The Vitamin & Herb Stores

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Compiled By Ralph Turchiano
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Chemical exposure before mid-30s may be critical in breast cancer development Postmenopausal breast cancer and occupational exposures

Occupational exposure to certain chemicals and pollutants before a woman reaches her mid-30s could treble her risk of developing cancer after the menopause, suggests research published in Occupational and Environmental Medicine .

Women exposed to synthetic fibres and petroleum products during the course of their work seem to be most

at risk, the research suggests.

The researchers base their findings on more than 1100 women, 556 of whom were diagnosed with breast cancer in 1996/7 in Montreal, Canada, when aged between 50 and 75 and who had gone through the menopause.

The other 613 women, who were matched for age and date of diagnosis, had a range of other cancers, and were intended to act as a comparison group.

An expert team of chemists and industrial hygienists then set about investigating the women's levels of exposure to around 300 different substances throughout the course of their employment history.

After taking account of the usual factors associated with an increased risk of breast cancer, the analysis indicated a link between occupational exposure to several of these substances.

Compared with the comparison group, this risk peaked for exposures before the age of 36, and was magnified with each additional decade of exposure before this age.

This resulted in women occupationally exposed to acrylic fibres running a seven-fold risk of breast cancer, while those exposed to nylon fibres almost doubled their risk.

When tumours were divided into their hormonal responsiveness, women whose cancers responded to oestrogen, but not progesterone, were at least twice as likely to have breast cancer for every 10 year period they were exposed to monaromatic hydrocarbons (a byproduct of crude oil) and acrylic and rayon fibres.

Exposure to polycyclic aromatic hydrocarbons, found in petroleum products, before the age of 36, tripled the risk for women whose tumours were responsive to both oestrogen and progesterone.

The authors concede that their findings could be due to chance alone, but say they are consistent with the theory that breast tissue is more sensitive to harmful chemicals if the exposure occurs when breast cells are still active - in other words, before a woman reaches her 40s. And they point to the rising incidence of breast cancer in developed countries, which is likely to be due to a range of factors, including diagnosis of small slow growing tumours and changes in alcohol consumption.

But environmental and workplace factors are also thought to have a role, they suggest, with previously published evidence implicating exposure to certain chemicals, low frequency electromagnetic fields, and disruption of the body clock.

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American industry's thirst for water: First study of its kind in 30 years

How many gallons of water does it take to produce $1 worth of sugar, dog and cat food, or milk? The answers appear in the first comprehensive study in 30 years documenting American industry's thirst for this precious resource. The study, which could lead to better ways to conserve water, is in ACS' Environmental Science & Technology, a semi-monthly journal.

Chris Hendrickson and colleagues note in the new study that industry (including agriculture) long has been recognized as the biggest consumer of water in the United States. However, estimates of water consumption on an industry-by-industry basis are incomplete and outdated, with the last figures from the U.S. Census Bureau dating to 1982.

They estimated water use among more than 400 industry sectors — from finished products to services —

using a special computer model. The new data shows that most water use by industry occurs indirectly as a result of processing, such as packaging and shipping food crops to the supermarket, rather than direct use, such as watering crops. Among the findings for consumer products**: It takes almost 270 gallons of water to produce $1 worth of sugar; 200 gallons of water to make $1 worth of dog and cat food; and 140 gallons of water to make $1 worth of milk.** "The study gives a way to look at how we might use water more efficiently and allows us to hone in on the sectors that use the most water so we can start generating ideas and technologies for better management," the scientists note.

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Medicine residues may threaten fish reproduction

Researchers at Umeå University and the Sahlgrenska Academy at the University of Gothenburg have discovered that traces of many medicines can be found in fish that have been swimming in treated waste water. **One such medicine, the hormone levonorgestrel, was found in higher concentrations in the blood of fish than in women who take the contraceptive pill.** Elevated levels of this hormone can lead to infertility in fish.

The study is published in the journal Environmental Science and Technology. The fish in the study were exposed to treated waste water from three sewage treatment works in Stockholm, Umeå and Gothenburg. The study shows that levonorgestrel – which is found in many contraceptive pills, including the morning-after pill – can impact on the environment and constitutes a risk factor for the ability of fish to reproduce. Levonogestrel is designed to mimic the female sex hormone progesterone and is produced synthetically.

A study from Germany showed very recently that less than a billionth of a gram of levonorgestrel per litre inhibited the reproduction of fish in aquarium-based trials.
”We are finding these levels in treated waste water in Sweden,” explains Jerker Fick at the Department of Chemistry at Umeå University.

For around ten years it has been known that synthetic oestrogen from contraceptive pills can affect fish that live downstream from sewage treatment works. The new study shows that synthetic progesterone-like hormones in contraceptive pills also carry risks.

The fish in the study were exposed to undiluted waste water, whilst in the natural environment there tends to be a degree of dilution in watercourses. But the study pointed out that there are also watercourses with very little dilution, and probably treatment plants that filter out the hormone less effectively than those included in the study. These findings will help to improve our understanding of which substances need to be removed from waste water.

”If we know how our medicines affect the environment, we will be in a better position to choose environmentally friendly alternatives, though we must always put the health of patients first,” says Joakim Larsson at the Sahlgrenska Academy, one of the researchers behind the study.

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Researchers show some cells in pancreas can spontaneously change into insulin-producing cells

NEW YORK, April 5, 2010 – Alpha cells in the pancreas, which do not produce insulin, can convert into insulin-producing beta cells, advancing the prospect of regenerating beta cells as a cure for type 1 diabetes. The findings come from a study at the University of Geneva, co-funded by the Juvenile Diabetes Research Foundation, that is published today in the online edition of the scientific journal Nature.

The researchers, led by Dr. Pedro L. Herrera, demonstrated that beta cells will spontaneously regenerate after near-total beta cell destruction in mice and the majority of the regenerated beta cells are derived from alpha cells that had been reprogrammed, or converted, into beta cells. Using a unique model of diabetes in mice, in which nearly all of the beta cells are rapidly destroyed, the researchers found that if the mice were maintained on insulin therapy, beta cells were slowly and spontaneously restored, eventually eliminating the need for insulin replacement. Alpha cells normally reside alongside beta cells in the pancreas and secrete a hormone called glucagon, which works opposite to insulin to regulate the levels of sugar in the blood. Alpha cells are not attacked by the autoimmune processes that destroy beta cells and causes type 1 diabetes.

Type 1 diabetes is a chronic, autoimmune disease that affects children, adolescents and adults, in which the immune system attacks the beta cells in the pancreas that produce insulin, a hormone that enables people to convert food into energy. People with type 1 diabetes are dependent on insulin treatment for the rest of their life.

Dr. Herrera's results are the first to show that beta cell reprogramming can occur spontaneously, without genetic alterations. Previous efforts to reprogram non-beta cells into beta cells relied on genetic manipulations – processes that can not be easily translated into therapies.

According to Dr. Andrew Rakeman, JDRF Program Manager in Beta Cell Therapies, the breakthrough in Dr. Herrera's work is the demonstration that alpha- to-beta-cell reprogramming can be a natural, spontaneous process., "If we can understand the signals that are triggering this conversion, it will open a whole new potential strategy for regenerating beta cells in people with type 1 diabetes," he said. "It appears that the body can restore beta cell function either through reprogramming alpha cells to become beta cells or, as previously shown by others, by increasing growth of existing beta cells. This path may be particularly useful in individuals who have had the disease for a long time and have no, or very few, remaining beta cells."

Role of Removing Beta Cells

Dr. Herrera's team genetically engineered the animals to be susceptible to a toxin that would destroy only their beta cells. When the mice were exposed to the toxin, the beta cells were rapidly and efficiently destroyed – greater than 99% just 15 days after treatment. Then, to track the source of newly regenerated beta cells, Dr. Herrera's team used another genetic manipulation to permanently label mature alpha cells and all their descendents with a fluorescent protein. This "genetic lineage tracing" approach allowed the scientists to track the fate of the alpha cells and their progeny; the presence of fluorescently labeled beta cells in the recovered animals gave conclusive evidence that alpha cells had reprogrammed into beta cells.

The Geneva researchers pointed out that the critical factor in sparking the alpha-to- beta-cell reprogramming was removing (or ablating) nearly all the original insulin-producing cells in the mice. In mice where the loss of beta cells was more modest, the researchers either found no evidence of beta cell regeneration (when only half the cells were destroyed) or less alpha cell reprogramming (when less than 95% of cells were destroyed).

"The amount of beta-cell destruction thus appears to determine whether regeneration occurs. Moreover, it influences the degree of cell plasticity and regenerative resources of the pancreas in adult organisms," said Dr. Herrera.

Regeneration Research

In type 1 diabetes, the immune system attacks beta cells, stopping a person's pancreas from producing insulin, the hormone that enables people to get energy from sugar. JDRF has been at the forefront of diabetes research looking to develop therapeutics to drive the regeneration of insulin-producing cells within a person's body (as an alternative to transplanting insulin-producing cells from other sources). Beta cell regeneration involves triggering the body to grow its own new insulin producing cells, either by copying existing ones – some are usually still active, even in people who have had diabetes for decades – or causing

the pancreas to create new ones.

This study is another step forward for JDRF's research focus on Regeneration as a potential pathway to restore insulin production – and normal blood sugar in people with type 1 diabetes. JDRF has become a leader in this new and exciting research field, funding a wide range of research projects, including studies like Dr. Herrera's, and an innovative diabetes drug discovery and development partnership with the Genomics Institute of the Novartis Foundation (GNF), focused on regeneration approaches.

In addition to regenerating or replacing insulin producing cells, a cure for type 1 diabetes will also require stopping the autoimmune attack that causes diabetes, and reestablishing excellent glucose control.

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Exposure to 3 classes of common chemicals may affect female development

Researchers at Mount Sinai School of Medicine have found that exposure to three common chemical classes—phenols, phthalates and phytoestrogens—in young girls may disrupt the timing of pubertal development, and put girls at risk for health complications later in life. The study, the first to examine the effects of these chemicals on pubertal development, is currently published online in the journal Environmental Health Perspectives.

"Research has shown that early pubertal development in girls can have adverse social and medical effects, including cancer and diabetes later in life," said Dr. Mary Wolff, Professor of Preventive Medicine and Oncological Sciences at Mount Sinai School of Medicine. "Our research shows a connection between chemicals that girls are exposed to on a daily basis and either delayed or early development. While more research is needed, these data are an important first step in continuing to evaluate the impact of these common environmental agents in putting girls at risk."

Phenols, phthalates and phytoestrogens are among chemicals known as endocrine disruptors, which interfere with the body's endocrine, or hormone, system. They are found in a wide range of consumer products, such as nail polishes, where they increase durability, and in cosmetics, perfumes, lotions, and shampoos, where they carry fragrance. Some are used to increase the flexibility and durability of plastics such as PVC, or are included as coatings on medications or nutritional supplements to make them timed-release.

Dr. Wolff, co-principal investigator Susan Teitelbaum, PhD, Associate Professor, Preventive Medicine, and their team from Mount Sinai's departments of Pediatrics and Microbiology recruited girls from the neighborhood of East Harlem, a unique minority population considered high risk. Working with Cincinnati Children's Hospital and Kaiser Permanente Northern California, they analyzed the impact of exposure to environmental agents in a study that included 1,151 girls from New York, greater Cincinnati and northern California.

The girls were between 6- and 8-years-old at enrollment and between 7 and 9 at analysis. Researchers collected urine samples from the study participants and analyzed them for phenols, phthalates, and phytoestrogens, including 19 separate urine biomarkers.

The data showed that the three classes of chemical compounds were widely detectable in the study population, and that high exposure to certain chemicals was associated with early breast development. The strongest links were seen with phthalates and phytoestrogens, which were also among the highest exposures. One phenol, two phytoestrogens, and a subset of phthalates (those found in building products and plastic tubing) were associated with later puberty**. However, the phthalates found in personal products such as lotion and shampoo, especially those with fragrance, were related to earlier breast and pubic hair development.**

"We believe that there are certain periods of vulnerability in the development of the mammary gland, and exposure to these chemicals may influence breast cancer risk in adulthood," Dr. Wolff continued. "Dietary habits may also have an impact. Further study is needed to determine how strong the link is."

Consistent with previous studies, researchers also found that body-mass index (BMI) played a role in the onset of puberty. About a third of the girls were considered overweight, which is also an indicator of early breast development. As a result, some of the chemical associations differed in more or less obese girls. Researchers continue to study the impact of diet on pubertal development and eventual breast cancer risk.

"Exposure to these chemicals is extremely common," Dr. Wolff continued. "As such, while the association between chemicals and pubertal development seems small, the impact on the overall population is significant."

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Did seasonal flu vaccination increase the risk of infection with pandemic H1N1 flu?

In September 2009, news stories reported that researchers in Canada had found an increased risk of pandemic H1N1 (pH1N1) influenza in people who had previously been vaccinated against seasonal influenza. Their research, consisting of four different studies, has now undergone further scientific peer review and is published in the open access journal PLoS Medicine.

Did previous vaccination against seasonal flu increase the risk of getting pH1N1 flu? Based on these studies - conducted by a large network of investigators across Canada led by Principal Investigator Danuta Skowronski of the British Columbia Centre for Disease Control in Vancouver, in collaboration with provincial leads Gaston De Serres in Quebec, Natasha Crowcroft in Ontario and Jim Dickinson in Alberta - the answer remains: "possibly."

In a school outbreak of pH1N1 in spring 2009, people with cough and fever were found to have received prior seasonal flu vaccination more often than those without. Several public health agencies in Canada therefore undertook four additional studies during the summer of 2009 to investigate further. Taken together, the four studies included approximately 2,700 people with and without pH1N1.

The first of the studies used an ongoing sentinel monitoring system to assess the frequency of prior vaccination with the 2008□□ seasonal vaccine in people with pH1N1 influenza (cases) compared to people without evidence of infection with an influenza virus (controls). **This study confirmed that the seasonal vaccine provided protection against seasonal influenza, but found it to be associated with an increased risk of approximately 68% for pH1N1 disease.**

The further 3 studies (which included additional case-control investigations in Ontario and Quebec, as well as a transmission study in 47 **Quebec households where pH1N1 influenza had occurred) similarly found between 1.4□□.5 times increased likelihood of pH1N1 illness in people who had received the seasonal vaccine compared to those who had not.** Prior seasonal vaccination was not associated with an increase in hospitalization among those who developed pH1N1 illness.

These studies do not show whether there was a true cause-and-effect relationship between seasonal flu vaccination and subsequent pH1N1 illness (as might occur if, for example, the seasonal vaccine modified the immune response to pH1N1), or whether the observed association was not a result of vaccination, but was instead due to differences in some unidentified factor(s) among the groups being studied.

If the findings from these studies are real they raise important questions about the biological interactions between pre-existing and novel pandemic influenza strains. The researchers note, however, that the World Health Organization has recommended that pH1N1 be included in subsequent seasonal vaccine formulations. This will provide direct protection against pH1N1 and thereby obviate any risk that might have been due to the seasonal vaccine in 2009, which did not include pH1N1.

In an accompanying commentary in PLoS Medicine, Lone Simonsen and Cécile Viboud, who were not involved in the studies, write: "Given the uncertainty associated with observational studies, we believe it would be premature to conclude that increased the risk of 2009 pandemic illness, especially in light of six other contemporaneous observational studies in civilian populations that have produced highly conflicting results." They conclude that "this perplexing experience should teach us how to best react to disparate and conflicting studies and prepare us for the next public health crisis, so that we can better manage future alerts for unexpected risk factors."

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Eating eggs for breakfast helps reduce calorie consumption throughout the day by 18 percent

New research reports that eating protein in the morning helps manage hunger

Park Ridge, Ill. (April 6, 2010) – A new study demonstrates that eating protein-rich eggs for breakfast reduces hunger and decreases calorie consumption at lunch and throughout the day**. The study, published in the February issue of Nutrition Research, found that men who consumed an egg-based breakfast ate significantly fewer calories when offered an unlimited lunch buffet compared to when they ate a carbohydrate-rich bagel breakfast of equal calories.(**1) This study supports previous research which revealed that eating eggs for breakfast as part of a reduced-calorie diet helped overweight dieters lose 65 percent more weight and feel more energetic than dieters who ate a bagel breakfast of equal calories and volume.(2)

"There is a growing body of evidence that supports the importance of high-quality protein in the diet for overall health and in particular the importance of protein at the breakfast meal," said Maria Luz Fernandez, Ph.D., study author and professor in the department of nutritional sciences at the University of Connecticut. "We examined two typical American breakfasts, and the participants' self-reported appetite ratings reveal that a protein-rich breakfast helps keep hunger at bay."

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Mouth Breathing Can Cause Major Health Problems

Dentists May Be First to Diagnose Patients Who Mouth Breathe

CHICAGO (April 6, 2010) – For some, the phrase “spring is in the air” is quite literal. When the winter snow melts and flowers bloom, pollen and other materials can wreak havoc on those suffering from seasonal allergies, usually causing a habit called “mouth breathing.” The physical, medical and social problems associated with mouth breathing are not recognized by most health care professionals, according to a study published in the January/February 2010 issue of General Dentistry, the peer-reviewed clinical journal of the Academy of General Dentistry (AGD). Dentists typically request that their patients return every six months, which means that some people see their dentist more frequently than they see their physician. As a result, dentists may be the first to identify the symptoms of mouth breathing. And, because dentists understand the problems associated with mouth breathing, they can help prevent the adverse

effects.

“Allergies can cause upper airway obstruction, or mouth breathing, in patients,” said Yosh Jefferson, DMD, author of the study. “Almost every family has someone with mouth breathing problems.”
Over time, children whose mouth breathing goes untreated may suffer from abnormal faci al and dental development, such as long, narrow faces and mouths, gummy smiles, gingivitis and crooked teeth. The poor sleeping habits that result from mouth breathing can adversely affect growth and academic performance. As

Dr. Jefferson notes in his article, “Many of these children are misdiagnosed with attention deficit disorder (ADD) and hyperactivity.” In addition, mouth breathing can cause poor oxygen concentration in the bloodstream, which can cause high blood pressure, heart problems, sleep apnea and other medical issues. “Children who mouth breathe typically do not sleep well, causing them to be tired during the day and possibly unable to concentrate on academics,” Dr. Jefferson said. “If the child becomes frustrated in school, he or she may exhibit behavioral problems.”

Treatment for mouth breathing is available and can be beneficial for children if the condition is caught early. A dentist can check for mouth breathing symptoms and swollen tonsils. If tonsils and/or adenoids are swollen, they can be surgically removed by an ear-nose-throat (ENT) specialist. If the face and mouth are narrow, dentists can use expansion appliances to help widen the sinuses and open nasal airway passages. “After surgery and/or orthodontic intervention, many patients show improvement in behavior, energy level, academic performance, peer acceptance and growth,” says Leslie Grant, DDS, spokesperson for the AGD. “Seeking treatment for mouth breathing can significantly improve quality of life.”

At this time, many health care professionals are not aware of the health problems associated with mouth breathing. If you or your child suffers from this condition, speak with a health care professional who is knowledgeable about mouth breathing.

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Supplement your stem cells

A nutritional supplement could stimulate the production of stem cells integral for repairing the body. Research published in BioMed Central's open access Journal of Translational Medicine suggests that a commercially-available supplement can increase the blood circulation of hematopoietic stem cells, which can give rise to all blood cells, and endothelial progenitor cells, which repair damage to blood vessels.

Thomas E. Ichim from Medistem Incorporated, USA worked with a team of 13 researchers from industry and academia to further investigate whether this supplement, **containing a cocktail of green tea, astralagus, goji berry extracts, 'good' bacteria Lactobacillus fermentum, antioxidant ellagic acid, immune enhancer beta 1,3 glucan and vitamin D3, was able to increase the number of stem cells circulating in the blood**. They recruited 18 healthy adults aged between 20 and 72 who stopped any other dietary supplements 4-5 days before starting a two-week course of this supplement, taking it twice daily. The researchers took blood from the participants before they started the course and on days 1, 2, 7 and 14 to test for signs of stem cell activity by looking for cells expressing the genetic stem cell markers CD133, CD34 and KDR. They then confirmed whether taking the supplement changed the overall levels of hematopoietic stem cells and endothelial progenitor cells in the blood by using HALO (Hematopoietic Assay via Luminescent Output) and colony forming assays respectively.

Hematopoietic stem cells and endothelial progenitor cells increased after taking the nutritional supplement, suggesting that the supplement may be a useful stimulator for both types of stem cells. In this study, the levels of these stem cells peaked at 2-7 days and started to drop at 14 days, suggesting that this supplement could be used for continuous treatment for conditions associated with decreases in these stem cells such as Alzheimer's Disease. Other therapeutic treatments used to recruit hematopoietic stem cells are not viable as long-term solutions due to costs and increased health risks caused by the extremely high levels of stem cells

that these treatments maintain in the blood.

"To our knowledge, this is the first study demonstrating profound mobilization effect with possible clinical significance by a food supplement-based approach", say the authors, adding, "Indeed it may be possible that our supplement could be beneficial in conditions associated with reduced progenitor cells such as diabetes or in smokers which possess lower baseline values as compared to controls". Although they are quick to add, "However, given commercial pressures associated with this largely unregulated field, we propose detailed scientific investigations must be made before disease-associated claims are made by the scientific community".

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BUSPH study links rheumatoid arthritis to vitamin D deficiency

Women living in the northeastern United States are more likely to develop rheumatoid arthritis (RA), suggesting a link between the autoimmune disease and vitamin D deficiency, says a new study led by a Boston University School of Public Health researcher.

In the paper, which appears online in the journal Environmental Health Perspectives, a spatial analysis led by Dr. Verónica Vieira, MS, DSc, associate professor of environmental health, found that women in states like Vermont, New Hampshire and southern Maine were more likely to report being diagnosed with RA.

"There's higher risk in the northern latitudes," Dr. Vieira said. "This might be related to the fact that there's less sunlight in these areas, which results in a vitamin D deficiency."

The study looked at data from the Nurses' Health Study, a long-term cohort study of U.S. female nurses. Looking at the residential addresses, health outcomes and behavioral risk factors for participants between 1988 and 2002, researchers based their findings on 461 women who had RA, compared to a large control group of 9,220.

RA is a chronic inflammatory disease that affects the lining of the joints, mostly in the hands and knees. This chronic arthritis is characterized by swelling and redness and can wear down the cartilage between bones. RA is two to three times more common in women than in men.

Although the cause of RA is unknown, the researchers wrote, earlier studies have shown that vitamin D deficiency, which can be caused by a lack of sunlight, has already been associated with a variety of other autoimmune diseases.

"A geographic association with northern latitudes has also been observed for multiple sclerosis and Crohn's disease, other autoimmune diseases that may be mediated by reduced vitamin D from decreased solar exposure and the immune effects of vitamin D deficiency," the authors wrote.

The authors said further research is needed to look into the relationship between vitamin D exposure and RA.

Dr. Vieira said she and her co-authors were somewhat surprised by the findings. A previous geographic study of RA had suggested an ecologic association with air pollution, she said.

"The results were unexpected," Dr. Vieira said. "Prior to the analysis, we were more interested in the relationship with air pollution. I hadn't given latitudes much thought."

In addition to the geographic variation, the study suggested that the timing of residency may influence RA risk. "Slightly higher odds ratios were observed for the 1988 analysis suggesting that long term exposure may be more important than recent exposure," the study said.

Dr. Vieira and other BUSPH researchers previously have used innovative spatial-temporal analyses to study the incidence of breast cancer, specifically focused on Cape Cod.

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.