



Beyond the Bench!

Volume 1, Issue 3

December 2007

Dear GENESIS Members,

Welcome to the third issue of *Beyond the Bench!* GENESIS has already begun its third year with many activities: committees, work groups, knowledge translation activities, publications and a lot of media coverage.

As always, I invite all of you to make this newsletter yours... Do not hesitate if you wish to announce publications, newly found data, etc.

Comments and ideas are always welcome, please contact Jasmine Poole (JPoole@epimgh.mcgill.ca) if you wish to add something in the upcoming issue. I wish you Happy Holidays and a "productive" and healthy year 2007.

Louise

♥ Inside this issue:

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"Emergence of Sex Differences in Prevalence of High Systolic Blood Pressure. Analysis of a Longitudinal Adolescent Cohort" by Drs Dasgupta, O'Loughlin, Chen, Karp, Paradis, Tremblay, Hamet and Pilote (Circulation, online Dec 4, 2006) got a lot of mediated attention. There were press releases and many articles in newspapers and on line. Please find a few of the most interesting press coverage of the article in the following pages of this issue. You can find a complete copy of the article at: <http://circ.ahajournals.org/cgi/>

Press coverage: Article *American Heart Association rapid access journal report*

1) Higher systolic blood pressure readings more likely in boys than girls

DALLAS, Dec. 5 – Adolescent boys have a significantly increased risk of high systolic blood pressure compared to adolescent girls. (Continue page 4)

♥Points of interest

* **A Comprehensive View of Sex-Specific Issues Related to Cardiovascular Disease:** accepted by CMAJ and will be on line in February and printed for a select group

Congratulations to all co-writers!

* **GENESIS Montreal Annual Meeting** March 8-9 2007 (see preliminary agenda page 6)

♥ Committees and working groups

♥Steering

Dr. Louise Pilote

♥Knowledge Translation

Dr. Johanne Tremblay

♥Student Advisory

Dr. Karin Humphries

♥Conceptualizing Gender

Dr. Colleen Norris

♥Risk Factors

Dr. Kaberi Dasgupta

♥Coronary Anatomy

Dr. Mark Eisenberg

♥Efficacy, Effectiveness of interventions

Dr. Karin Humphries

1) Drug Response

Dr. Nadia Khan

2) Metaanalyses

Dr. Doreen Rabi

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GENESIS has done tremendous work on the fall grant applications Septembre 2006

♥ **Funded by...**

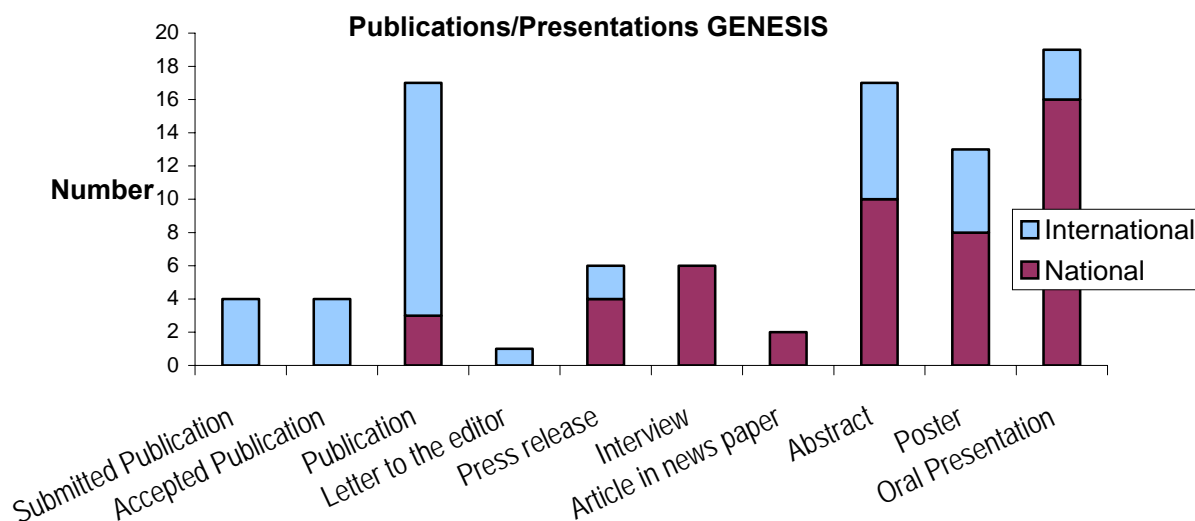


CIHR IRSC

and...



1. [Effect modification of gene-mediated susceptibility to myocardial infarction by sex and other conventional coronary risk factors](#): L Pilote, I Karp, J Brophy, P Bogaty, P Hamet, J Tremblay
2. [Exploring Sex Differences in the Efficacy of Cardioprotective Medications - A Series of Meta-analysis](#): D Rabi, L Pilote, N Khan, K Humphries, F Shrive, M Vallée, I Karp, S Daskalopoulou
3. [Integrated gender into health research: A scoping study on conceptual frameworks and tools for measuring gender](#): C Norris, W Ghali, K M Hegadoren, L Pilote, S Kirkland
4. [Rain and shine: Addition of a Vancouver cohort to an examination of walking, weather, and glycaemic control in men and women with type 2 diabetes](#): K Humphries; K Dasgupta, L Pilote, SC Chan, L Joseph, S Gill, D Da Costa, R Sigal, I Strachan, N Ross
5. [Predictors of differential cardiovascular morbidity on older men and women; A retrospective analysis and prospective study](#): K Lavoie, L Pilote
6. [Cardiovascular health enhancement with cooking hands-on to eat wisely \(CHEW-CHEW\)](#): K Dasgupta, L Pilote
7. [Timely access to specialized care in men and women with CHF: Do we meet nationally established benchmarks](#): L Pilote, D Feldman
8. [Gender and Ethnic Differences in Stroke](#): N Khan



♥ GENESIS funded Pilot Projects: 2006—2007 competition



P I	Collaborators	Title of project
M Abrahamowicz	P Hamet, E Loucks, L Pilote, C Tannenbaum	<i>Development and validation of efficient methods for testing gender and/or sex differences in the effects of cardiovascular risk factors and responses to treatment</i>
S Grace	R Macchi, B Abramson, L Sternberg, K Melvin, L Pilote	<i>Women's Adherence to Cardiac Rehabilitation by Program Model: A Pilot Randomized Controlled Trial</i>
N Khan	M Kapral, K Humphries	<i>Antihypertensive drug use among elderly stroke survivors: difference in sex/gender</i>
K King	M Parry, R Tsuyuki, R Collins-Nakai, A Maitland, P Faris, G Currie	<i>WREST-E: An Extension Substudy of the Women's Recovery from Sternotomy (WREST) Study</i>

♥ GENESIS SCHOLARS

2004-2005 Projects

- Dr. K Dasgupta *Influence of sex on prevalence of elevated blood pressure during adolescence*
- Dr. I Karp *Sex differences in the effects of cardiac medications in CHF and post-AMI patients*
- Dr. K Stark *Cardiovascular Disease Risk and n-3 Fatty Acid Status in Men and Women*

2005-2006 Projects

- Mr. K Faldik *Specific and common genetic determinants of hypertension in men and women*
- Dr. S Grace *An Interdisciplinary Approach to Gender Differences in Cardiovascular Secondary Prevention access*
- Dr. N Khan *Gender and Ethnic Differences in Hypertension and Diabetes Mellitus*

2006-2007 Projects

- Ms. C Heslop *Characterizing gender differences in the pathogenesis and prognosis of cardiac syndrome X*
- Dr. D Rabi *Exploring sex differences in the efficacy of cardioprotective medications: A series of meta-analyses*
- Ms. Y Leung *Gender differences in the prevalence and correlates of mind-body therapy in cardiac patients*
- Mr. M Nikpay *Finding genomic determinants of substance use in female and male French Canadian families*

♥Press coverage: Article 1) Higher systolic blood pressure readings more likely in boys than girls (cont'd)

This may set the stage for the higher prevalence of adult hypertension among men compared to women identified in previous studies, researchers report in *Circulation: Journal of the American Heart Association*.

For the first time, these findings document a gender difference in adolescent blood pressure, and the results could lead to new strategies to reduce the occurrence of hypertension in younger male adults. The researchers are members of GENESIS, a Canadian research group concerned with identifying gender differences in the antecedents and manifestations of cardiovascular disease.

Systolic blood pressure (SBP) is the larger of the two numbers that make up a blood pressure reading. SBP represents the blood pressure when the heart is fully contracted. The

small number, the diastolic pressure, occurs when the heart relaxes. A normal blood pressure reading is 120 over 80 mmHg (millimeters of mercury) or lower.

The results emerged from a new analysis of data from a study of more than 1,200 male and female Canadian students. During the five-year study, the risk of higher SBP increased 19 percent annually for boys, but remained stable for girls.

“It was important to document that as the boys got older they were more likely to have higher systolic blood pressure readings,” said Kaberi Dasgupta, M. D., lead author of the study, physician at McGill University Health Center and assistant professor of medicine at McGill University in Montreal, Quebec. “It suggests that, as young adults, they may be more likely to develop hypertension.”

The study also found a lack of exercise and a seden-

tary lifestyle increased the risk of higher SBP in both boys and girls, independent of each other.

“Even after adjusting for differences in body weight, the more frequently a child engaged in active behavior, the lower the likelihood of developing higher systolic blood pressure levels,” Dasgupta said. “Perhaps more interesting, the more hours that the kids spent in sedentary behaviors — sitting at a computer, playing video games, being on the Internet, watching television — the more risk of having higher systolic blood pressure.”

Among adults, men generally have a higher prevalence of hypertension than women, except that the prevalence in postmenopausal women appears to be higher than that in older men.

Until now, however, no one had explored a gender difference in adolescent blood pressure.

“There seems to be certain physiological differences between boys and girls that put boys at later risk of heart disease,” Dasgupta said.

Researchers obtained the blood pressure data as part of the NDI Study (Natural History of Nicotine Dependence in Teens), which recruited 1,293 students from 10 Montreal secondary schools. A total of 1,267 of the students (614 boys, 653 girls) began participating in the study in 1999 as 7th graders.

As part of the study, students had their blood pressure measured in the 7th, 9th and 11th grades, and answered detailed questionnaires that included questions about physical activity.

Although researchers obtained all three blood pressure readings from only 844 students, they also included readings from those from whom they only had one or two readings. The computer model that they used “knew” who among the participants had three readings, who had two, and who had one. Including all these readings increased the ability of the study to identify gender differences.

(Continued on page 7)

"Even after adjusting for differences in body weight, the more frequently a child engaged in active behavior, the lower the likelihood of developing higher systolic blood pressure levels," Dasgupta said.

GENESIS workshop at the Canadian Cardiovascular Society Congress in Vancouver October 23rd 2006



*“From Bench to Beyond:
Results Move the Agenda Forward”*
11am Monday, October 23, 2006
at the Fairmont Waterfront Hotel, Ballroom C



Dr. Louise Pilote

Press Release: After two years of pilot work, the GENESIS ICE team has identified key differences in presentation and response to treatment in cardiovascular disease between women and men. “For example, both men and women report non-traditional symptoms before a heart attack”, says Dr. Pilote, who is also an Epidemiologist at the McGill University Health Centre (MUHC) in Montreal. “Genetic differences associated with blood pressure and obesity have been identified, and medications have also been shown to affect women and men differently.” GENESIS ICE Team is Canada’s largest multidisciplinary initiative to study the causes of cardiovascular disease—the leading cause of death in Canada. The project involves a team of more than thirty researchers from across Canada, investigating key unknowns in the way cardiovascular disease affects women and men. Specifically, the research team addresses both the biological and genetic factors (sex) and social and behavioural factors (gender) involved in cardiovascular disease. Following the GENESIS workshop at the Canadian Cardiovascular Congress in 2005, the GENESIS Team completed a theme issues which will be published in e-CMAJ in January 2007: *A Comprehensive View of Sex Specific Issues Related to Cardiovascular Disease*.

More Canadian women and men die from cardiovascular disease than from any other cause. It is crucial to identify differences between women and men in prevention as well as symptomatology, treatment and rehabilitation of this disease. Identifying sex-specific differences will help health care providers and policy makers implement more effective preventive and treatment strategies. This is the main goal of GENESIS. To find out more, visit the GENESIS ICE team Website (www.genesisteam.ca).

Agenda / Workshop

Introduction: **L Pilote**

- 1) Identify candidate gene determinants of hypertension in women and men: **K Faldik**
- 2) Identify prodromal symptoms that predict outcome post-acute myocardial infarction (AMI) in women and men: **C Norris**
- 3) Explore sex interaction with smoking through gender determinants in girls and boys: **I Karp**
- 4) Compare outcomes with coronary artery stenosis of <50% in women and men: **K Humphries**
- 5) Compare effectiveness of cardiac drugs post-CHF in women and men: **L Pilote**

Conclusion: **L Pilote**



Mr. Karel Faldik



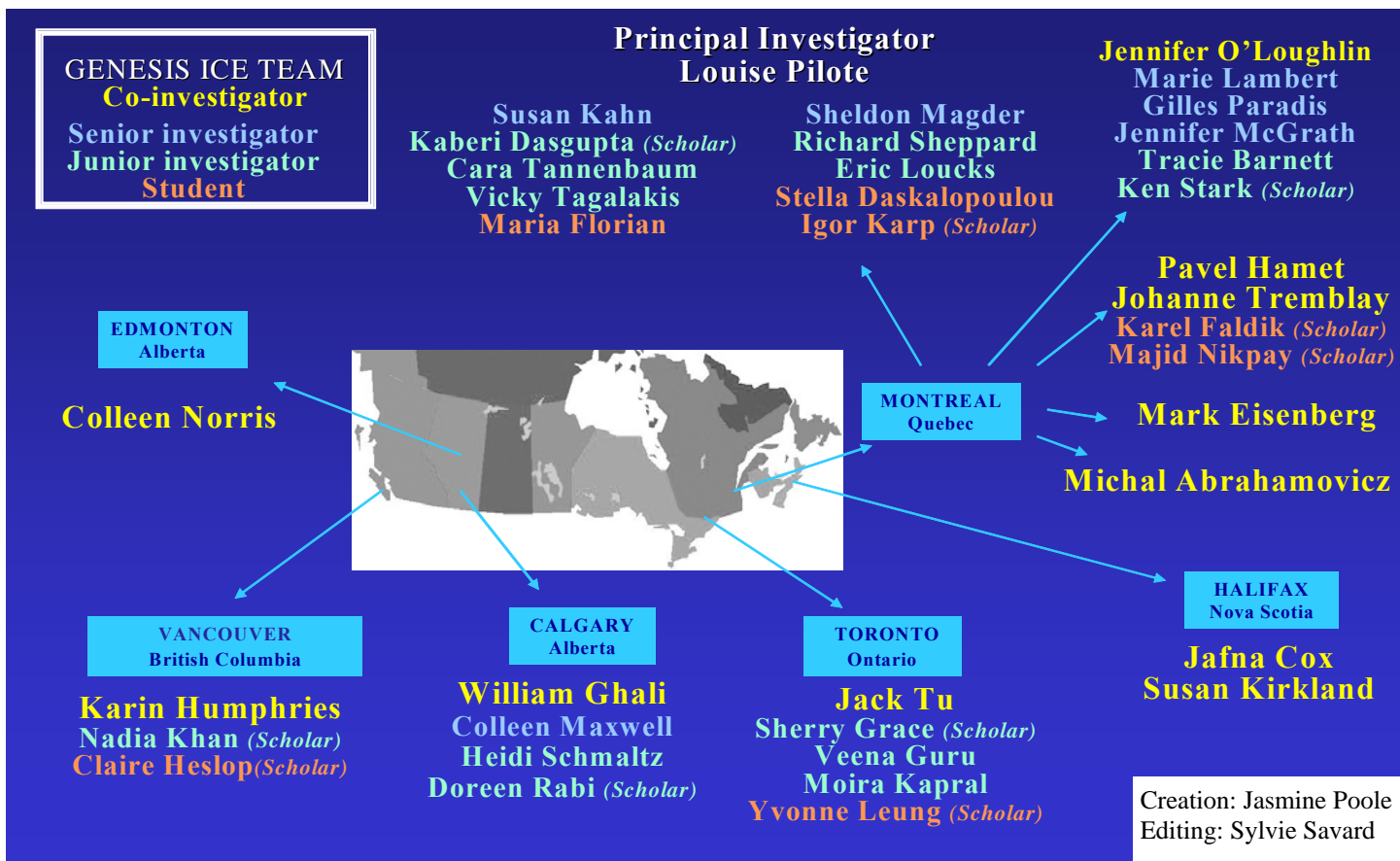
Dr. Colleen Norris



Dr. Igor Karp



Dr. Karin Humphries



**Main goals to the
 GENESIS ANNUAL Montreal Meeting
 March 8th and 9th 2007**

- 1) Presentation of updates of GENESIS Committees, Scholar's and Pilot Projects
- 2) Presentation and discussion of GENESIS "Defining Pan-Canadian Project"
- 3) Knowledge Translation special speaker dinner on Thursday evening featuring Mr. André Picard, health reporter at the Globe and Mail.



Press coverage: Article 1) Higher systolic blood pressure readings more likely in boys than girls (cont'd)

The team's findings included:

- The girls had a mean SBP of 104.1, 103.9 and 106.2 mmHg at their first, second and third measurements, respectively. Comparable numbers for boys were 105.4, 108.5 and 114.9 mmHg.
- At the first and second measurements, 5 percent of the girls and 6 percent of the boys had higher SBP. But at the third measurement, 4 percent of the girls and 8 percent of the boys had higher SBP. "Higher" among boys was defined as being in the same range as the highest 10 percent of SBP readings obtained among boys of similar age and height that were included in the National Health and Nutrition Survey (NHANES) in 1999-2000. "Higher" among girls was defined as being in the highest 10 percent of SBP readings obtained among girls of similar age and height from the NHANES 1999-2000 survey.
- Researchers recorded only a few higher diastolic blood pressures — three girls and one boy at the first measurement, and one girl at the third measurement. "If there is a flag for high blood pressure in the teens, it seems to be in the systolic pressure," Dasgupta said.
- A greater proportion of students with high SBP were overweight compared to students without elevated SBP.

Researchers said considerable evidence shows that males are less inclined to visit physicians than females, which is unfortunate if an early warning of hypertension develops in adolescence. The longer hypertension goes uncontrolled, the greater a person's risk of developing atherosclerosis, heart disease and stroke. Detecting hypertension early allows early and effective intervention, often by simply altering a person's diet and increasing his or her exercise.

"The earlier in life you change your behavior, the more likely you will continue that healthy behavior," Dasgupta said. "The big message of our study is that we must pay attention to blood pressures in adolescents and perhaps in boys in particular."

Co-authors are: Jennifer O'Loughlin, Ph.D.; Shunfu Chen, M.Sc.; Igor Karp, Ph.D.; Gilles Paradis, M.D.; Johanne Tremblay, Ph.D.; Pavel Hamet, M.D., Ph.D.; and Louise Pilote, M.D., Ph.D.

Data collection was funded by the National Cancer Institute of Canada with funds from the Canadian Cancer Society. Data analysis was funded by GENESIS with funds from the Canadian Institutes of Health Research and the Heart and Stroke Foundation of Canada.

Statements and conclusions of study authors published in the American Heart Association scientific journals are solely those of the study authors and do not necessarily reflect association policy or position. The American Heart Association makes no representation or warranty as to their accuracy or reliability.

NR06 – 1132 (Circ/Dasgupta)

(Press coverage articles 2 and 3 continued on pages 8-9)

Press coverage: Article 2) Teen boys more prone to elevated blood pressure than girls: study

Provided by: Canadian Press

Written by: SHERYL UBELACKER

Dec. 4, 2006

Body and Health, hypertension

TORONTO (CP) - Boys have an increased risk of developing elevated blood pressure as they go through adolescence compared to girls the same age, researchers have found, suggesting that the seeds of hypertension and its attendant health effects are planted before adulthood.

A study that followed almost 1,300 Montreal teenagers through Grades 7 to 11 found that the risk for elevated systolic blood pressure among teen girls remained basically stable for their age and height during the period, while the risk for boys rose over time. (Systolic pressure is the top number in the ratio, over diastolic; for instance 120/80.)

When the study began in 1999, the proportion of boys and girls with normal blood pressure was virtually identical, said principal investigator Dr. Kaberi Dasgupta, an internist at McGill University. But by age 17, more than two-thirds of participants with elevated blood pressure were boys.

"By 15, the boys were twice as likely as the girls, and by 17 they were two and half times as likely as the girls, to have a blood pressure" in the top range for their age and height, she said Monday from Montreal.

Dasgupta's research team, whose paper is published in Tuesday's issue of the U.S. journal *Circulation*, analyzed data from a 1999 to 2005 study on lifestyle behaviours among teens, including tobacco use and physical and sedentary activities. The study also measured blood pressure every two years.

"We were interested in the whole area of adult hypertension (high blood pressure) and the fact that men are more likely to get hypertension than women," she said. "So we wanted to look at this group of adolescents and see when during adolescence do boys and girls start differing in their likelihood for having higher blood pressure levels."

Researchers found a link between being overweight and a two-to threefold risk of having elevated blood pressure among both male and female teens, while participating in physical activities decreased the risk for both sexes.

As well, "the more hours they clocked in sedentary behaviours - so that could be television, Internet use, video games - the more likely they were to have the higher systolic blood pressures," said Dasgupta of both boys and girls.

"For every five hours (a week) you clocked in the sedentary behaviours, you'd be 17 per cent more likely to have a higher systolic blood pressure level," she said, even if other chunks of time were spent on physical activity.

"We knew that sedentary behaviours could impact weight, but this is the first time we're showing that sedentary behaviours are starting to impact blood pressure," she said. "We knew in adults being overweight and sedentary eventually will lead you to have hypertension, cholesterol problems, diabetes and, in the long term, cardiovascular disease."

"And it's sort of suggesting that the same type of thing - the footprints of that - start developing early. And so not only is sitting in front of the TV or computer not great for your waistline as a teenager, but you're already starting perhaps to develop cardiovascular risk factors."

Dr. Arya Sharma, head of the Canadian Obesity Network at McMaster University in Hamilton, said studies have shown that young people are susceptible to increased blood pressure levels as they gain weight.

"So clearly, a very large proportion of increased blood pressure we see in young kids is really related to the fact that they're overweight and may have sedentary lifestyles," said Sharma.

"I think what this study shows and an increasing number of studies now show, is that many of the risk factors and many of the diseases - like high blood pressure and diabetes, formerly referenced as adult-onset disorders - are now being increasingly seen in younger populations," he said.

"And this is largely attributable to increasing obesity in kids and adolescents."

Dasgupta said her study suggests that adults should be aware of the ramped-up risk for teen boys and encourage them to have their blood pressure checked regularly.

"What this says is if we detect the higher blood pressure level, maybe that's the opportunity - whether it's his teachers, his health-care providers or his parents - to say: 'Your blood pressure is getting up there. We really should be careful about how many hours you're in front of the computer or TV. We really should get you out there and active, we really should be careful about what we're eating.' "

Press coverage: Article 3) Boys at greater risk of high blood pressure, study says

REUTERS

1:17 p.m. December 8, 2006

DALLAS – Adolescent boys are far more likely to suffer high blood pressure than girls in the same age group, setting the stage for other health problems such as hypertension as they get older, researchers reported on Monday.

"The reason remains a mystery but it could be hormonal. We think it may have something to do with the onset of puberty in boys," said Dr Kaberi Dasgupta, lead author of the study and a physician at McGill University Health Center in Montreal.

Men are usually more prone to hypertension – chronically elevated blood pressure that can lead to heart disease – than women. But this is the first study to highlight gender differences in blood pressure among adolescents.

Researchers hope it could lead to more effective measures to prevent hypertension among young adult males. The five-year study looked at 614 boys and 653 girls in Montreal secondary schools.

Over the course of the study it found that the risk of high systolic blood pressure (SBP) – the larger of the two numbers that comprise a blood pressure reading – increased annually by 19 percent for boys but remained stable for girls. It also pointed to a lack of exercise and a sedentary lifestyle as increasing the risk of higher SBP for both boys and girls.

"Even after adjusting for differences in body weight, the more frequently a child engaged in active behavior, the lower the likelihood of developing higher systolic blood pressure levels," Dasgupta said.

"... the more hours that the kids spent in sedentary behaviors – sitting at a computer, playing video games, being on the Internet, watching television – the more risk of having higher systolic blood pressure," she added.

The results of the study are published this week in *Circulation: Journal of the American Heart Association*.

The researchers were members of GENESIS, a Canadian group that explores gender differences in cardiovascular disease.