



# Impact through I N N O V A T I O N



*“VGH leads in treating Prostate Cancer,” “VGH to have the world’s first hip health centre,” “ALS clinic lands star,” “A ray of light for bladder research,” “Unique BC Centre to target mood disorders”.... A snapshot of recent news headlines made by Vancouver Coastal Health Research Institute investigators.*

Health research changes lives: providing answers to illness, better treatments, and new cures. Clinical and bench researchers at Vancouver Coastal Health are among the best in the world. They are pioneering leading-edge research and specialized care for today’s most devastating diseases and conditions.

By making these discoveries right here at home, it means we can provide faster translation to new treatment options for all British Columbians. It also means economic gain through technology transfer. Our scientists are part of a growing and vibrant biotech industry that adds millions to the BC economy. And, by excelling in innovation and discovery, we are able to attract more research dollars and recruit the brightest young minds from across the country and around the world.

Better health care, positive economic impact, and creating knowledge and innovation leaders. VCHRI is committed to this process, which is reflected in the following pages.

For more information, visit us at [www.vchri.ca](http://www.vchri.ca)

**BERNIE BRESSLER**

**Executive Director, Vancouver Coastal Health Research Institute**

**Vice President, Research, Vancouver Coastal Health**

# Translating Research to Better Patient Care

## Examples across VCHRI

### Preparing patients mentally and physically prior to joint-replacement surgery leads to shorter hospital stays

VALERIE MCDONALD, CNS

Centre for Hip Health

Joint replacement surgery is one of the more common in-patient procedures taking place at VCH hospitals, so any reduction in length of stay would be significant to both patient satisfaction and patient flow. A few years ago, Vancouver General Hospital instituted a Rapid Recovery Program (RRP) aimed at improving recovery rates of knee and hip-replacement patients. RRP addresses in advance potential problems that could delay recovery from surgery, by coaching patients to get in shape physically, mentally and with home supports. It also involved streamlining and restructuring hospital care to prevent and manage predictable problems in a timely manner. A multidisciplinary ortho-



pedic team at VGH evaluated the RRP, comparing length of hospital stay before and after the program was instituted. The team found that the RRP patients were satisfied with the pre-surgery coaching they received, and that their hospital stays were shorter than those of patients who had not been through the RRP. The new

practice has been extended to other orthopedic units of VCH and a provincial collaborative will begin to share this information with health-care teams throughout the province during the fall of 2005.

### A novel new drug will revolutionize treatment of inflammatory diseases and leukemias

DR. ALICE MUI

Centre for Immunity and Infection

“Inflammation” is the body’s way of cleaning and sterilizing a wound. The key players here are white blood cells called “inflammatory cells.” In a healthy body, inflammation is strictly controlled and turned off when no longer needed. The switch that controls the process and controls cell division in inflammatory cells is a protein called “SHIP,” which is found only in these cells. If SHIP is absent or not working properly, the result can be serious inflammatory disease or leukemia. A VCHRI-supported project has found a small molecule that can re-activate SHIP, which may control these illnesses. At this time, patents have been applied for and a company has been established to bring this discovery to human trials, and potentially, the market. Upon completion of preclinical studies, this molecule may be in phase I clinical trials as early as next year. Completion of phase 2 and 3 clinical trials and regulatory approval however will require 5-10 years.





## Can we prevent heart attacks and strokes caused by atherosclerosis?

DR. URS STEINBRECHER

Centre for Immunity and Infection

Atherosclerosis is characterized by the presence of fat-filled “plaques” in blood vessel wall linings. Each plaque starts as a minor injury to the lining. This initiates the body’s normal wound-healing response, which involves white blood

cells called “macrophages.” The role of the macrophages is to remove dying cells, fatty debris and cholesterol from the wound. But if blood cholesterol is high or the vessel injury is ongoing, they cannot do their job. They instead accumulate at the site and form an early-stage plaque, which is basically a collection of macrophages stuffed with cholesterol. Later, scar tissue forms over this. Unfortunately macrophages can secrete enzymes that weaken the scar-tissue covering, causing the plaque to burst and expose its contents. This, in turn, leads to a blood clot, which can trigger a heart attack or stroke. A team of researchers did a series of experiments to learn what keeps macrophages alive in the artery wall. They found that an “oxidized form

of low density lipoprotein” can block the normal programmed death of macrophages and could be one reason why macrophages accumulate and form plaques. The results of these studies identify biochemical pathways that might be altered to prevent development of atherosclerosis. Eventually, further research may test intervention strategies that can be implemented clinically.

### REFERENCES

1. Hundal, Rajinder S; Antonio Gómez-Muñoz; Jennifer Y Kong; Baljinder S Salh; Anthony Marotta; Vincent Duronio; & Urs P Steinbrecher. Oxidized low density lipoprotein inhibits macrophage apoptosis by blocking ceramide generation, thereby maintaining PKB activation and Bcl-XL levels. *Journal of Biological Chemistry*, 278:24399-24408 (2003).
2. Gómez-Muñoz, Antonio; Jennifer Y Kong; Bill Salh; & Urs P Steinbrecher. Ceramide-1-phosphate blocks apoptosis through inhibition of acid sphingomyelinase in macrophages. *Journal of Lipid Research*, 45:99-105 (2004).



## Trying to make children healthier by changing the school and community cultures

DR. HEATHER MACKAY

Centre for Hip Health

Obesity in children is increasing at an alarming rate. The main causes are lack of exercise and poor eating habits. To address this problem, a group of researchers representing VCHRI, the BC government, UBC, and other stakeholders designed a “socio-ecological” approach to increasing children’s physical activities and healthier eating habits. It is called “Action Schools! BC” (AS! BC). It involves changing the local school and community culture in ways that make it easier for children to make good choices. Phase I of the project was to try out AS! BC for 16 months in ten Vancouver schools and evaluate the results. The results indicated improved cardiovascular health, bone health and academic performance of the children, as well as a trend toward decreased body fat in those at greatest risk of becoming obese. Phase I was so encouraging that the BC government is now implementing it province wide. Meanwhile, Phase II of the study continues — on a province-wide scale.

## Exploring the biochemical details of Huntington's disease

DR. LYNN RAYMOND

**Brain Research Centre**

Huntington's disease is an inherited neurological disorder that causes loss of mental function and motor control, ultimately resulting in death. A single gene has been identified as the cause of the disease. The Huntington gene operates mostly in the brain and it produces a protein called "huntingtin," which plays an important role in nerve-cell function. Huntington's disease results when this gene undergoes a mutation. The mutated gene produces an altered protein (called "huntingtin"), which over time causes nerve cells to malfunction and eventually die. This occurs most severely in a brain region called the "corpus striatum." A VCHRI research team looked into how the altered "huntingtin" protein changes the internal biochemical events of nerve cells with the mutated gene. The next step for this team is to test existing drugs and/or develop new ones that alter those events and protect nerve cells from damage.

### REFERENCE:

Zeron, Melinda M.; Herman B. Fernandes; Claudia Krebs; Jacqueline Shehadeh; Cheryl L. Wellington; Blair R. Leavitt; Kenneth G. Baimbridge; Michael R. Hayden; & Lynn A. Raymond. Potentiation of NMDA receptor-mediated excitotoxicity linked with intrinsic apoptotic pathway in YAC transgenic mouse model of Huntington's disease. *Molecular and Cellular Neuroscience*, 25:469-479 (2004).



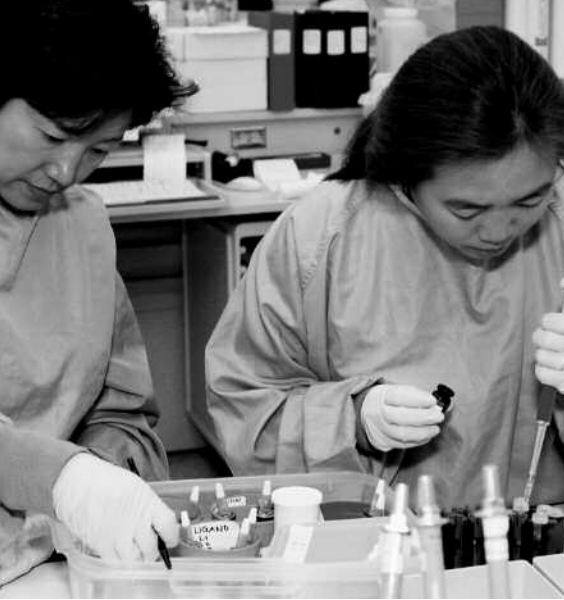
## Can CPR plus injection of clot-dissolving enzyme save more cardiac arrest victims?

DR. RIYAD ABU-LABAN

**Research Director, Emergency Medicine, VGH**

CPR is seldom successful on victims of sudden cardiac arrest. There is a mere 33% success rate on the few whose heart muscle still shows electrical activity and twitching. Otherwise, the results of CPR are dismal. This study was aimed at victims whose hearts showed electrical activity but no muscle twitching. Since there can still be some blood flow, it's thought that these victims are in a state of shock and that removing the cause of the shock during CPR would improve the success rate. The aim of this study was to see if those victims whose hearts stopped due to a blood clot would respond to an injection of a clot-dissolving substance. The results of this study were negative, but they help to clarify appropriate clinical practice and to establish research questions for future studies.





## Insulin-like growth-factor may hold key to preventing rupture of Achilles tendon

DR. VINCE DURONIO

Centre for Respiratory and Critical Care Medicine

Athletes and active older people often rupture one or both Achilles tendons due to an underlying chronic disease condition in the tendon. The condition is related to the tendon's poor blood supply. Whenever there is an injury to the tendon, the lack of blood oxygen triggers tendon cells to commit suicide. The effect is cumulative over time, and it can lead eventually to tendon rupture. A VCHRI-sponsored research project has confirmed that Achilles tendon cells deprived of oxygen will indeed commit suicide. If, however, they are flooded with insulin-like growth factor (IGF-I) found in blood, the tendon cells do not die. This research points to a new, more effective treatment for Achilles tendon injuries—one that will prevent tendon ruptures. An animal model of tendon injury is currently being developed to test the use of this growth factor as an effective treatment, and if successful, clinical trials could be undertaken in the future.

### REFERENCE:

Scott, Alexander; Darim M. Khan; & Vincent Duronio. IGF-I activates PKB and prevents anoxic apoptosis in Achilles tendon cells. *Journal of Orthopaedic Research*, in press (2005).



## Which surgical approach works best for cervical spine injuries: anterior or posterior?

DR. BRIAN KWON & DR. MARCEL DVORAK

ICORD

Sports and car accidents often result in fractures and torn ligaments in the neck, which can cause permanent paralysis. To reach the injured area and stabilize the vertebrae with wires and/or metal plates, the surgeon can go in through the front of the neck, or through the back. Both approaches produce good results, but both are totally different procedures and pose different risks. Spine surgeons often debate about which is the better treatment approach. Because of this, the medical staff at VGH undertook a five-year study of patients who were admitted with a particular neck injury in which one of the joints in the neck (the “facet joint”) was either fractured or dislocated. The subjects were randomly assigned one or the other surgical approach. While both surgical approaches produced overall good outcomes, in many aspects of the study (such as the amount of post-operative pain, the rate of bone healing, and the occurrence of wound infections) the results favoured the anterior approach. This is the first-ever randomized study to compare the two approaches and these results have led surgeons to change their practice to using the anterior approach.

### REFERENCE:

Kwon, Brian K.; Marcel F. Dvorak; Michael C. Boyd; John Cobb, Hilary Jebson, Vanessa Noonan, Peter C. Wing; & Charles G. Fisher. A prospective randomized controlled trial comparing anterior versus posterior stabilization for unilateral facet injuries of the cervical spine. Submitted to Spine.

# About Vancouver Coastal Health Research Institute

Vancouver Coastal Health Research Institute (VCHRI) is the research body of Vancouver Coastal Health Authority, which includes BC's largest academic and teaching health sciences hospitals (VGH, UBC Hospital, and GF Strong Rehabilitation Centre) as well as community health centres and local hospitals across the health authority. In academic partnership with the University of British Columbia, VCHRI brings innovation and discovery to patient care, advancing healthier lives in healthy communities across British Columbia, Canada, and beyond.

## Major Research Programs:

- Brain Research Centre and Mood Disorders Centre at UBC Hospital
- Centre for Clinical Epidemiology & Evaluation
- Centre for Hip Health & Musculoskeletal Research
- Immunity & Infection Research Centre
- Centre for Respiratory & Critical Care Medicine
- Spinal Cord Repair: International Collaboration On Repair Discoveries (ICORD)
- The Prostate Centre at Vancouver General Hospital

## Additional Research

### Areas of Excellence:

- Dermatology
- Macular Research
- Women's Health
- Centre for Rural Health Research

## Grants and Awards

The vast majority of research undertaken at VCHRI is funded by competitive grants provided by external organizations. Some researchers and some trainees (graduate students and post-doctoral fellows) receive salary support from competitive external awards. Receiving a competitive grant or award is an indication of excellence: scientists with national and international reputations judge applications for funding on their merits and only those ranked at the top will be approved.

- Researchers at VCHRI have obtained more than \$56M in grants and salary awards in the 2004/2005 year.
- One of our major funders of research is the Canadian Institutes for Health Research (CIHR). VCHRI researchers obtained \$11,128,204 from CIHR in the 2004/2005 year.
- In British Columbia, the Michael Smith Foundation for Health Research offers salary awards and infrastructure funds in support of research. 22 trainees and 3 researchers obtained those awards in the 2005 year.
- The Canada Foundation for Innovation and Genome Canada (in partnership with Genome BC) provide large grants to teams of researchers to allow them to make significant progress in specific research areas. Since CFI inception, VCHRI researchers, along with their partners at other BC research organizations, have obtained more than \$147M in grants for major projects, and an additional \$106,023 from Genome Canada/Genome BC.

A small sample of the positive media coverage of Vancouver Coastal Health Research Institute investigators in 2004-2005.



# Making Headlines

## Asthma ground rules

Prostate cancer leave has to cut out fewer prostates in future? That's up to you or the man in your life. Don't miss this essential primer.

Prostate cancer's forecast till in B.C. for 2004:

Diagnoses: 3,100
Deaths: 1,200

Urologist Dr. Martin Gleaves with prostate gland

« So many men are ashamed: Survivors speak out » 13 ways to keep the gland in shape

2,788 seats  
QUEEN NOOR



Jack Poole and Ted Tucker, president of Mt. Lebanon Canada, attend ceremony at Vancouver General Hospital.

## haunted by dog

thanks to willpower, help from med



## UBC scientists solve brain-blood mystery

## disbelief, denial raced through Poole's mind when he was told he had prostate cancer

University of B.C. scientists have turned up clues about how blood flows through the brain, paving the way for new drug therapies to target stroke, Alzheimer's disease, multiple sclerosis and other brain disorders.

Prostate Cancer... 2004-2005 Estimated number of Canadian and American men diagnosed with prostate cancer...

## WESTCOAST NEWS

## Researchers looked at the records of 9,231 heart patients

Adrian Levy, Barry Schatzkin, Robert H. Jones, Michael Kelly, Mark Forster and Martin Schrederick. Study of 9,231 heart patients...

## Open heart surgery waiting list cut 12%

Extra funding drove number of operations up to 4,174 in '99-2000 from 3,676 1995-'96

## Tim optimistic about treatment



## REPORT THE BOMB?

Glucuronidation assigns numbers to prostate tissue to describe appearance of cancer. Typically, the higher the Glucuronidation, the faster growing the tumour.

PSA stands for Prostate-Specific Antigen, a substance produced in the prostate and measured by a blood test. Most men with prostate cancer have an increased PSA level.

## MS drug shows promise

Next week in Body & Health... The study also found the drug was well-tolerated by the subjects.



# VGH Leads in treating Prostate Cancer

BY DON HARRISON HEALTH REPORTER JULY 2005 THE PROVINCE

## RESEARCH: Local men testify to importance of hospital, funding

Two men who should know say there is no place like home to treat prostate cancer.

On the day that homegrown scientist Dr. Martin Gleave was named recipient of the Leading Edge Endowment Fund's \$4.5 million chair in prostate cancer research at Vancouver General Hospital, businessman Jack Poole and Ted Tichnor told of their battles with the disease and their faith in Gleave.

Diagnosed 12 years ago, Poole, chairman of the 2010 Olympics organizing committee, said he almost fell for what he called the "aggressive marketing" of top U.S. clinics to remove his diseased prostate gland. That was until he consulted a childhood friend, now a physician at a U.S. hospital.

"He said I was lucky to live in Vancouver and shouldn't consider treatment anywhere else," Poole recalled.

"He said, I would be stupid if I did."

Poole, 72, is glad he listened.

"I owe my life to the prostate research work being done at VGH," said Poole, whose key PSA test figure for cancer is now very low.

The same gratitude comes from Tichnor, 52, of Delta, the president for Mr. Lube Canada.

But unlike Poole, Tichnor's cancer has spread.

"I am being treated as well here as I could be elsewhere," he said.

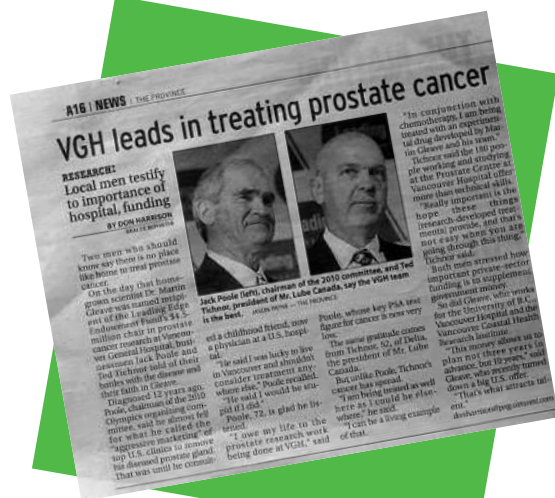
"I can be a living example of that.

"In conjunction with chemotherapy, I am being treated with an experimental drug developed by Martin Gleave and his team."

Tichnor said the 180 people working and studying at the Prostate Centre at Vancouver Hospital offer more than technical skills.

"Really important is the hope these things [research-developed treatments] provide, and that's not easy when you are going through this thing," Tichnor said.

Both men stressed how important private-sector funding is to supplement government money.



So did Gleave, who works for the University of B.C., Vancouver Hospital and the Vancouver Coastal Health Research Institute.

"This money allows us to plan not three years in advance, but 10 years," said Gleave, who recently turned down a big U.S. offer.

"That's what attracts talent."

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# VGH to have the world's first hip-health centre

BY PAMELA FAYERMAN MARCH 2004 VANCOUVER SUN



Vancouver General Hospital will become the world's first Centre for Hip Health and the "world's most comprehensive prostate cancer research facility."

The hip centre will conduct research intended to decrease hip fractures and osteoarthritis, conditions that cost nearly \$3 billion a year to treat in B.C. alone.

Tom Oxland, the biomedical engineer who heads musculoskeletal research in the region, said the new hip centre will focus on research from childhood to old age.

It is known that good exercise and calcium-rich eating habits in childhood promote healthy bone development, and the centre will develop programs that strive to achieve those goals.

In mid-life and beyond, many people develop osteoarthritis and when they become seniors falls involving hip fractures and necessitating surgical repair and replacements are not uncommon.

The new centre will encompass the Arthritis Research Centre and will also bring together under one roof experts in bone health, orthopedics and mechanical engineering, surgery, biomechanics, rehabilitation and falls prevention.

With the grant money, the centre will purchase a mobile risk assessment semi-trailer unit that will travel to rural areas measuring bone density, bone mass and strength in populations at risk of such problems.

Researchers will develop prevention and intervention strategies to help teach seniors about measures to prevent falls and make their homes safer. An estimated 25,000 hip fractures occur each year in Canada. Of those, 20 percent of

patients die, and another 50 per cent wind up with disabilities.

Oxland said there is a real need to investigate ways to do "keyhole" or small-incision surgery, to reduce infections and other post-surgical complications.

VGH and UBC secured \$5.2 million from the federal government for the hip centre, with a matching grant expected from the provincial government.

The Prostate Centre was awarded \$7.6 million, again with a matching grant expected from the province.

The funds are part of the \$585.9 million in grant awards announced Monday by the Canada Foundation for Innovation. The University of B.C. captured \$33 million in research money. Under terms of the CFI grants, private industry sources are supposed to top up the grants by a further 20 per cent.

The location of the 40,000-square-foot building that will house the hip centre has not been determined, nor has the decision been made as to whether a new building will be constructed or space on the hospital campus will be renovated. However, a completion date of 2006 is set.

Dr. Martin Gleave, the urologist who directs clinical research at VGH, said a total of \$19 million in government and private grants will pour into the Prostate Centre, which is the largest research centre and clinic of its kind in Canada. The new money, he said, will transform the centre into the "world's most comprehensive prostate cancer research facility."

The funds are coming at a good time. Five years ago, local business mogul Jimmy Pattison gave \$20 million to the

hospital for prostate research over seven years, so by 2006 he will be making his last installment.

Together, the grants for hip and prostate research represent the "biggest and most exciting event that has occurred on the funding side of research at VGH for many years," said Dr. Bernard Bressler, vice-president of research at Vancouver Coastal Health, the regional agency under which VGH falls.

"These funds will start a process that will change the face of research at VGH," Bressler predicted.

Gleave said the CFI and provincial matching dollars will be used to buy robotic machinery and specialized microscopes that analyse the molecular structure of cancer tissue. As well, research and laboratory space in the Jack Bell centre on Oak Street will be renovated and expanded.

With Pattison's philanthropy, the prostate centre went to 125 researchers from about 25 and some of them have invented potential therapies that are now in phase 1 and 2, clinical trials.

*Sun Health Issues Reporter*

# B.C. researchers link anorexia with lung disease

BY NICHOLAS READ DECEMBER 3, 2003 VANCOUVER SUN

## **MEDICINE: Patients who recover from anorexia may also recover from emphysema, which has no known cure.**

A team of Vancouver researchers has discovered for the first time in living people a link between emphysema and the eating disorder anorexia nervosa.

Harvey Coxson, an investigator with the Vancouver Coastal Health Research Institute, and Dr. Laird Birmingham, director of the eating disorder program at St. Paul's Hospital, also suggest that patients who recover from severe cases of anorexia may be recovering from emphysema as well.

If that is true, they say, it would be the first time in medical history that anyone has been known to recover from emphysema, a disease for which there is no known treatment or cure.

Coxson will present his and Birmingham's findings today at the 89th annual meeting of the Radiological society of North America in Chicago. It is the largest gathering of medical researchers in the world.

Coxson and Birmingham conducted trial research during the past year on patients suffering from anorexia nervosa—an eating disorder characterized by a disturbed sense of body image, marked weight loss and a morbid fear of obesity—and found that some of those patients also suffered from mild forms of emphysema.

"The lungs of the thinnest patients had the least amount of [lung] tissue and the least ability to exchange gases and get oxygen in and out of their lungs," Coxson said Tuesday in a phone interview from Chicago.

"That told us that there is in fact something happening—that the lung is losing tissue and it's becoming something like emphysema."

Emphysema, commonly referred to as "smoker's disease," is marked by severe destruction of the lung tissue and concomitant laboured breathing. It normally strikes heavy smokers when they reach the age of 55 or older.

But the patients with anorexia who also showed signs of emphysema were younger than that, Coxson said.

"These young people, well below the age of normal smoker's emphysema. That suggests that nutrition plays a role in the development of emphysema."

What that role is, isn't known, he said, but he and Birmingham hope to find out.

Furthermore, Birmingham said: "There has never been a report of emphysema being cured in man. But I've seen people who were malnourished and who recovered from their anorexia nervosa and went on to enjoy entirely good health. It's possible that these people also had emphysema."

Coxson and Birmingham began their investigation a year ago when Birmingham noticed that a number of his severely affected patients had difficulty breathing.

They discovered that secret autopsies done by Jewish doctors in the Warsaw Ghetto during the Second World War showed that 13 per cent of all adults who died of starvation also suffered emphysema. That represented 50 of 378 cases.

What was also remarkable, Coxson said, was that, as in the case of his and

Birmingham's live patients, 50 of the cadavers were less than 40 years old.

They also discovered research done in the 1980s showing that rats starved to 60 per cent of their normal body weight contracted emphysema. The same research also showed that when the rats were fed and recovered their normal body mass, the emphysema was cured.

But that has never been demonstrated in people, Birmingham said. He hopes research he and Coxson intend to conduct on the same 18 patients in the coming year will change that.

While they don't yet understand the physiological link between anorexia and emphysema, one of their best guesses is that it has something to do with the production of stem cells—precursor cells produced by the bone marrow that the body uses to regenerate other cells in the body.

They suggest that when a person with anorexia starves herself (more people who suffer from anorexia are young women), she may diminish her ability to produce stem cells, which, in turn, may diminish her body's ability to maintain healthy alveoli in her lungs (Alveoli are little sacs that exchange oxygen we breathe in for the carbon dioxide we breathe out.)

If that's true, Birmingham said, it is theoretically possible that by artificially stimulating the production of stem cells in a person suffering from emphysema, the severity of the emphysema could be diminished.

That's why further research will also involve stem cell scientists, he said.



For now, just knowing about the link between emphysema and anorexia serves a practical purpose, in that it gives doctors like Birmingham another tool to help patients recover from the disease.

He said that when patients are told their anorexia leads to other diseases—osteoporosis and now emphysema among them—they sometimes can be convinced to reverse their behaviour and start eating again.

“It’s much easier for them to understand an objective finding than to talk about feelings or behaviours,” he said.

Statistics show 7,000 people in B.C. will suffer from anorexia nervosa at some time in their lives. Across Canada, the number is 70,000.

## UBC scientists pioneer ‘smart’ psychiatric drugs

BY JENNY LEE VANCOUVER SUN

University of B.C. brain researchers are developing a new generation of “smart” psychiatric drugs that will work without the sometimes devastating side effects of current medications.

The new drugs target specific brain cells in areas that need repair, while almost all existing drugs affect the entire brain, UBC neuroscientist and project team leader Yu Tian Wang said in an interview.

Flooding the entire brain with medication can lead to imbalances in normal brain areas with side effects ranging from sluggishness and insomnia to severe psychoses. In a worst-case scenario, prolonged use of existing depression medication, for example, can even lead to symptoms of schizophrenia, he said.

Wang is hopeful his “smart” drugs will be the first major advance in psychiatric medication in recent decades. His project has received \$1.5 million from non-profit NeuroScience Canada’s new Brain Repair Program, which is supporting just three investigations across the country.

At the Brain Research Centre, a partnership between UBC and Vancouver

Coastal Health Research Institute, Wang is currently testing a “smart” drug to control drug addiction, and hopes to have both that drug and one for autism ready for early clinical trial within three to five years.

Healthy brain cells communicate with each other through chemical messengers that stimulate or diminish brain-cell activity. Disruption of this balanced flow of information can lead to psychiatric disorders such as autism, schizophrenia and depression.

Existing psychiatric medication manipulate the chemical messengers in order to rebalance communication.

Wang’s team has found that it is possible to interfere with pathological communication without affecting normal communication.

“Our strategy is not to target the cell surface messenger, which mediates communication across the entire brain, but to only target disease-related processes inside the cells of abnormal brain areas,” said Wang.

His research team includes researchers from UBC, the University of Western Ontario and McGill University.

Different diseases affect communications in different brain regions. Normal communication is dependent on protein interaction within cells.

By targeting protein interactions with peptides, or short-chain amino acids, Wang’s team is able to repair abnormal communication from a wide range of psychiatric disorders with a high degree of specificity.

For example, he said, drug addiction is the result of a pathological learning process. Repetitive use of a drug stimulates the reward system in the brain that in turn creates a drug craving. The drug now being tested targets this process.

The team is also developing a drug for autism based on the same hypothesis.

Wang estimates his “smart” peptide drugs could be available within five to 10 years.

Brain and nervous-system disorders affect one in five Canadians and are the leading cause of disability.



# The dark side of the sun

BY DON HARRISON JULY 17, 2005 THE PROVINCE

## SKIN CANCER: 'You don't ever think it can happen to you'

Youth and the feeling of immortality usually travel together.

"I can handle it," said 19 year-old Kristen Sanderson of Cloverdale when her friends half-jokingly mentioned the subject of skin cancer.

Sanderson was wrong.

"You don't ever think it can happen to you," Sanderson says now.

In April 2004, she had a mole containing superficial spreading melanoma removed from her back. A year later, she still has some numbness as an after-effect of scalpels digging out diseased tissue.

"My mom, dad and sister tan so easily," Sanderson says. "But I have light skin, so I always had to work at it. I was an obsessive tanner. I even worked at a tanning place which gives better deals [on tanning sessions] to employees."

The arrival of the summer sun coincides with the death, from skin cancer, of popular Surrey MP Chuck Cadman. The two events have doctors and health officials again warning a stubborn public about the dark side of the sun.

Tanning salon defenders tout their service as helpful by producing a tan that cuts down on harmful ultraviolet rays coming from the sun, but a majority of scientific opinion disagrees.

As far back as 1994, the American Medical Association called for a ban on tanning equipment, saying the UV light emitted by the machines damages the body's DNA.

In 2003, a study of 100,000 Scandinavian women found a 55-per cent increase in malignant melanoma cases in those who "fake baked" at least once a month.

Even the World Health Organization has entered the debate, recommending a ban on those under 19 from using tanning salons.

Meanwhile, Health Canada has issued guidelines that recommend people consult a doctor before getting a fake tan.

"[Melanoma] has proven very resistant to all forms of treatment," cautioned Dr. Jason Rivers, a Vancouver Coastal Health Research Institute scientist and University of B.C. professor of dermatology. "Researchers are looking at vaccines and adjuvants [assisting treatments], but there is nothing great at this time. That's why prevention is so important."

What so frustrates health practitioners is the fact that melanoma, the deadliest form of skin cancer in Canada, can be beaten. Ninety eight per cent of moles melanoma's common starting point—are caused by too much sun exposure.

So while science struggles, it's up to individuals to take charge of their own health, as Sanderson does now.

"We went on a cruise and for the first time I wore a Tshirt over my bathing suit," says the WestJet employee. "I wear a hat. I wear major sunscreen, even on my lips. And I constantly ask people, 'Are you wearing sunscreen?'"

"But I'm not paranoid about it. I don't not go to the beach."

Rivers says he can't emphasize strongly enough how deadly sun over-exposure can be, because melanoma signs often



don't appear until it is too late.

"If you have a melanoma which is less than one millimetre," he says, "there is about a 90-per cent chance you aren't going to have problems. If it's four millimetres or thicker, your chance of being alive in five years is down to 50 per cent."

"It's not a big difference in thickness. You wouldn't even, notice it."

- The WHO is holding a congress on melanoma in Vancouver later this summer. As part of the event at the Vancouver Convention Centre, there will be free skin cancer screening on Sept 5. from noon to 2 p.m., with a public forum to follow at 6 pm.

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# Tests sought to show when patients reject a transplant

BY PAMELA FAYERMAN JULY 12, 2004 VANCOUVER SUN

## RESEARCH: Only those at risk of rejection would need costly drugs

Vancouver scientists will lead a \$9.1 million international search for tests to predict which organ transplant recipients are rejecting their grafts, so that only those at risk would have to take high doses of costly and sometimes toxic immunosuppressant drugs.

The study, led by researchers at St. Paul's and Vancouver General hospitals, is described as the first and largest ever undertaken of its kind. And a successful outcome can't come too soon for 42-year-old Port Coquitlam heart transplant Gavin Hamilton.

Through a process called serious surveillance, the father of two children has had to undergo numerous painful health tissue biopsies weekly or monthly to monitor the state of the transplant he got in the summer.

"I've got one coming up later this week and believe me, I'd rather be getting a simple blood test," said Hamilton, who required the transplant when his own heart developed serious rhythm problems that couldn't be rectified with medications.

"They thread a tube down a vein in your neck to the heart to snip off tissue samples from the heart. I've had about 10 of these so far and it's very uncomfortable," said Hamilton, who takes three immunosuppressant drugs and various other medications to prevent infection and regulate blood pressure.

Dr. Bruce McManus, co-director of the iCAPTURE Centre for Cardiovascular and Pulmonary Research at St. Paul's Hospital, is one of three project leaders for the three-year study called Better

Biomarkers of Acute and Chronic Allograft Rejection. He said scientists are optimistic they can identify simple biomarkers—in blood or urine, for example—to show how the immune system is reacting to the transplanted organ.

Patients all have unique immune systems so by studying genes and proteins in transplant patients, researchers will better understand how to be more selective in prescribing the drugs that on one hand reduce the chance of organ rejection but on the other hand, leave patients susceptible to infections and malignancies.

Having better tests to monitor and predict rejection would mean that, unlike now, not all patients would have to take the potent drugs, which suppress the immune system so that it won't reject the transplant. The drugs are known to elevate the risk of developing cancer, infection, diabetes, heart disease and kidney failure, not to mention the enormous expenditure of health care costs if transplants fail or there are complications.

McManus said simple, accurate markers of immune status are "urgently needed" and being able to detect organ rejection through simple tests instead of invasive biopsies would mean transplant patients' drug therapy could be tailored to their individual immune system status.

"Personalized immunosuppressant therapy will not only alleviate patient discomfort and undesirable side effects, but also reduce the enormous economic burden of over-prescribing [such] drugs. And being able to monitor organ rejection using a simple blood test will significantly reduce intrusive and expensive diagnostic procedures," the scientists state in their study prospectus.



Immunosuppressant drugs cost between \$6,000 and \$10,000 a year. The surgery and hospital care costs before and after are estimated at \$20,000 to \$40,000.

The research team will include up to 100 scientists from around the world who will focus on 400 patients who have either already undergone liver, heart and kidney transplants or will do so in the next few years.

In B.C., about 200 transplants (kidney, liver, heart, pancreas, lung) were performed last year and 1,813 across Canada. On a global basis, there are about 40,000 transplants per year.

McManus said about 20 to 35 per cent of transplants result in acute rejection, soon after the graft and about a third of transplant recipients develop chronic rejection problems, most common atherosclerosis. About half of patients require another transplant seven to 10 years after their first.

Having a pharmaceutical company—Novartis—included in the study means investigators will be motivated to discover genes and protein targets that may respond to new therapeutic agents, he said.

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# Finding new ways to help burn victims

BY JONATHAN WOODWARD AUGUST 19, 2005 THE GLOBE AND MAIL

When Brady Tupper, 24, fainted in the shower three years ago, she turned the cold water tap off as she fell.

The hot water kept streaming over her as she lay unconscious in the tub, badly scalding her entire upper body.

Ms. Tupper, a natural athlete who had one year left in her UBC cultural anthropology degree, awoke to incredible pain.

When she looked in the bathroom mirror, she was terrified to see the damage.

"I had a different face," she recalled. "It was really hard to grasp."

She was rushed to the burn unit at Vancouver General Hospital, where she spent six weeks drifting in and out of consciousness, attached to a feeding tube and tightly wrapped with pressure garments to rein in rampant scarring.

Friends could only see her face through a small porthole in her bandages, and she was pulled into a hunch by the taut scars in her neck.

"I remember feeling like I had to carry a picture of myself to prove to people I didn't really look like this, so there's no need to be afraid," she said.

"I was physically and mentally uncomfortable in my own skin."

About 50,000 people are hospitalized for serious burns in North America, with about 120 patients in B.C., who stay in hospital for up to a year.

Three years and many operations later, Ms. Tupper says she wants future burn victims to be saved from what she calls the moment of clarity: that nothing in their lives will be the same.

Yesterday, the BC Professional Fire Fighters' Burn and Wound Healing

Research Laboratory, which will be headed by Dr. Aziz Ghahary, was officially opened to research new ways to help people like Ms. Tupper.

In a normal response to a cut or burn, the skin quickly creates a scaffolding of extra-cellular proteins on which skin can rebuild itself. When that wound has been closed, the body sends a signal to stop the construction of that scaffolding.

But with severe burn victims, the skin ignores the body's signal to stop: the building of the matrix continues long after the wound is closed, resulting in a stiff, thick, disfiguring scar.

While at the University of Alberta, Dr. Ghahary and his colleagues cloned and reproduced that signal protein. At Vancouver General, he hopes to begin clinical trials of shelf-ready topical cream that can easily be applied to burn victims to tell cells the healing is over.

He also plans to develop a patch of real skin cells that can cover a patient's wounds without being rejected.

"Burn patients need skin," Dr. Ghahary said. "Without coverage, they cannot survive: they have heat loss, fluid loss, infection. If you have a burn victim with 50 per cent burn injury, it's very difficult to get skin from non-injured areas."

The secret may be cloning a gene that's turned on in a fetus to stop the mother's immune system from rejecting it. If the patch contained cells that expressed the gene, then the burn victim may accept those cells, too.

The new laboratory, which started work July 1, will be funded by a \$300,000 per year donation by the BC Professional Firefighters' Burn Fund, as well as other charitable grants.



Getting Dr. Ghahary from the University of Alberta was a huge coup that took Vancouver General two years to pull off, said Dr. Nicholas Carr, the head of plastic surgery at the hospital.

"This is research that will go out on the streets and it's going to have meaning and application to people who get injured on the job and in their daily lives," he said. "Their loss is our gain."

Dr. Ghahary shrugged off suggestions he had been headhunted. "It's very important to go from one level to another," he said.

Shenica White, who at 14 was mauled and disfigured by two mastiff-Rottweiler cross dogs, was at the opening.

After eight surgeries, she has just a few visible scars on her right cheek, and she said her life is mostly back to normal.

Ms. Tupper, now 24, is a marketing student at BCIT. While she still bears scars, she says she's one of the lucky ones.

"In the past three years, I've grown comfortable in my skin," she said.

# ALS clinic lands a star

BY PAMELA FAYERMAN MARCH 23, 2005 VANCOUVER SUN

## One of the world's top experts leaves Toronto to head G.F. Strong unit

VANCOUVER As of today, Vancouver's G.F. Strong Rehabilitation Hospital will be home to Canada's largest clinic for patients with amyotrophic lateral sclerosis — Lou Gehrig's disease — and it will be headed by Dr. Neil Cashman, one of the world's leading experts in such neurodegenerative diseases.

"This is a great recruit for us and I am still pinching myself to believe we could pull this off," said Dr. Howard Feldman, who heads the University of B.C. department of neurology.

Cashman is to be named the Canada research chair in neurodegeneration and protein misfolding diseases. He will move here from Toronto.

Cashman's recruitment stems from the retirement of Dr. Andrew Eisen, who was the director of the ALS clinic at Vancouver Hospital.

"When Andy reached the age of retirement, we realized that to maintain international stature in ALS, we would have to reconceptualize the program with innovation," said Feldman. In addition to building new laboratory space for Cashman at UBC, various agencies, including Vancouver Coastal Health, the Vancouver General Hospital-UBC Foundation and private donors to the ALS Society helped fund the new

clinic, which will amalgamate all services for ALS patients.

In ALS, a motor neuron disease, nerves involved in muscular activity weaken and waste. Symptoms can start with weakness or twitching in fingers or limbs, stiffness and muscle cramps.

There are about 500 patient visits per year to the clinic and about 400 B.C. residents living with ALS. The lifetime risk of developing ALS is said to be one in 1,000, similar to the lifetime risk of developing multiple sclerosis. People who are diagnosed with MS can have normal life expectancies, however, while 80 per cent of those with ALS die within five years, Cashman said in an interview.

"My record with an ALS patient was 33 years. Some patients are turtles and some are rabbits," he said, referring to life expectancy.

"Generally, it's a rapidly progressive, paralyzing disease which doesn't affect patients' mental functions, so it's like being party to see yourself disintegrate," he said.

There are virtually no effective treatments for ALS except for a drug called riluzole which has a modest effect in delaying the progression of the disease, but only for about six months. One of Cashman's early-phase scientific studies in a small number of human patients involves using a solution that stimulates the growth of patients' own stem cells in bone marrow.



"Getting the stem cells to be released from bone marrow to enter the circulatory system so they can migrate to damaged tissues is the goal," said Cashman, cautioning that the study results are still being analysed.

ALS patients are thrilled with Cashman's recruitment and the new clinic.

"The merger of the VGH clinic with the one at G.F. Strong is wonderful, and getting Dr. Cashman, who is highly respected around the world, is a huge bonus," said Abbotsford resident Ron Martens, who has lived with ALS for eight years.

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# Jumping builds bones

BY PAMELA FAYERMAN VANCOUVER SUN



## UBC STUDY: Stronger skeletons in girls' pre-teen years may avoid problems later

THE REGION Pre-teen girls who did simple, 10-minute jumping exercises three times a week strengthened their skeletons five per cent more than girls in a control group who didn't do the jumps, a University of B.C. study published in *Pediatrics* shows.

"This kind of activity is extraordinarily easy to do, it costs nothing and our study shows that what we saw in two years achieves what older women who take medications for osteoporosis achieve in five years," said Heather MacKay, an associate professor in the division of orthopedics at UBC and the Vancouver Coastal Health Research Institute at Vancouver General Hospital.

She said medications which are prescribed to post-menopausal women to build bone mass often only improve bone density by one per cent per year.

Added lead study author, Kerry MacKelvie, a post-doctoral fellow at B.C. Children's and Women's Hospital:

"These results suggest that an exercise program begun in early puberty might result in a significantly greater peak bone mass compared with no involvement during these formative years."

The finding builds on earlier UBC research by Dr. Karim Khan on retired, former elite dancers and gymnasts. It showed that bone mineral advantage, attributable to exercise training in childhood, can be maintained into adult years.

The current two-year study, the longest of its kind, started out with 179 Grade Four, Five and Six girls recruited

in 1999 at several Richmond Schools. About half were assigned randomly to an intervention (exercise group) and the rest to a control (non-exercise group.) Because of a fairly high dropout rate related to changes in teachers and study participant moves, at the end of the second year of the study, there were 32 intervention group girls who completed the study and 43 in the control group.

Ongoing research over four years will follow up the girls to determine if the benefits are sustained.

The strength of the girls' skeletons was checked periodically using measurements for hip and spine bone density. Height, weight and body composition ratios were also recorded.

Mackay said there were considerable evidence that physical activity helps prevent osteoporosis commonly seen in the senior years. In postmenopausal women, the loss of estrogen is associated with a two to five-percent-a-year loss of bone mineral density.

With the theory holding that strong bones in childhood may prevent or slow the loss of bone density in the senior years, and a recent article in a journal specializing in bones stating that exercise during the developmental years is the best way to prevent or reduce osteoporosis-related fractures, the Vancouver researchers are going a long way to prove the theories.

"As a guard against osteoporosis, we are finding that maximizing childhood bone mineral accrual is critical," McKay said.

The exercises the girls did included jumping jacks, alternating foot jumps, jumping off steps, and jumps involving both-feet landings. The ground reaction

force of such jumps is said to be high impact, or four to five times body weight. That contrasts with running, which has a ground reaction force of about two times body weight.

None of the girls in the study suffered any injuries and the researchers concluded that the program is so safe, effective, simple and inexpensive that it can be implemented in any home or school setting with minimal demands on teachers and others.

The allure of the two-year study (actually, 20 months because of time off during summer holidays) was that it produced results showing a five per cent benefit, which was double that which was observed in an earlier seven-month study of boys and girls.

McKay said school physical education classes are ideally suited for exercise which enhances bone mass and strength. Based on early research showing that jumping bursts improve bone strength and mass, the researchers are now involved in another study in Vancouver and Richmond schools called Bounce At The Bell.

In that one, teachers in 10 schools are supervising jumping exercises in the classroom.

Five days a week, children do short bursts of jumps every time they hear the bell—in the morning, at lunch and the last bell of the day.

The research is sponsored by the Canadian Institutes of Health Research and the Michael Smith Foundation for Health Research.

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# A ray of light for bladder research

BY PAMELA FAYJERMAN JULY 2005 VANCOUVER SUN

## UBC researchers have stumbled on a new, non-invasive way to diagnose urinary problems

VANCOUVER A serendipitous meeting of University of B.C. researchers has led to a unique, less invasive, less painful way to probe the source of problems like urinary incontinence and frequency that plague many people.

The patented infrared device does away with the need for rectal and/or urethral catheter insertion into the urinary tract to diagnose problems by measuring things like urine volume and output.

It was originally conceived by a team at B.C. Children's Hospital to measure brain oxygen levels during heart bypass surgery. But a chance encounter and discussion between three researchers from completely different fields led to a whole new role and award-winning recognition for the technology.

It uses light to measure oxygen levels in the bladder muscle blood vessels to determine if there is a constriction in the bladder due to some kind of obstruction.

The new technology is just one of the research tools to be used at the new Bladder Care Centre at UBC Hospital that officially opens today.

Lauded as the only one of its kind in the world, the centre is located in a hospital wing that had been sitting vacant. It cost \$600,000 to renovate with private donations.

In addition to serving an estimated 10,000 male and female patients a year, it will be the hub for bladder research activity. The research includes a U.S. government-sponsored \$1-million, five-year study into how cranberry juice works to

prevent urinary tract infections, which are said to afflict thousands of B.C. women.

Dr. Lynn Stothers, the centre director and Vancouver urologist who co-developed the near-infrared spectrophotometry (NIRS) with Roy Gagnon and pediatrician Dr. Andrew McNab, said it will be the only centre in the world where patients can get a non-invasive examination of their bladder to diagnose bladder filling and emptying functions and blood volume changes.

The bladder wall consists of muscle fibres that contain blood vessels that unfold and refold as the bladder fills and empties. The infrared device uses miniature laser beams to send light through the abdomen. The beams are delivered through leads attached to patches placed on the skin over the bladder. One lead emits light and the other collects light.

Gagnon explains the method this way:

"Typically, NIRS uses several low-powered miniature lasers to send light into the patient's abdomen, while a minute detector adjacent to the emitter samples the amount of light passing through the tissue, that was not absorbed by the blood and cytochrome molecules in the bladder. By subtracting the amount of light detected from the amount of light emitted, clinicians are able to detect changes in the associated molecular activities in the bladder."

Stothers said it is hoped that the technology will lead to a better understanding of the causes of bladder problems so doctors can do more than treat symptoms.

The NIRS device won first prize for research at the recent Northwest Urological Association meeting and



in May, it will be presented at the American Urological Association meeting in Texas. The inventors are also awaiting word from the Canadian Space Agency for a grant to use NIRS in astronauts to help them understand more about bladder functions in space.

Dr. Larry Goldenberg, head of urology at Vancouver Hospital and UBC, said the centre is the realization of a goal set five years ago to establish a centre of excellence for clinical urology services, teaching and research in a multi-disciplinary environment.

"Bladder problems are so prevalent, affecting half of people over the age of 50 to some degree and 15 per cent of the overall population. They may not be life-threatening problems but people sure do suffer and in an era in which quality of life is so important, this is a crucial resource which will consolidate services provided by an integrated team of nurses, urologists, gynecologists, pharmacists and physiotherapists."

Stothers said the centre should reduce wait periods for investigations of urinary problems to about four weeks from 16.

The new facility positions the medical school, UBC and Vancouver Coastal Health Authority as "national leaders in determining the causes and prevention of bladder disorders," said Alison Buchan, associate dean of research.

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# Surgeons perform 'live' at VGH

PAMELA FAYERMAN VANCOUVER SUN

## Doctors show new techniques to conference of cardiovascular experts in Washington D.C.

VANCOUVER Vancouver doctors had thousands of the world's leading cardiovascular experts watching them probe and open their patients' clogged arteries to improve blood flow Monday when the cases were transmitted "live" to the Washington, D.C. Convention Centre.

That was the venue for the Transcatheter Cardiovascular Therapeutics (TCT) conference, attended by 10,000 international delegates, and the world's largest scientific symposium for those in the interventional vascular field. Vancouver doctors were invited to participate, as Canada's representatives, because of their expertise in using new techniques and technologies, some of which are still being investigated prior to routine use.

Dr. Jaap Hamburger, head of interventional cardiology research at Vancouver Hospital and St. Paul's, and regarded as an international expert, opened the broadcast with a short movie showcasing the splendours of Vancouver. The cases presented were meant to give conference delegates an impression of the way things are done in a country which manages to exploit new technology at the same time as it grapples with justifying the cost of new developments in a fiscally prudent, publicly funded medical system.

Of the 100 live cases in 25 different cities around the world that conference delegates watched, seven were from Vancouver General Hospital.

Jessica Des Mazes was one such case, and delegates sitting in a conference hall in the U.S. capital watched Dr. John

Webb, director of interventional cardiology at St. Paul's, perform a revolutionary technique to close a hole in her heart, caused by a congenital defect that was only discovered when the 21-year-old suffered a seizure stemming from a series of minor strokes in the hospital were she has been a patient for the past month.

Des Mazes, a Simon Fraser University student, suffered a spinal cord injury in a motor vehicle accident in the summer. She is now a paraplegic.

Interviewed in her hospital room the night before the procedure, Des Mazes said she was thrilled to have been selected for the conference because it meant that, not only would her doctors do their best to impress their international colleagues, but she would also get the hole closed faster than if she had to go the infamous elective-surgery waiting list for the procedure.

"I'm happy there will be so many doctors watching because it means that no one can mess up. The doctors and everybody, else will all be having their best day and will totally be on their toes," said Des Mazes, who was injured while on forest-fighting crew in the Northwest Territories, riding as a passenger in a truck that flipped.

As it turned out, Webb and Dr. Ron Carere made the procedure look elegant and uncomplicated, using a device, called an Amplatzer occluder. Prior to the invention of the device, patients' who were at risk of stroke because of the heart defect had to have open-heart surgery. But a few years ago, Webb learned how to close the hole by threading the device through a catheter inserted into an artery in the groin, just as most angioplasty is done.



Webb, who is one of only a few Canadian doctors to do the procedure, has now successfully completed 130 cases without any complications.

Interventional cardiologists doing live cases Monday wore microphones and headsets so they could talk back and forth with the conference moderators in Washington. Following Webb's nifty work, a Washington expert called it a "great case, simply beautiful."

In another case, a 66-year old woman had a renal-artery blockage opened with a stent called a Medtronic Racer, which is only starting to be used in Canada and is not yet available for sale in the U.S.

Hamburger said in an interview that coronary-artery bypass (open heart) surgery used to outnumber angioplasty procedures, but the tide has turned. Angioplasty, in which doctors insert a small balloon into the artery and inflate it at the site of the blockage to stretch it so blood can more freely flow, is an attractive alternative to bypass surgery because it is quick, far less invasive and requires only a short hospital stay.

In bypass surgery, there is no attempt to unblock the arteries; instead, surgeons create another route for the blood to reach the heart.

In the fourth case of the day, Hamburger and his colleague Dr. Ian Penn, demonstrated a case that involved looking inside a patient's arteries with a dizzying array of new technologies, includ-

ing an intravascular ultrasound, before deciding whether angioplasty would be sufficient to treat a vessel narrowing.

In perhaps the most challenging case of the day, Dr. Chris Buller and Dr. Don Ricci demonstrated the complexities in stenting the vessels of diabetics who are prone to developing rigid, narrowed arteries filled with plaque, made up of fibrous

tissue, calcium and cholesterol.

The view prompted one doctor in Washington to say: "You could start anywhere and still have a lot of work to do," referring to the fact that so many arteries were in bad shape.

The case also highlighted the realities of the B.C. Interior, because the patient was a 60 year old Prince George

woman who had to travel to Vancouver for her revascularization, something Americans don't deal with as often because of a proliferation of hospitals offering a broad range of services.

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## Hair dye's not risky (to your health)

BY HELEN BRANSWELL MAY 25, 2005 VANCOUVER SUN

### ..so lay on the colour

For those who like to give Mother Nature a hand when it comes to hair colour, there is heartening news.

Researchers say the accumulated weight of existing scientific evidence suggests people who dye their hair are at no greater risk of developing a couple of types of cancer that have been previously associated with hair dye than those who go au naturel.

The analysis of 79 studies done in the past 40 years suggests the possibility of a slightly elevated risk of certain rare can-

cers among people who use hair dyes. But the authors say the number of studies looking at these cancers is so small that those findings may not be real.

Mostly they believe their work should be reassuring to the masses of women and men who use permanent or semi-permanent hair colour or who highlight or lowlight their hair.

"There doesn't seem to be an increased risk with use of hair dyes and cancer," said co-author Dr. Mahyar Etminan, a post-doctoral fellow at

Montreal's Royal Victoria Hospital and a research associate at Vancouver Coastal Health Research Institute. "I think in a way it is reassuring. All we can do is look at the evidence. And the existing evidence tells us that there's not much risk."





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