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Welcome to the 167th issue of International Health News. Over the years we have provided our subscribers with a wealth of information aimed at improving their wellbeing and avoiding disease. This issue is no different. In it we report that impeding the body's natural production of melatonin, the hormone that helps you sleep, increases the risk of breast and prostate cancer. Recent investigations have shown that natural melatonin production can be dramatically reduced by exposure to light during nighttime and by exposure to electromagnetic fields (EMFs) from faulty electrical wiring in the home. Perhaps the most alarming aspect of these findings is that the EMF exposure found to cause a significant drop in melatonin production is only 5 mG. This is clearly way below the limit of 1000 mG considered safe (for 24-hour a day exposure) by power utilities and government institutions.

Some experts in the field suggest that a continuous exposure above 1 mG can be detrimental. If you would like to measure the exposure level in your own home, I can recommend the "Dr Gauss" EMF meter. It is easy to use and accurate enough that your power company representative or electrician will not laugh you out of the house when you present them with your readings. For further information go to <http://www.lessemf.com/gauss.html> and in Canada <http://www.escience.ca>

Also in this issue – high cholesterol levels are linked to an increased risk of prostate cancer, more evidence is presented that eating less may extend your life, and the Mediterranean diet scores again, researchers at the Columbia University Medical Center have found that older people who adhere to a Mediterranean type diet reduce their risk of Alzheimer's disease by 40%.

Finally, there have been some major changes to our on-line vitamin store. iHerb, our supplier, has moved to new expanded quarters and set up a new division, www.papanature.com which will handle its on-line sales. Coinciding with the move iHerb has changed their discount structure and instituted new (very low) shipping charges. You can find further information about these changes on page 5 of this issue.

I believe papanature.com now offers the best prices, freshest products, and best delivery service on the Internet and hope that you will continue to patronize the IHN vitamin store. Please keep in mind that when you order through my store I will receive a commission, which enables me to continue the publication of IHN for its 15th year.

Your continuing support is very much appreciated,
Hans

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Prostate cancer risk may be raised by high cholesterol

MILAN, ITALY. Prostate cancer has been directly linked to high cholesterol for the first time in recent research from Italy. Limited evidence has previously suggested a link, but it is now strongly supported by findings from a team at the Istituto di Ricerche Farmacologiche Mario Negri. They found a statistically significant direct relationship between

the two conditions after analysing the self-reported medical histories of men under the age of 75 with and without prostate cancer. The 1,294 men with prostate cancer and 1,451 comparable men with non-cancerous conditions were recruited from Italian hospitals between 1991 and 2002, and interviewed using structured questionnaires. High cholesterol levels in this study were classified as a total blood cholesterol level over 200 mg/dL (5.1 mmol/L).

Participants with prostate cancer were about 50 per cent more likely to have high cholesterol than the controls. The association was somewhat stronger for men whose high cholesterol levels had been diagnosed before the age of 50 and for men over 65, in whom there was an 80 per cent greater likelihood of high cholesterol levels. The absence of an association between prostate cancer and 10 other medical conditions indicates that the relationship found here between prostate cancer and high cholesterol is real. The Italian researchers also found that prostate cancer patients were 26 per

cent more likely to have suffered from gallstones. The link was not statistically significant, but gallstones are often related to high cholesterol levels.

Androgens - hormones that have a role in prostate tissue and cancer - are synthesized from cholesterol, suggesting a possible biological relationship between high cholesterol and prostate cancer. Gallstones are also related to high cholesterol levels and are often composed of cholesterol. So the direct relationship found between gallstones and prostate cancer, while it was not statistically significant, suggests that a similar biological mechanism is at work. The authors add that statins may potentially be protective against prostate cancer, but the studies so far have been limited and inconclusive.

Bravi, F. et al. Self-reported history of hypercholesterolaemia and gallstones and the risk of prostate cancer. Annals of Oncology, published online April 12, 2006

Eating fish may help prevent prostate cancer

MANCHESTER, UNITED KINGDOM. Men face a much more dangerous form of prostate cancer if tumor cells from the prostate gland metastasize and migrate and invade other parts of the body, such as bone marrow. New research suggests that oily fish may help prevent this process. It appears that omega-3 fats contained in oily fish can prevent the cancer spreading to bone marrow, a process which may be encouraged by the other major group of polyunsaturated fatty acids – omega-6 fats. Researchers at the Christie Hospital in Manchester found evidence for this effect in laboratory tests, where they showed that omega-3 fats can inhibit invasion by prostate cancer cells, potentially reducing the threat of metastasis. They also found that omega-6 fatty acids, found in vegetable oils, nuts and seeds, increased the risk of tumor cells spreading into bone marrow. This invasion was blocked by omega-3 fats, which are found in oily fish such as salmon, mackerel and tuna.

The researchers believe that cancerous tumors may use omega 6 fats as a high-energy food, enabling

rapid growth. Omega-3 fats are known to interfere with the various functions of omega-6 fats, they explain, and this was confirmed by the current findings. This effectively removes the cancer's 'free lunch', a fact that may have clinical importance. Eating a diet with the right balance of omega-3 and omega-6 fats may well help to keep prostate cancer within the prostate gland where it may be monitored safely or more easily treated with surgery or radiotherapy, they conclude, adding that a healthy balance of these two types of fat would be about half as much omega-3 as omega-6.

Many cancers, including breast and prostate cancer, seem to invade bone marrow rather than other parts of the body. If it could be shown that this is influenced by the proportion of different types of fat, then scientists may be able to develop drugs that prevent metastasis.

Brown, M.D. et al. Promotion of prostatic metastatic migration towards human bone marrow stroma by Omega 6 and its inhibition by Omega 3 PUFAs. British Journal of Cancer, Vol. 94, March 27, 2006. pp. 842-53

Researchers call for more omega-3 studies

NORWICH, UNITED KINGDOM. Omega-3 fatty acids, present in oily fish and some plant oils, may protect against heart disease, so current guidelines encourage their consumption for both the general public and heart attack patients. But better-quality studies are needed to confirm their benefits in regard to mortality and heart health, health policy experts announced recently. They stated that a recent large trial cast doubt on earlier findings, and that the overall evidence for omega-3 fats is less conclusive than previously thought.

In a systematic review, the authors pooled results from 89 studies (48 randomized controlled trials and 41 cohort studies) of omega-3 fats and mortality, cardiovascular events, cancer, and strokes. Each study lasted at least six months. They concluded that there was no evidence of a clear benefit on either total mortality or combined cardiovascular events, explaining that while other recent reviews of omega-3 trials found a drop in mortality, the publication of a large contradictory trial has changed the overall picture. This study, based at the University of Wales in Cardiff, found that men advised to eat oily fish had a higher risk of cardiac death, although compliance with dietary advice was poor. Its negative findings were unexpected, they write, and the review authors suggest that the evidence be reviewed regularly. Nevertheless, they agree that current guidelines should advise a greater oily fish intake.

In an accompanying commentary, an expert from University College London states that some omega-3 fat is good for health, and particularly so during pregnancy and lactation, but he highlights the concerns over toxic contaminants and the problems with fish supplies over the long-term. He explains that industrial fishing has depleted the world's fish stocks by 90 per cent since 1950. In addition, fish has become less affordable for those on low incomes. Health recommendations conflict with concerns about dwindling supply, he warns, concluding that, although fish farming is expanding rapidly, we probably do not have a sustainable supply of long chain omega-3 fats.

Hooper, L. et al. Risks and benefits of omega 3 fats for mortality, cardiovascular disease, and cancer: systematic review. The British Medical Journal, Vol. 332, April 1, 2006, pp. 752-60

Brunner, E. Oily fish and omega 3 fat supplements. The British Medical Journal, Vol. 332, April 1, 2006, pp. 739-40

Burr, M.L. et al. Lack of benefit of dietary advice to men with angina: results of a controlled trial. European Journal of Clinical Nutrition, Vol. 57, February 2003, pp. 193-200

Editor's comment: The mercury content of most fish has risen dramatically in recent years and there is some evidence that mercury is detrimental to cardiovascular and overall health. The mercury content of fresh Pacific salmon is still low enough to be safe, but where this is not available, supplementing with a high quality, molecular distilled fish oil is a safe option for obtaining the required amount of long-chain omega-3 fatty acids.

Can reducing calories increase lifespan?

BATON ROUGE, LOUISIANA. Early results from a recent study suggest that cutting calorie intake for a few months may hold back some of the signs of aging. It may therefore increase the human lifespan, as has been shown in rodents and other shorter-lived species. The findings come from Louisiana State University, where researchers undertook a study on the effects of calorie restriction on biomarkers of longevity, markers of oxidative stress, and metabolic rate. They recruited 48 men and women who were overweight but not obese, i.e. with a body mass index between 25 and 30.

Participants were randomized to either a weight maintenance diet, calorie intake cut by 25 per cent of requirements, calorie intake cut by 12.5 per cent

plus exercise to increase energy expenditure by 12.5 per cent, or only 890 calories per day until a weight loss of 15 per cent was reached. At the end of the six-month trial, weight loss in the groups was 1.0 per cent, 10.4 per cent, 10.0 per cent, and 13.9 per cent, respectively. Two measures of longevity - fasting insulin levels and body temperature - were significantly reduced in the three lower calorie groups. Resting energy requirements (metabolic rate) dropped in the three intervention groups, significantly beyond what was expected from the participants' weight loss. No significant changes were found in fasting glucose or levels of dehydroepiandrosterone sulfate (DHEAS).

The authors also report a significant reduction in DNA fragmentation, indicating less DNA damage, in the three intervention groups, but conclude that longer-term studies are required to determine if these effects are sustained and whether they have an effect on human aging.

Commenting on the study, an expert from the Washington University School of Medicine in St Louis, stated that the oxidative stress hypothesis of aging is currently one of the most accepted explanations for how aging occurs at the biochemical and cellular level. He added that this study is the first to report a significant decline in DNA damage in response to calorie restriction in

humans, but pointed out the limited number of participants in each group. He concluded that these studies highlight points of intervention to modify the effects of aging, possibly helping to improve quality of life in old age.

Heilbronn, L.K. et al. Effect of 6-Month Calorie Restriction on Biomarkers of Longevity, Metabolic Adaptation, and Oxidative Stress in Overweight Individuals: A Randomized Controlled Trial. The Journal of the American Medical Association, Vol. 295, April 5, 2006, pp. 1539-48

Fontana, L. Excessive Adiposity, Calorie Restriction, and Aging. The Journal of the American Medical Association, Vol. 295, April 5, 2006, pp. 1577-78

Soy may help reduce breast cancer risk

BALTIMORE, MARYLAND. A recent analysis tentatively supports the idea that soy can reduce breast cancer risk. However, the potential reduction is fairly small, and is in doubt because of inconsistencies and limitations in the studies. The analysis, undertaken by researchers at Johns Hopkins' University, brought together results from 18 studies on soy intake from diet and supplements. Overall, they found a modest 14 per cent reduction in breast cancer among Caucasian women, and no reduction among Asian women.

However, the studies differed in whether or not they accounted for many other factors which may relate to breast cancer, such as body mass index (BMI). Those which took account of BMI concluded that soy was less protective than those which did not measure BMI. The researchers explain this finding by suggesting that eating soy may be linked to a lower body weight, which could be associated with other dietary or lifestyle factors linked to lower breast cancer risk. They suggest that high-dose soy supplements may do more harm than good, and

recommended that, at this point, women should not be taking high-dose supplements, especially those who are breast cancer survivors and women at increased risk of the disease. Although there is a lack of long-term data on the effects of these supplements, there is some evidence that they could be harmful, they warned. They added that their results suggest lower rates of breast cancer among Asian women may not be linked to soy, as widely believed.

The authors conclude that researchers need to take into account that Asian women are more physically active, drink less alcohol, have children earlier, and their entire diet is different. While still encouraging intake of whole soy foods such as tofu or soy milk, they call for more studies following women over several decades.

Trock, B.J., Hilakivi-Clarke, L. and Clarke, R. Meta-Analysis of Soy Intake and Breast Cancer Risk. The Journal of the National Cancer Institute, Vol. 98, April 5, 2006, pp. 459-71

Mediterranean diet lowers Alzheimer's risk

NEW YORK, NY. The benefits of a Mediterranean-style diet have previously been investigated in relation to a range of physical health outcomes including cardiovascular disease, several forms of cancer, and overall mortality. Now researchers from Columbia University Medical Center have investigated whether it could help protect older adults from Alzheimer's disease (AD). The possible links between diet and AD have been

examined in relation to single foods or nutrients alone. In this new study, the Mediterranean diet was categorized as high in fruits, vegetables, legumes, and cereals, with some fish and alcohol, and little dairy and meat.

Participants were recruited from the Washington Heights-Inwood Columbia Aging project, and were all resident of the New York area. Their diet was

recorded every 1.5 years for an average follow-up of 4 years. The similarity of their diet to the Mediterranean diet was scored on a zero- to nine-point scale with higher scores indicating greater similarity. Of the 2,258 individuals free of dementia at the start of the study, 262 developed AD during follow-up, as diagnosed by a standardized physical and neurological exam, and an in-depth interview to assess health and neuropsychological function. Overall risk was calculated while taking into account age, sex, ethnicity, education, calorie intake, smoking, body mass index, and apolipoprotein E genotype - a genetic risk factor for AD. Compared with subjects in the lowest third for Mediterranean

diet score, participants in the highest third had a significant 40 per cent reduction in AD risk. Those in the middle third had a non-significant 15 per cent reduction in risk compared with the lowest third.

The researchers conclude that higher adherence to the Mediterranean diet is associated with a reduction in risk of AD. The dose-response effect they found enabled the authors to calculate that, for each additional point on Mediterranean diet scores, AD risk dropped by 9 to 10 per cent.

Scarmeas, N. et al. Mediterranean diet and risk for Alzheimer's disease. Annals of Neurology, published online April 18, 2006

IMPORTANT NOTICE ABOUT VITAMIN STORE

iHerb, our supplement supplier has moved to new, expanded quarters in Irvine, CA and set up a new division, www.papanature.com, to handle on-line sales. Coinciding with the move, iHerb has changed its discount structure, instituted new (very low) shipping charges and eliminated the sales tax for California customers. Papanature.com will continue iHerb's tradition of low prices, fresh products, and speedy delivery.

In a gesture of appreciation to loyal customers, iHerb will extend a discount on your first order during the month of May and on every order you place over the next 12 months. The new discounts are as follows:

For all orders less than \$120 US – 5%
For orders between \$120 and \$239 US – 7.5%
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To receive the discounts you must place your first order and register with iHerb **before May 31, 2006**. To register go to

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Select the product(s) you wish to order on the applicable IHN web store pages; clicking the ORDER button will take you to the iHerb site. Click on "Add to Cart" and when you have finished ordering all your items, click on "Edit & Checkout". After selecting your shipping method, you will be directed to the page where you can register as a new customer. Fill in your e-mail address and a password to create your account. Once you have done this (**before May 31**) you will automatically receive the applicable discount on this and future orders.

Please keep in mind that when you order, I will still receive a commission on every sale made through the IHN store, a commission that enables me to continue the publication of IHN for its 15th year.

Your continuing support is very much appreciated.

NEWSBRIEFS

Tobacco smoke strongly linked to diabetes risk

New research suggests that second-hand smoke raises a person's risk of diabetes. Evidence that smoking is a risk factor for diabetes is currently unconfirmed, so a team at Birmingham Veterans Affairs Medical Center set out to test the theory among smokers, passive smokers, non-smokers and ex-smokers. They looked at data on glucose intolerance - the main precursor to diabetes - among 4,572 men and women. Over 15 years, 22 per cent of the smokers developed glucose intolerance, compared with 17 per cent of passive smokers who had never smoked, 14 per cent of ex-smokers and 12 per cent of non-smokers who were not passive smokers. The risk for non-passive smoking ex-smokers was statistically similar to never-smokers without passive smoke exposure. The authors suggest certain toxins in second-hand smoke may affect the pancreas, which controls blood glucose by producing insulin.

Houston, T.K. et al. Active and passive smoking and development of glucose intolerance among young adults in a prospective cohort: CARDIA study. The British Medical Journal, published online April 7, 2006

Popular herbal treatments may impact other drugs

Fears have been raised over the popular herbs St John's Wort and Echinacea, as they may lower the effectiveness of some pharmaceutical drugs when taken at the same time. A team at Indiana University found that the herbs increase the activity of the enzyme cytochrome P450 3A4 in the liver and intestine that is involved in the metabolism of about one in four pharmaceutical drugs. Metabolizing drugs too fast or too slow can lead to toxicity as well as altering their effectiveness. It is already well-known that St John's Wort causes many drugs to be metabolized too quickly, but these findings partly explain why. Echinacea also changes the metabolism of a number of enzymes that play important roles in medications. Patients and clinicians should be aware of possible reductions in systemic bioavailability - and thus lowered therapeutic efficacy - of conventional drugs when taken at the same time as these herbal preparations, the team concludes.

Findings presented by Dr J. Christopher Gorski on April 4 at Experimental Biology 2006, the meeting of the Federation of American Societies for Experimental Biology in San Francisco

Analysis reaches unpopular conclusion on alcohol

Arguments over the health effects of alcohol continue as a new review casts doubt on any benefit from moderate drinking. This is because of the so-called "abstainer error" - that is, including in the non-drinking group those who cannot drink because of illness. Consequently, those who drink in "moderation" (2 to 4 drinks per day) appear healthier. Previous analyses of the data have not accounted for this, say researchers from the University of California, San Francisco, who analyzed 54 studies on alcohol and premature death from all causes. They found that only 7 studies looked at long-term non-drinkers separately to people who had cut down or quit drinking more recently (possibly for health reasons). These studies showed no reduction in risk of death among moderate drinkers. The widely-held belief that light or moderate drinking protects against heart disease has great influence on alcohol policy and doctors' advice to their patients, write the authors, but caution should be exerted in recommending drinking to abstainers.

Fillmore, K.M. et al. Moderate alcohol use and reduced mortality risk: Systematic error in prospective studies. Addiction Research and Theory, published online in advance of the May 2006 issue

Osteoporosis risk from early lead exposure

Lead exposure in childhood may affect bone growth in a manner which increases the later risk of osteoporosis, say researchers. Scientists have long known that lead collects in the bones, and a team at the University of Rochester, New York, now show that it triggers a complex reaction. First it appears to accelerate bone development and maturation, but this effect seems to be short-lived, so that optimal, peak bone mass is not reached. This predisposes the individual to osteoporosis later in life. From around age 50, when everyone begins to lose bone mass, lead-exposed individuals are at a higher risk for bone fractures and osteoporosis - and probably at an earlier age than the typical osteoporosis patient. The team is now embarking on a four-year National Institutes of Health-funded study to investigate the specific age at which bone growth peaks in lead-exposed individuals, and at what age they begin to lose more bone.

Campbell, J.R. et al. The association between environmental lead exposure and bone density in children. Environmental Health Perspectives, Vol. 112, August 2004, pp. 1200-03

Alternative therapy works for chemotherapy nausea

Variations on acupuncture can reduce nausea and vomiting among chemotherapy patients, suggests a new review of the evidence. These side-effects of chemotherapy are common and can impair quality of life, cause emotional distress and tiredness. The review concluded that manual acupuncture - inserting needles into specific points around the body - does not reduce symptoms of nausea or vomiting on the first day of chemotherapy. (It was not studied for subsequent days.) But electroacupuncture - applying electrical stimulation via inserted needles - did reduce first-day vomiting. It was also not studied for long-term symptoms or for nausea. Acupressure - pressing with fingertips on acupuncture points - reduced first day nausea, but not vomiting. However, all of the patients were also given anti- nausea or anti-vomiting drugs. The studies suggest treatment should ideally be given before symptoms start, and that the benefits of electroacupuncture last about eight hours, and acupressure about two hours.

Ezzo, J.M. et al. Acupuncture-point stimulation for chemotherapy-induced nausea or vomiting. The Cochrane Database of Systematic Reviews, 2006, Issue 2. Art. No. CD002285

Support for three herbal back pain remedies

Three different herbal remedies for low-back pain have been found superior to placebo in a recent review. Extracts of Devils' Claw (*Harpagophytum procumbens*), White Willow Bark (*Salix alba*) and Cayenne (*Capsicum frutescens*) were all found effective for low-back pain in well-designed trials. The review also suggests that Devils' Claw and White Willow Bark compare well to conventional medicines. Researchers analyzed 10 randomized controlled trials involving a total of 1,567 adults. Participants had either acute (less than one month) or chronic (longer than three months) non-specific low-back pain. Results showed that Devils' Claw, known for its anti-inflammatory and analgesic qualities, reduced pain to the same degree as the anti-inflammatory medication Vioxx, and a daily dose of salicin (the active ingredient in White Willow Bark) reduced pain more than placebo, and at a high dose, it was as effective as Vioxx. Cayenne, applied in the form of a plaster, also reduced pain more than placebo.

Gagnier, J.J. et al. Herbal medicine for low back pain. The Cochrane Database of Systematic Reviews, 2006, Issue 2. Art. No.: CD004504

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RESEARCH REPORT

Melatonin and Cancer

by Hans Larsen, MSc ChE

Melatonin is a hormone secreted by the pineal gland and is important in synchronizing the production and excretion of other hormones according to the time of day (circadian rhythm). Melatonin production is low during daylight hours and peaks between 1 and 3 AM when it is darkest.

In 1985 Christian Bartsch and colleagues at the University of Tübingen discovered that prostate cancer patients had an abnormal melatonin secretion pattern and concluded that melatonin secretion may be related to the development and growth of prostate cancer.[1] In 1992 the same group of researchers reported that prostate cancer patients had abnormally low levels of melatonin.[2] These findings prompted other German researchers to investigate whether people living north of the Arctic circle (many dark nights) had a lower incidence of hormone-dependent cancers, such as breast and prostate cancer. They found that this was indeed the case.[3] Moretti, *et al* at the Center for Endocrinological Oncology in Milan, Italy followed up in the laboratory and found

that very small amounts of melatonin inhibited the growth of androgen-dependent prostate cancer cells in culture.[4] The same researchers later discovered that melatonin also very significantly inhibits the growth of androgen-independent cells.[5] Chinese researchers, treating a patient with terminal, metastatic prostate cancer and rising PSA levels with 5 mg a day of melatonin (given at 8 PM), found that this therapy stabilized his disease for 6 weeks as indicated by stable PSA levels.[6] Finally, in April 2005 researchers at the University of Texas concluded that treatment of both androgen-dependent and androgen-independent prostate cancer cells with pharmaceutical doses of melatonin dramatically reduced the number of cancer cells and essentially stopped the production of new cancer cells.[7]

While it is thus clear that low melatonin levels are associated with prostate cancer and that melatonin kills both androgen-dependent and androgen-independent prostate cancer cells, it is not clear what causes low levels in the first place. Fortunately, breast cancer research provides several intriguing clues. In 1995 Molis, *et al* at Tulane University discovered that melatonin prevents the growth of breast cancer cells.[8] In October 2001 Scott Davis and colleagues at the Fred Hutchinson Cancer Research Institute reported that exposure to magnetic fields created by house wiring during the night significantly decreased melatonin production.[9] Norwegian researchers later linked exposure to magnetic fields created by residential wiring to a 58% increased risk of developing breast cancer.[10] In a controlled experiment just reported, a team of researchers from three American universities found that women exposed to relatively low magnetic fields (EMFs) of 5 and 10 mG during the night produced significantly less melatonin than women not exposed to EMFs.[11] As is common in cancer research, one recent study found no association between overall exposure to EMFs and breast cancer.[12] However, it is likely that only exposure to EMFs during the night would be detrimental.

Another important clue is the finding by Danish researchers that women who predominantly work at night have a 50% increased risk of developing breast cancer. The researchers conclude that exposure to light during the night suppresses melatonin production and hence increases the risk of cancer.[13] Jasser *et al* at Thomas Jefferson University in Philadelphia believe that the higher risk of breast cancer in industrialized countries is partly due to increased exposure to light at night.[14] Researchers at the University of Connecticut concur with this and further suggest that exposure to bright light during the day and total darkness at night is optimum.[15] Very recently the Bartsch team at the University of Tübingen in Germany concluded that, "melatonin controls not only the growth of well-differentiated cancers, but also possesses anti-carcinogenic properties". They suggest that short-term melatonin supplementation may be justified to optimize control over cancerous growth and development.[16]

There is credible evidence that a low level of melatonin is associated with an increased risk of prostate and breast cancer. It has also been demonstrated that pharmacological doses of melatonin will dramatically slow cancer progression and reintroduce appropriate cell differentiation. There is also evidence that exposure to low level electromagnetic fields created by normal (60 Hz) household electrical wiring may increase the risk of breast cancer and, by inference, prostate cancer. Finally, there is growing evidence that exposure to light during the night reduces melatonin production and thus increases cancer risk.

Hence, an inappropriately low melatonin level is a risk factor for prostate (and breast) cancer. There is evidence that a low level can be avoided by sleeping in a completely dark room at night and by ensuring that the ambient EMF level is low. Although the officially sanctioned safe continuous exposure level in the United States is 1000 mG [17], there is evidence that an exposure level of only 5 mG significantly reduces melatonin levels.[11] An obvious question is, "If low melatonin levels are detrimental, would it not make sense to supplement?" The medical literature does not contain an answer to this question. In view of the fact that melatonin is a hormone whose many and varied effects are not fully understood, continuous supplementation would probably not be wise until more information on its overall effect becomes available.[16] It has also been suggested that supplementing with melatonin prior to a long airline flight will not only help prevent jet lag, but will also afford some protection against the ionizing radiation experienced at high altitudes.[16] However, sleeping in a completely dark room with an EMF level of 1 mG or less is certainly safe and may be effective in preventing hormone-related cancers like breast and prostate cancer.

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