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## PATERNAL AGE LINKED TO INCREASED RISK OF SCHIZOPHRENIA IN CHILDREN

by Alison McTavish

Although it is well known that older women are more likely to have babies with birth defects, it is often assumed that men can father healthy babies at any age. This assumption is being called into question by a new study that found that aging fathers are more likely to have children who develop schizophrenia.

Schizophrenia is a severe and chronic mental illness that affects about 1% of the population. It often impairs the ability to manage emotion, interact with other people and think clearly. Schizophrenia typically develops in the late teens or early twenties, and patients continue to suffer throughout their lives. About 10% of sufferers eventually commit suicide.

A recent paper in the *Archives of General Psychiatry* studied over 80,000 people born between 1964 and 1976. By examining birth records and psychiatric records, the investigators were able to link information about parental age and information about the prevalence of schizophrenia. They found that the risk of

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## THE ROAD TO PREVENTION – WRITING THE BOOK ON ALZHEIMER'S DISEASE

*An interview with Dr. Serge Gauthier, Director of the Alzheimer's Disease Research Unit at the McGill Centre for Studies in Aging*

by Hannah Hoag

Near the end of his general neurology training, a young Serge Gauthier found himself up to his elbows in lecithin. His sleeves rolled up and his arms buried deep in big barrels of imported lecithin, he and his mentor, Dr. Pierre Etienne, scooped up kilos and kilos of the phospholipid like market merchants and handed it over to the families of patients with Alzheimer's disease (AD). The two researchers hoped that with regular lecithin consumption, the symptoms of AD would dissipate, the result of increased dietary choline. "We had high hopes, at the time, that by giving a lot of natural precursor to a neurotransmitter you could improve symptoms dramatically."

Choline, one of the products yielded in the hydrolysis of lecithin, is an essential precursor for the production of acetylcholine, a neurotransmitter that is found in dramatically low levels in brains of people with AD. Acetylcholine is important in certain cognitive activities, such as learning and memory.



Gauthier and Etienne became partners when Gauthier responded to Etienne's request for a neurologist to help him diagnose patients with AD. The goal of the study was to determine whether choline and lecithin could improve the symptoms that people with AD experienced, by driving the brain's production of acetylcholine. Although the participants in that study consumed a lot of lecithin, "it did nothing for their memory," he says sadly. Where treatment with L-dopa (the precursor to dopamine) could successfully reduce the symptoms of Parkinson's disease, lecithin fell short, "no such thing happened in AD; it was more complex than we thought".

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## PUBLIC LECTURE SERIES

**Age is Just a Number: The Psychology of Staying Young**

by Jeff Boyczuk

Happiness takes work – even for seniors. Luckily, the older generation has a good work ethic, and can make positive changes in their lives, says geriatric psychiatrist Henry Olders. Olders, who suggests that "staying young" might be as simple as a continued enjoyment of life, delivered his message during a recent public

lecture at the Montreal Delta Hotel.

Rather than succumbing to the myth of "reversing the aging process", Olders believes the individuals may better focus their energies on areas of their personal and emotional life which can be improved as they age. He began by suggesting several

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## PATERNAL AGE LINKED TO INCREASED RISK OF SCHIZOPHRENIA IN CHILDREN

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having a child that developed schizophrenia increased as fathers got older. Fathers over the age of 50 were four or five times more likely to have an affected child. Overall, 27% of the cases of schizophrenia they examined could be attributed to paternal age. In contrast, maternal age had no influence.

Although the reason for this finding has not yet been clarified, the investigators suggest that in older men the cells that become sperm have divided hundreds of times, making it more likely that genes have mutated. If this is the case, it may turn out that for healthy children, paternal age is as important as maternal age.

### Reference

1. Malaspina D, Harlap S, Fennig S, et al. Advancing paternal age and the risk of schizophrenia. *Arch Gen Psychiatry* 2001; 58(4):361-7.

## *An interview with Dr. Serge Gauthier, Director of the Alzheimer's Disease Research Unit at the McGill Centre for Studies in Aging*

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Gauthier had not anticipated his entrance into AD research; he had believed his destiny lay in the study of movement disorders. Movement disorders (such as Parkinson's disease) were fashionable at the time. He also held a neurochemistry fellowship from the Medical Research Council under the tutelage of Professor Sourkes, a researcher in the field of Parkinson's disease. However, Gauthier enjoyed his AD experience so much that he never looked back. Etienne inspired Gauthier to study AD, "it was nice to have been a part of the early years when there was just nothing known about AD. Slowly we built up our experience. Nineteen seventy-seven and '78, they were the pioneer years."

There were years of hard work ahead of him. The lecithin study was followed by a dramatic yet risky study designed to pump acetylcholine substitutes directly into the brain from a mini-pump inserted under the skin. "The improvement was minimal, not enough to say 'let's do this in people' - the procedure wasn't that safe."

Being close enough to the patients and the treatment to see their response was an invaluable experience for Gauthier. He learned how to assess a patient's response to treatment, "there were no books written about it at that time," he gestures towards the wall where the framed cover of a book bearing his name hangs, "that came later."

The lucky break came in 1990, when Gauthier and his colleagues received a large shipment of tacrine from Australia. Tacrine, an acetylcholinesterase inhibitor, was first approved in Australia and has since been adopted for the symptomatic treatment of AD in the US. The drug, however, is not approved in Canada, thanks to Gauthier and a handful of other vigilant Canadian scientists who determined that it was not safe enough. The group launched a study to thoroughly investigate the safety and efficacy of tacrine in relieving the symptoms of AD. "It was the first Canadian investigator-driven study [of an AD drug] that was not sponsored by a drug company." These clinicians knew the drug needed to be

properly tested and they determined the best clinical way to do so, "it was not a recipe given by somebody else," Gauthier explains. The study, which was published in the *New England Journal of Medicine* in 1990, was a landmark study that brought Canadian physicians together. Not that the drug didn't have some benefits; Gauthier says that although there were "some improvement in cognitive abilities, there were too many side effects to make the drug safe." The Canadian government stood by the researchers' conclusions.

Others applauded the methodology used in the study design and it has since become central to the trial designs of other AD clinical studies. "Now, Canadians are always asked about what to measure."

Since that landmark study, Gauthier and the group at the McGill Centre for Studies in Aging have studied over 20 different drugs for the treatment of AD – every drug that has come out. However, only two have passed their scrutiny and been approved by the Canadian government; another will be approved in the coming months.

Now that there are some drugs that can alleviate some of the symptoms of AD, clinical trials are being designed to assess drugs that will slow disease progression. Working with European and American groups, these large and expensive studies will determine whether another level of treatment can be attained.

The interest in preventing the onset of AD – even if only by five years – is significant, and the impact on public health enormous, "if you can delay the appearance of AD symptoms by five years, people will die of something else. The prevalence – the number of people affected – will be reduced by one-half." With that, Gauthier adds, "preventative strategies are now the goal of what I do."

Although he regularly sees patients, holds appointments in three departments at McGill University (Neurology and Neurosurgery, Psychiatry, and Medicine), and also teaches in the department of pharmacology and therapeutics, he still has

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## Hip Implants' 'Best-before' Date Extended

by Hannah Hoag

Hip implants currently fail approximately 10 years following surgery. The implants are often outlived by their wearers and cause significant pain and reduce quality of life for many patients. A French materials group in Lyon, France, may have changed this outlook. Altering the manufacturing process of one component of ceramic-polyethylene hip implants may extend their lifetime.

A hip implant consists of an acetabular cup that clasps the ball-like joint of the femoral head implant. Acetabular cups are usually formed from an ultra-high molecular weight polyethylene (UHMWP). The majority of artificial femoral heads are composed of cobalt-chrome alloys, alumina ceramics, or zirconia ceramics. Ceramic materials, which are stronger and more wear-resistant, currently supersede metal-based femoral head use. Wear-resistance is a significant factor in implant longevity. Femoral head surface imperfections caused by wear can cause deformations in the polyethylene cup and implant failure.

Composite ceramic ball heads of alumina and zirconia show even more resistance to cracking and less susceptibility to wear than monolithic ceramic heads. The microscopic zirconia particles impart strength to the composite. However, conventional manufacturing techniques fail to produce a sufficient number of critically-sized zirconia particles. Materials researcher Jérôme Chevalier of the National Institute for Applied Sciences and his team have altered the preparation method of the zirconia-alumina composite to produce greater numbers of nanosized zirconia particles that are homogeneously distributed among the alumina grains. Consequently, the alumina-zirconia nanocomposite has a higher toughness than alumina alone, and exhibits a greater crack resistance than either ceramic.

Alumina-zirconia nanocomposites reduce polyethylene wear, extending the lifetime of femoral heads, reducing implant failure, and improving the quality of life for many patients.

Further reading:

Chevalier J et al. Extending the lifetime of ceramic orthopaedic implants. *Advanced Materials* 12, 1619 – 1621 (2000).

## POLICY AND POLITICS Dementia: An Increasingly Important Public Health Issue

by Alison McTavish

Dementia is a permanent, progressive disease that affects mostly the elderly. It involves the loss of a person's cognitive functions. Cognitive functions are the various conscious mental tasks that are performed every day, from remembering names to performing complicated mathematical calculations. Memory is one of the most essential cognitive functions, and it is often the first to be affected. Dementia also affects problem solving ability, decision making, judgment, and the ability to understand and communicate with words. Frequently it results in personality change. People who suffer from dementia eventually require constant care, and their life expectancy is shortened.

There are about 50 different causes of dementia, including neurological disorders such as Alzheimer's disease, vascular disorders such as multi-infarct disease, inherited disorders like Huntington's disease, and infections such as HIV. Alzheimer's is the major cause of dementia, accounting for 64% of all dementias in patients 65 and older, and 75% of all dementias in patients over 85.

### *The prevalence of dementia in Canada*

In the 1990s, the government funded a large study of aging in Canada. The Canadian Study of Health and Aging (CSHA) was an epidemiological study of dementia and other health problems among the elderly. In the first phase, over 10,000 elderly Canadians chosen at random from the general population were given tests of physical and mental health. The study found that about 8% of the population had dementia. The second phase of the study reevaluated the same group of people four years later.

A recent study in the *New England Journal of Medicine* used data from the two phases of the CSHA to evaluate the impact of dementia on lifespan. Previous studies had suggested that from the onset of symptoms, patients with dementia survived anywhere from 5 to more than 16 years. In the CSHA study, however, survival was markedly reduced with a median length of only 3.1 years for those with Alzheimer's disease and 3.3 years for those with vascular dementia.

The investigators suggest that the discrepancy between their findings and previous studies may lie in how survival has been determined in the past. In some studies survival was calculated not from diagnosis or onset of symptoms, but from entry into the study. Additionally, patients with rapidly progressing disease are often not included in studies because they don't survive long enough to be recruited. These factors may have led previous studies to overestimate the lifespan of people suffering from dementia.

### *The cost of dementia in Canada*

In 1994 the annual cost of caring for patients with dementia in Canada was estimated to be \$3.9 billion. In that year, only 12% of the population were over the age of 65. By 2011 the first wave of baby boomers will reach 65, and by 2031 fully a quarter of all Canadians will be over 65. The cost of caring for those with dementia is likely to increase dramatically over the next few decades. Unfortunately there will also be a dramatic increase in other health care costs. Consequently governments will be forced to make difficult decisions about the allocation of funds to care for those with dementia.

The duration of survival after the onset of dementia has an impact not only on patients and caregivers, but also on the public health and economic aspects of dementia. In an editorial accompanying the CSHA study, the limitations and implications of the new data were discussed. It points out that the new estimate of 3.3 years for patients with dementia may be too short. Many patients have symptoms for several years without receiving a diagnosis, and many who are diagnosed at a relatively early age live for many years and require constant care. If estimates for survival are too short, governments may underestimate the huge cost of treating dementia in the future.

The discrepancy between the CSHA study and previous studies illustrates the complexity of dementia and the difficulty of assessing these patients properly. In the future new drugs may improve quality of life and life expectancy. Given the enormous number of people likely to be affected, studies like the CSHA will be essential to help governments plan the care of the aging population.

### References

1. Wolfson C, Wolfson DB, Asgharian M, et al. A reevaluation of the duration of survival after the onset of dementia. *N Engl J Med* 2001;344(15):1111-6.
2. Kawas CH, Brookmeyer R. Aging and the public health effects of dementia. *N Engl J Med* 2001;344(15):1160-1.
3. Canadian study of health and aging: study methods and prevalence of dementia. *CMAJ* 1994;150(6):899-913.

## PUBLIC LECTURE SERIES

### Age is Just a Number: The Psychology of Staying Young

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conditions that are necessary for being happy in later life.

Sufficient financial resources is the first condition. Retirement may bring financial hardship, and a corresponding change in lifestyle, so it is wise to plan ahead for your non-employment years. Nevertheless, Olders stressed that the key word in this condition is "sufficient", and that research has shown that having more than enough money does not necessarily mean more happiness.

Perceived good health is another condition for happiness in seniors. While age does bring with it a greater chance of illness, and diminished physical condition, it need not mean a bed-ridden existence. Proper nutrition and regular exercise go a long way in fighting age-related illness. However, it is the perception of one's health that matters more than the absolute condition, says Olders. With the maintenance of a positive attitude, a person with minor, or even major ailments can still live a vibrant and active life.

Having goals, in the form of a project or passion, is another condition for happiness in your retirement years. This may be something as simple as playing a musical instrument, or as involved as running a business. The main idea is to have an interest that fills you with a sense of purpose.

Perhaps the most important determinant of happiness in old age is the maintenance of good relationships. For many seniors, this primarily refers to a relationship with a spouse. However, positive relations with family and friends also go a long way in increasing life-enjoyment, and have even been cited as a protective factor against dementia (see Geronto-McGill, Nov. 2000). Olders spent the second part of his talk outlining some potential pitfalls to good relationships, and possible solutions.

One major impediment to good relationships is negative personality factors. These are traits such as self-centeredness, difficulty trusting others, and anxiousness. Of course, everyone might be seen to exhibit these factors from time to time, but when the

traits are pervasive and interfere with home life, work, or play, then they may be considered a disorder, says Olders. The origins of negative personality factors are often complicated, and may be borne as early as infancy from physical or emotional abuse, traumatic events, or more subtle difficulties in the parent-child interactions. Some personality disorders may have neurological causes.

Olders also listed "blind spots" as a detriment to successful relationships. These are adverse behaviors that are obvious to others but not to the individual who performs them. As an interesting example, Olders cites individuals who have difficulty accepting a compliment. While this is seemingly innocuous behavior and may be interpreted as modesty by some, it has an aspect of aggression in that the recipient is questioning the judgement of those who give the compliment. This may reflect poor self-esteem, which also hampers relationships.

Anger behavior, both in overt and hidden form, may also be a cause of relationship breakdown. Although the anger emotion has evolutionary-survival roots in the "fight or flight" response, it has more of a damaging effect in modern relationships, notes Olders. When anger is experienced, blood flows away from brain, impairing a person's cognitive function, which often leads to mispoken words, and poor decisions. However, anger may also be expressed more subtly through passive-aggressive behaviors, which are equally harmful.

If you recognize some of these problems as your own, you may wonder whether professional help is necessary, or if a personal commitment to change is enough. This is a matter of personal preference in many cases. However, Olders uses the metaphor of the do-it-at-home auto mechanic who may invest a little money in tools and fix minor car problems, but when something major comes up, must inevitably consult a professional mechanic.

If you do decide to go the self-help route in bettering your relationships, Olders asserts that a three-week change in behavior

patterns will make new behaviors habit. If you wish to deal with your own blind spots, ask a trusted friend to give you the straight truth - and prepare yourself to deal with the criticism. If anger behavior is your problem, try and remind yourself that words spoken in anger are rarely constructive - stop and count to ten. Finally, if you're finding it difficult to deal with problems on your own, remember that there are many community-based self-help groups for problems ranging from alcoholism and anger management to loss and bereavement.

Staying young and finding happiness in your retirement years is possible, if you are willing to work for it, says Olders. Although your body may physically age, maintaining a positive attitude, dealing with relationship problems, and staying as healthy as possible, physically and emotionally, is the key.

Dr. Henry Olders is a geriatric psychiatrist and co-director of the Psycho-Oncology Clinic at the Sir Mortimer B. Davis Institute - Jewish General Hospital.

## An interview with Dr. Serge Gauthier, Director of the Alzheimer's Disease Research Unit at the McGill Centre for Studies in Aging

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time to focus on his research: trial designs that will establish whether a treatment will delay the progression of AD. Time, he says, is his biggest frustration, “the days are too short. There are too many phone calls to be able to return them on time, but what can you do? There are a lot of people who need diagnosis and assistance.” He adds, “if there is a plea, it would be for clinicians to get involved in dementia research.”

Gauthier insists that his two greatest achievements are his two children – a professional dancer and a lawyer – but adds that, professionally, he’s pleased with the rigour with which he and his colleagues test potential AD drugs. “We have developed the know-how to say how a drug works and if it is safe or not safe, before it is approved. Once they’re approved, we know how to use

these drugs well.” To ensure that everyone knows how to use the drugs well, Gauthier has written several books, some intended for physicians, residents, and GPs, and others for specialists. He’s also an active advocate in ensuring that the information is accurately transferred to clinicians in developing countries where the boom in AD patients is imminent.

Gauthier has been involved in the research and the clinical aspects of AD since the beginning. He’s written books on the subject, determined which drugs are safe and effective enough to be approved in Canada. He’s seen clinical trials evolve from symptomatic to preventative strategies, and he has no doubts that he will be around when AD can be prevented, or at least forestalled. He’s received many awards to support this

prediction, but he claims they’re not important, “they’re only important because they recognize the work of the team. It shows that the breakthroughs in this field happen through a multidisciplinary approach; you need the researchers and the clinicians to move forward.”

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## Psychosocial Determinants of Healthy Aging

by Jeff Boyczuk

When talking about “successful aging”, attention inevitably turns to the physical aspects of growing older, and how changes in diet or physical activity may prevent age-related disease. However, researchers have known for decades that psychological and social well-being are inextricably linked to health and, as such, tied to quality of life. Three factors that have proven to be strongly related to well-being in the aged are socioeconomic class, the extent of social networks, and the sense of control retained over life<sup>1</sup>.

Socioeconomic status is a variable that has been extensively studied and has been shown to have a pointed association with mortality rates. For persons above retirement age, increases in mortality rates have been shown for those who have the lowest levels of education, as well as those who are living at or near the poverty level. It remains unclear how education may impact mortality, and it may be that the association emerges due to a close relationship between level of education and overall socioeconomic position. The pathways between poverty and mortality have been more often discussed, with researchers suggesting that financially restricted individuals suffer from, among other things,

poorer nutrition and lesser access to quality health care.

The strength and extent of social networks has also been associated with quality of life in the elderly. Research has shown increased death rates for individuals above 70 years of age who have few social contacts, or low levels of social activity. Furthermore, individuals having little contact with family or friends have shown slower rates of recovery from illness and higher levels of stress. Studies have even suggested that extensive social networks offer protection against dementia (see Geronto-McGill, Nov. 2000).

A factor that has been repeatedly implicated in quality of life ratings for persons of all ages is a sense of control over life. In the context of the elderly, a sense of control is most acutely threatened by the prospect of institutionalization. However, this aspect of psychological well-being is also challenged in a multitude of other ways during old age. External changes along physical, mental, social and economic dimensions (to name a few) are faced by most in their retirement years. While research has demonstrated that sense of control correlates strongly with self-reports of quality of life, it is interesting to note that

this is typically a measure of perceived, rather than objective, control. In other words, it is more important that individuals *believe* that they exercise a sufficient amount of influence on the events that occur in their life, rather than actually doing so.

Despite the fact that most of the data linking socioeconomic status, the extent of social networks, and perception of control to quality of life in the elderly is correlational, strong associations between these factors and physical health have been repeatedly observed, begging the need for continued investigation. While it seems as if enhancing levels of socioeconomic status and perception of control may be an elusive goal, these factors seem to jointly suggest that increased social support may improve quality of life for a large portion of the senior population. This increase should come not only in the form of financial relief for elderly individuals struggling to make ends meet, but should also be directed at establishing programs that increase independence, and facilitate social contact for older adults.

<sup>1</sup>Abeles, R. Gift, H., Ory, C. (1994) *Aging and quality of life*. New York: Springer Publishing.

## REGISTRY OF AGING-RELATED WEBSITES

by Emmanuelle Denis

[http://www.cihr.ca/institutes/iha/iha\\_about\\_institute\\_e.shtml](http://www.cihr.ca/institutes/iha/iha_about_institute_e.shtml)

The Institute of Healthy Aging (part of the Canadian Institutes of Health Research) supports research promoting healthy aging. The Institute's website offers news, a calendar of events and information about funding opportunities.

<http://www.agingresearch.org/>

The Alliance for Aging Research is an American non-profit organization whose mission is to promote public and private funding of medical research and geriatric education. Their site features an extensive health topics section, an online newsletter and listings of recent publications of interest to both professionals and lay-people.

<http://www.mayohealth.org>

The Mayo Clinic has an excellent website that offers current research updates, general health and nutrition information as well as links to specific disease/treatment sites.

<http://www.fifty-plus.net>

The official site of CARP, Canada's Association for the Fifty-Plus, provides a wide range of information for people over the age of 50. Visitors can browse through comprehensive health, money, family and community sections as well as apply for CARP membership on-line.

<http://www.seniornet.org/>

The nonprofit SeniorNet aspires to "bring wisdom to the information age" by providing seniors with access to and education about computer technology and the Internet. The website hosts discussion groups and offers on-line computer courses. There is also a healthy aging section, which contains current articles relating to health concerns of people over fifty.

<http://www.elderweb.com>

The Eldercare site is of use to both professionals and family members looking for information on eldercare and long term care. Also included are links to information on legal, financial, medical, and housing issues, as well as policy, research, and statistics.

*These websites are presented as reference tools for readers. Geronto-McGill does not guarantee the accuracy of information found at these sites, nor endorse any of the products found therein.*



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