.), American mayapple (*Podophyllum peltatum* L.), and other species. Podophyllotoxin and its derivatives are used in several commercially available pharmaceutical products such as the anticancer drugs etoposide, teniposide, and etopophos, which are used in the treatment of small-cell lung cancer, lymphoblastic leukemia, testicular cancer, and brain tumors. Podophyllotoxin derivatives are also used for the treatment of psoriasis and malaria, and some are being tested for the treatment of rheumatoid arthritis. Currently, podophyllotoxin is produced commercially using the roots and rhizomes of Indian mayapple, an endangered species harvested from the wild in India, Pakistan, Nepal, and China.

Researchers at Mississippi State University and the University of Mississippi recently set out to identify American mayapple types with high podophyllotoxin content. Valtcho D. Zheljzkov and colleagues at Mississippi State University published the research results in *HortScience*. According to Zheljzkov; "The objective of this study was to estimate podophyllotoxin concentration in American mayapple across its natural habitats in the eastern United States and to identify high podophyllotoxin types that could be used for further selection and cultivar development."

Mayapple has long been grown as a cash crop in Europe and Russia, but has never been introduced or domesticated in the United States, although the idea was suggested by researchers more than 30 years ago. Previous research demonstrated that American mayapple leaves contain podophyllotoxin, making way for the development of American mayapple as a high-value crop for American growers. Zheljzkov explained that, until now, there has been no comprehensive study on the genetic resources of American mayapple colonies across the United States. "We hypothesized that there might be great variation with respect to podophyllotoxin content within American mayapple across the eastern United States."

The researchers studied the effect of location, plant nutrient concentration, and phytoavailable nutrients in soil on podophyllotoxin concentration in American mayapple across its natural habitats in the eastern United States. The study was the largest of its kind ever conducted; American mayapple leaves were collected from 37 mayapple colonies across 18 states.

This groundbreaking study confirmed that mayapple colonies in the eastern part of the United States can be used for the development of high podophyllotoxin cultivars, which could subsequently provide the base for commercial production of podophyllotoxin in the United States. The results from this study will help to develop a Geographic Information System (GIS) map of the genetic resources of American mayapple in the U.S.

Public release date: 6-Sep-2009

How manuka honey helps fight infection

Manuka honey may kill bacteria by destroying key bacterial proteins. Dr Rowena Jenkins and colleagues from the University of Wales Institute - Cardiff investigated the mechanisms of manuka honey action and found that its anti-bacterial properties were not due solely to the sugars present in the honey. The work was presented this week (7-10 September), at the Society for General Microbiology's meeting at Heriot-Watt University, Edinburgh.

Meticillin resistant *Staphylococcus aureus* (MRSA) was grown in the laboratory and treated with and without manuka honey for four hours. The experiment was repeated with sugar syrup to determine if the effects seen were due to sugar content in honey alone. The bacterial cells were then broken and the proteins isolated and separated on a system that displayed each protein as an individual spot. Many fewer proteins were seen from the manuka honey-treated MRSA cells and one particular protein, FabI, seemed to be completely missing. FabI is a protein that is needed for fatty acid biosynthesis. This essential process supplies the bacteria with precursors for important cellular components such as lipopolysaccharides and its cell wall. The absence of these proteins in honey-treated cells could help explain the mode of action of manuka honey in killing MRSA.

"Manuka and other honeys have been known to have wound healing and anti-bacterial properties for some time," said Dr Jenkins, "But the way in which they act is still not known. If we can discover exactly how manuka honey inhibits MRSA it could be used more frequently as a first-line treatment for infections with bacteria that are resistant to many currently available antibiotics".

Public release date: 8-Sep-2009

Houseplants cut indoor ozone

Common plants could prove cost-effective alternatives for reducing ozone in offices, homes

UNIVERSITY PARK, PA—Ozone, the main component of air pollution, or smog, is a highly reactive, colorless gas formed when oxygen reacts with other chemicals. Although ozone pollution is most often associated with outdoor air, the gas also infiltrates indoor environments like homes and offices. Ozone can be released by ordinary copy machines, laser printers, ultraviolet lights, and some electrostatic air purification systems, all of which contribute to increased indoor ozone levels. Topping the extensive list of toxic effects of ozone on humans are pulmonary edema, hemorrhage, inflammation, and reduction of lung function.

Because people in industrialized countries spend as much of 80% to 90% of their time indoors, indoor air pollution has been ranked as one of the world's greatest public health risks. **The United Nations Development Program estimated (1998) that more than two million people die each year due to the presence of toxic indoor air, while other studies estimate that 14 times as many deaths occur globally from poor indoor air quality compared with outdoor air pollution.** The economic consequences of polluted indoor air can't be ignored either; one Australian study estimated that the cost of unhealthy indoor air in that country exceeds \$12 billion annually, measured in losses of worker productivity, higher medical costs, and increased absenteeism.

As indoor air pollution poses new concerns worldwide, cost effective and easy-to-implement methods are needed to eliminate or reduce ozone concentrations. Activated charcoal filters reduce air pollutants, but installation and maintenance costs can be high. Now, researchers are investigating alternatives—including the use of common houseplants—to improve indoor air quality and health.

A research team from the Pennsylvania State University published the results of a new study of the effects of three common houseplants on indoor ozone levels in a recent issue of the *American Society of*

Horticultural Science's journal HortTechnology. The scientists chose snake plant, spider plant, and golden pothos for the experiment because of the plants' popularity (primarily due to their low cost, low maintenance, and rich foliage) and their reported ability to reduce other indoor air pollutants. The plants were studied to determine their effectiveness in reducing ozone concentrations in a simulated indoor environment.

To simulate an indoor environment, the researchers set up chambers in a greenhouse equipped with a charcoal filtration air supply system in which ozone concentrations could be measured and regulated. Ozone was then injected into the chambers, and the chambers were checked every 5 to 6 minutes. The data revealed that ozone depletion rates were higher in the chambers that contained plants than in the control chambers without plants, but there were no differences in effectiveness among the three plants.

"Because indoor air pollution extensively affects developing countries, using plants as a mitigation method could serve as a cost-effective tool in the developing world where expensive pollution mitigation technology may not be economically feasible", concluded the authors.

Public release date: 8-Sep-2009

High fruit and vegetable intake positively correlated with antioxidant status, cognitive performance

Study of healthy subjects

Amsterdam, September 8, 2009 – Researchers at the Institute of Biochemistry and Molecular Biology I of the Heinrich-Heine University, Düsseldorf, Germany, investigated the relationship between fruit and vegetable intake, plasma antioxidant micronutrient status and cognitive performance in healthy subjects aged 45 to 102 years. Their results, published in the August issue of the Journal of Alzheimer's Disease, indicated higher cognitive performance in individuals with high daily intake of fruits and vegetables.

Subjects with a high daily intake (about 400 g) of fruits and vegetables had higher antioxidant levels, lower indicators of free radical-induced damage against lipids as well as better cognitive performance compared to healthy subjects of any age consuming low amounts (< 100 g/day) of fruits and vegetables. Modification of nutritional habits aimed at increasing intake of fruits and vegetables, therefore, should be encouraged to lower the prevalence of cognitive impairment.

The work was performed in collaboration with the Department of Pharmacology at Temple University in Philadelphia, Pennsylvania, the Department of Geriatrics at Perugia University, Italy, and the Department of Neurology of the St. Elisabeth Hospital in Cologne, Germany.

Dr. M. Cristina Polidori, currently at the Department of Geriatrics, Marienhospital Herne, Ruhr-University of Bochum, Germany, explains: "It is known that there is a strong association between fruit and vegetable intake and the natural antioxidant defenses of the body against free radicals. It is also known that bad nutritional habits increase the risk of developing cognitive impairment with and without dementia. With this work we show a multiple link between fruit and vegetable intake, antioxidant defenses and cognitive

performance, in the absence of disease and independent of age. Among other lifestyle habits, it is recommended to improve nutrition in general and fruit and vegetable intake in particular at any age, beginning as early as possible. This may increase our chances to remain free of dementia in advanced age."

These findings are independent of age, gender, body mass index, level of education, lipid profile and albumin levels, all factors able to influence cognitive and antioxidant status. The relevance of the findings is also strengthened by the large sample that included 193 healthy subjects.

Further studies are planned that will include larger subject cohorts, patients with Alzheimer's disease at different stages and patients with mild cognitive impairment without dementia.

Public release date: 9-Sep-2009

75 percent would consider letting an unsupervised trainee perform surgery if it could be done quicker

Three-quarters of surgical patients would consider allowing a competent unsupervised trainee junior doctor perform their entire operation if it meant they could have it done more quickly, according to a survey published in the September issue of BJUI.

The responses were high regardless of how complex the surgery was, with 80 per cent of those facing minor surgery and 68 per cent of those facing major surgery saying they would consider the suggestion.

Eighty patients took part in the survey at the John Radcliffe Hospital in Oxford, UK, after a hundred questionnaires were distributed to patients who had just undergone urological surgery. Just under two-thirds (65 per cent) were men, their average age was 69 and 42.5 per cent were in for major surgery.

"We were surprised by the results, as only 50 per cent of patients felt it was appropriate in general for trainees - even those just about to take up a consultant post - to operate unsupervised and this figure went down to 10 per cent when it came to their own operation" says specialist trainee Mr Robert Ritchie.

"But when waiting times were factored into the equation, it became very clear that patients were prepared to rethink their views if it meant having their operation more quickly."

Most of the respondents (90 per cent) felt that trainees needed to operate under supervision to improve their skills and 77 per cent were happy for a supervised trainee to do their operation. The majority (96 per cent) felt they should be told if a trainee was involved in their procedure.

"The opportunity to learn, repeat and perfect surgical skills is an essential component of any surgical training programme and allowing trainee surgeons to operate on patients is important" says Mr Ritchie.

"However, surgical training often fails to take into account individual patients and their right to know who is doing their operation. National Health Service consent forms currently state that the hospital cannot say who will be performing the operation, only that the surgeon will be competent to perform the procedure.

"This can be at odds with informed consent, which under common law requires that patients should be provided with clear and accurate information about the risks of any proposed investigation or treatment.

"It also appears to be at odds with General Medical Council (GMC) Guidelines. These say that surgeons must tell patients who will be mainly responsible for their care and what their roles are. They also state that the surgeon must make sure that the patient agrees to the participation of other professionals in their operation."

Mr Ritchie and his co-author, consultant urologist Mr John Reynard, are calling for a fundamental change in the level of information provided to patients about the identity of the surgeon carrying out their operation, to bring practice in line with this GMC guidance.

"Whether informing patients that trainees will be involved in their operation will lead to a reduction in training opportunities is unclear" says Mr Reynard.

"A study of orthopaedic patients published in 2004 showed that 74 per cent were happy for a trainee to perform all or part of their procedure, but a 2005 study of cataract patients showed that only 16 per cent agreed to go ahead if a supervised trainee was directly involved."

The authors say that it is reassuring that patients understand the need for junior doctors to perform procedures as part of their training. But they also feel that it is important to try and address the issues around consent, without this resulting in a loss of training opportunities.

"The results of our study create a challenge for the consultant who has to balance his or her role as a trainer with the responsibility for overall care of the patient" adds Mr Reynard.

"We recommend that both the trainer and trainee see patients before surgery and take the opportunity to explain their respective roles in the operating theatre. It is a good time to stress how important training is in ensuring that high standards of surgical care and operative skills are maintained for present and future generations.

"It is also clearly time for consultant surgeons who allow unsupervised trainees to operate to reappraise this practice."

Ralph's Note: Which goes to show 80% of all statistics are made up on the spot....Yay, can't wait for socialized medicine...Med school will be just a 6 month mail order course by then. Plenty of doctors to go around by then. Of course this will be done after the medical malpractice suits are capped.

Public release date: 9-Sep-2009

Study reveals new role of vitamin C in skin protection

Results will be of great relevance to the cosmetics industry

Scientists have uncovered a new role played by Vitamin C in protecting the skin.

Researchers at the University of Leicester and Institute for Molecular and Cellular Biology in Portugal studied new protective properties of vitamin C in cells from the human skin, which could lead to better skin regeneration.

The work, by Tiago Duarte, Marcus S. Cooke and G. Don Jones, found that a form of Vitamin C helped to promote wound healing and also helped protect the DNA damage of skin cells. Their findings have been published in the journal Free Radical Biology and

Medicine. This report is the latest in a long line of publications from these researchers, at the University of Leicester, concerning vitamin C. Previously, the group has published evidence that DNA repair is upregulated in people consuming vitamin C supplements. The researchers have now provided some mechanistic evidence for this, in cell culture, using techniques such as Affymetrix microarray, for looking at gene expression, and the 'Comet' assay to study DNA damage and repair.

Tiago Duarte, formerly of the University of Leicester, and now at the Institute for Molecular and Cellular Biology in Portugal, said: "The exposure to solar ultraviolet radiation increases in summer, often resulting in a higher incidence of skin lesions. Ultraviolet radiation is also a genotoxic agent responsible for skin cancer, through the formation of free radicals and DNA damage.

"Our study analysed the effect of sustained exposure to a vitamin C derivative, ascorbic acid 2-phosphate (AA2P), in human dermal fibroblasts. We investigated which genes are activated by vitamin C in these cells, which are responsible for skin regeneration.

"The results demonstrated that vitamin C may improve wound healing by stimulating quiescent fibroblasts to divide and by promoting their migration into the wounded area. Vitamin C could also protect the skin by increasing the capacity of fibroblasts to repair potentially mutagenic DNA lesions."

Even though vitamin C was discovered over 70 years ago as the agent that prevents scurvy, its properties are still under much debate in the scientific community. In fact, the annual meeting of the International Society for Free Radical Biology and Medicine, which will be held this year in San Francisco (USA), will feature a session dedicated to vitamin C, entitled "New discoveries for an old vitamin".

Dr Marcus S. Cooke from the Department of Cancer Studies and Molecular Medicine and Department of Genetics, at the University of Leicester, added: "The study indicates a mechanism by which vitamin C could contribute to the maintenance of a healthy skin by promoting wound healing and by protecting cellular DNA against damage caused by oxidation". "These findings are particular importance to our photobiology interests, and we will certainly be looking into this further".

These results will be of great relevance to the cosmetics industry. Free radicals are associated with premature skin aging, and antioxidants, such as vitamin C, are known to counter these highly damaging compounds. This new evidence suggest that, in addition to 'mopping up' free radicals, vitamin C can help remove the DNA damage they form, if they get past the cell's defences.

The study has the potential to lead to advances in the prevention and treatment of skin lesions specifically, as well as contributing to the fight against cancer.

Public release date: 9-Sep-2009

Regular aerobic exercise reduces health concerns associated with fatty liver

Benefits are not dependent on weight loss

Researchers from the University of Sydney, Australia determined that patients with a sedentary lifestyle who engage in routine physical activities lower their risk of nonalcoholic fatty liver disease (NAFLD). The lower risk of problems associated with fatty liver was not contingent upon weight loss, but a direct result from the increased aerobic exercise. The results of this study are published in the October issue of *Hepatology*, a journal of the American Association for the Study of Liver Diseases.

Nonalcoholic fatty liver disease affects 30% of the adult population and the majority of obese individuals. The condition, where fat accumulates in the liver of those people who drink little or no alcohol, can cause inflammation or scarring of the liver with more serious cases, known as nonalcoholic steatohepatitis, possibly progressing to liver failure.

A study, led by Jacob George, M.D. from Westmead Hospital at the University of Sydney, included 19 obese adults who had a body mass index >30 kg/m² and reported a sedentary lifestyle. Baseline measurements were performed to determine hepatic triglyceride concentration (HTGC) and hepatic lipid saturation index (SI), intramyocellular triglyceride (IMTG) levels, visceral adipose tissue (VAT) or amount of fat stores in the abdomen, cardiorespiratory fitness, blood biochemistry, and measurements for body height and weight. Volunteers either received 4 weeks of aerobic cycling exercise (12 subjects) or a placebo (7 participants), which involved regular stretching.

At the end of the 4-week period, measurements were again taken from each participant. Body weight and body mass index (BMI) remained unchanged, but cardiorespiratory fitness significantly improved in the exercise group versus placebo. **Researchers noted a 21% reduction of HTGC and 12% VAT volume in those participants who were subject to regular exercise.** "Our data provides the first direct experimental evidence that regular aerobic exercise reduces fatty liver in obesity without concurrent changes in body weight or abdominal fat," explained researchers.

Individuals who are obese are at risk for a number of cardiovascular and metabolic health concerns, including heart disease and diabetes. "Our observation of the beneficial effect of regular exercise itself on liver and abdominal fat should refocus the debate on the role of physical activity in the prevention and management of obesity and NAFLD," concluded Dr. George. Past studies have shown that exercise adherence appears to be more sustainable over time than weight loss. "Further studies of the long-term benefit of routine physical activity on lowering HTGC and its impact on obesity and NAFLD should be explored," suggested Dr. George.

Ralph's Note: To all those who say Exercise is not useful, just go away. You guys are really killing people.

Public release date: 9-Sep-2009

'Dung of the devil' plant roots point to new swine flu drugs

Scientists in China have discovered that roots of a plant used a century ago during the great Spanish influenza pandemic contains substances with powerful effects in laboratory experiments in killing the H1N1 swine flu virus that now threatens the world. The plant has a pleasant onion-like taste when cooked, but when raw it has sap so foul-smelling that some call it the "Dung of the Devil" plant. Their report is scheduled for the Sept. 25 issue of ACS' Journal of Natural Products, a monthly publication.

In the study, Fang-Rong Chang and Yang-Chang Wu and colleagues note that the plant, *Ferula assa-foetida*, grows mainly in Iran, Afghanistan and mainland China. People used it as a possible remedy during the 1918 Spanish flu pandemic that killed between 20 to 100 million people. Until now, however, nobody had determined whether the plant does produce natural antiviral compounds.

Chang and Wu identified a group of **chemical compounds in extracts of the plant that showed greater potency against influenza A (H1N1) than a prescription antiviral drug available for the flu.** "Overall, the present study has determined that sesquiterpene coumarins from *F. assa-foetida* may serve as promising lead components for new drug development against influenza A (H1N1) viral infection," the authors write.

Public release date: 14-Sep-2009

On-the-job pesticide exposure associated with Parkinson's disease

Individuals whose occupation involves contact with pesticides appear to have an increased risk of having Parkinson's disease, according to a report in the September issue of Archives of Neurology, one of the JAMA/Archives journals.

The development of Parkinson's disease related to chemical exposure was identified in the late 20th century, according to background information in the article. Since then, occupations such as farming, teaching and welding have all been proposed to increase the risk of Parkinson's disease. However, associations have been inconsistent and few previous studies have evaluated the direct relationship between occupational chemical exposure and disease risk.

Caroline M. Tanner, M.D., Ph.D., of the Parkinson's Institute, Sunnyvale, Calif., and colleagues studied 519 individuals with Parkinson's disease and 511 controls who were the same age and sex and lived in the same location. Participants were surveyed about their occupational history and exposure to toxins, including solvents and pesticides.

Working in agriculture, education, health care or welding was not associated with Parkinson's disease, nor was any other specific occupation studied after adjustment for

other factors.

Among the patients with Parkinson's disease, 44 (8.5 percent) reported pesticide exposure compared with 27 (5.3 percent) of controls, such that occupational pesticide exposure was associated with an increased risk of the disease. "Growing evidence suggests a causal association between pesticide use and parkinsonism. However, the term 'pesticide' is broad and includes chemicals with varied mechanisms," the authors write. "Because few investigations have identified specific pesticides, we studied eight pesticides with high neurotoxic plausibility based on laboratory findings. Use of these pesticides was associated with higher risk of parkinsonism, more than double that in those not exposed."

Three individual compounds—an organochloride (2,4-dichlorophenoxyacetic acid), an herbicide (paraquat) and an insecticide (permethrin)—were associated with a more than three-fold increased risk of Parkinson's disease. All three have been shown to have effects on dopaminergic neurons—affected by Parkinson's disease—in the laboratory.

"This convergence of epidemiologic and laboratory data from experimental models of Parkinson's disease lends credence to a causative role of certain pesticides in the neurodegenerative process," the authors conclude. "Other pesticide exposures such as hobby gardening, residential exposure, wearing treated garments or dietary intake were not assessed. Because these exposures may affect many more subjects, future attention is warranted."

Public release date: 14-Sep-2009

Antioxidant ingredient proven to relieve stress (S.O.D.)

A dietary ingredient derived from a melon rich in antioxidant **superoxide dismutase enzymes** has been shown to relieve stress. In a double-blind, randomised, placebo-controlled trial, published in BioMed Central's open access Nutrition Journal, researchers found that the supplement decreased the signs and symptoms of perceived stress and fatigue in healthy volunteers.

Marie-Anne Milesi from Seppic, France, worked with a team of researchers to evaluate its anti-stress effects in 70 volunteers. She said, "Several studies have shown that there is a link between psychological stress and intracellular oxidative stress. We wanted to test whether augmenting the body's ability to deal with oxidative species might help a person's ability to resist burnout. The 35 people in our study who received capsules containing superoxide dismutase showed improvement in several signs and symptoms of perceived stress and fatigue".

The researchers found a strong placebo effect in the volunteers who received inactive starch capsules, as can be expected when studying subjective feelings like stress. However, the improvements seen in the supplement group were significantly greater, especially after 28 days. According to Milesi, "The placebo effect was only present during the first 7 days of supplementation and not beyond. It will be interesting to

confirm these effects and better understand the action of antioxidants on stress in further studies with a larger number of volunteers and a longer duration".

Public release date: 14-Sep-2009

Green tea component may help preserve stored platelets, tissues

Tampa, Fla. (September 14th, 2009) – In two separate studies, a major component in green tea, epigallocatechin-3-O-gallate (EGCG), has been found to help prolong the preservation of both stored blood platelets and cryopreserved skin tissues. Published in the current double issue of *Cell Transplantation* (18:5/6), now freely available on-line at <http://www.ingentaconnect.com/content/cog/ct>, devoted to organ preservation and transplantation studies from Japan, the two complimentary studies have shown that EGCG, known to have strong anti-oxidative activity, can prolong platelet cell "shelf life" via anti-apoptosis (programmed cell death) properties and preserve skin tissues by controlling cell division.

Dr. Suong-Hyn Hyon, lead author on both studies and associate professor in the Institute for Frontier Medical Sciences in Kyoto, Japan, says that EGCG, a green tea polyphenol, is a known anti-oxidation and anti-proliferation agent, yet the exact mechanism by which EGCG works is not yet known. However, some of the activity of EGCG is likely to be related to its surface binding ability.

Enhanced platelet preservation

Using standard blood banking procedures, the storage duration for platelet cells (PCs) is limited to five days internationally or three days in Japan. During storage, PCs undergo biochemical, structural and functional changes, and PCs may lose membrane integrity and haemostatic functions, such as aggregability and affinity for surface receptors. Thus, PC shortages often occur. When EGCG was added to blood platelet concentrates, aggregation and coagulation functions were better-maintained after six days, perhaps due to EGCG's anti-oxidative ability. Researchers suggested that EGCG inhibited the activation of platelet functions and protected the surface proteins and lipids from oxidation.

"Functions were restored by the maintained surface molecules with the detachment of EGCG by washing," noted Dr. Hyon. "EGCG may lead to an inhibition of platelet apoptosis and lower rates of cell death, offering a potentially novel and useful method to prolong platelet storage period."

EGCG enhances life of cryopreserved skin grafts

Another team of Japanese researchers studied the effects of using EGCG on frozen, stored skin tissues. As with platelet storage, the storage of skin tissue for grafting presents problems of availability and limitations on the duration of storage.

"To provide best outcomes, skin grafts must be processed and stored in a manner that maintains their viability and structural integrity until they are needed for transplantation," explained Dr. Hyon. "Transplant dysfunction often occurs as the result of oxidation. A better storage solution could prevent this."

It is known that polyphenols in green tea promote the preservation of tissues, such as blood vessels, cornea, islet cells, articular cartilage and myocardium at room temperature. Also, it is known that EGCG has stronger anti-oxidant activities than vitamin C because of its stereochemical structure and is reported to play an important role in preventing cancer and cardiovascular diseases.

This study examined how EGCG might help extend the preservation duration of frozen rat skin tissues and found that skin grafts could be protected from freeze-thaw injuries when EGCG was absorbed into various membrane lipids and proteins. Results of the study showed that EGCG enhanced the viability and stored duration of skin grafts up to seven weeks at 4 degrees C.

"The storage time of skin grafts was extended to 24 weeks by cryopreservation using EGCG and the survival rate was almost 100 percent," noted Dr. Hyon."

"These studies highlight the benefits of using natural compounds such as EGCG to enhance the preservation of stored tissues, possibly due to their anti-oxidative properties" said Dr. Naoya Kobayashi, guest editor of this double issue of Cell Transplantation.

Public release date: 14-Sep-2009

Popular stomach acid reducer triples risk of developing pneumonia

WINSTON-SALEM, N.C. – A popular stomach-acid reducer used to prevent stress ulcers in critically ill patients needing breathing machine support increases the risk of those patients contracting pneumonia threefold, according to researchers at Wake Forest University School of Medicine.

Hospital-acquired pneumonia is the leading cause of infection-related deaths in critically ill patients. It increases hospital stays by an average of seven to nine days, cost of care, and the risk of other complications.

"As best we can tell, patients who develop hospital-acquired pneumonia or ventilator-acquired pneumonia have about a 20 to 30 percent chance of dying from that pneumonia," said senior study author David L. Bowton, M.D., professor and head of the Section on Critical Care in the Department of Anesthesiology. "It's a significant event."

The study, published in a recent issue of CHEST, compared treatment with two drugs that decrease stomach acid: ranitidine, marketed under the name Zantac™, and pantoprazole, marketed under the name Protonix™ or Prilosec™.

Both drugs decrease stomach acid, but the newer pantoprazole is considered more powerful and has become the drug of choice in many hospitals.

However, in the analysis of 834 patient charts, the researchers found that hospitalized cardiothoracic surgery patients treated with pantoprazole were three times more likely to develop pneumonia.

"We conducted this study, in part, because we thought we were seeing more pneumonias than we were used to having," said study co-author Marc G. Reichert, Pharm.D., pharmacy coordinator for surgery at Wake Forest University Baptist Medical Center.

Both acid-reducing drugs can make the stomach a more hospitable place for bacteria to colonize. Patients on breathing machines sometimes develop pneumonia when stomach secretions reflux into the lungs.

Current treatment guidelines to prevent pneumonia recommend raising the head of the bed for patients on breathing machines, which reduces the risk of stomach secretions getting into the lungs.

But the study's findings suggest some other steps could keep critically ill patients from developing ventilator-associated pneumonia.

Doctors should consider whether an acid reducer is needed at all, Bowton said. The occurrence of stress ulcer bleeding has gone down in recent years, perhaps because patients with breathing tubes are fed earlier, and food in the stomach may neutralize or reduce the effects of stomach acid.

Bowton added that in cases where an acid reducer is needed, ranitidine is recommended, given the apparent decreased risk in developing pneumonia.

Doctors should stop using the drug as soon as the risk of bleeding passes – once the patient is off the breathing machine and eating, either on his/her own or through a feeding tube.

"Stopping the drugs earlier appears to be the best thing for patients," Reichert said.

Public release date: 14-Sep-2009

Study Shows Common Pain Cream Could Protect Heart During Attack

CINCINNATI—New research from the University of Cincinnati shows that a common, over-the-counter pain salve rubbed on the skin during a heart attack could serve as a cardiac-protectant, preventing or reducing damage to the heart while interventions are

administered.

These findings are published in the Sept. 14 edition of the journal *Circulation*.

Keith Jones, PhD, a researcher in the department of pharmacology and cell biophysics, and scientists in his lab have found that applying capsaicin to specific skin locations in mice caused sensory nerves in the skin to trigger signals in the nervous system. These signals activate cellular “pro-survival” pathways in the heart which protect the muscle.

Capsaicin is the main component of chili peppers and produces a hot sensation. It is also the active ingredient in several topical medications used for temporary pain relief.

Capsaicin is approved for use by the U.S. Food and Drug Administration.

Jones is working with Neal Weintraub, MD, a UC Health cardiologist and director of UC’s cardiovascular diseases division, and other clinicians to construct a translational plan to test capsaicin in a human population.

“Topical capsaicin has no known serious adverse effects and could be easily applied in an ambulance or emergency room setting well in advance of coronary tissue death,” Jones says. “If proven effective in humans, this therapy has the potential to reduce injury and/or death in the event of a coronary blockage, thereby reducing the extent and consequences of heart attack.”

Researchers observed an 85 percent reduction in cardiac cell death when capsaicin was used.

They also found that a small incision made on the abdomen triggered an 81 percent reduction.

“Both this and the capsaicin effect are shown to work through similar neurological mechanisms,” Jones says. “These are the most powerful cardioprotective effects recorded to date.

“This is a form of remote cardioprotection, using a skin stimulus that activates cardioprotection long before the blocked coronary artery is opened.”

Weintraub adds that this finding offers an important distinction between existing therapies.

“All of the current interventions require the vessel to be opened before doctors can act, and since it takes time to elicit protection, tissue dies,” he says. “This treatment will protect the heart before the vessel is opened while producing a strong protective effect that is already active when we open the vessel.”

Jones and Weintraub think that skin—the main sensor and largest human body organ—has evolved to protect animals, including humans, in a variety of ways.

“By activating these sensors in the nervous system, via skin, we think that a response to preserve and protect the heart is triggered,” Weintraub says.

“We think that this technique is fooling the body into sending out protective signals,” Jones adds. “This may be similar to the way certain acupuncture treatments work; there may be a neurological basis. In a broad sense, this work may provide a ‘Rosetta stone’ for translating alternative medicine techniques—like acupuncture—to Western medicine. Perhaps we can understand the biological mechanisms of how alternative treatments may be successful for patients.”

Now, researchers will further explore this concept by investigating which sensors are associated with certain aspects of organ protection—and how much of specific stimuli are needed to produce the desired responses.

“This could help create favorable outcomes for those who are experiencing stroke, shock or are in need of an organ transplant, and the best part is that it is done non-invasively and is relatively inexpensive,” Jones says.

But he warns against rubbing capsaicin on your belly if you feel like you are having a heart attack.

“We don’t know if it will work for all indications, for all patients, and we don’t know if it will work over an extended amount of time,” he says. “A major goal is testing this therapy in clinical trials, but we still need to study more about dosage and application—where we put it on the body for the best results. However, this has tremendous clinical potential and could eventually save lives.”

This study was funded by the National Institutes of Health and by the University of Cincinnati. Jones and Weintraub have filed a patent for this funding but have received no honoraria from the makers of capsaicin.

Public release date: 15-Sep-2009

Supplementing babies' formula with DHA boosts cognitive development

Research has shown that children who were breast fed as infants have superior cognitive skills compared to those fed infant formula, and it's thought that this is due to an essential fatty acid in breast milk called docosahexaenoic acid (DHA). Now a new study has found that babies fed formula supplemented with DHA have higher cognitive skills than babies fed regular formula.

The study, which used a more sensitive test of the babies' cognitive abilities and higher

concentrations of DHA than previous research, was carried out by researchers at the Retina Foundation of the Southwest and the University of Texas Southwestern Medical Center. It appears in the September/October 2009 issue of the journal *Child Development*.

The researchers studied 229 infants, who received either formula supplemented with DHA or traditional infant formula. The babies were given the different formulas either shortly after birth, after 6 weeks of breastfeeding, or after 4 to 6 months of breastfeeding. When they were 9 months old, they were given a problem-solving test in which they had to complete a sequence of steps to get a rattle.

Babies who were fed formula supplemented with DHA were more likely to get the rattle and showed more intentional behaviors that allowed them to get the rattle.

"Currently, there is no clear consensus on whether infant formula should be supplemented with DHA," notes lead author James R. Drover, a former postdoctoral fellow at the Retina Foundation of the Southwest who is now assistant professor of psychology at Memorial University in Canada.

"However, our results clearly suggest that feeding infants formula supplemented with high concentrations of DHA provides beneficial effects on cognitive development. Furthermore, because infants who display superior performance on the means-end problem-solving task tend to have superior IQ and vocabulary later in childhood, it's possible that the beneficial effects of DHA extend well beyond infancy."

Public release date: 15-Sep-2009

Swine flu vaccination: A test subject speaks out.

Munich – A harmless prick – and thereby possibly save thousands of people. This is what several hundreds of volunteers thought, who each collected a payment of 250 Euro for their participation in the study of the swine flu vaccine trial at the Ludwig-Maximilians-University.

One of them has now quit the trial: The Diploma-businessman Axel Sch. (40). He claims "The vaccination has made me ill! – the test is irresponsible." **He says that within a few hours after the vaccination, on August 10, he had sweat on his forehead. "I felt totally beat. On the third day, my kidneys and head were aching and I got a fever. I then had a coughing fit - and the wash basin was suddenly red - it was blood!"**

LMU-medical researcher Frank von Sonnenburg, who is in charge of the country-wide study, doesn't consider these accounts credible. He says that such side-effects cannot be related to the vaccine. He does not deny that, as with other flu-vaccinations, flu-like symptoms may occur as a reaction to the vaccination. "Additionally, there may be light pain, redness or swelling at the injection site."

"Obviously many of the test subjects would have side-effects. We do such a study precisely because we want to find out any possible side-effects. If flu cases were to become more severe and we had not done any tests, – there would be a big outcry by everyone."

Was the vaccine admitted too quickly to the study? The fact is that in this composition, the vaccine has not yet been applied to humans. **The Federal Health Minister Ulla Schmidt explained on Wednesday that she had felt put under pressure by the pharmaceutical industry from the beginning. Criticism is being voiced with increasing frequency. The Paul-Ehrlich-Institute points out that side-effects to this vaccine are to be more expected than in connection with a normal flu-vaccine. The Paediatric Association points to a possibly increased number of unknown side-effects.**

British researchers even warn about a neurological disorder known as the Guillain-Barré-Syndrome. They point to a vaccination campaign with a similar swine flu vaccine carried out in the USA in 1976, which resulted in the deaths of 25 people.

Probably because of this, the USA only test vaccines without so-called adjuvants. These lead to greater side-effects, explains study leader Frank von Sonnenburg. "The adjuvants produce more anti-bodies, which is why the body's defensive reaction is also greater." Kidney pains and bloody cough of the kind Axel Sch. Experienced were however not to be expected, even with this adjuvant. "We conduct a clean study."

Axel Sch. however insists that his complaints were a result of the vaccination. "Surely it is no coincidence that they occurred directly after the vaccination." He criticizes the university, saying that he was not properly informed prior to the study. He said that for three days he was flat on his back during this heat. "When I phoned the LMU, they simply asked me the question needed to fill in their form and told me to see my doctor." **He now wants the medical costs and loss of earnings compensated by the medical insurance covering the trial.**

Axel Sch. has participated in medical trials even when he was a student. He had also had good experiences with an LMU flu-vaccine study. "This is the reason why I immediately consented when they asked me if I would test the new vaccine."

Now his trust in research is gone, he is quitting the vaccine trial. In October he will fly to Latin America for professional reasons. He had looked forward to traveling unconcerned – by then he would have received the second of three vaccinations. "I'm not fearful just the same – I don't belong to an at risk group. Also, the swine flu can't possibly be as bad as the side-effects of the vaccine."

Ralph's Note: Its all about risk to benefit ratio...If side effects are being omitted because of experimenter bias. Then we will never now which is more dangerous, the flu or the vaccine. I only regret we are not seeing any double blind cross over

placebo studies. I guess they just assume it is like any other vaccine. Which is mistake number one.

These reports are done with the appreciation of all the Doctors, Scientist, and other Medical Researchers who sacrificed their time and effort. In order to give people the ability to empower themselves. Without the base aspirations for fame, or fortune. Just honorable people, doing honorable things.