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## THE LINKS BETWEEN PHYSICAL ACTIVITY AND SELF-ESTEEM

by Angela J. Ring

Most of us realize that positive self-esteem plays a central role in a successful and satisfying life, but what are the factors that influence positive self-esteem in the older adult? Living well in older age has in fact become an important topic of investigation for researchers, particularly since we have begun to acknowledge that we are also living longer than the generations that came before us. One factor that has been identified as playing a role in living well as we live longer is that of physical activity. Physical well-being is especially important as we age given the physical decline often associated with age that comes with general slowing, reductions in mobility and functioning, disease, and disability – all of which contribute to our ability to live independently and thus influence self-worth.

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## HOW BREAKING THE SILENCE COULD SAVE YOUR LIFE

An interview with Gary Wild, M.D., Ph.D., Montreal General Hospital

by Elaine Schramek

Getting people to talk about what most deem quite embarrassing (the functioning of our bowels) is all in a day's work for the very busy clinical gastroenterologist and researcher, Dr. Gary Wild, based at the Montreal General Hospital.

Dr. Wild is a 'home grown' McGillian in every sense. He began his career at McGill studying genetics at the undergraduate level and then obtained a Ph.D. in Experimental Medicine. Fuelled by a passion for patient care, he pursued his medical degree followed by a residency in internal medicine. Dr. Wild then specialized in gastroenterology (GI). In contrast to most medical students, Dr. Wild's career path towards GI was set well before he even entered medical school. As an undergraduate student, he had worked on a summer research project under the tutelage of a pathologist (a doctor who specializes in the nature, structure, and identification of disease by examining tissues and cells) named Dr. David Murray, who inspired a tremendous curiosity about the relationship between the structure and function of the



intestines.

Dr. Wild describes the intestines as "a key organ system that greatly contributes to the overall homeostasis of an organism that has an amazing ability to adapt in health and disease". Many of us are either unaware of or take for granted the critical role the intestines play in keeping us healthy. For one, the absorption of the nutrients found in our food is a primary function of this organ system.

Of great interest to Dr. Wild are disorders known as Inflammatory Bowel

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## POLICY AND POLITICS

### AGING RESEARCH: CAUGHT IN A WEB OF JOURNALISTS, READERS, AND SCIENTISTS

by Daniel Auld

With absolute certainty, we can all count on aging. What is more, the aging process is evident all around us: in ourselves, in our family, in our friends and in strangers. Accordingly, it is no surprise that people are interested in finding out more about aging. This curiosity drives us to ask

questions. How do we age? How can we slow down aging? What is aging? For most of us, the answers come from the mass media. However, are there biases in the way that this information is conveyed to us?

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## **An interview with Gary Wild, M.D., Ph.D., Montreal General Hospital**

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Disease (IBD) that cause the intestines to become inflamed (red and swollen). There are two kinds of IBD, Crohn's disease, and ulcerative colitis. Crohn's disease usually occurs in the lower part of the small intestine, called the ileum, but it can affect any part of the digestive tract, from the mouth to the anus. The inflammation extends deep into the lining of the affected organ and usually causes open sores along the length of the intestines. Consequently, individuals living with Crohn's disease experience abdominal pain and frequent emptying of the intestines resulting in diarrhea, which in turn causes weight loss. Ulcerative colitis on the other hand, causes inflammation and ulcers in the top layer of the lining of the large intestine but results in a similar set of symptoms as Crohn's disease. In both cases, patients go through periods of remission and relapse, and do so over the course of their entire lives.

Within his clinical practice, Dr. Wild also sees a large number of older adults who are referred to him by their physicians following complications associated with the use of medications given for the management of heart disease and for stroke prevention (e.g. aspirin, Plavix, and the NSAIDS; see the Sept-Oct issue of Geronto-McGill for an in-depth look at the actions of NSAIDS). Among the GI complications he treats in older adults, are reflux, ulcers, and severe hemorrhage. Colon cancer, however, remains the most common disease diagnosed in individuals over the age of 50. Dr. Wild explains that colon cancer is the second leading cause of cancer-related death in North America. This reality is hard to reconcile with the fact that colon cancer is a preventable disease. So, why do so many of our loved ones die from this painful and debilitating form of cancer?

### **Breaking the Silence**

According to Dr. Wild, the primary explanation for this disturbing reality is the low proportion (less than 30%) of individuals who go for tests that screen for colon cancer. There are at least two possible reasons why many fail to do so. First is a common misconception that the screening tests are very painful. Dr. Wild asserts that this fear, although understandable, is unfounded. Most people are particularly afraid of undergoing a colonoscopy, which involves the insertion of a very small and

thin type of camera into the rectum that allows the doctor to visualize the colon. Dr. Wild explains that the comfort of patients is a high priority and as such, they are given medications to calm them and take care of any pain that could be associated with the test.

But, perhaps the greatest challenge to getting people into the clinic for screening is the stigma associated with the open discussion of what goes on "down there", let alone having someone examine us there. Many feel that it is simply not socially acceptable to divulge information about the colour, consistency, and frequency of our bowel movements, even if our doctors are the ones doing the asking. This is one case, however, in which silence can truly be deadly.

Dr. Wild explains that this stigma is present in people of all ages and not only in the 50+ population. As a result, most unfortunately, individuals living with GI disorders literally suffer in silence. For the young adult this can translate into social isolation, difficulties in school, not being able to hold down a job, stress, a negative self-image, and low self-esteem. Many feel ashamed to explain why they find it difficult to go on a long car ride, go out for pizza, or go to the beach. This is a heavy psychological burden for an individual who already has to deal with the physiological consequences of their disease. In older adults, GI disorders and fecal incontinence (a common problem in the older population) has the same psychological consequences with the addition of often rendering them housebound. Thus, the common themes here are poor quality of life, shame, and considerable stress.

Although it is accepted among doctors in Dr. Wild's field that stressful life events or the perception of increased stress often precede the onset of relapse, to date, no studies have directly shown that this relationship exists. Accordingly, Dr. Wild and his team have set out to do so in a series of studies. He is particularly interested in determining the psychosocial factors that influence the clinical course of IBD. Dr. Wild is indeed well equipped to be asking these types of questions. Motivated by a passion for ensuring improved quality of life in his patients and understanding the important influence the mind can have on the

body, Dr. Wild furthered his education by obtaining a master's degree in Health Psychology. He thus stands poised to investigate IBD at many levels, from the genes that might be involved in the development of the disorders, to the environmental factors that could determine whether these genes get turned on, or not, and the psychological factors that play a role in the severity of disease and that influence how one copes with the disease. Through several collaborations across the country and a truly integrative approach, Dr. Wild aims to answer precisely these questions. His ultimate goal is to be able to identify and implement the best individually tailored treatment plans for his patients. He feels that for some, psychological counseling might be of critical importance.

Dr. Wild states that "in adopting an approach that aims to better understand the mind-body connection in medicine and the role this duality plays in chronic disease, we will likely see discovery that will rival the progress of the genome". Dr. Wild may be part of a dying breed because "due to the critical decrease in health care resources there are fewer specialists and it is becoming increasingly difficult to remain true to the clinician/scientist model". This is unfortunate because so much can be learned when our doctors can go from the clinic to the research lab because the patients tell them what needs to be researched and once answers are found, doctors can immediately integrate the knowledge gained into treatment plans. With fewer doctors, this means less time for research and longer waiting lists for critical screening tests. Despite this reality, Dr. Wild urges us, our families, and friends to overcome our embarrassment and get onto those waiting lists as soon as possible; after all, aren't our quality of life or our lives themselves worth it?

## HIGH-TECH TOOLS AND DEMENTIA

by Tania Elaine Schramek

Many individuals with mild dementia do not feel confident venturing out on their own for fear of getting lost or disoriented. In the advanced stages of dementia, up to 44% of patients wander, which is worrisome for their caregivers. Researchers are uncertain why wandering occurs and are hoping to improve our understanding of its basis. Many argue, however, that because of the potential risks associated with wandering, practical solutions are required immediately. It may be that high-tech tools will be the key.

A recent study conducted in the UK examined the feasibility of using Global Positioning System (GPS) technology to locate missing persons. Participants were fitted with a GPS-enabled cellular phone worn in a shoulder harness<sup>1</sup>. With this, the researchers were able to accurately and reliably locate their participants within a 5-meter range anywhere in the country.

There were, however, challenges with respect to the use of this technology. First, GPS tracking does not work inside buildings or on public transport and patient compliance was an issue. Of the location failures that did occur, 95% were due to patients not wearing the phone. Some found it too heavy to wear while others felt that their privacy was being invaded. In fact, this may be the greatest challenge to electronic tracking being adopted as the first-line approach to wandering management.

While keeping in mind that current practices often have patients living behind locked doors, physically restrained to their beds or chairs, or chemically restrained with powerful medications, many argue that there are nonetheless serious ethical issues at play with respect to tracking one's every move 24 hours a day. Can patients consent? Who determines when the technology should be put to use? Moreover, will using such technology delay research aimed at understanding wandering and thwart the efforts of groups lobbying for greater

funding and support to caregivers and institutions<sup>2,3,4</sup>?

Indeed, the issue is charged. Nonetheless, greater independence and freedom is a highly desirable goal and less restrictive ways of ensuring patient safety and caregiver peace of mind will surely be welcome.

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## THE LINKS BETWEEN PHYSICAL ACTIVITY AND SELF-ESTEEM

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With these important issues in mind, a team of researchers at the University of Illinois wanted to know how physical activity and positive self-esteem were related in older adults, and what factors might link the two. They began by recruiting 174 healthy older adults between the ages of 60-75 who had been identified as "sedentary". In the first phase of the study, older adults participated in a 6-month exercise program and completed measures of global self-esteem, of self-esteem relative to domains of physical functioning, self-efficacy in terms of beliefs about ability to exercise, and The Physical Activity Scale for the Elderly, which assesses physical activity over a one-week period. The researchers then let four years elapse and contacted the original participants in order to reassess self-esteem and physical activity using the same measures. The idea was that by reassessing physical activity and self-esteem four years after the exercise program was initiated, the researchers could compare the link between the two under both a controlled physical activity regime as well as a free living condition.

Contrary to what has been previously suggested, the results indicated that rather than physical activity and self-esteem being indirectly related through specific beliefs and attitudes about the ability to be physically active, that these beliefs and attitudes actually contribute simultaneously with actual physical activity to levels of global self-esteem. The researchers suggest that more important than physical activity itself may be the reductions in mobility and physical conditioning that directly influence beliefs about physical capabilities. They go on to suggest that it is

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## AGING RESEARCH: CAUGHT IN A WEB OF JOURNALISTS, READERS, AND SCIENTISTS

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The puzzle of aging is being studied every day by scientists who are making new discoveries at a dizzying pace. Given the highly specialized nature of their work and their busy schedules, it is often not easy for them to communicate their findings directly to the lay public. Enter the media, who scramble to meet the public's interest. However, are the media painting an accurate picture? Undoubtedly, it is not possible for them to report all the aging research that takes place, nor would the lay readership be interested in much of that research. In fact, unless aging research can be spun by the reporter in such a way as to inspire fear or hope, people would probably not find it sufficiently interesting.

Indeed, reporting on other disciplines of scientific research that have less personal meaning – for instance, it is hard to personalize quantum mechanics, despite its revolutionary nature – has often been marginalized in the print media. By contrast, health reporting has ballooned in popularity. The simple explanation is that people are concerned about their health, and the media has responded to this interest. Of course, because all of us age, aging research has been swept into the health-interest frenzy.

Since one of the goals of editors is to sell their newspapers, and that of reporters is to advance their careers by having as many high-profile stories as possible, they are under great pressure to produce provocative stories. To engender interest, many reporters essentially want their story – and thus the research they report – to have a personal meaning for the reader. As mentioned earlier, writers like to use hope or fear to snag their readers. Thus, reporters often choose research that has clear implications for their readership: Should they be eating a certain kind of fruit? Should they be avoiding a certain type of food? Is activity A good for aging but activity B bad?

Unfortunately, this sort of research is often preferentially targeted for reporting whether or not it is of high quality.

Additionally, journalists are often forced to simplify and generalize in order to make the highly specialized research more palatable for their typically non-scientifically literate readership. Although admirable in that a version of the science reaches the public, quite often research claims can be aggrandized in the process, leading to a false impression of importance. Indeed, journalists and the scientists that they report on occasion may lose sight of the limitations of the research and of its real-life implications – recall that most of the research is conducted in lab animals, ranging from worms to mice.

In addition to catering to what the public wants to read, could the media influence scientists, including the implicated researchers and their colleagues? One intriguing study suggests that this could be the case. Before this incident is recounted, it is important to point out that in research, success or failure is defined, in large part, by influence on other scientists. One measure of this is the number of times an article is mentioned by other scientists in their papers. Now back to the media: in the late 1970s there was a strike at the New York Times. During this period, papers that were published in the New England Journal of Medicine, a prominent medical journal, were mentioned less often than those published before or after the strike. Accordingly, it seems that that reporting by the New York Times may have influenced scientists in what they considered to be important research. If the media have an unexpected influence on scientists in this fashion, one has to wonder whether media reporting influences decisions on what research is performed as well?

Should we take caution? Is there a danger that the public's appetite for a certain type of research (with personal implications), journalists' penchant for writing about what their readership wants (perfectly logical) and the potential that this may influence how other scientists rate a

research study's importance, will combine to alter the course of aging research? Only time will tell. At the very least, to minimize potentially untoward consequences, high standards of scientific reporting should be maintained by all involved.

There is certainly some great aging research being carried out, and some of it is very well reported by the media. So enjoy your reading and if you think something sounds too good to be true – or if your interest is peaked – don't be afraid to investigate further.

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## NEW RESEARCH SHOWS THAT OBESITY AND SMOKING ACCELERATE THE RATE OF AGING

by Daniel Auld

We all know that smoking and obesity are bad for our health. But what we didn't know, at least until recently shown by Tim Spector and his colleagues at St. Thomas' Hospital in London, was that they accelerate the pace at which our cells age. No longer can obesity and smoking be looked at having organ specific effects, such as heart disease or lung cancer. Rather, they seem to accelerate the very clock that paces our aging. Dr. Spector's team gathered white blood cell samples from women volunteers aged 18-76 and looked at a specialized part of the chromosome, the telomeres. Why the telomeres? Each time cells divide a few telomeres are lost. When cells become old after many divisions, telomeres disappear altogether. Thus, the cells of older individuals have shorter telomeres. Remarkably, Dr. Spector's group found that telomeres were shorter in obese women, making them the equivalent in telomere-age to lean women 8.8 years older. Moreover, they found that if a woman smoked for a period in her life, her telomeres looked as though they were 4.6 years older. Predictably, if the woman was a heavy lifetime smoker (e.g., a pack a day for 40 years), her telomeres looked 7.4 years older. Obesity and smoking are associated with inflammation and an increase in a form of cellular damage called oxidative stress. The authors speculate that oxidative stress and inflammation are the driving forces behind accelerated cellular aging, as they are both known to associate with increased white blood cell division and therefore telomere shortening. According to this research, shedding those few extra pounds and having fewer cigarettes may help us slow our aging.

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## THE LINKS BETWEEN PHYSICAL ACTIVITY AND SELF-ESTEEM

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these self-efficacious beliefs that mediate the relationship between physical activity and self-esteem, and that future research aiming to investigate these relationships may be better served by focussing on the assessment of beliefs in the capability to maintain activity or improve levels of physical condition, strength and physical appearance.

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## SCIENCE HERE AND NOW

### THINKING AND WALKING: INVESTIGATING THE INTERACTIONS BETWEEN COGNITIVE AND SENSORIMOTOR FUNCTIONING IN OLDER ADULTS

by Angela J. Ring

Many older adults will testify to the decline in cognitive and motor functioning that accompanies older age. In fact, much research has been done examining how cognitive and motor functioning interact, and has supported the notion that they not only interact with one another, but that this interaction *in fact increases with age*. Deciphering these complex interactions has been a central focus for Dr. Karen Li, a researcher at the Centre for Research in Human Development at Concordia University.

Much of Dr. Li's research asks people to simultaneously perform cognitive and sensorimotor tasks, in order to determine how individuals prioritize these tasks. More specifically, she asks both younger and older adults to perform cognitive tasks, such as memorizing word lists while they walk on a treadmill. She hypothesizes that the decline in functioning that is seen in older age may in fact be the result of the interaction between age-related losses and the compensatory strategies to deal with these losses. She draws from the theory of selection, optimization and compensation, which posits that as we age, we adapt to the changes we face by focusing on gains and minimizing the losses. For example, when faced with complex tasks that require both cognitive and sensorimotor effort, older adults may prioritize walking safely rather than focusing on having a conversation while they walk with a friend. In a 2001 study, Dr. Li found that older adults performed worse than did younger adults on memory performance when simultaneously walking, suggesting that older adults do in fact prioritize walking over memory. This was further supported when participants were given the option of using an aide for both tasks – older adults favoured a walking aide while younger adults tended to favour using the memory aide.

Dr. Li plans to continue her research along these lines in the hope of teasing out whether these differences are the result of a reallocation of cognitive resources, or if they are the result of trying to coordinate two very different kinds of complex tasks, thus

affording us a better understanding of the nature of these skills and how they are related. She plans on expanding her work to include observations made in a more naturalistic setting in order to assess how these interactions might play out from a daily living point of view. Many older adults may have difficulty integrating these tasks, and deciphering the interaction may have benefits for the development of assistive devices, as it is important to assess if and how older adults choose to use these devices, rather than simply assessing if the devices themselves are useful. She points out that if using a particular assistive device causes greater difficulty than not, from a cost-benefit standpoint, older adults may opt to not use the device, thus putting them at risk for physical injury.

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