

A MATTER OF THE HEART



"In a disordered mind, as in a disordered body, soundness of health is impossible."

- Marcus Tullius Cicero

"Health is the soul that animates all the enjoyments of life, which fade and are tasteless without it."

- Lucius Annaeus Seneca



"It is health that is real wealth and not pieces of gold and silver"
- Mohandas Gandhi



Special Thanks

We greatly appreciate the financial contributions from:

- Health Canada
- Alberta Department of Health & Wellness

This souvenir book and this symposium would not have been possible without their generous contributions.



Health
Canada Santé
Canada

Thanks are also due to Dr. Naresh Jha & Seema Marwaha for compilation of the souvenir book: to Vishaal Rajani for the front cover design, & to Calder Bateman Communications for the back cover design.

The quality of Service provided by Krishna & Romesh Mohan of Rainbow Copy & Printing was excellent. The publication of this Souvenir Book without their efforts would not have been possible.

Disclaimer: Funding for this publication was provided in part by Health Canada. The opinions expressed in this publication are those of the Matter of Heart II Committee and do not necessarily reflect the official views of Health Canada.



MATTER OF THE HEART II

March 13, 2004



Reproduction and/or translation of this souvenir book in full or in part is not permitted, unless a written consent is obtained from Maanaw Seva Association and Shanti Niketan Society.

Table of Contents



Felicitations

Message from Acharya Shiv Shankar Prasad Dwivedi	page 5
Deputy Prime Minister Anne McLellan-Government of Canada	page 6
Health Minister, Gary Mar – Alberta Government	page 7
Minister Gene Zwozdesky- Alberta Government	page 8
Bill Smith, Mayor of Edmonton	page 9
Message from the Chair, Dr. Naresh Jha	page 10
Preface – Dr. Arvind Koshal	page 11
• <u>Participating Organizations</u>	page 12
Profiles - Maanaw Seva Association, Shanti Niketan Society	
• <u>Organizing Committee</u>	page 15
• <u>A Matter of the Heart II Speakers and Topics</u>	page 17
I) <u>Summary of Matter of the Heart I Symposium – March 15, 2003</u>	
<u>Lectures from the 2003 Symposium:</u>	page 18 - 45
• Dr. William Black: How to recognize and react to different signs of heart disease.	
• Neelam Makhani - Eating for a healthy heart	
• Dr. Pratap Chokka - Stress, depression, and the broken heart	
• Dr. Arvind Koshal - Surgical Aspects of the Heart	
• Dr. Zaheer Lakhani – Risk factors of heart disease	
• Mr. Vinod Varshney - How to cook heart smart	
• Mrs. Nandini Desai – Diabetes and heart disease – how a pharmacist can help	
• Mr. Arun Mehta - Use it or lose it!	
II) <u>Heart Smart Recipes</u> (Compiled by Vinod Varshney)	page 46-70
• Snacks, Soups, Vegetables, Dals, Raitas, Chutneys, Breads, Sweets, Beverages	
III) <u>Frequently Asked Questions</u> (Compiled by Dr. Anil Joy and Dr. Pramod Verma)	
• The Heart and Heart Disease	page 71
• Dyslipidemia – Abnormal Blood Fats	page 84
• Diabetes – High Blood Sugars	page 90
• Hypertension – High Blood Pressure	page 95
• Obesity	page 100
• Smoking	page 104
• Cerebrovascular Accident (CVA) – Strokes	page 106
IV) <u>Gratitude And Appreciation</u>	page 112

Message from Acharya Shiv Shankar Prasad Dwivedi

संदेश

भारतीय संस्कृति विकसित विश्व की समस्याओं से पूर्णतया परिचित है तथा उनका समाधान प्रदान करने में समर्थ है। मानव मन मान्यता प्राप्त मर्यादाओं को मिटाकर, मनमानी तरीकों से जब जब शरीर को सुखी करने का अपूर्ण प्रयास करता है, तब तब उनमें से कई सुख ही असाध्य रोग बनकर जीवन में भय और अशान्ति का सागर निर्माण करते हैं।

शास्त्र का विचार है कि शरीरमाद्यंखलुधर्मसाधनम् स्वस्थ शरीर से ही जीवन के सभी कर्तव्यों का पालन किया जा सकता है। इसके लिए संतुलित आहार एवं विहार की आवश्यकता होती है। जरूरत से ज्यादा काम और आराम दोनों ही शरीर के लिए लाभ कारी नहीं माने जाते हैं।

आज हमारे समाज में हृदय रोग का भय, आयु की सीमा को कम करता हुआ बढ़ रहा है। यह किसी एक जाति, धर्म या समाज की समस्या न हो कर हर घर की कहानी बनती जा रही है। इसे मिलकर विवेक पूर्ण विचार से रोकना होगा, ताकि यह भय हमारी आने वाली पीढ़ी को पूर्वजों की तरफ से दिया गया तोहफा न बनने पाये।

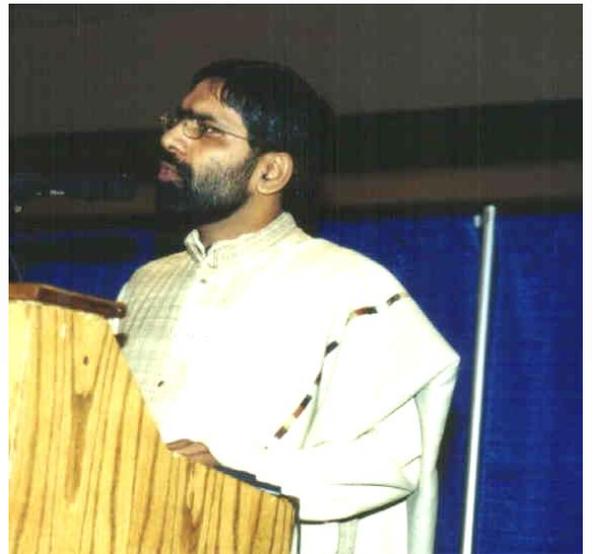
हम इस समाधान पूर्ण कार्यक्रम में समय, सम्पत्ति एवं शक्ति का सहयोग करने वाले स्वयंसेवकों एवं संस्थाओं का अभिनन्दन करते हैं, जिनसे एक नयी जागृति की आशा का उदय हुआ है। हमें विश्वास है कि यह प्रयास निरन्तर प्रगतिशील बन अपने समाज को प्रेरणा प्रदान करता रहेगा।

शुभेक्षः

आचार्य शिवशंकर प्रसाद द्विवेदी

व्याकरणाचार्य, स्वर्णपदक प्राप्त

आध्यात्मिक प्रवक्ता-हिन्दूसोसाइटी आफ अल्बर्ट



Deputy Prime Minister
and Minister of Public Safety
and Emergency Preparedness Canada



Vice-première ministre
et ministre de la Sécurité publique
et de la Protection civile du Canada

Ottawa, Canada K1A 0P8

The Honourable L'honorable
A. Anne McLellan, P.C., M.P. c.p., députée



**Message from the Honourable Anne McLellan
Deputy Prime Minister of Canada
Minister of Public Safety and Emergency Preparedness
Member of Parliament for Edmonton West**

It gives me great pleasure to bring greetings to the "*A Matter of the Heart II*" Symposium. On behalf of the Government of Canada and our Prime Minister, the Right Honourable Paul Martin, I would like to extend a warm welcome to everyone.

I want to commend the Maanaw Seva Association and the Shanti Niketan Society for your efforts in raising public awareness of cardiovascular disease. As the leading cause of death in Canada, heart disease is also the most costly disease in Canada, placing the greatest burden on our health care system.

Most of all, heart disease deprives thousands of Canadians of longer, healthier and more productive lives. That is why your symposium is so important.

This symposium offers a series of presentations, which emphasize the importance of prevention of heart disease through healthy living and eating habits. These presentations will provide the information and advice required for everyone to reduce the controllable risks that often lead to heart disease.

I appreciate that one of the specific goals of this symposium is to educate members of the East Indian community because of their increased risk for cardiovascular disease. I also understand that you are welcoming participants from all communities to encourage everyone to benefit from this educational opportunity.

Your active concern for the health and wellbeing of Edmontonians, and in particular, the East Indian community, is an excellent example of the generous and compassionate spirit that defines us as Canadians. I want to especially thank all the organizers and volunteers who have worked so hard to make this event possible.

Please accept my best wishes for a successful event.

Sincerely,

A. Anne McLellan

Canada



ALBERTA
HEALTH AND WELLNESS

Office of the Minister



MESSAGE FROM THE MINISTER OF HEALTH AND WELLNESS

On behalf of the Government of Alberta, I would like to extend a warm welcome to everyone attending A Matter of the Heart II Symposium.

I commend the Maanaw Seva Association for taking a leadership role in providing practical and culturally relevant information to reduce the risk of heart disease, diabetes and other preventable diseases.

Your conference supports a government priority to keep Albertans healthy and provide better information to help everyone lead healthier lives.

I want to thank the symposium organizers, health professionals and association volunteers who have helped to make this symposium possible. Your efforts are making a positive difference to your community.

Best wishes on a successful symposium and a continued commitment to good health.

Sincerely,

Gary G. Mar, Q. C.
Minister of Health and Wellness
M.L.A. Calgary Nose Creek

Legislature Building, Edmonton, Alberta, Canada T5K 2B6 Telephone 780/427-3665 Fax 780/415-0961

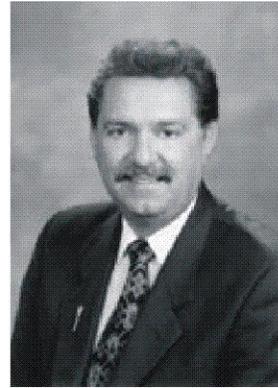
Printed on recycled paper



ALBERTA

*Minister of Community Development
Deputy Government House Leader*

MLA, Edmonton Mill Creek



Message from Minister Gene Zwozdesky

As Minister of Community Development, and as the former Associate Minister of Health and Wellness, it is my pleasure to welcome everyone to *A Matter of the Heart-II*, presented by the Maanaw Seva Association and the Shanti-Niketan Society.

I commend both organizations for informing Albertans about matters important to our health and well-being. By providing information and educational services about health and wellness, you are helping the retired and semi-retired members of our community participate fully in all that life has to offer.

We know that Alberta's population is aging and that our older generations are becoming more aware of the benefits of a healthy lifestyle, including the benefits of increased physical activity. A recent National Population Health Survey indicates that approximately 45% of Albertans over the age of 65 are physically active three times a week or more. Events like today's symposium heighten everyone's awareness of health and wellness matters, and I commend those who organized it for our benefit.

Our well-being is *A Matter of the Heart* and this symposium will surely contribute to the quality of life we all enjoy in Alberta.

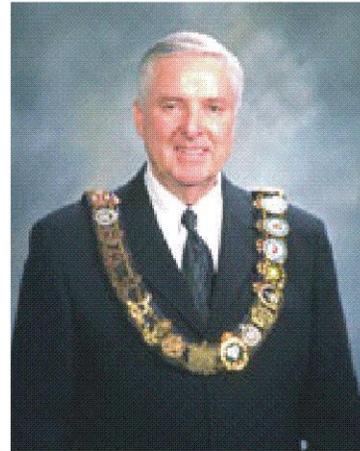
Gene Zwozdesky
Minister of Community Development
Deputy Government House Leader

229 Legislature Building, Edmonton, Alberta, Canada T5K 2B6
Telephone 780/427-4928 or 415-4840 Fax 780/427-0188

Printed on recycled paper



***Message from His Worship
Mayor Bill Smith***



On behalf of City Council and the citizens of Edmonton, it is my great pleasure to extend a warm welcome to all delegates attending A Matter of the Heart-II.

This worthwhile seminar highlights an issue that touches all of us – heart health. I salute the Maanaw Seva Association, and the Shanti-Niketan Society, for organizing this important seminar. By working to raise public awareness as to the importance of maintaining a healthy heart, you are benefiting the entire East Indian community. Thank you for hosting this seminar.

I would like to take this opportunity to also extend a sincere thank you to the generous organizations and businesses who are supporting A Matter of the Heart-II.

Best wishes for a successful seminar for everyone involved!

Yours truly,

A handwritten signature in black ink that reads 'Bill Smith'. The signature is written in a cursive, flowing style.

Bill Smith
Mayor

Message from the Chair

We have witnessed several tragedies in our community in over the last couple of years when several young lives were prematurely lost. Most of these friends succumbed to heart attacks in the prime of their lives. When people die young (40s –50s), they leave behind young families ill equipped to handle the lives they then face. Something had to be done to raise awareness about heart attacks and related diseases.

Under the guidance of respected Acharya Shiv Shankar Dwivedi ji, the volunteers of Maanaw Seva Association and Shanti Niketan Society decided to organize “A Matter of the Heart-II” conference. Many people have put in a substantial amount of effort towards this. I am also grateful to all the distinguished speakers who have agreed to participate in this conference. I hope that all the attendees will find this conference useful.

We are all very busy in our respective lives. I am reminded of a saying “Even if you win this rat race, you are still a rat !” We can always do a little bit more for ourselves and for our own families. I urge you all to donate some of your time and talents towards worthy projects that will help fellow human beings. If only we can pool our strengths and work together, we can do wonderful things for other members of our society and enrich our lives in the process.

Dr. Naresh Jha M.B.B.S, FRCP (C)

Chair
“A matter of the heart-II ” conference



PREFACE

I am very happy to learn about “ A matter of the heart-II” conference. Thank you for keeping me aware about various aspects of this conference. This symposium addresses an extremely important health issue. Statistics show that the morbidity and mortality from coronary artery disease (CAD) among East Indians is the highest among all ethnic groups studied including other Asian populations. CAD in East Indians is often premature, progressive and follows a malignant course, sometimes even in the absence of conventional risk factors.

The presentations at this timely conference cover not only the diagnosis and treatment but also, more importantly, the preventative strategies in a very practical way. The importance of diet, physical activity, cessation of smoking, control of diabetes, hypertension and obesity will be highlighted. The current and future therapeutic modalities will be discussed. In addition there will be a substantial period for question and answer sessions.

Last year I was involved in a similar symposium, organized by Maanaw Seva Association, in Edmonton. I was very impressed by the level of presentations and the discussions thereafter. There was a very positive feedback from the community. The organizers have to be highly commended on their efforts to continue to provide the community with information on matters that affect the heart and related diseases. I wish them all success.

Sincerely,

Dr. Arvind Koshal

M.B.B.S, MS, FRCSC, FRCSC(CVT)



Participating Organizations



(I) Maanaw Seva Association (MSA)

MISSION STATEMENT - Maanaw Seva Association (MSA) was established in 1991 as a volunteer non-profit organization with a mandate to be supportive of the local community, and to support the disadvantaged - in particular women, children, the poor and the lower castes.

Locally - MSA helps the East-Indian communities in several ways; for example:

- By providing an efficient and effective education and caring support network for youths. This is done through a chapter of MSA called **Jagriti**. Jagriti identifies the problems unique to youth and provides suggestions and solutions.
- By organizing seminars to deal with adult related problems, such as health, money matters, housing, social issues, etc.
- By organizing cultural and religious seminars for the purpose of meditation and spiritual uplifting – leading to inner peace in the individual person, and as a result benefiting the community/society as a whole.

Internationally – MSA’s vision is to sustain development by becoming involved in projects that propel the community forward toward self-sufficiency and to work towards improving the general well being at personal and the communal levels. This work, mostly in India, is carried out by local Non-Government Organizations (NGOs) who have a well-established track record working in development, and who have a strong professional and volunteer base. Partners are selected based on sound criteria that include: experience, expertise, accountability, and legal status. NGOs are involved in project developments, and in providing all documents to meet Federal government requirements. Examples of some of the projects in which MSA has been involved are:

- **Health and Hygiene** – funding for building hospital extension, medical centers, mobile clinics, medical equipment, ambulances, staff training, and family planning
- **Basic Human Needs** – funding for water wells, running water, sanitation, and education on personal hygiene.
- **Education** – funding to provide basic education free to poor children in remote villages; and for personal care and skill development to empower women to improve self-esteem and promote independency. Funding also goes towards school furniture, library, sports equipment, school building, and hostel.
- **Orphanage and Handicapped Institutions** – funding for orphanages, handicapped institutions and leprosy colonies. In near future MSA is going to be involved in animal orphanages.

In last six years, MSA has funded various international development projects to the amount of \$500,000. These funds have helped many people directly, as well as helping, indirectly, many local individuals, communities, and businesses.

Maanaw Seva Association would like to acknowledge the support from the **Wild Rose Foundation** and the **Alberta Liquor and Gaming Commission**. Without their help in providing grants and raising funds through Casinos, we would not be able to achieve our objectives of helping those in need.

Executive Members

President	Satish Sehgal
Treasurer	Rohit Desai
Secretary	Rajiv Ranjan
Director	Robinson Koilpillai C.M.
Director	Jivan Kayande
Director	Ramesh Aggarwal

Supporting Executive Members

Naresh Jha
Vasudev Dhodia

Advisor and/or Chair Person

Acharya Shiv Shankar Prasad Dwivedi (Punditjee) – General Advisor
Charu Ranjan – Advisor for Jagriti
Niru Channan – Chair Person for Walk-a-thon

Contact Information

Rohit Desai
Phone No. 431 0377
e-mail address – shobhna.rohit@shaw.ca
Web site – www.maanawseva.com

(II) Shanti Niketan Society



SOCIETY FOR SEMI-RETIRED AND SENIORS

Objectives:

- Operate as a non-profit community service organization
- Develop a resource center for community service by renting, building or purchasing and operating appropriate facilities.
- Develop health and wellness programs, lectures, seminars, workshops and other programs on health promotion and maintenance.
- Develop a pool of volunteers to participate in out-reach programs through which it will help seniors isolated in their homes, in hospitals or in other institutions.
- Develop programs to promote peace and tranquility in life using the time-tested concepts of east Indian philosophy of life in post retirement period as suited to modern times in Canada.
- Provide emotional, socio-cultural, psychological, recreational and other programs as well as library facilities.
- Participate in networking with other senior groups and organizations and form liaison with various levels of governments and organizations.
- Facilitate suitable residential accommodation for seniors to live within a community in a friendly cooperative environment by renting, or building or other means.

Some recent activities of the Society include:

Regular yoga classes; regular community picnics; family get togethers; social and spiritual programs; visitations to sick and needy; fund raising events.

The Elected Board for the Year 2003-2004

President:	Dr. S.P. Singh
VP Admin:	Dr. P. Kharbanda
VP Program:	Mrs. Gunjan Sharma
Treasurer:	Dr. M.P. Sharma
Secretary:	Mr. Rajiv Ranjan
Immd. P President	Dr. R.L. Singh
Directors:	Mr. Raj Bansal
	Mrs. Chander Shorey
	Mr. Tilak Sharma
	Dr. Rajeshwar Singh
Auditors:	Dr. Mahendra Jain
	Mrs. Vimal Naik

ORGANIZING COMMITTEE - 2004

Chairperson

Dr.Naresh Jha

Advisor

Acharya Shiv Shankar Prasad Dwivedi

Treasurer

Rohit Desai

Executives from the Shanti Niketan Society

Dr.S P Singh – President, Dr.M P Sharma, Rajiv Ranjan

Revenue Generation Comittee

Dr.Knut Vik, Vinod Marwaha, Dr. Naresh Jha, Dr.Harish Kalra, Raweesh Chaudhary, Jitendra Prasad, Nandini Desai, Dr.M R Suresh, Anu Rajora, Jivan Kayande, Gunjan Sharma

Souvenir Book Committee

Dr.Naresh Jha, Seema Marwaha, Vishaal Rajani, Dr.Anil Joy, Dr. Sunil Desai, Dr.Pradeep Kulkarni, Dr.Shobhna Kulkarni, Dr.Knut Vik , Nalina Kumar, Vinod Varshney, Dr. Hasmukh Rajani, Dr. Pramod Verma, Vinod Marwaha, Rohit Desai, Dr. Harish Kalra

Brochure Committee

Jitendra Prasad, Dr. Naresh Jha, Charu Ranjan, Rajiv Ranjan, Vinod Marwaha, Seema Marwaha

Audio-Visual Committee

Nand Bhasin, Dr. Pramod Verma & Mukund Mehta

Floor Management and Volunteer Coordinating Committee

Dr. Hasmukh Rajani & Charu Ranjan

Liaison with Government Committee

Dr. Knut Vik, Vinod Marwaha, Dr. Naresh Jha, Jitendra Prasad, Dr.Sunil Desai and Rohit Desai

Web Site Committee (www.maanaawseva.com)

Seema Marwaha

Registration Committee

Rohit Desai & Dr.R L Singh

Booth Coordinating Committee
Dr.Hasmukh Rajani & Dr.Sunil Desai

Media Relations Committee
Dr.Sunil Desai & Rajiv Ranjan

Souvenir Book Printing Committee
Dr. Naresh Jha, Vinod Marwaha, Rajiv Ranjan & Dr. S.P. Singh

Masters of Ceremonies
Jitendra Prasad & Seema Marwaha

Patient Information Package Compilation Committee
Nandini Desai, Raweesh Chaudhary & Kapil Gurtu

Advertising
Kapil Gurtu, Monica Juneja & Anu Rajora

Catering Supervision
Vinod Varshney
Puja & Dr. Pramod Verma

A Matter of the Heart II

Speakers and Topics for the 2004 Symposium

- **Dr. Phil Hardin - THE CURSE OF DIABETES**
- **Dr. Ruth Collins-Nakai - THE SEED FOR CARDIOVASCULAR PROBLEMS STARTS EARLY**
- **Dr. Sajad Gulamhusein - HOW TO RECOGNIZE AND REACT TO SIGNS OF HEART ATTACK**
- **Dr. Arvind Koshal - WHAT YOU NEED TO KNOW ABOUT HEART SURGERY**
- **Ms. Neelam Makhani - DIET FOR A HEALTHY HEART**
- **Dr. Zaheer Lakhani - RISK FACTORS OF HEART DISEASE**
- **Dr. Sita Gaurishankar - HYPERTENSION – THE SILENT KILLER**
- **Dr. Lee Jones - EXERCISE AND CARDIOVASCULAR HEALTH**
- **Dr. Naresh Jha - CONCLUDING REMARKS**





MATTER OF THE HEART I

Proceedings from the Symposium held March 15, 2003



Lectures from the 2003 Symposium

(I) HOW TO RECOGNIZE AND REACT TO SIGNS OF HEART DISEASE

Dr. William Black, BSc MD FRCP (C)

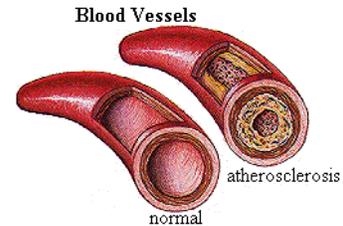
The disease that causes a heart attack is **coronary atherosclerosis**.

Coronary means “of the heart.” The heart, itself a muscle and needs nutrition, which is supplied by the heart through the blood vessels called coronary arteries.

Atherosclerosis is from Greek origin:

“athero” means “gruel or porridge”

“sclerosis” means “scar”



Often starting in childhood, a fatty streak or a little yellow patch with cholesterol develops. Over decades, it develops into a plaque. This is cholesterol deposition with scar formation and associated inflammation. This is also called “hardening of the arteries.” Narrowing of the blood vessels by atherosclerosis leads to decreased blood flow. A plaque can rupture or crack and a clot forms at this site. The clot can block the artery.

Coronary heart disease is a number one killer in men and women in North America and all over the world as nutrition improves and there is decrease in infectious diseases.

Myth - Coronary heart disease is a man’s disease.

Truth: At least 50% of heart attacks occur in women and are more dangerous! They may occur ten years later as compared to men.

Coronary artery disease may be present in a variety of forms, such as:

- Angina - This is a feeling or pain like indigestion or burning. Angina may be **stable** if pain, which occurs with increased activity or when there is increase blood supply to the heart, stops with decreased activity. An angiogram at this stage would show one vessel to be narrowed by at least 70%. Angina may be **unstable** if the feeling or pain does not go away with stopping activity. **This is a pre warning of heart attack. It is an emergency.**
- A myocardial infarction (MI) (which means a heart attack)
Myocardium means heart muscle. Infarction means damage of muscle.
In Angina there is no permanent damage and one still has time to seek help. With infarction, **there is damage** and nothing can be done to cure the damage. There may be gene therapy in future. The extent of the damage depends on how long before treatment happens.

Myocardial infarction is heart muscle damage due to blockage of blood flow. The blockage is caused by a clot that forms after a plaque rupture. The amount of damage depends on where the block is and how long it takes to seek help.

Sudden cardiac death happens with a significant myocardial infarction. Mortality rate has decreased. More than 50% of the deaths happen before getting to the hospital. However, these deaths may not be as “sudden” as implied. Warning signs usually have occurred but have been ignored. In the past there was a mortality rate of 30%. Today it is less than 10%. The decrease in mortality has resulted in increased longevity and as a result increased prevalence of coronary artery disease.

Who is at risk?

- Anyone with previous heart attack or coronary disease
- Anyone with atherosclerosis disease anywhere else in the body e.g. Stroke or in the legs
- Anyone with diabetes, which is the epidemic of the day related to lifestyle and diet
- Anyone with multiple risk factors including smoking, hypertension, decreased activity and obesity
- South Asians are at a higher risk due to innate cause
- Women are at equal risk as men. They are 6-8 times more likely to die from heart disease as breast cancer. With increased smoking, lung cancer is catching up to the incidence of breast cancer.

The **symptoms** of an MI maybe subtle. There is some discomfort always in the chest, which may be like burning or pressure. It may spread to the arms particularly to the left arm, the neck or the jaw. They may feel unwell, short of breath, sweaty, or light headed. Women may present differently and in a more subtle fashion, where as men present with classic symptoms. Sometimes there is an overwhelming anxiety and a feeling of “Sense of Doom.” It is a feeling of “I am going to die.”

This should be **recognized** as a heart attack and not be **ignored!** Call 911 and don't drive yourself to the hospital. Have someone drive you there. If paramedics are by your side they can help with treatment sooner. 50% of deaths occur prior to arrival at hospital and often it is because treatment is sought late.

Aspirin taken immediately decreases death by 25%.

Damage starts at the onset of an MI and goes on for a few hours. Therefore we need to start treatment right away and blood flow should be re-established immediately. At the hospital you are given clot busters, which dissolve the clot rapidly. If it is a massive/major heart attack you may be taken to the Catheterization Lab and have an angiogram and if appropriate be treated with balloon angioplasty.

The time from entering the emergency department to getting treatment is called the “*Door to needle time*” and should be about 10 to 15 minutes. You are generally fast tracked if you are having chest pains, **so please tell the triage nurse or emergency physician.**

You will be asked questions about when the pain started and how bad it is from scale of 1-10. An ECG will be performed and helps diagnosis in majority of patients. Blood tests will

also be done. When damage to heart cells occur, there is an increase in some components like enzymes or “Troponins” in the blood. If in severe pain or in shock, the specialist may do an angiogram right away.

The Key message is early artery opening saves lives and also the heart muscle. The longer one goes without treatment the more muscle damage occurs. If treatment occurs within an hour it is most beneficial. Only 20% get to the hospital within that time and the doctors can do wonders for those patients. So don't deny it if you have the pain. Do not feel embarrassed if you go to emergency because of subtle chest pains and end up with a diagnosis of heartburn. At six to twelve hour after onset of heart attacks, little can be done to save the heart muscle.

The final message is don't delay. Don't be your own doctor. Let the qualified doctors make the diagnosis. Even after the heart attack and treatment of the disease, atherosclerosis is still going on. As a result, a significant change in lifestyle is necessary. **Stop smoking.** This decreases the risk of heart attack by 50%. One needs to follow a special diet and increase activity. Often individuals are referred to the cardiac rehabilitation program. After acute treatment you will generally go home with four medications:

- Aspirin
- Statins to lower cholesterol
- A Beta-blocker to decrease the work done by the heart and to correct rhythm
- An ACE inhibitor to prevent the heart from enlarging, failing and to maintain function. It decreases the formation of atherosclerosis and improves the lining of the blood vessels.

If the patient is at high risk with a large heart attack, if there is recurrence of pain in hospital or if on an exercise test in hospital before going home the patient fails miserably, heart catheterization occurs.

The specialists may do PTCA. This stands for **percutaneous transluminal coronary angioplasty.**

- Percutaneous means through the skin.
- Transluminal means into the blood vessels.

A balloon on a catheter is pushed into the vessel and at the site of the narrowing the balloon is blown up so that it flattens the clot. 30% used to re-block early. As a result stents are put in place to keep blood vessels open. They act like struts. The new stents can release a medication, which is anti-inflammatory and keeps the vessel open and prevents re-growth inside the stent. These are expensive and used only sparingly at present. If there is significant blockage a referral is made for Coronary Artery Bypass Graft (CABG). Remember heart disease will still progress unless you do something about development of atherosclerosis i.e. stop smoking, diet appropriately and exercise.

(II) EATING FOR A HEALTHY HEART

Neelam Makhani, Registered Dietitian

Heart Healthy Eating means enjoying a variety of foods from Canada's Food Guide to Healthy Eating with special emphasis on limiting fat intake. Research shows that a diet high in fat increases the risk of heart disease.

BLOOD FATS

- **LDL** or “bad cholesterol” is the one that can clog the arteries if there is too much of it. This is increased by a diet high in fat.
- **HDL** or “good cholesterol” helps clean away the LDL by taking it to the liver for disposal. HDL can be increased by regular aerobic exercise, quitting smoking and achieving a healthy weight.
- **Triglyceride** is a storage and transport form of fat. Diets containing large amounts of alcohol, sugars and calories can make triglycerides levels go up in your blood.

FATS FOUND IN FOODS

- **Cholesterol** is a waxy-fat like substance found only in foods of animal origin. Foods very high in cholesterol include egg yolks and organ meats. Beware of foods which claim to be cholesterol free but have large amounts of fat, such as potato chips.
- **Saturated Fats** raise blood cholesterol levels. They are found in foods of animal origin such as beef, lamb, pork, chicken, lard, dairy products, butter and ghee. Plant sources such as palm oil, coconut oil and cocoa butter also contain saturated fats. Saturated fats are usually solid at room temperature.
- **Monounsaturated Fats** are neutral to blood cholesterol levels. Vegetable oils such as canola, olive and peanut oil are high in this type of fat. Avocados are also high in monounsaturated fat.
- **Polyunsaturated Fats** are fats that can help reduce cholesterol levels. They lower both LDL and HDL. Vegetable oils such as corn, soybean, sunflower, safflower and sesame oil have a large amount of this type of fat.
- **Hydrogenated Fats** are fats that have been hardened by a chemical process. This creates trans fats, which act like saturated fats and raise blood cholesterol levels. They are found in hard margarine, hydrogenated oils and vegetable shortenings. Most fast food restaurants and commercial bakeries use hydrogenated fats.

Saturated vs. Unsaturated fats

It is important that your diet is low in fat. When using fats try to replace saturated/hydrogenated with unsaturated. Health Canada's guideline: "no more than 30 percent of your total daily calories should come from fat". This can be challenging, especially with our traditional way of cooking.

FOOD GROUPS

Heart healthy eating comprises of eating a diet that is **high in fiber** and **low in fat**. Fiber can be obtained from choosing whole grain products, vegetables, fruits and legumes. Selecting low fat milk products and lean meats is essential in reducing fat in your diet.

- **Grain Products:** Choose whole grain breads, high fiber cereals, whole wheat pasta, roti made with whole wheat atta, and brown rice. These foods will help in increasing the fiber in your diet.
- **Vegetables & Fruits:** Choose fruits and vegetables (except coconut or avocado) including the skin and seeds when possible. Use solid fruit instead of juice.
- **Milk Products:** Use skim or 1% milk to drink and to make yogurt. Use low fat cheese (less than 20% M.F./milk fat). Make paneer using 1% milk and bake it instead of frying.
- **Meat & Alternatives:** Choose lean meats, poultry and fish. Limit intake to a total of 6 oz cooked weight per day. Use legumes (dried peas, beans and lentils) more often. All types of daals fall in this food group. Incorporate soy into your diet by using tofu instead of paneer and using the "veggie" products.

FAT CHOICES

- Use vegetable oils or non-hydrogenated fats.
- Avoid the use ghee, butter, hard block margarine, coconut and palm oil.
- Choose a soft tub, non-hydrogenated margarine.

ADDITIONAL TIPS TO LOWER FAT IN YOUR DIET

- Choose lean cuts of meats.
- Trim visible fat from meat before cooking.
- Use low fat cooking methods such as broiling, roasting, baking or stewing.
- Use less oil in cooking by measuring it with a spoon, instead of directly pouring it from the container.
- Eat fewer deep fried foods such as pakoras, parathas, puris etc.
- Avoid adding extra fat on top of cooked foods, such as ghee on top of rotis.

SAMPLE MEAL PLAN

Breakfast - Bread (whole wheat), peanut butter, fruit, milk (skim or 1%).

It is very important to have a well balanced breakfast everyday. This helps to start our metabolism for the day and helps with weight management. Individuals who eat an inadequate breakfast end up eating a very large supper. Breakfast should be the largest meal of the day.

Lunch - Roti, daal, vegetable sabji, dahi.

This is a balanced meal for vegetarians. Use home made chutneys to enhance your meals instead of store bought pickles (achar).

Afternoon snacks - Low fat cookies and Chai.

Use low fat cookies such as Dare Simple Pleasures (low fat) instead of the traditional Cake Rusk cookies. Avoid using traditional deep fried snacks. Use skim or 1% milk to make Chai without the addition of extra water.

Supper: Roti, daal, vegetable sabji, lassi

If you have had regular, balanced meals and snack in the earlier part of the day, you will end up eating a smaller supper. Avoid eating a late supper, as we tend to be inactive after supper time.

Night snack: Fresh fruit.

Use something light as a snack at night. This will help you go to sleep easier without any stomach upsets.

ACTIVE LIVING & EXERCISE

By achieving and maintaining a healthy body weight, you can reduce your risk for heart disease. It is the weight around the waist that is the hardest on your heart. Incorporate a 30 minute activity that you enjoy into your regular routine.



(III) STRESS, DEPRESSION AND THE BROKEN HEART

Dr. Pratap Chokka, M.D., F.R.C.P. (C)

Anxiety and depression do have an effect on the heart. **Anxiety** is a feeling of apprehension and unease, usually associated with danger and worry, e.g. worry about the kids. Sometimes, there is no apparent reason for anxiety.

A little anxiety is good for us because it helps us to deal with situations we come across. Anxiety becomes dangerous to us when it becomes pathological, i.e. it dominates our lives and can then have deleterious effects. Anxiety triggers different systems and chemicals in the brain to prepare us for danger. Various organs get activated. For example, the heart rate and blood pressure both increase.

Pathological anxiety can lead to end-organ failure, which in the case of the heart leads to coronary heart disease. Untreated or unrecognized depression or anxiety is an independent risk factor for heart disease, even in the absence of other risk factors. Causes of anxiety/depression may be genetic, trauma experienced as a child or individual circumstances such as poverty or unemployment.

Anxiety disorders include panic attacks, which can mimic a heart attack or can occur at the same time as a heart attack. Hence panic attacks should always be checked out in the casualty department. One third of patients with chest pain due to heart disease have depression/anxiety disorders. The good news is that anxiety disorders are easily diagnosed and are treatable. Stress, anxiety or worry can all precipitate or contribute to depression. **Depression** is a consistent state of sadness, inability to sleep, reduced appetite and inability to concentrate.

There is a strong relationship between anxiety and heart disease. Males with high levels of anxiety are at double the risk of developing ischemic heart disease, and four times the risk of sudden death.

An individual with a Type A personality is ambitious, competitive and aggressive to attain his/her goals. Although being ambitious is good, hostility, competitiveness and anger are bad for health and are associated with death.



We need to look at ourselves and think why we do what we do and if this is necessary.

The Type A individual is at a 2-4 times increased risk of ischemic heart disease compared to a type B individual who has opposite characteristics.

Effective treatments for anxiety/depression are available. The family physician should be seen first and then referral to the specialist is done if necessary.



Spirituality is very important in our community. **Forget the rat race, slow down and enjoy life!**

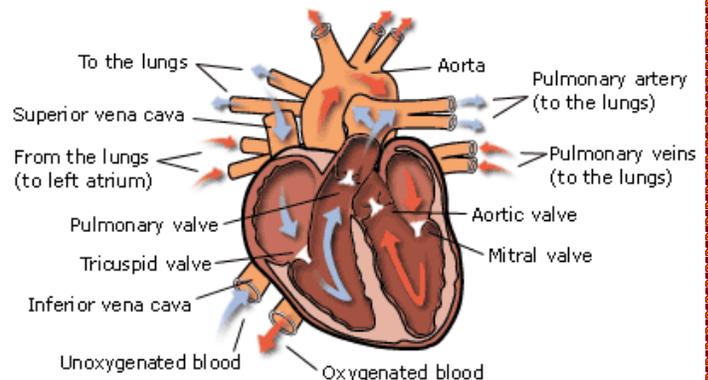
(IV) SURGICAL ASPECTS OF THE HEART PROBLEMS

Dr. Arvind Koshal, M.B.B.S, MS, FRCSC, FRCSC(CVT)

I am going to talk to you about what I do in the operating room to give you an insight into that. It is actually very simple. There is a lot of mystique about heart surgery, but what I do is actually very straightforward.

The heart is just a pump that pumps at a regular interval at about 4 – 5 liters / minute and makes sure that all organs in the body are well perfused with oxygen and blood and that's all it is. But the pump like most pumps also has its own system. It needs a fuel system. e.g. the pump also needs its own blood supply and you can see these red arteries that supply blood to the heart. That is what Dr. Black was talking to you earlier that these other arteries can get clogged or have plaques that rupture and then you get a heart attack.

If you cut the heart open you will understand what a wonderful machinery God has made and sometimes when I find people who don't believe in God and wonder whether God really exists. Just look at this machinery and tell me any human being that can mimic this machinery. We haven't been able to do it. What it does is it has a system where blood comes in to the right side from the rest of the body and it goes through a bunch of valves and from here it goes into the lungs, the lungs oxygenate the blood, the blood then goes into the left side of the heart and again goes through a system of valves and chambers and then is pumped by a big pipe called the aorta into the rest of the body. So that is the pump I have to deal with on a fairly regular basis.



Many years ago, humans mind as it is, devised ways so that for a short period of time, we can take over this function of the heart, and lungs and this is called a heart and lung machine. And what this machine essentially does is what we just talked about. It has the ability to take the blood from the human body – that is what we do in the operating room – it goes into this machine – the machine then takes over the function of the heart and lungs and that is it well oxygenates the blood as there is an oxygenator there. There it warms the blood and pumps it back into your body. This allows us to do most of our work. Heart and lung machines have become very sophisticated, they are heavily computerized. There is continuous monitoring and you can see this monitor here will show us continuous measurements of the blood pressure, the filling pressure of the heart, the different electrolytes and everything on a real time basis. We have continuous monitoring of all these things that allows us to work. So as you can see, while the pump is here the perfusionist sits here and the surgeons are busily working away and we don't have to worry that the heart and lungs function are not being taken care of. However, again as I said cannot compete with God made machinery and we find that even this can cause certain damage to the blood inside. And that is why we cannot use this machine forever and ever and we have to be limited in what we can do, the extent that we have also now started to develop some operations without using the heart lung machine, also known as beat up heart surgery and this is coming into vogue right now. It has had its ups and

downs. In Canada actually, it has gone down a bit. In India almost every center is doing it because it is cheaper and also it is fashionable. What it does is instead of using the heart lung machine, we have different sort of retractors that can give good exposure to us and we can still work on a beating heart.

Most of our work on the plumbing business involves fusing the fuel system in itself and that is the CAB operation. In our own hospital, we do roughly a total of about 1700 cases, of which 350 are pediatric and the rest are adult. Within the adult, the distribution is mainly we fix the coronary artery about 17 % we have to fix the valve, and then about 6 % transplants. Though this number is small it still represents the highest volume of Cardiac transplants in the country by far and then, the pipe or aorta that goes out of the heart is repaired, sometime and then of course some other procedures and some combined procedures. So that is what we do in the operating room.

What is very reassuring now this is happening as we see – there are results from our own institutions. I came here in 1991 – There are overall results of all types of heart surgery that is done at University Hospital. Initially in 1991, there was almost an 8% mortality and that means that if you came in with a problem, there was a 8 % rate, and that was quite acceptable at that time. But over a period of time no this has dropped to almost 1.5 %. And these are all patients and as we build an Institute we get more complicated referrals and the results are still very reassuring. We have a very good team that is responsible for that.

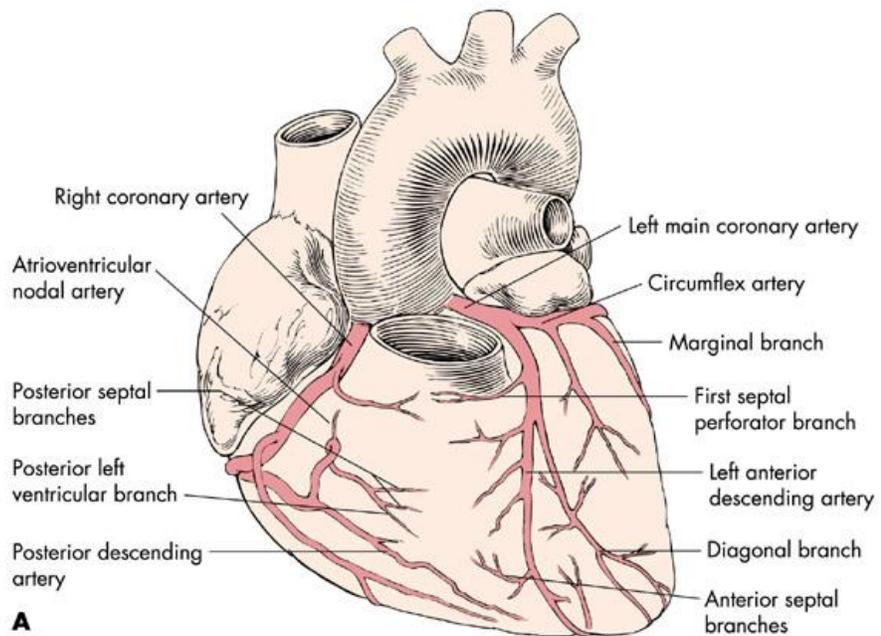
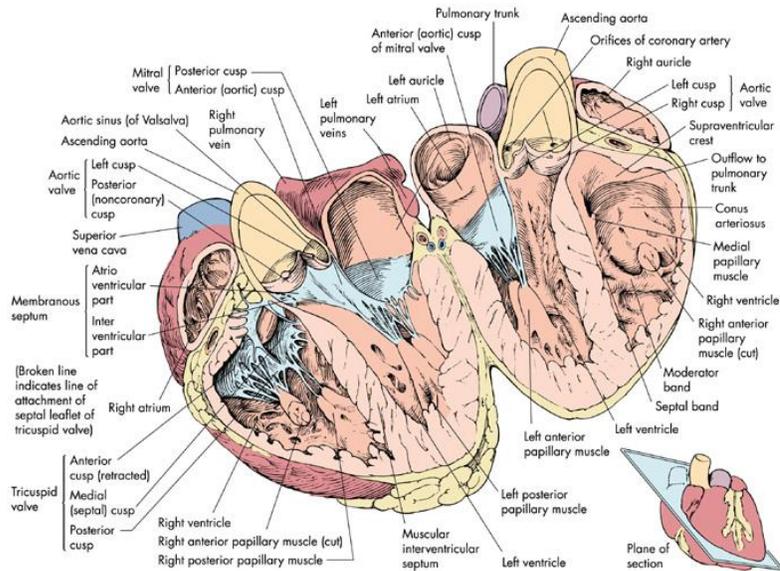
I will take you down into individual operations and just to show you what the by pass operation that you hear quite often about. Essentially what we do is if there is a blockage in the artery, we just go beyond the blockage and give you a bypass which provides blood to it. And so we can take an artery from under the chest which is known as the Internal Mammary artery – we hook it up beyond the blockage and bypass the blockage so that now you start getting normal blood to back to your pump, We also use, because quite often there are more than one blockage, we can use other things. Like veins from the legs and you can see that blue structure there going into another branch of the back of the heart. We can use arteries from the arm and different combination there of. And that's all the bypass operation is but it is a good operation. It stood the test of time. It is probably one of the commonly performed operations in N.A.; more than tonsillectomy and gall bladder and it has had a tremendous success. What it does is provide relief of angina. It reduces your chances of having a heart attack in the future. And I will show you another study, which will show you that it will increase you life. The results again and we are fortunate now that we can compare our results to other sites as some centers put their results on the website – we looked at the Cleveland Clinic which is one of the premier centers in the world, and we find that the mortality or death rate at the Cleveland Clinic is quite comparable to ours. We are actually a little lower than theirs which is quite reassuring. It is a good and satisfying operation and also can be done with a very low acceptable risk. It does increase survival and again this depends on how you interpret that. So in different categories of patients over standard medical treatment you find it does increase survival. And here is a lesion. Where it is right at the origin of left coronary artery. If you have surgery for that, that is a very lethal problem. It is called the widow maker lesion and in these cases surgery will significantly prolong your life. And in every other category, whether you have 2 or 3 vessel diseases, or whether you have damaged your heart, you will find that this slide shows there is a significant benefit to life. So quantity and quality of life are improved by this operation.

Let me show one of the valves we showed on that other diagram and this valve represents the mitral valve and this valve is right here. And you can see it doesn't look healthy like a cusp valve that should open and close. Just remember all valves in the heart are one way valves. That means they should allow the blood to get through but not return. The other function they have is that they should have a significant opening size so that the blood can flow unimpeded or without any pressure difference. And this valve here as you can see obviously looks something like this when you put it in diagram – you can see the gap between A and A'. On this side this valve is going to leak. So if blood is going to go through, a lot of it will come back as the two leaflets do not oppose each other. We don't always have to do complex things. This is a simple operation for us where all we do is we take a little ring and the ring is smaller than the annulus. – we tighten it up and you can see that two ends of the cusp of the valve more close to each other and the valves become patent. As you can see that is a very effective operation. Wherever possible, and this is for the mitral valve, we try to repair the valve wherever possible. Not true of the aortic valve, but for the mitral valve we can repair it. Sometimes, one of these leaflets are either too long or get torn. We can fix these leaflets and preserve the valve. In some cases we cannot preserve the valve and in those cases we replace the valve. And again we have the same problem – how do we make something that God has made so well and they have been trying for the last 30 – 40 years to make all kinds of valves but there is nothing currently that matches what you have in your body.

So if we cannot repair a valve only then will we chose to replace valve. And we have different choices. There have been many kinds of valve that have been made. The one that you are seeing here is made out of animal tissue. It used to be made of pig valve or sometimes bovine pericardium and they are handmade. I have seen actually the farm where they make it and there is a very big group in a very sterile environment – lot of people just sewing and make their valves and put it up and it ends up like this and then what we do here is you can see that this is an aortic valve. We have taken an aortic valve out here and we are putting stitches around it and we just parachute this valve in and now this valve becomes the valve that will take over the function of the valve – it will not leak and has a good function. The problem with these valves are that there are animal tissue valves. Though there is no rejection of this valve these valves will deteriorate over a period of time and maybe in about 10 –15 years you may need another operation. But the advantage of this particular valve is that you do not have to be on blood thinners because you still have a tissue lump rather that a metal lump as you in this valve here. This is a mechanical valve. It has metal inside the leaflets and what happen when you have a metal and blood interface, clots tend to form and when clots form, that is very dangerous and it can go into the brain or other parts of the body and cause damage and so we have to keep you on blood thinners for the rest of your life. Not a big problem but still a bit of inconvenience. But the advantage of these valves us that these valves will probably outlast you. They are very good valves. So we often ask the patient and give them a choice. We discuss the pros and cons and this is another form of surgery we do.

The other surgery that we do is on the big pipe that comes out of the heart called the aorta that goes and supplies blood to the rest of your body, brain and the body, kidney, lungs and everything else. And sometimes the hardening of artery that we talked about so much this morning that Dr. Black talked about on what effects it has on the course also affects that vessels and sometimes it can get ballooned out which we call an aneurysm and then there is a threat. That can rupture and if that ruptures that is not compatible with life and

so we have to fix that. Sometimes there is a tear inside the walls of that pipe that is called a dissection – when that happen on an urgent basis, we have to get up in the middle of the night and go fix it as those things are very risky. The operation for this is actually very interesting. Thank you.



(V) RISK FACTORS OF HEART DISEASE

Dr. Zaheer Lakhani , MB,ChB (Hons), FRCP (LON), FRCP(C), FACP, FACC

Coronary heart disease number 1 killer. Atherosclerosis (plaque deposits on arteries) develops from a young age i.e., in teens. The process of atherosclerosis happens slowly over many years. Eventually plaque ruptures and a clot forms blocking the artery completely leading to a heart attack.

Symptoms begin in 30's and 40's but the process has begun many years earlier. Our children need to know about this. As the cholesterol numbers go up so do the number of heart attacks. There is a direct correlation between cholesterol and heart attacks.

Cholesterol is one risk factor. Other are smoking, diabetes, obesity, genetics, hypertension. 70% of patients with heart attacks have 3 or more risk factors. Someone who has low cholesterol but has high blood pressure, diabetes and smokes has a much higher risk of getting a heart disease that someone who has a high cholesterol but none of the other risk factors such as high blood pressure, smoking or diabetes.

People with the same number of risk factors but also have diabetes have a much higher risk of heart attacks.

50% Canadians are obese. A BMI over 27 is classified as obese.

BMI over 27 -67% of them have diabetes, high blood pressure and high cholesterol.

As BMI goes up, risk of diabetes goes up exponentially.

BMI over 30, 90% chance you have diabetes.

Obese people have a 2x chance of dying suddenly, 2x chance of stroke, 2x chance of heart failure and coronary heart disease.

Being overweight is a major problem.

Meals from fast food restaurants have a high content of fats and cholesterol. Greasy fries and some burgers contain 1800mg sodium and 14 teaspoons of fat. By 2010, heart attacks will be the no. 1 killer in the world. We eat a lot more than we need to. Kids also eat too much, leading to obesity at a young age.

Waist size most important as the fat that accumulates there is metabolically active and is responsible for insulin resistance and type 2 diabetes. This fat is a killer.

If one loses 10% weight, fat around waist is lost and risk factors for heart disease are reduced.

If we smoke, our kids smoke

If we eat badly, our kids eat badly.

If we do not exercise, our kids do not exercise.

FIGURE 1: ADULT BODY MASS INDEX

$$BMI = \left\{ \frac{WEIGHT (pounds)}{HEIGHT (inches)^2} \right\} \times 703$$

Height in Feet and Inches	Weight in Pounds																			
	120	130	140	150	160	170	180	190	200	210	220	230	240	250						
4'6	29	31	34	36	39	41	43	46	48	51	53	56	58	60						
4'8	27	29	31	34	36	38	40	43	45	47	49	52	54	56						
4'10	25	27	29	31	34	36	38	40	42	44	46	48	50	52						
5'0	23	25	27	29	31	33	35	37	39	41	43	45	47	49						
5'2	22	24	26	27	29	31	33	35	37	38	40	42	44	46						
5'4	21	22	24	26	28	29	31	33	34	36	38	40	41	43						
5'6	19	21	23	24	26	27	29	31	32	34	36	37	39	40						
5'8	18	20	21	23	24	26	27	29	30	32	34	35	37	38						
5'10	17	19	20	22	23	24	26	27	29	30	32	33	35	36						
6'0	16	18	19	20	22	23	24	26	27	28	30	31	33	34						
6'2	15	17	18	19	21	22	23	24	26	27	28	30	31	32						
6'4	15	16	17	18	20	21	22	23	24	26	27	28	29	30						
6'6	14	15	16	17	19	20	21	22	23	24	25	27	28	29						
6'8	13	14	15	17	18	19	20	21	22	23	24	25	26	28						

Healthy Weight Overweight Obese

(VI) HOW TO COOK HEART SMART

Mr. Vinod Varshney, Program Head, School of Hospitality (NAIT).

We are gathered here today to discuss the heart problem we Indians are facing. I would like to start my presentation with a quotation from William Boyd.

“Of all the aliments which may blow out life’s little candle, heart disease is the chief”
- William Boyd

45 percent of deaths in America are due to diseases from heart and blood vessels. Atherosclerosis (hardening of the arteries) and hypertension (high blood pressure) are the cause for a large majority of this problem. Migration studies have shown that Japanese people living in Japan have lower levels of cholesterol than Japanese living in North America. There is a corresponding increase in atherosclerosis heart disease among those migrants. It appears that the same is true for migrants from the Indian sub continent.

In order to prevent the occurrence of these disorders, it is extremely important to take preventive measures. For those who have hypertension or have family history of hypertension, it would be wise to reduce the intake of sodium. A preventative measure for coronary artery disease is to reduce the intake of cholesterol and fat, as fat converts to easily to cholesterol. I know this advice is easy to say but is very difficult to achieve. However, just changing small eating habits can reduce the risk of most of these diseases, and save the lives of you or your loved ones.

The diets of people in western countries have a higher content of fat, saturated fat, cholesterol, sodium and sugar, and much lower content of fiber. The recipes we will use today have been modified to ensure that they now have an acceptable level of nutrients. The following principles can be used to modify your favorite recipes to meet your individual requirements.

Lowering Content of Saturated Fats:

Butter, ghee and all oils, such as coconut, other tropical oils, and hydrogenated oils that have a high content of saturated fats should be avoided. Instead, we should use canola oil. Canola oil, which is extracted from rapeseed, has the lowest saturated fat contents then any other oil. Other oils that are acceptable include: corn, sunflower, soybean, and olive oil.

Margarine is generally a good substitute for butter, but you still have to be careful when choosing the right margarine. Use only margarine which lists liquid canola oil, or another acceptable oil as the first ingredient and partially hydrogenated oil as the second ingredient. Margarine is better than butter because of the lower saturated fat content, although there are some indications that they still may tend to raise blood cholesterol.

Lowering Total Fat Content:

Use less oil in your cooking. Fried onions and spices are the bases of many Indian dishes, so reducing oil to a bare minimum makes frying onions difficult. Instead of frying, sauté onions in a small amount of oil. This might take little longer. You may also use a vegetable oil spray.

Switch to low-fat or non-fat products. This applies to ingredients and prepared foods that you buy from stores.

Cutting Down on Cholesterol:

Cholesterol only comes from foods of animal origin. Vegetarian dishes, except those that contain milk products, are completely cholesterol free. Dishes that have milk, yogurt, or cheese (Paneer) will have some cholesterol. Using non-fat or low-fat milk products can minimize this.

Use egg whites instead of whole eggs. Whole eggs have high cholesterol content. All the cholesterol is contained in egg yolks (about 220 milligrams in a large egg, which is almost the maximum daily allowance). Egg whites are nutritious and do not have any cholesterol. In most baking recipes you can use two egg whites plus one teaspoon of acceptable oil in place of one whole egg.

Meat, fish, and dairy products are a good source of proteins, but you can get them from lentils, which are not only rich in protein, but also free of cholesterol.

Reducing Sodium:

Reduce the amount of salt in your cooking. Sodium is naturally present in almost all food ingredients. The human body normally needs only a few hundred milligrams of sodium per day. If we do not use any salt in cooking, the body will still get the sodium it needs naturally. General health guidelines recommend less than 3000 milligram of sodium intake per day (from all sources) for a healthy adult and even less for individual suffering from high blood pressure. Use very small amounts of salt. You can use spices, lemon juice and yogurt during cooking to make up the reduced saltiness.

Reducing Sugar:

Sugar such as cane and beet sugar, honey, etc. are known as simple sugars. These provide very few nutrients besides the calories. Too much sugar in a diet can have undesirable effects on a person's health and therefore should be minimized. Indian cuisine has an abundance of delectable sweets and desserts. Lots of them made with butter and full cream products. These dishes should be avoided. The sweets should be made with a reduced amount of sugar as well as non-fat milk products and acceptable vegetable oils.

Increasing Fiber:

Indian food is potentially rich in fiber. Most Indians eat vegetables, lentils, peas, beans, etc. with whole-wheat flour chapatti. All of these foods provide a good amount of fiber.

Understanding Calories:

One of the major functions of food that we eat is to provide nutrients for bodily growth, maintenance, repair, and vital functions. Foods other major function is to act as fuel to provide energy. This energy is measured in units called calories.

Calorie contents of different foods vary vastly. For example fats yield about 9 calories per gram, carbohydrates and proteins yield about 4 calories per gram and water and insoluble fiber have no calories. Therefore foods such as most fruits and vegetables, which have high content of water and fiber, are low in calories. On the other hand, fried foods and nuts have high fat content and are high in calories. When the body gets more calories than it needs through diet, whether in the form of fats, proteins or carbohydrates, the excess calories are stored as fat, which results in weight gain. Conversely, if a person consumes

fewer calories than needed, the body will convert the stored fat into energy, resulting in weight loss.

How many calories do you need per day?

A body's energy depends on many factors, such as age, growth rate, sex, body weight, climate, and physical activities. Given all these factors, one can only estimate the energy requirement for an individual. To calculate your total daily energy consumption in calories, multiply your weight in pounds by 23 for active men and by 20 for active women. This amount of energy intake will maintain your current weight.

Age is also an important factor. Children who are still growing need enough calories to sustain their growth. However once the growth stops, the number of calories the body needs declines, even though body weight remains the same. For example, a 150-pound man that will require 2900 calories per day at age 25 will only need 2600 calories at age 45 and about 2100 calories at age 75 to maintain his weight and activity.

How many calories equal one pound:

One pound of body weight is equivalent to about 3500 calories. This means that if you consume 3500 more calories than your body needs in a given period, you will gain one pound in weight. Conversely, if you consume 3500 less calories than your body burns, you will lose one pound.

Eating healthy is fun. It is easy to cook and choose foods that will keep you and your family healthy. Healthy meals no longer need be boring and insipid; they can easily be tasty and delicious. All you need is a little time to think about the food you and your family eats!

Changing old habits is not very easy, but nor is it too difficult and the results are worth the effort. Any changes need some time and effort. It should start at an early age. Children in their formative years are easy to mould. The best gift we can give our children is the appreciation of healthy foods. This can be done by means of a practical example in every day eating and lifestyle. This way they will not think of changing their habits later in life and will enjoy benefits of good food all their lives.

A simple way to begin is to start with a few changes like replacing white bread with brown whole wheat bread, eating fruits and vegetables with their skin on. It is simple to achieve and definitely more nutritious.

Healthy eating does not mean less or more. Neither does it mean getting fanatic or cranky about certain foods. It means eating correctly and wisely, with understanding. It involves having a positive attitude and holistic approach towards food

DIETS AND HEALTH GUIDELINES:

1. Eat a variety of foods in adequate amount

You should try to eat a lot of: fruits, vegetables, whole grain products, milk, curds, other milk products, flesh foods, eggs, fish, poultry, pulses, legumes, and lentils.

2. Maintain a desirable weight

Being overweight increases the chances of developing some chronic disease like diabetes and heart ailments and certain types of cancer. Obesity is also associated with high blood pressure, increased level of triglycerides, and cholesterol. That is why it is important to maintain a desirable weight.

3. To help control overeating and to lose weight

Eat slowly and take smaller portions. Eat food that is low in calories and high in nutrients. Eat more fruits, vegetables, and whole grains. Eat less fat and fatty foods. Eat less sugar and sweets. Increase your physical activities and exercise regularly.

4. Avoid food rich in fat, especially saturated fat and cholesterol

Use skimmed or low fat milk and milk products. Decrease use of egg yolks and organ meat. Choose fish, skinless chicken and lean meat. Bake, broil, roast, steam, and boil food rather than frying.

5. Eat food with adequate fibers

All fruits and vegetable that can be eaten with skin should be eaten with skin, for instance carrot, cucumber, apple, chickoo etc. Use whole grains and their products like bran instead of refined flours like maida. Eat sprouts and pulses. Eat plenty of green leafy vegetables.

6. Avoid too much sugar

Avoid white sugar, honey, syrups, soft drinks, candies, chocolates, cakes and cookies. Avoid eating sweets between meals. Select processed fruits without sugar syrups. Select unsweetened fruit juices.

7. Avoid too much sodium

Learn to enjoy the flavors of unsalted foods. Cook with only small amount of salt. Try flavoring foods with herbs, spices, lemon juice, tomatoes, tamarind juice and curds. Avoid adding salt to food at the table. Avoid salty foods such as chips and other fried foods. Limit the use of processed and preserved foods like pickles, sauces, cheese, papads, and alike which have high sodium content.

8. Limit the intake of beverages

Alcoholic drinks: They are high in calories and low in nutrients. Overall the metabolites (end products) produced by alcohol are harmful especially to the liver in the body. However, a glass of red wine a day is being propagated these days. My personal feeling is that similar or better results can be achieved from other healthy resources.

Soft drinks: They supply only 'empty calories' and no other nutrients. Diet soft drinks are low in calories but very high in sodium.

9. Drink at least 8-10 glasses of water every day

Water, not generally classified as a nutrient, must not be overlooked! Lack of water even for a short period can be life threatening. An adult may consume 400 litres of water a year. About an equal amount is obtained from food. In a tropical country like India, it is imperative that at least 8-10 glasses of water are consumed every day to replace fluid loss.

10. Physical activity and exercise

Healthy and tasty eating without adequate and regular exercise is meaningless. Skip the elevator and walk up and down the stairs. Leave your vehicle some distance from where you are headed so that you can walk part of the way.

Go for morning or evening brisk walks with your partner or spouse. It always works better than going for the walk alone.

Balanced Diet

It is obvious that there is interplay of nutrients on body. When we talk about nutrients it is important to know the quantity i.e. how much to take. This can be well understood by the concept of FOOD GUIDE PYRAMID. This can form a foundation for a good diet selection, providing the essential nutrients.

Definition of RDA

RDA or recommended daily allowances are levels of intake of essential nutrients which are on the basis of scientific knowledge and are adequate to meet the known nutrient needs of all healthy persons.

Food items

Cereals: Cereals form the staple diet in India e.g. rice, wheat, maize. Cereals generally lack lysine, however rice is richer in lysine compared to other cereals. One cereal serving will supply about 100 calories and 2-3 gm of protein.

1 serving = 1 cup of cooked rice or 1 roti or 1 slice of bread.

Legumes (Pulses and Dals):

Pulses are rich sources of protein (up to 22-25%). Pulses are important sources of proteins especially for the vegetarians since they meet their requirements. But they lack Vitamin A and Vitamin C. However germinated legumes have Vitamin C. Soaking and cooking legumes destroy their anti nutritional factors like tannin and trypsin inhibitors. Cereal and pulse combination in a proportion of 4:1 or 3:1 is enough for its supplementary effect. 1 serving of legumes equals 100 calories and 6-7 proteins.

1 serving = 1 cup of cooked dal or pulse

Vegetables:

Green leafy vegetables are very rich sources of Vitamin B, carotene, iron, calcium, Vitamin B complex and Vitamin C. At least 50 grams should be consumed daily by each person. 3-5 servings of vegetables per day is a must. At least one of them should be a green leafy vegetable.

Fruits:

Fruits are a rich source of vitamins and fibers. Green, yellow, and orange fruits like mango and papaya contain B carotene. Citrus fruits and guava are a rich source of vitamin C. Dried fruits like dates supply iron. Banana and jackfruit are good sources of energy. 2-3 servings of fruits per day are recommended.

Milk and milk products:

Milk is a good source of protein, calcium and vitamins. It is deficient in iron and Vitamin C. Whole milk has high percentage of fat (8-12%) whereas low fat or toned milk has about 3% fat. Skimmed milk has very little or no fat. Recommended servings per day is 2-3.

1 serving = 1 cup (225 - 250 ml)

Desserts:

In any festive meal, the dessert is equally or more important than any other component of the meal.

Healthy substitutes for traditional sweet Indian desserts are the fruit based desserts, which can be not only low in calories but also high in fiber and packed with Vitamins and minerals.

Fresh fruits can be poached, broiled or made into compote. It is best to use fresh fruits but if canned fruits are to be used, ensure that canned fruits are packed in their own juices instead of sugar syrup.

Unhealthy Foods:

Some foods are considered unhealthy on grounds of their being high in calories (saturated fats) or lack of antioxidants and fibers. Foods that fall into this category include: Tinned & canned foods, fried foods, saturated fats, and refined flour.



(VII) DIABETES AND HEART DISEASE... HOW A PHARMACIST CAN HELP

Mrs. Nandini Desai , BSc (Hon), BPharm.

Diabetes is an absolute or relative lack of insulin. **Insulin** is hormone produced by the pancreas. Insulin helps glucose to be taken up by muscle.

There are 2 major types of Diabetes:

Type 1 Diabetes: It affects 10% of the diabetic population. It is an autoimmune disease- the body destroys insulin producing cells in the pancreas. It affects children and young adults less than 30 years of age. Patients have an absolute lack of insulin

Type 2 Diabetes: This is insulin resistance – the muscles do not take up glucose in spite of insulin being present. It affects 90% diabetic population. Patients have a relative lack of insulin. The older generation over 30 years of age is most susceptible.

Other types include:

Gestational Diabetes - Diabetes develops during pregnancy and disappears once the pregnancy is over. These women are at higher risk of developing diabetes later on in life.

Secondary Diabetes - This is diabetes caused by cancer, steroid therapy.

Diabetes affects 5% Canadians (2 million). This is to increase to 3 million by year 2010. 75% of type 2 diabetics will have some form of heart disease.

East Indians have a higher risk of developing diabetes.

Risk of developing diabetes

	<u>Type 1</u>	<u>Type 2</u>
Mother	2%	11%
Father	6%	14%
Sibling	5%	
Twin	34%	70%
Both parents		28%

If you are over the age of 45, screen or test blood sugar every 3 years.

If you have risk factors such as obesity, high cholesterol, high blood pressure - test every year.

Diabetes – diagnosis

Fasting blood sugar of higher than 7.1

Random blood sugar of higher than 11 and symptoms such as tiredness, thirst, weight loss, hunger and blurred vision.

Treatment of Diabetes

Nutrition

Physical activity

Oral medications - Type 2

Insulin – Type 1 and type 2.

Treat Diabetes to prevent long term complications.

Small blood vessel disease

Eyes - cataract, blindness

Nerves - neuropathy.

Kidneys - leak protein(nephropathy). This is minimized by medications such as ACE inhibitors. May lead to dialysis because of kidney failure.

Diabetes is the number one cause of blindness and amputation!

Large blood vessel disease

Heart attacks

Brain disease/stroke

Circulation to legs – require amputation

Prevention of complications

Control blood pressure

Loose and control weight gain

Control blood sugar

Stop smoking

Control cholesterol

Reduce stress

Regular exercise

Reduce alcohol use

Healthy diet

Medications to treat type 2 diabetes

- Sulfonylurea
- Meglitinide
- Biguanide
- Thiazolidinedione
- Alpha-glucosidase inhibitor

Some make insulin work better; Some release more insulin from the pancreas; some control glucose uptake from the gut; some stop glucose from being released from the liver

Drugs are useful in treatment for:

- Congestive heart failure
- Diabetes
- Heart rhythm abnormalities
- Angina
- Prevention of heart attacks
- After heart attack
- High cholesterol

- Lower normal cholesterol e.g. after a stroke
- Lower triglycerides
- Blood clots
- High blood pressure

Types of Drugs used for heart problems

- Warfarin and Aspirin
- Ace inhibitors
- Calcium channel blockers
- Statins and fibrates
- Diuretics – makes your kidneys pass more urine
- Beta blockers

Medications to treat heart problems

Ace inhibitors control blood pressure, protect kidneys, and prevent heart failure

Calcium channel blockers control blood pressure, heart failure.

Warfrin/asprin are blood thinners and are used to prevent heart attacks.

Statins reduce blood cholesterol.

Patients with diabetes can be on lots of different medications –eg control of diabetes, blood pressure, pain medications for arthritis, cholesterol control, aspirin etc.

How a Pharmacist can be of help to you

- Compliance – make sure you take all your medications all the time as prescribed
- Blood pressure monitoring
- Blood sugar monitoring – use of blood glucose machines and help you choose the right one for you.
- Select over the counter medications – for coughs/colds/flu
- Monitor drug interactions – between your regular prescription medication
- Monitor side effects
- Maintain medication profile
- Compound medications
- Provide information regarding drug insurance
- Talk to your doctor about your medications
- Inform you of new drug therapies
- Suggest drug substitution for drug allergy

Compliance

If you are having problems remembering your pills

- Get your Pharmacist to blister pack or
- Use a dosette (medication box)

Over the counter Medications

- Eye care
- Skin Care
- Foot care
- Cough & Colds
- Smoking cessation
- Pain and fever meds
- Sweeteners
- Nausea & vomiting

Over the counter Medications

- Constipation & diarrhea
- Heart burn
- Herbals
- Multivitamins

How you can help your Pharmacist

Get answers to these questions:

- Don't stop your medication unless you are told to by your doctor or pharmacist
- Do not share your medication with anyone else
- Do not take a medication prescribed for someone else
- Use one pharmacy for all your medications-this helps your pharmacist keep an accurate record of all your medications and to get to know you
- Monitor and record your BP and Blood sugar in a log book
- Contact your pharmacy in advance when medication are low
- Develop a practical medication schedule (timetable) with your doctor or pharmacist
- Keep an up-to-date medication record listing all medical conditions and drugs you take
- Keep this record in your wallet
- Show your medication record to your doctor and pharmacist at each visit

You must Inform the pharmacist regarding

- Allergic reactions
- Using any other medications including herbal therapies
- Any problems related to medication usage

Summary

- Heart disease and diabetes are serious diseases.
- Your Pharmacist working with other health care professionals plays a very important role in helping you to prevent or minimize complications.
- You have the ultimate responsibility in taking care of your own health

VIII SMOKING IS SUFFOCATING YOUR HEART

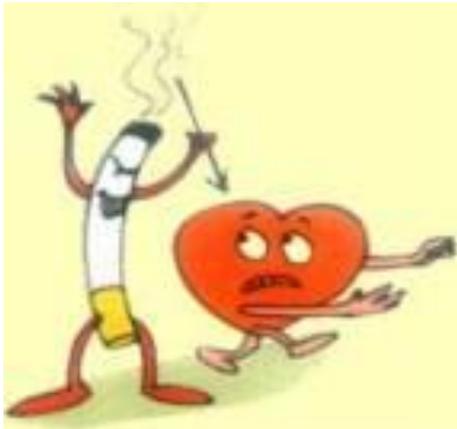
Ms. Bonnie Woloschuk, BScN

People smoke for many reasons, e.g. for stimulation, to hold something, makes them feel good, part of routine, for social reasons and peer pressure. If smoking has become an addiction, they have probably been smoking for a long time.

Smoking is a risk factor for heart disease, even if your dependence is low. It is one that can be prevented. Smoking has detrimental effects on the rest of your body too, e.g. stains teeth, bad breath, makes one look older.

There are many products on the market to help quit smoking. Acupuncture and hypnosis are also available. In order to be able to quit smoking, you have to be very well prepared. You need to evaluate your reasons for smoking and what you can substitute instead e.g. if you smoke for social reasons, take up yoga or sports where you can meet friends to help you quit smoking. Prepare a bag of 'goodies' before you quit. This could contain healthy snacks, pencil and doodle pad, water bottle and other things which you can turn to when you have the urge to smoke.

There is a 1-800 number for a 24-hour counseling service (AADAC) which you can turn to. To quit, you need a lot of positive support from friends and relatives, so it is important to let everyone know that you want to give up smoking.



(IX) USE IT OR LOSE IT !!

Mr. Arun Mehta, DPT, MIAP, RPT (Sweden), MCPA

My topic must be very interesting. Eight out of Nine speakers have referred to exercise and the importance of exercise.



You will wonder why we are looking at 2 monkeys. Look at their tail and the way they are using their limbs. These are muscles we did have in the evolutionary cycle, but for some reason, we stopped using them.

Imagine your heart to be a similar muscle. If you stop using it, you will lose it. Your body will not want to use it. When you are called upon to use your heart, you will be running to Dr. Lakhani or Dr. Koshal.

Therefore, consider your heart to be a well-nourished muscle whose job is to pump blood. Imagine what it would be like if you do not use it.

Why exercise? Basic purpose of any muscle in your body is to contract. We can have this contraction through voluntary efforts like moving our arms and legs or by involuntary efforts - without knowing the body organs are working - like the heart. The heart is not mentally or physically seeking permission from you to contract.

Exercise is a preventative measure against heart disease. Exercise can increase the strength of the heart, make it work less under stress. A stronger heart pumps blood more efficiently to your muscles. Exercise will let you enjoy life. You are able to enjoy your kids, and see them graduate. It gives you the time to play with your grand kids.

Talking about exercise is easy. We have to first start with stretching. We have patients who have not done anything for years and all of a sudden, they are given a treadmill as a gift. Within the first week they are on the treadmill, they are seeking an appointment with injured muscles in the back, legs and foot. The next thing you know the treadmill becomes a nice decorative piece in the basement.

All bones are surrounded by muscles and ligaments. As we get older, they become inactive, all joints tighten up, thus making your daily activity more difficult. Stretching allows the body to be more flexible and helps prevent injuries. I am trying to keep you away from us. We do not want to see you with injuries, just because you didn't spend a few minutes stretching before your cardio-vascular workout.

INDICATORS

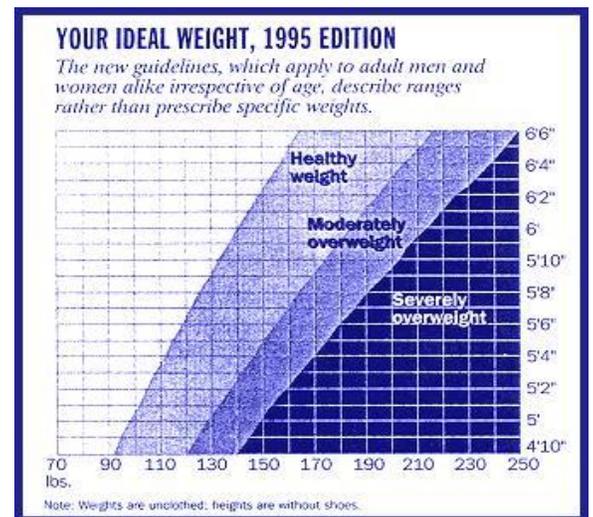
When was the last time you sweated? When was the last time your shirt got wet with sweat? Can you imagine your heart pumping at 5% of its capacity just to keep you moving?

Self diagnosis techniques are there to guide you to get up and start moving.

BMI - Body Mass Index is a simple calculation of your weight over your height. It assesses your body weight relative to your height. It is an indirect measure of body composition. But it has to be considered together with waist to hip ratio.

Body Mass Index Table

Height	Minimal Risk	Moderate Risk	High Risk
4'10"	< 118 lbs	119 – 142	> 143
5'2"	< 135	136 – 163	> 164
5'5"	< 149	150 – 179	> 180
5'7"	< 158	159 – 190	> 191
5'9"	< 168	169 – 202	> 203
6'1"	< 188	189 – 226	> 227
6'3"	< 199	200 – 239	> 240



Look at the above figures. It shows low BMI with low waist to hip ratio.

You may have a low BMI but a high waist to hip ratio - you will be susceptible to cardiac problem. This is a very simple tool giving you a clear picture of how you can self diagnose.

BMI TABLE:

The waist to hip ratio is interesting. When you are not able to see your shoes, it is a matter of concern. You tend to carry more weight around your abdomen than your butt. You can use a measuring tape to measure the difference between waist and butt areas. If you look like an apple, there is concern. If you look like a pear, then may be there is hope. How do you measure the waist to hip ratio? It is simple. You can use a measuring tape or your belt.

Ideal body weight: There are different schools of thought and all of us come up with different body weight composition. You may be 10 - 20 pounds over your designated weight limit and still be in this category. The key is if you are inactive and even if you are only 10 pounds over your limit, you are at risk.

HOW DO YOU INITIATE AN EXERCISE PROGRAM? SIMPLE.

There are 10 easy to follow steps:

1. Set Goals that are realistic, achievable, measurable and specific. Don't expect to take part in a marathon.
2. Join a team or club. Peer pressure will encourage you. YMCA on the south side has 90% East Indian clientele.
3. Take it slow. Don't expect to jog 10 kilometers in one day. Walking is enough - even 15 to 20 minutes a day.
4. Make small steps count. Rolling in the house with your kids or grand kids. When was the last time you did that? There was a time when we would squat, we would turn and tumble with our kids.
5. Even the smallest activity contributes to your activity level.
6. Walk around the community. Enjoy the environment. You say the weather is awful. No, the weather is not bad. It is your clothing. Dress yourself to suit the weather and you will enjoy the sun, the snow and sleet. Learn to enjoy the weather. Avoid waiting for the perfect day to go for a walk.
7. Try active transportation. We love going to the corner 7-11 in a car. How many of us walk to the neighbourhood store for a coffee or newspaper? Try active transportation.
8. Plan an adventure. Invariably, a 3 course meal is a natural part and sleeping on the way home. Let us forget the puri chole and plan a trip to Elk Island Park. Let us plan an adventure to see the Elk Island Park. Let's not stop the person who says, "let's go for a hike' and let's join them.
9. Relax. Physical activity need not be an adventure in stress. It can be relaxing. Don't be stressed out to do a physical activity. Do it at your time and convenience.
10. Add variety: Doing the same routine everyday is boring. If you go on a treadmill everyday, I can guarantee you that you will stop using it after a month. Why not use the treadmill for 2 days a week and go for a walk around the neighbourhood, the other 2 days? Don't forget the stretching. Try different times and with someone else.

General formula for exercise depends on each individual. Identify what you are trying to achieve. Very light effort or maximum effort. How does it feel? How warm am I? What is my breathing like? These will help you decide whether you can continue with the activity or go see your physician.

STAY F.I.T.T.

Frequency: Light exercise 4 to 6 times per week, gradually increasing amount and frequency.

Intensity: Sweat and breathe without discomfort. Ability to reach your maximum heart rate. Subtract your age from 220. Whatever the heart rate you get is what you should try to achieve. Try to achieve this once or twice a week and you are working towards your goal of staying active.

Type of exercise is anything except the art of remote control. Aerobics and Yoga are fine.

Time or duration of exercise. Those of you who do not have 20 minutes to exercise, spend 5 minutes, 3-4 times a day. Fit more physical activity into leisure time. How? Exercise while watching TV. Copy the dances in the Hindi movies, dance to the music. When was the last time you went for a walk after a meal?

Take active breaks. Those of us who are at our desks 8 hours a day, go for a walk after lunch. Use stairs instead of elevator. Walk or cycle to work or grocery store. Shorter more frequent activities like walking, swimming, gardening, cycling.

Choose a time that works for you. Participate in some type of physical activity each day.

Create a new morning routine. Wake up earlier. Try shoveling your neighbor's driveway. Go shopping. Park your car far away from the door. Chop your own firewood. Something that will get you into activity mode.

EXCUSES: I hate the idea of exercise.
I have worked 8 - 10 hours a day, I am too tired.
I feel fine, I don't need to exercise
I have no time
Exercise will only make me hungrier. I will eat more and put on weight.

What you do with your heart affects not just you, but your family, friends and future. If you want to save your heart, use it or lose it.



CHAPTER II

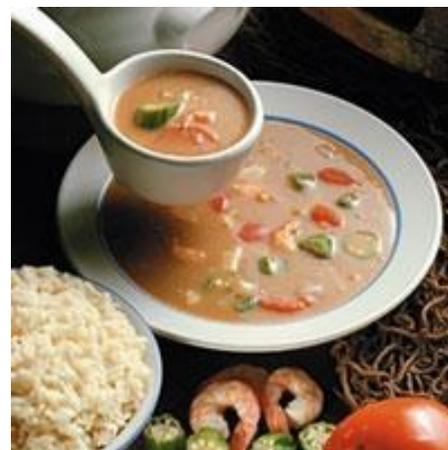


HEART SMART RECIPES

Cooking is supposed to be **therapeutic**. In today's hectic world, unless we engross ourselves into something relaxing, we will go crazy... So just get into the kitchen and try to be creative! It need not be anything grand, just something simple and satisfying...

To be a good cook you need creativity, innovative thinking, a little bit of luck, and of course, hard work and discipline. Eating is a treasure to be discovered through creative experimentation with textures and flavors.

Fresh vegetables that are very common, such as cauliflower, turnips, squash, green beans, tomatoes and potatoes are common ingredients in Indian Cooking.





Snacks

Aloo Tikki
Mixed Vegetable Uppma
Dhokla

Soups

Leek and Potato Soup
Spicy Lentil, Tomato-Basil Soup
Butternut Squash Soup

Vegetables

Aloo, Gobhi and Matar
Spinach & Potatoes Subji
Baingan (Eggplant) Bharta
Dry Mixed Vegetables Curry

Dals

Mixed Dal
Kabuli Chana (Chickpea) Dal

Raitas

Raita (cucumber and tomato)
Paalak (Spinach) Raita



Rice

Steamed Rice
Vegetable Pilaf



Chutneys

Pudina (Mint-Coriander) Chutney
Tamarind (Amlı) Chutney

Breads

Whole Wheat Chapati
Aloo Paratha

Sweets

Kesari Kheer
Fresh Fruit Salad
Chocolate Yogurt Mousse

Beverages

Masala Chai
Mango Lassi



Garam Masala

Ingredients

Cinnamon - 3" sticks
Cumin Seeds - 1/2 tbsp
Coriander Seeds - 1/2 tbsp
Black Pepper - 5-6
Bay Leaf - 1
Cloves - 4



Method

1. Take all ingredients and mix.
2. Roast all the ingredients in a heavy pan on low flame till crisp and golden. It should give off a strong spicy aroma. Cool.
3. Pound to a coarse powder, either in a mortar and pestle or dry grind in a food processor.
4. Use as required.

Curry Powder

20g	Cinnamon, Ground
10g	Cardamom, Ground
10g	Coriander, Ground
20g	Ginger, Ground
25g	Turmeric, Ground
10g	Cumin, Ground
20g	Cayenne

Combine all the ingredients and mix thoroughly



Aloo Tikki

Yield (10 Servings)

900g potatoes, boiled with skins and cooled
200g frozen peas, defrosted
50g finely diced onions (Optional)
30g cornstarch
10g ground coriander
5g red chili powder
5g cumin seeds to taste
10ml canola oil



Preparation:

- Peel and grate the potatoes.
- Put the grated potatoes in a bowl; add the cornstarch and salt to taste.
- Divide the mixture into 10 into equal portions and shape them into balls. Set aside.
- Heat the canola oil in a non-stick frying pan, add the cumin seeds and stir until they begin to crackle. Add coriander powder, chili powder and stir. Add the peas and cook slightly for 1 minute. Remove from heat and crush the mixture. Divide the mixture into 10 equal portions.
- Flatten the potato balls between the palms of your hands. Place a portion of peas mixture in the middle and reform the balls again. Flatten them into 2-inch thick patties.
- Slightly oil the non-stick skillet, place the potato patties in the skillet and cook over moderate heat until crisp and golden brown on both sides. Press slightly with a spatula to flatten them little and serve with mint-coriander chutney.

Nutrients Analysis (per serving):

Calories	86
Protein	2g
Carbohydrates	18g
Total fat	2g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	90mg

Mixed Vegetable Uppma

Yield (10 Servings)

240g wheat vermicelli (Sevian)
15ml olive oil
5g black mustard seed
15g split urad dal
15g split chana dal
3g cumin seeds
3g red chilies
30g chopped unroasted cashew nuts
5 fresh curry leaves
200g finely diced onions
3-5 fresh green chilies, slit into half
1g hing
15ml fresh limejuice
250g frozen vegetables of your choice
to taste salt and pepper
chopped fresh coriander leaves for garnish

Preparation:

- bring 8 cups of water and touch of oil to boil in a large pan. Break the vermicelli into 2 inch pieces and add to the water. Cook for 2-3 minutes until just tender to the bite. Drain and set aside.
- Heat the oil in a non-stick frying pan over moderate heat. Add mustard seed and stir until they crackle. Add urad dal, chana dal, curry leaves, stir until them golden brown. Add cumin seeds, red and green chilies, onions and cook till onions are translucent. Add frozen vegetables and little water; reduce the heat to cook the vegetables.
- Add the cooked vermicelli to the above mixture and stir to mix.
- Season it with salt and pepper to taste.
- Sprinkle with limejuice.
- Set aside for few minutes to allow the flavors to mellow.
- Garnish with fresh chopped coriander and serve hot.

Nutrients Analysis (per serving):

Calories	209
Protein	8g
Carbohydrates	37g
Total fat	4g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	185mg

Dhokla

Yield (10 Servings)

180g sifted chickpea flour
2g ground turmeric
2g salt
1g hing
4g brown sugar
80g nonfat plain yogurt
2g baking soda
2g baking powder

Garnish:

5g canola oil
6g black mustard seeds
2pcs green chilies cut into small slices
15g chopped fresh coriander leaves
40g unsweetened coconut flakes (optional)

Preparation:

- In a bowl, combine chickpea flour, turmeric, salt, hing, brown sugar, yogurt and about 20ml water. Stir to combine thoroughly to a soft smooth paste.
- Cover and set aside in a warm place for about 6-8 hours.
- Prepare a steamer. Set a trivet inside a 6-8-quart pot, large enough to hold an 8-inch round cake pan while leaving a 1-inch space between the cake pan and the steamer pot edge to allow the steam to circulate properly. The trivet should allow the cake pan to be suspended at least 2 inches above the water so that no water will touch the cake pan base.
- Add boiling water to the pot to a level about an inch below the cake pan. Cover.
- Lightly rub the inside of the cake pan with canola oil.
- When ready to steam the Dhokla, sprinkle the baking powder, baking soda into the chickpea flour mixture, stir to mix with gentle hand and add slowly about 50ml of luke warm water. Mix gently till batter begins to froth.
- Immediately pour the batter into a prepared cake pan and place it in the steamer. Place the lid on the steamer. Steam for about 10-12 minutes or until a toothpick inserted into the bread (Dhokla) comes out clean. If needed steam for few minutes more till it is done.
- Remove the bread from the steamer and set aside.

Garnish:

- In a small frying pan, heat 15 ml canola oil over moderate heat. Add mustard seeds and cook until they crackle. Add green chilies and stir for few seconds. Add 80ml of water and stir to combine. Remove from heat and cool.
- Turn the cooked dhokla out on a cutting board and cut into an inch squares. Sprinkle coriander leaves and coconut flakes over the top and pour the chili mixture over each piece, covering the entire top.
- Serve warm.

Nutrients Analysis (per serving):

Calories	63
Protein	4g
Carbohydrates	10g
Total fat	2g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	58mg

Leek and Potato Soup

Yield (10 Servings)

10g canola oil
200g finely diced onions
500g leeks, sliced
500g potatoes, peeled and cut into small cubes
500ml skimmed milk
500ml water
salt and pepper to taste

Preparation:

- Heat the oil and gently fry the onion leeks and potatoes for 3 minutes
- Pour in the milk and 500ml water, add the herbs and season with salt and pepper.
- Bring to the boil, cover and simmer gently for 20 minutes.
- Strain the vegetables, reserving the liquid in a jug.
- Blend or liquidize the vegetables, then blend in the liquid.
- Reheat gently, adjust seasoning and serve.

Nutrients Analysis (per serving):

Calories	163
Protein	3g
Carbohydrates	25g
Total fat	4g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	175mg

Spicy Lentil, Tomato-Basil Soup

Yield (10 Servings)

240g toor dal
5g ground turmeric
30ml olive oil
15g minced garlic
85g minced onion
1kg ripe chopped tomatoes
85g tomato paste
2l vegetable stock-lentil liquid
15g basil, chopped
8g jalapenos, minced
2g oregano, chopped
2g thyme, chopped
1each bay leaf
10g black mustard seeds
to taste salt and pepper
chopped fresh coriander leaves for garnish

Preparation:

- Clean and wash toor dal. In a 4-liter saucepan combine dal, turmeric and 2 liters of water. Bring to a boil over moderate heat. Reduce heat and simmer until the dal is tender. Stir occasionally to prevent sticking.
- Strain the cooked dal into a bowl. There should be about 1 liter of liquid. Add vegetable stock to make it two liter.
- Heat the oil in a small non-stick skillet. Add mustard seeds and cook until they crackle, add garlic, onion and tomato paste and sauté until it has a sweet aroma and beings to take on a rusty color.
- Add the chopped tomatoes, dal liquid, basil, jalapenos, oregano, thyme and bay leaf.
- Simmer for approximately 30 minutes.
- Strain the soup through a fine sifter.
- Season to taste with salt and pepper and served the soup garnished with chopped coriander leaves.

Nutrients Analysis (per serving):

Calories	156
Protein	10g
Carbohydrates	22g
Total fat	3g
Saturated fat	0
Cholesterol	trace
Sodium with salt included	325mg

Butternut Squash Soup

Yield (10 Servings)

10g garlic fresh, minced
70g onions medium diced
70g celery medium diced
5g garlic minced
1lit. vegetable stock
1kg butternut squash, peeled and cubed
85g yogurt, plain nonfat
50ml evaporated skimmed milk
85ml mineral water, sparkling
3g salt
2g white pepper, ground



Garnish:

10g chive, fresh, chopped

Preparation:

- Steep the ginger in the 50ml stock for 30 minutes and strain. Discard the ginger
- Sweat the onion, celery and garlic in a small amount of the stock.
- Add the squash and stock. Simmer until all of the vegetables are tender enough to puree easily. If necessary add more stock or water.
- Puree the soup in the blender and strain through a sieve.
- Add the ginger infusion to the soup along with the yogurt, evaporated skimmed milk, mineral water, salt and pepper.
- If needed add a few drop of lemon juice.
- Serve hot in a preheated soup bowls
- Garnish each portion with some of the chopped chives.

Nutrients Analysis (per serving):

Calories	100
Protein	4g
Carbohydrates	15g
Total fat	3g
Saturated fat	0
Cholesterol	10mg
Sodium with salt included	250mg

Aloo, Gobhi and Matar

Yield (10 Servings)

500g cauliflower florets
400g potatoes, peeled and cut into ½ inch cubes
300g fresh or frozen green peas
5g ground turmeric
20g ground cumin
10g red chilies
10g ground coriander
20ml canola oil
300g finely chopped ripe tomatoes
salt & pepper to taste.
25g chopped fresh coriander leaves

Preparation:

- Cook the cauliflower, potatoes and fresh peas separately in boiling water until almost tender. Drain each vegetable and set aside to dry on paper towel.
- In a bowl combine turmeric, cumin, red chilies and coriander.
- Heat the oil in a large non-stick skillet over moderate heat. Add the spice mixture and cook for few seconds to release the flavor.
- Add the cauliflower, potatoes and peas and cook for few minutes. At this time add tomatoes and 100ml of water, Cover and continue cooking for 5-6 minutes over low heat until all the vegetables are cooked. Add salt and pepper to taste.
- Garnish with fresh chopped coriander leaves and serve.

Nutrients Analysis (per serving):

Calories	158
Protein	6g
Carbohydrates	29g
Total fat	3g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	197mg

Spinach & Potatoes Subji

Yield (10 Servings)

30g canola oil
500g finely diced onions
1kg potatoes, peeled and cut into small cubes
1200g spinach, chopped, fresh or frozen
4 cup water
30ml lemon juice

Ingredients for the spice mixture:

30g garlic, minced
5g ground turmeric
40g ground coriander
15g ground cumin
400g tomato, fresh or canned without salt, finely chopped
50g tomato paste without salt
1pc green chili, seeded and finely chopped
10g red chili powder

Preparation:

- In a bowl, assemble and mix all the spices
- In a saucepan, heat canola oil and fry onion until they began to brown.
- Carefully add the spice mixture, mix well and cook for few minutes, stirring frequently.
- Add spinach, potatoes and water. Stir well. Cover and cook over medium heat until potatoes are cooked; about 10-15 minutes. Stir occasionally. If too dry add some water.
- Remove from heat, add lemon juice and cilantro, mix and serve.

Nutrients Analysis (per serving):

Calories	164
Protein	6.6 g
Carbohydrates	27.5g
Total fat	4.8g
Saturated fat	0.3g
Cholesterol	0 mg
Sodium with salt included	235mg

Baingan (Eggplant) Bharta

Yield (10 Servings)

1200g eggplant
30ml olive oil
3 each fresh green chilies, seeded and minced
10g cumin seeds
300g finely diced onions
150 chopped ripe tomato
10g ground coriander
20g chopped fresh mint leaves
20g chopped fresh coriander leaves
350g nonfat plain yogurt
10g garam masala
salt and pepper to taste



Preparation:

- Preheat the oven at 400°F.
- Prick the surface of the eggplant 7 or 8 times with a fork. Over a moderate gas flame, char the eggplant, turning frequently until all the skin has blackened and blistered. Line the bake sheet with a foil. Place the eggplant on the baking sheet and bake in the oven until soft. Cool slightly, carefully scrape off most of the charred skin and discard. Coarsely chop the flesh.
- Heat the oil in a large non-stick skillet over moderate heat. Add the green chilies and cumin seeds. Stir until cumin seeds darken, about 10 seconds. Add the onion and fry until translucent.
- Add the tomato, eggplant and salt and pepper to taste, Cook, stirring often until the mixture is a dry coarse puree, about 8-10 minutes
- Fold in the mint, coriander, yogurt and garam masala.
- Serve hot

Nutrients Analysis (per serving):

Calories	101
Protein	4g
Carbohydrates	15g
Total fat	4g
Saturated fat	0
Cholesterol	1mg
Sodium with salt included	316mg

Dry Mixed Vegetables Curry

Yield (10 Servings)

30g	canola oil	400g	Carrot
10g	whole black mustard seeds	200g	Peas
1pc	green chili	1 cup	water
4pc	curry leaves	30ml	lemon juice
300g	green beans cut into half	¼	cup cilantro chopped
400g	Cauliflower		
400g	Potatoes, peeled and cut into small cubes		

Ingredients for the spice mixture:

30g	garlic, minced	5g	ground turmeric
30g	ginger root, minced	20g	ground coriander
400g	tomatoes, fresh finely chopped	10g	garam masala
50g	tomato paste	5g	red chili powder
1pc	green chili, seeded and finely chopped	1	cup water
10g	cumin seed, freshly crushed	10g	salt
10g	sugar		

Preparation:

- In a bowl, assemble and mix all the spices
- In a saucepan, heat canola oil and fry mustard seeds, green Chile and curry leaves until the seeds splutter; about 10-15 seconds
- Carefully add the spice mixture, mix well and cook for few minutes, stirring frequently.
- Add green beans, cauliflower, peas, carrots, potatoes and water. Stir well. Cover and cook over medium heat until vegetables are cooked; about 15-20 minutes. Stir occasionally. If too dry add some water.
- Remove from heat. Add lemon juice and cilantro, mix and serve.

Nutrients Analysis (per serving):

Calories	136
Protein	3.5 g
Carbohydrates	21.5g
Total fat	4.1g
Saturated fat	0.3g
Cholesterol	0 mg
Sodium with salt included	215.0 mg

Panchratan (mixed) Dal

Yield (10 Servings)

½ cup moong dal
½ cup masoor dal
½ cup channa dal
½ cup urad dal
½ cup toor dal
8 cup water

Ingredients for the spice mixture:

30g	garlic, minced	5g	red chili powder
30g	ginger root, minced	10g	garam masala
1pc	green chili, seeded and finely chopped	10g	salt
400g	tomatoes, fresh finely chopped	10g	canola oil
10g	cumin seed, freshly crushed	200g	onions, finely diced
20g	ground coriander	5g	cinnamon stick
5g	ground turmeric	2pc	whole clove
¼	cup cilantro chopped	30ml	lemon juice

Preparation:

- Sort and wash lentils in water several times, drain.
- In a large saucepan, boil lentils in water for 10 minutes, skimming off any froth that forms. Reduce the heat slightly, cover and cook for 20-25 minutes, or until lentils are tender.
- In a saucepan, heat oil and sauté onions, cinnamon stick and cloves, stirring frequently, until onions begin to turn light brown.
- Carefully add all the spices, stir well, and cook for few minutes, stirring frequently
- Add the tender lentils and cilantro, stir well and bring to boil, If dal is too thick, add some water.
- Lower heat, cover the saucepan and simmer till it is fully cooked
- Add lemon juice, mix and serve.

Nutrients Analysis (per serving):

Calories	195
Protein	12.7 g
Carbohydrates	31.5g
Total fat	3.3g
Saturated fat	0.3g
Cholesterol	0 mg
Sodium with salt included	280.0 mg

Kabuli Chana (Chickpea) Dal

Yield (10 Servings)

1000g can chickpeas
15g canola oil
5g cumin seeds
100g finely sliced onion
10g minced ginger
10g minced garlic
3g ground turmeric
7g ground coriander
5g red chili powder
600g tomato sauce
30ml fresh limejuice
salt and pepper to taste



Preparation:

- Remove approximately 300g of chickpeas from the can and chop them coarsely.
- In a food processor or blender, process the remaining chickpeas and the liquid to puree, set aside.
- Heat the oil in a non-stick saucepan over moderate heat, add cumin seeds and stir until they crackle, about 10 second.
- Add onion, ginger and garlic. Stir until the onion is translucent; add turmeric, coriander and red chili, stir for about 10 second, careful not to burn. Mix in tomato sauce. Bring to boil.
- Add the chopped and pureed chickpeas. Cook; keep stirring for 2-3 minutes to allow the flavors to blend.
- Season it with salt and pepper. Remove from heat and add the limejuice, stir and serve.

Nutrients Analysis (per serving):

Calories	176
Protein	7g
Carbohydrates	29g
Total fat	5g
Saturated fat	0
Cholesterol	0mg
Sodium with salt included	650mg

Raita (cucumber and tomato)

Yield (10 Servings)

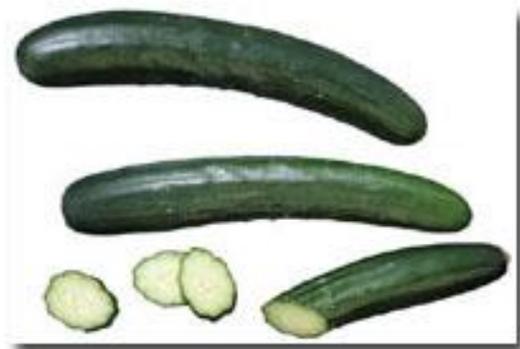
600g nonfat yogurt
¼ cup cilantro
1pc green chili seeded
2 pc garlic cloves
500g grated and finely chopped cucumber
300g blanched (skin removed), small diced tomato
10g cumin seed freshly toasted and coarsely grounded.
5g paprika
salt and freshly ground black pepper to taste.

Preparation:

- In a bowl, beat yogurt to a smooth consistency.
- In a blender, process cilantro, green chili and garlic to a smooth paste. Add to yogurt
- Fold in black pepper, cucumber and tomato
- Cover and chill until ready to serve.
- Before serving, garnish with coarsely ground cumin seeds and paprika.

Nutrients Analysis (per serving):

Calories	90
Protein	9 g
Carbohydrates	15g
Total fat	0.2g
Saturated fat	0.1g
Cholesterol	3 mg
Sodium	102 mg



Paalak (Spinach) Raita

Yield (10 Servings)

900g nonfat yogurt
300g fresh spinach, washed, trimmed and chopped
¼ cup cilantro
1pc green chili seeded and finely chopped
10g cumin seed freshly toasted and coarsely ground.
5g paprika
salt and freshly ground black pepper to taste.

Preparation:

- Steam the spinach over boiling water for 2 to 3 minutes, or until wilted. Remove the spinach.
- Cool slightly then squeeze out any moisture
- In a bowl, whisk yogurt with a fork to a smooth creamy consistency.
- Add the spinach and green chili.
- Season it with salt and freshly ground black pepper.
- Cover and chill until ready to serve.
- Before serving, garnish with coarsely ground cumin seeds and paprika.

Nutrients Analysis (per serving):

Calories	51
Protein	6 g
Carbohydrates	8g
Total fat	0g
Saturated fat	0g
Cholesterol	3 mg
Sodium	84 mg



Vegetable Pilaf

Yield (10 Servings)

450g basmati rice
30ml olive oil
2ea. cinnamon stick
12ea. whole cloves
8ea. green cardamom pods
2ea. bay leaf
3g ground turmeric
4g salt
500g fresh diced mixed vegetables (corn. Peas, carrots, green beans etc.)

Preparation:

- Wash rice twice and drain.
- Steam all the vegetables until they are tender.
- Heat the oil in a non-stick frying pan over moderate heat. Add the cardamom, clove, cinnamon and bay leaf, stir for 10 seconds.
- Add rice and stir until the rice is almost opaque. Add 2cups of water, turmeric and salt, cover saucepan partially and bring to boil again.
- Reduced heat to low, add the vegetables and cook for 10-12 minutes or until all the water is absorbed and rice is cooked.
- Gently fluff the rice, remove the whole spices and serve.

Nutrients Analysis (per serving):

Calories	316
Protein	8 g
Carbohydrates	61g
Total fat	4g
Saturated fat	0g
Cholesterol	0 mg
Sodium with salt included	183 mg



Pudina (Mint-Coriander) Chutney

Yield (250g)

50g fresh mint leaves, clean and washed
150g fresh coriander leaves, clean and washed
25g fresh ginger chopped
8pc green onion, chopped
2pc fresh green chilies, seeded and chopped
15ml fresh lemon juice
salt and freshly ground black pepper to taste.

Preparation:

- In a food processor or blender, process mint, coriander, ginger, onion, green chili to a coarse paste.
- Add the lemon juice, salt and pepper and gently process to a creamy relish.
- Transfer to a glass container, cover tightly and chill until ready to use.

Nutrients Analysis (per serving):

Calories	23
Protein	2 g
Carbohydrates	31g
Total fat	0g
Saturated fat	0g
Cholesterol	0 mg
Sodium with salt included	38 mg



Tamarind (Amlı) Chutney

Yield (250g)

120g tamarind paste, soaked in 1 cup of hot water for 25 minutes.
10g paprika
60g brown sugar
20g garam masala
salt and freshly ground black pepper to taste.

Preparation:

- Strain the soaked tamarind pulp, forcing it against the sides of the sieve to extract all the juices. Reserve the liquid and discard the pulp.
- In a small saucepan, combine the red pepper, brown sugar, salt, garam masala and tamarind liquid. Simmer over a low heat, stirring constantly, until slightly thickened. Cool
- Transfer to a glass container, cover tightly and chill until ready to use.

Nutrients Analysis (per serving):

Calories	16
Protein	0 g
Carbohydrates	4g
Total fat	0g
Saturated fat	0g
Cholesterol	0 mg
Sodium with salt included	238 mg



Whole Wheat Chapati

Yield (10 chapattis)

2½ cup whole-wheat flour
10g canola oil
water
flour for dusting

Preparation:

- Preheat griddle
- In a large bowl, mix flour. Oil and water. Mix and kneed well until smooth
- Divide the mixture into 10 equal portions and shape them into balls cover them and rest
- Roll out each ball evenly into a 6-inch (15cm) flat round, lightly dusting with flour as necessary.
- Cook on a pre-heated griddle, topside first until lightly mottled about 10-15 seconds. Turn over and cook other side for 15 seconds. Turn over again and cook for about 20 second or until baked.
- Repeat the process to make the remaining chapattis. Stack them and cover until ready to serve.

Nutrients Analysis (per serving):

Calories	106
Protein	4.1 g
Carbohydrates	20.2g
Total fat	2.6g
Saturated fat	0.3g
Cholesterol	0 mg
Sodium with salt included	1.4 mg

Aloo Paratha (Potato stuffed Bread)

Yield (10 Paratha)

Paratha dough:

400g sifted whole-wheat flour
400g all-purpose flour
5g salt
10ml canola oil
250ml water

Paratha Filling:

15ml canola oil
10g minced garlic
15g minced fresh ginger
10g cumin seeds
15g ground coriander
5g paprika
5g ground turmeric
10ml fresh limejuice

15g fresh coriander leaves, minced
salt and pepper to taste
600g warm mashed potatoes

Preparation:

- In a bowl, combine the whole-wheat flour, all purpose flour and salt.
- Drizzle the oil over the top. Rub the oil and flour in your fingertips until the mixture has the consistency of coarse oatmeal. Add water and kneed the dough until it becomes silky smooth and no longer sticky, about 10 minutes. If sticky dust with flour.
- Rest the dough for 30 minutes. Divide the dough and shape into 20 round balls. Cover them until ready to roll.
- Heat the oil in a large non-stick skillet over moderate heat. Add the garlic, ginger and cumin seeds and stir until the cumin turns brown. Add the mashed potatoes, coriander, paprika, turmeric, limejuice, coriander leaves and salt and pepper to taste. Stir to mix.
- Continue cooking and stirring for about 2 minutes to allow flavors to blend. Remove from heat. Col and divide into 10 portions.
- Roll the Paratha dough ball into 6-inch rounds. Place the one portion of the potato filling in the center leaving about 1 inch around the edge. Using pastry brush moistens the edges with water. Place another round on the top of the potato filling. Gently press the edges together to seal in the filling. Roll them gently to about 8 inch round.
- Cook on a pre-heated griddle, topside first until lightly mottled about 10-15 seconds. Turn over and cook other side for 15 seconds. Turn over again and cook for about 20 second or until both sides are golden brown.
- Repeat the process to make the remaining parathas. Stack them and cover until ready to serve.

Nutrients Analysis (per serving):

Calories	329
Protein	10 g
Carbohydrates	63g
Total fat	5g
Saturated fat	0g
Cholesterol	1 mg
Sodium with salt included	257 mg

Kesari Kheer

Yield (10 portions)

10ml canola oil
150g basmati rice washed and soaked in water for 20 minutes, drain
1.5l skim milk
100g nonfat dry milk
150g sugar
10g ground cardamom
5g saffron, soaked in 30ml warm skim milk
50g golden raisins
30g toasted silvered almonds



Preparation:

- Heat oil in a large heavy bottomed non-stick saucepan over moderate heat. Add rice and stir until it darkens one or two shades.
- Add the milk and dry milk. Bring to rolling boil. Cook and stirring continuously to ensure that rice does not stick to the pan, about 15 minutes. Be careful to keep the rice grain whole.
- Add sugar and cardamom.
- Continue cooking, stirring constantly, until it reduces to about one third of its original volume and has a thin custard like consistency, about 30-40 minutes. Be very careful to avoid scorching in the final stage of cooking.
- Stir in saffron liquid. Cook for few minutes.
- The pudding will continue to thicken as it cools.
- Pour into a large serving bowl or individual dishes. Garnish with almonds.

Nutrients Analysis (per serving):

Calories	164
Protein	7 g
Carbohydrates	27g
Total fat	3g
Saturated fat	0g
Cholesterol	3 mg
Sodium with salt included	87 mg

Fresh Fruit Salad

Yield (10 serving)

200g ripe mangos, peeled and cubed
100g pineapple, peeled and sliced
100g Strawberries
100g orange sections
30 ml lemon juice
black pepper and salt to taste

100g honeydew melon
200g cantaloupe
100g grapes
50g chat masala

Preparation:

- In a large serving bowl mix all the fruits.
- Add chat masala, lemon juice, salt and pepper to taste. Mix gently
- Chill until ready to serve.

Nutrients Analysis (per serving):

Calories	90
Protein	0.9 g
Carbohydrates	23.2g
Total fat	0.3g
Saturated fat	0.g
Cholesterol	0 mg
Sodium with salt included	50.4mg

Chocolate Yogurt Mousse

Yield (10 serving)

450g Yogurt, non-fat
60g chocolate dark, sweet
200ml egg white
100g sugar, granulated
40g cocoa powder, sifted

Preparation:

- Drain the yogurt in a cheesecloth lined sieve under refrigeration for 24 hours.
- Bring the yogurt back to room temperature.
- Melt the chocolate and combine it with the room temperature yogurt. Mix in cocoa powder. Warm this mixture over simmering water.
- Combine egg white and sugar in a bowl. Whisk to form a medium peak meringue.
- Fold in the meringue into the warmed chocolate/yogurt mixture.
- Pipe the mousse into small dessert bowls and serve. Garnish with fresh fruits.

Nutrients Analysis (per serving):

Calories	170
Protein	7 g
Carbohydrates	31g
Total fat	4g
Saturated fat	0.g
Cholesterol	22 mg
Sodium with salt included	80 mg

Masala Chai

Yield (10 serving)

2	2-inch pieces cinnamon stick	30g	sugar, or to taste
6	green cardamom pods	6	orange pekoe tea bags
4	Cloves	200ml	skim milk
8	cups water		

Preparation:

- Bring the 8-cup water to a boil in a small saucepan.
- Add the spices, sugar and tea bags. Stir and remove from the heat. Cover and let stand for 10 minutes.
- Add the milk and return to the heat. Bring to boil.
- Strain the tea into the cups and serve hot.

Nutrients Analysis (per serving):

Calories	29
Protein	1 g
Carbohydrates	7g
Total fat	0g
Saturated fat	0g
Cholesterol	0 mg
Sodium with salt included	8mg

Mango Lassi

Yield (10 serving)

1.2kg	nonfat plain yogurt
800ml	cold water or skim milk
200g	sugar, or to taste
250g	mango pulp
2cups	crushed ice



Preparation:

- Whisk all the ingredients in the blender until frothy. Add crushed ice
- Serve immediately in a glass with crushed ice.

Nutrients Analysis (per serving):

Calories	132
Protein	7 g
Carbohydrates	28g
Total fat	0g
Saturated fat	0g
Cholesterol	3 mg
Sodium with salt included	80mg

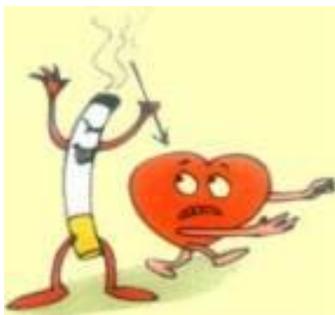
FREQUENTLY ASKED QUESTIONS

The information listed below has been modified from a number of sources:
Heart and Stroke Foundation of Canada website – www.heartandstroke.ca
Canadian Diabetes Association website – www.diabetes.ca
Canadian Coalition for High Blood Pressure Prevention and Control -
www.canadianbpcoalition.org

For a free online - Blood glucose, Blood pressure and Cholesterol tracker check out:
<http://www.s2mw.com/AHA/usercentral.aspx>

Topics Covered

- The Heart and Heart Disease
- Dyslipidemia – Abnormal Blood Fats
- Diabetes – High Blood Sugars
- Hypertension – High Blood Pressure
- Obesity
- Smoking
- Cerebrovascular Accident (CVA) - Strokes



HEART AND HEART DISEASE

The Working Heart – how does it work?

The heart weighs only 250 – 350 grams and is no bigger than your fist. Still, it is one of the hardest working, most efficient pumps around. It beats about 100,000 times per day, propelling blood through some 70,000 miles of blood vessels.

Located just behind the breastbone (sternum), the heart is a hollow organ, divided into right and left sides by a wall called the septum. These sides are further divided into upper and lower chambers called the atrium and the ventricle. Special valves between each chamber control the forward flow of blood through the heart to the body and lungs.

Although the heart is one organ, it works like a double pump. One pump, the "right heart", receives blood that has just come from the body, after delivering nutrients and oxygen to the tissues. With each beat, it drives deoxygenated blood to the lungs, where the blood unloads carbon dioxide, and picks up a fresh supply of oxygen. The second pump, or "left heart" receives the oxygen-restored blood from the lungs, and pumps it through the great trunk-artery (aorta) to other parts of the body.

What is Heart Disease?

Doctors have identified many disorders of the heart. Some are rare while others are widespread. The most common heart problems are:

- **Coronary artery disease.**
 - The coronary arteries supplying blood to the heart become blocked with atherosclerotic plaque.
- **Arrhythmias.**
 - When the electrical system of the heart, which controls the heartbeat, starts to malfunction.
- **Valve disorders.**
 - One or more of the heart valves does not function properly.
- **Heart muscle disease.**
 - The heart muscle itself can become diseased (for example, carditis or congestive heart failure).

Here in Canada, 22% of all deaths among Canadian males are due to heart disease. 19% of all deaths among Canadian females are due to heart disease (2001 statistics).

What is Angina?

Angina pectoris is the medical term for chest pain due to coronary artery disease. It happens when the supply of oxygen cannot meet the demands of the heart. This lack of oxygen is called ischemia. Angina is the heart muscle's way of telling you and your body that it's not getting enough oxygen. The usual symptom of angina is a pressure, squeezing or tightness in the chest that may spread to the neck, jaw or arms. There are two different kinds of angina – stable and unstable.

How to keeping track of angina symptoms:

To help your doctor diagnose your symptoms, you need to give detailed descriptions of your chest pain. Ask yourself these questions:

1. How does it feel (sharp, dull, tightness, pressure or squeezing)?
2. Where exactly is it located?

3. Does it move into your shoulder, arms, back, throat or jaw?
4. What (if any) activities seem to bring it on (for example, exercise or stress)?
5. What seems to relieve it (for example, resting, changing position or taking antacids)?
6. How long do these episodes last?
7. At what time of day do you get these attacks?
8. Is the pain accompanied by other symptoms, such as shortness of breath, nausea or sweating?
9. Has the pattern changed from the usual?

Your doctor will want to know as much about your symptoms as possible. Don't hesitate to tell him/her everything you are feeling. Remember, whatever he or she suspects, further tests will be needed to confirm a diagnosis.

What is a Heart Attack?

A heart attack occurs when part of the heart muscle (myocardium) dies from lack of oxygen. Heart attacks usually occur when an existing plaque breaks open and triggers the formation of blood clots on top of it. This stops blood flow through the artery, and oxygen can't get to the heart muscle. Without oxygen, the heart muscle will die.

What are the Heart Attack Warning Signs?

Pain

- Sudden discomfort or pain that does not go away with rest
- Pain that may be in the chest, neck, jaw, shoulder, arms or back
- Pain that may feel like burning, squeezing, heaviness, tightness or pressure
- In women, pain may be more vague

Shortness of Breath

- Difficulty breathing

Nausea

- Indigestion
- Vomiting

Sweating

- cool, clammy skin

Fear

- Anxiety
- Denial

Signs may be mild or severe. If you or someone you know is having any of these signs, CALL 911 or your local emergency number immediately.



What should I do if I am experiencing warning signs of a heart attack?

YOU SHOULD IMMEDIATELY:

- Call 911 or your local emergency number for help, or have someone call for you (It's a good idea to keep a list of emergency numbers near the phone at all times).
- Stop all activity and sit or lie down, in whatever position is most comfortable.
- If you take nitroglycerin, take your normal dosage.

- If you are experiencing chest pain, chew and swallow one (1) adult 325 mg ASA tablet (e.g., Aspirin[®]) or two (2) 80 mg tablets.
- Do not use pain medicines like acetaminophen (e.g. Tylenol) or ibuprofen (e.g. Advil[®]).
- Rest comfortably and wait for emergency medical services (e.g., ambulance) to arrive.

What are the risk factors for heart disease and what can I do to lower my risk?

Coronary heart disease risk factors are behaviors or medical conditions which make people more likely to develop coronary heart disease (also called coronary artery disease). Some risk factors (like smoking) are well known. Others are less well recognized.

Having even one risk factor will increase a person's chances of developing heart problems. People with two or more risk factors may be at far higher risk for coronary heart disease than people with none. In addition to causing coronary heart disease, these risk factors also increase a person's chances of developing other serious medical problems including:

- Stroke;
- Congestive heart failure (CHF)
- Kidney failure.

A. Risk Factors that you cannot control or change (i.e. non-modifiable risk factors)

- Age and gender (55+ for women, 45+ for men)
- Ethnic descent (African, South Asian, and First Nation populations are at higher risk)
- Family medical history - heart attack or stroke before age 65, angina, tendency to develop high blood cholesterol or blood pressure

B. Risk Factors that you can control or change (i.e. modifiable risk factors)

- Smoking
 - A smoker's risk of coronary heart disease is far higher than that of a non-smoker. Smokers should ask their doctors for advice on how to quit smoking. There are many smoking cessation programs and cessation aids to help smokers quit.
- Physical Inactivity
 - Regular exercise can reduce people's risk of developing coronary heart disease. Exercise increases levels of "good" (High Density Lipoprotein or HDL) cholesterol, helps people manage stress, and improves the efficiency of the heart, lungs and muscles. Even modest levels of low-intensity exercise are beneficial if done regularly.
- Obesity
 - Adults should keep their body weight as close as possible to the ideal body weight for their age and build.
 - People who are more than 30% over their ideal weight are more likely to develop coronary heart disease and stroke even if they have no other risk factors. Added weight increases the strain on the heart and contributes to high blood pressure and high blood cholesterol. It can also lead to type-2 (adult-onset) diabetes.
- Diabetes
 - Patients with diabetes should take steps to manage it well. Diabetes (especially poorly controlled diabetes) increases the risk of developing coronary heart disease.

- High Blood Pressure
 - Adults should have their blood pressure checked regularly, especially if high blood pressure runs in the family. People with high blood pressure should ask their doctors how to reduce it. Blood pressure can often be brought into normal ranges by lifestyle changes such as: losing excess weight; exercising; reducing salt intake; increasing consumption of potassium-rich foods and managing stress levels. Sometimes medication may also be required. Blood pressure lowering medication must be taken exactly as directed.
- High Blood Cholesterol
 - Adults should have their blood cholesterol levels checked regularly, especially if there's a family history of high cholesterol. People with high cholesterol levels should ask their doctors how to reduce them. Reducing the amount of fat in the diet can sometimes lower blood cholesterol levels. Sometimes, cholesterol-lowering medications may also be needed.
- Stress
 - Stress is often associated with unhealthy activities such as smoking, overeating, excessive drinking, worrying or outbursts of anger. People under severe stress should consult their doctors for advice on how to manage stress. Stress management programs focus on learning to identify, prioritize and discuss problems, eating well, getting enough sleep and exercising.

What is Coronary Artery Disease (CAD)?

The heart is a strong muscle. It pumps blood to every part of the body. Like all other muscles, the heart gets its energy from the oxygen and nutrients in the blood. That's why it needs a consistent supply of blood to keep working. The harder it works, the more blood it needs.

Blood is pumped to the heart, by many tiny "pipes" known as blood vessels or arteries. The main blood vessels to the heart are called the left and right coronary arteries. These arteries - the "pipes" supplying the heart - carry the blood to the heart in order to keep it working. Coronary artery disease occurs when these important blood vessels become narrowed or blocked and can no longer give enough blood to meet the heart's demand.

Over many years, a sticky, fatty material called plaque builds up in the blood vessels. Plaque narrows and clogs the arteries, slowing the flow of blood. The process is called atherosclerosis. It can begin as early as childhood and progresses over time. Early warning signs of this problem can be fatigue, pain and/or dizziness as well as other symptoms. If left unchecked, it can lead to serious problems such as angina, heart attack, stroke or death.

While there is no cure for coronary artery disease, there are now many treatments, which slow down the progress of this disease. Often doctors will begin by treating the problem with medications. If these do not work, they may suggest other procedures such as angioplasty, coronary stent or coronary artery bypass graft surgery.

The Coronary Arteries

Like all muscles in the body, the heart muscle needs oxygen for energy. Even though the chambers are filled with blood, the heart cannot absorb oxygen directly from them. Instead, the heart receives its oxygen supply from the blood carried in two special vessels, the left and right coronary arteries. These two arteries originate from the aorta, and run down and around the outside of the heart.

The right coronary artery travels down the right side and to the bottom of your heart. The first part of the left coronary artery is called the left main coronary artery. This splits into the left anterior descending artery (LAD), which travels down the front of the heart, and the circumflex artery, which goes to the back of the heart. Like all other arteries in your body, these coronary arteries then branch into smaller and smaller arteries, eventually getting much-needed blood and oxygen to the heart muscle (myocardium).

The pumping action of the heart depends on a good supply of blood and oxygen from the coronary arteries.

Coronary artery disease (CAD) develops when these arteries become clogged, which decreases blood flow to the heart.

What causes CAD?

Coronary artery disease (CAD) develops when arteries become clogged, which decreases blood flow to the heart. This is known as atherosclerosis.

Atherosclerosis

Like water through a hose, blood flows through your arteries, delivering oxygen and nutrients to your organs. When your arteries become clogged with fatty deposits (atherosclerotic plaque), they lose their elasticity and narrow. This blocks or slows the smooth passage of blood.

Atherosclerotic plaque is a sticky, yellow substance made up of fat substances like cholesterol and cellular debris. Atherosclerosis is a slow, progressive condition that can begin as early as childhood, and occur anywhere in the body. If it blocks the flow of blood through the coronary arteries, it is known as coronary artery disease (CAD). This can lead to angina or a heart attack. If it blocks the arteries in the brain, it can lead to a stroke.

Contributions to heart attacks and stroke

There are two ways in which atherosclerosis can lead to a heart attack or stroke. First, it can severely narrow and block the artery, allowing little or no blood through. Secondly, an atherosclerotic plaque can break open and trigger the formation of blood clots (thrombi). These can suddenly block the artery. If the clot occurs in one of the coronary arteries, a heart attack can result; if it takes place in an artery of the brain, a stroke may occur.

How do you diagnose CAD?

As similar as their symptoms may appear, angina and heart attack are not the same and require different treatments. Your doctor must make the correct diagnosis before recommending therapy. To do this, he or she will need to run some tests.

Electrocardiogram (ECG)

An electrocardiogram (ECG) is a printed record of the heart's electrical activity over a short period of time.

An ECG can give doctors important information about the rhythm of the heart, the size and position of the heart chambers, damage to the heart and even abnormalities in the electrolytes that control the heart's electrical activity.

An electrocardiogram is usually done in a clinic or doctor's office, although portable units can be brought to the patient's bedside if needed.

In a standard ECG, the patient is asked to take his or her outer clothes off and to lie on a table. Small metal electrodes are attached to the arms, legs and chest. During the test, the chest lead may be moved to different positions to measure the heart's electrical activity from different locations.

During the test, which lasts about 10 minutes, the patient is asked to lie quietly and not move or speak. This is so doctors can make the clearest possible recording of the heart's electrical activity.

An electrocardiogram is completely safe and painless. It is a non-invasive procedure, that is, nothing is injected or put into the body.

An electrocardiogram is often done as a routine part of an older adult's annual check-up. It may be recommended if a patient is experiencing irregular heart beats, very fast or slow heart beats, palpitations (unusual throbbing or fluttering sensations in the heart), dizziness, excessive fatigue or angina (chest pain).

There is no need to restrict foods or fluids, or to make any special preparations before an electrocardiogram.

Exercise Stress Test

An exercise electrocardiogram (ECG) records the response of the heart to the stress of exercise. In an exercise ECG, the electrical activity of the heart as well as blood pressure and heart rate are monitored while the patient exercises, usually by walking on a treadmill.

An exercise ECG is most often done to pinpoint the cause of unexplained chest pain, especially if coronary artery disease (heart disease) is suspected. Exercise ECG tests are also given to patients who have been diagnosed with coronary artery disease, to learn how far the disease has progressed and to learn how much exercise they can safely do. Finally, exercise ECG tests are often done after a patient has had a heart attack or undergone heart surgery, to establish how much work or exercise they can safely do.

An exercise ECG is usually done in a clinic or hospital. In an exercise ECG, the patient is placed on an exercise treadmill (or sometimes an exercise bicycle). Small metal electrodes are attached to the chest, and the treadmill is started, slowly at first. As the patient walks on the treadmill, his or her heart's activity, heart rate, breathing and blood pressure are monitored. Gradually the treadmill is speeded up so the patient must walk more quickly. This is done to learn how the heart handles progressively heavier workloads. The test continues until peak exercise capacity is reached (the heart is beating as fast as it safely can, given the patient's age and condition) or until chest pain occurs.

An exercise ECG is a non-invasive procedure, that is, nothing is injected or put into the body. It is usually a safe procedure, although the exercise performed during the test may trigger chest pain or irregular heart rhythms.

An exercise ECG may be recommended if a patient is experiencing chest pain (angina), irregular heart beats, very fast or slow heart beats, palpitations (unusual throbbing or fluttering sensations in the heart), dizziness, or excessive fatigue. It may also be done to investigate the presence or progression of coronary artery disease (CAD).

Patients taking an exercise ECG should wear clothing and shoes that will be comfortable when exercising. They should not smoke or eat for at least two hours before the test. Prescription medications should be taken as usual, unless a doctor says otherwise. During the test, patients should report any discomfort or other symptoms immediately.

Thallium or Cardiolite Scan

A thallium scan is a test done with radioactive tracer to learn how much blood is reaching different parts of the heart muscle. This test is also known as thallium myocardial imaging, cold spot imaging, myocardial perfusion imaging or thallium scintigraphy.

A thallium scan is done to learn more about the heart's cells and its blood supply. It is often done to determine the size and location of injured muscle after a heart attack.

In a thallium scan, the patient is usually asked to lie on a table. A small amount of thallium, a radioactive tracer, is injected into a vein in the arm. A special camera then measures the amount of radioactivity that is carried by the blood stream into the heart muscle. The parts of the heart muscle that receive good blood supply will pick up the tracer. Areas with poor blood supply or damaged cells will not pick up the tracer, and will therefore appear as dark areas (cold spots) on the scan. Thallium scans may sometimes be done after exercise.

A thallium scan is a relatively low-risk procedure. The amount of radiation absorbed by the body during this test is approximately equivalent to one chest x-ray. However, since even low doses of radiation may be harmful to young children, a thallium scan is not recommended for pregnant or breast feeding women.

A thallium scan may be recommended for patients with persistent unexplained chest pain, or to learn more about irregularities found during a stress ECG test. It can also be useful in determining the extent of the damage to the heart muscle in patients who have had a heart attack. Finally, a thallium scan is sometimes done after bypass surgery to see whether grafted blood vessels are functioning properly.

Patients should not eat or drink for at least three hours before a thallium scan. No tobacco, alcohol, caffeinated beverages or unprescribed medications should be taken for 24 hours before the test. Patients

taking prescription medications or who have allergies should discuss them with their doctor before having a thallium scan.

Echocardiography

Echocardiography is a test in which very high frequency sound waves are "bounced off" the heart. The returning sound waves (echoes) are picked up and turned into pictures that show blood flow through the heart.

Echocardiography testing allows doctors to clearly see and measure blood flow through the chambers of the heart. Any narrowing or leakage of heart valves can also be detected and measured.

An echocardiography test is usually done in a clinic. The patient is asked to remove any clothing or jewelry covering the upper half of the body. A special gel is rubbed on the left side of the chest to improve sound quality. Then, a transducer (a hand-held instrument which transmits ultrasonic waves and picks up their returning echoes) is held against the chest while images of the heart are recorded. A typical test takes about from 15 to 45 minutes.

In a form of echocardiography known as transesophageal echocardiography (TEE), a tube with a transducer is passed down the throat and into the esophagus (the tube connecting the mouth to the stomach). Because the esophagus is close to the heart, TEE gives very clear pictures of the heart and its structures.

Echocardiography may be recommended if a patient is experiencing abnormal heart sounds, shortness of breath, palpitations, angina (chest pain) or has a history of stroke. It is especially useful in diagnosing heart valve problems and for assessing the progress of patients with artificial heart valves.

There is no need to restrict foods or fluids, or to make any special preparations before echocardiography.

Angiography

Angiography is a process that allows doctors to take clear x-ray pictures of the coronary arteries, the blood vessels that supply the heart. In angiography, a special dye is released into the coronary arteries from a catheter (special tube) inserted in a blood vessel. This dye makes the blood vessels visible when an x-ray picture is taken of them.

Angiography allows doctors to clearly see how blood flows into the heart. This allows them to pinpoint problems with the coronary arteries.

Angiography is done in a hospital or clinic. The patient is asked to lie on a table, and the site where the catheter is to be inserted (the groin or arm) will be cleaned. The patient is given a local anesthetic to numb the skin so he or she feels no pain. Then, a catheter is carefully guided through a vein or artery to a position near the heart. When the catheter is in place, it releases a special dye into the blood stream. The dye allows clear, detailed x-ray pictures of the coronary arteries to be taken. During the release of the dye, most patients feel a brief sensation of heat. This generally passes quickly.

Angiography is a very common procedure and is usually considered safe. However, like any invasive procedure (a procedure in which something is inserted into the body), it is not totally without risk. In some patients, the contrast dye can cause nausea, the need to urinate or even allergic reactions, although these are rare.

Angiography may be recommended for patients with angina (chest pain) or those with suspected coronary artery disease (CAD). The test gives doctors valuable information on the condition of the coronary arteries.

A patient should not eat or drink for 6 to 18 hours before coronary angiography, unless one is diabetic. Check with your doctor for instructions.

How do you treat CAD?

Although there is no cure for coronary artery disease, there are many forms of treatment to slow down the process of CAD development.

Medications

Generally, most doctors will try to treat CAD with medication. For angina, an artery opening medication (like nitroglycerin) can provide immediate pain relief. However, if you have a heart attack, you will likely receive a clot-busting drug (thrombolytic therapy), in the Emergency department. (If you develop chest pain and suspect it may be a heart attack, go to the emergency department as soon as possible. The clot-busting drug can only be given within the first few hours of a heart attack. If it is given early enough, the medication can stop the progression of the heart attack.

Percutaneous Transluminal Coronary (balloon) Angioplasty (PTCA)

Percutaneous Transluminal Coronary Angioplasty (PTCA) or Balloon Angioplasty is a nonsurgical procedure for patients with blockages in only one or two coronary arteries.

How is it done?

First, your doctor inserts a thin plastic tube (catheter) into an artery. The doctor guides this catheter to your aorta (the large artery that sends the blood from your heart to the rest of your body). From there, it passes into the coronary artery.

While your doctor is guiding the catheter, a special x-ray camera monitors the procedure. A smaller catheter, with a deflated balloon on its tip, is passed through the first catheter. When the balloon tip reaches the narrowed part of the coronary artery, it's inflated. (At this time, you may have angina-like discomfort, so it's important to tell your doctor how you are feeling). This balloon pushes the plaque against the artery walls and enlarges the opening of the artery. This allows the blood to flow through the artery more easily. After that, the balloon is deflated and both catheters are removed.

Effectiveness

Balloon angioplasty is very effective about 85 – 90% of the time. That means that the procedure immediately improves blood flow in the previously blocked artery. This reduces chest pain (angina) and decreases the risk of heart attack. PTCA is not perfect. Within the first 6 months, up to 35% of patients experience the artery reblocking (restenosis). When this happens, the patient may have to undergo a second angioplasty.

Is it for everyone?

There are a number of things to consider before you and your doctor decide on this treatment. Assessing the severity of your angina, how many of your vessels are narrowed or blocked, the exact location of your blockage, as well as how well your heart functions overall.

Is it painful?

The area where the catheter is inserted (usually the groin or the arm) may be a bit sore. You may also have an angina-like feeling when the balloon is inflated. You'll probably receive a sedative the night before the procedure. This will relax you. You'll be given a local anesthetic (freezing) for the actual PTCA procedure.

Recovery

In most cases, people go home from the hospital within one or two days and are back to work shortly after they arrive home. Your doctor will give you more information about this.

PTCA + Coronary Stents

A newer method of PTCA uses a coronary stent to widen narrowed coronary arteries. A coronary stent is an expandable mesh tube, made of high quality stainless steel.

How does it work?

The stent is placed over the same type of balloon used for PTCA. When the balloon is inflated, the stent expands and presses into the artery wall. The balloon is then deflated and removed, while the stent remains

permanently in place, to help keep the artery wide open. Within a short time, the inner lining of the blood vessel covers the stent.

Effectiveness

Coronary stents appear to lower the risk of the coronary artery re-closing (restenosis). By keeping the artery open, stents may also reduce the need for repeated angioplasty. The long-term benefits of coronary stents continue to be investigated.

Is it painful?

As in balloon angioplasty, you may experience some soreness where the catheter was inserted (your groin or arm) and an angina-like feeling when the balloon is inflated.

Medications

Since a metal tube has been implanted in your body, you may need to take anticoagulant medication and antiplatelet medication to thin the blood out and stop blood clots from forming. Your doctor will prescribe these for you, and instruct you how to take them. Be sure to follow your doctor's directions.

Recovery

While you may feel perfectly fine, your doctor will probably want you to stay in the hospital for one to three days, just to monitor your medication. With your doctor's approval, you should be able to return to normal daily activities in a few days.

Your progress will need to be monitored a couple of times in the first month. After about six months, you may be asked to return for an exercise stress test or another angiogram. This will allow your doctor to reconfirm the long-term results.

Coronary Artery Bypass Graft Surgery (CABGS)

CABGS is a common type of open heart surgery. The operation is mostly used for people who have more than one blocked coronary artery.

CABGS improves blood flow to the heart. Surgeons open the chest by splitting the breastbone and create a detour around the blocked area in the coronary arteries, improving blood flow to the heart muscle. In the first part of the operation, surgeons take a piece of vein or artery (a graft) from the leg or chest. Then they stop the heart so they can operate on it. While the heart is stopped, a bypass machine (sometimes called a heart-lung machine) is used so blood can flow through the body.

It's a little like going around sections of blocked pipe with new piping! Once the damaged coronary arteries have been bypassed, doctors restart the heart and take the patient off the bypass machine.

CABGS usually takes three to six hours, depending on how many vessels are to be grafted. The goal of the operation is to improve the heart's blood supply so that patients have relief from the symptoms of heart disease and in most cases live longer. In 90% of cases, blood flow to the heart is so much better that patients notice that their health is much improved. In patients with very advanced coronary artery disease, this surgery may even be life saving.

As a reminder, coronary artery bypass graft surgery is not a cure for heart disease. Surgeons can bypass blocked blood vessels, but these too will clog if not cared for. To protect your new coronary arteries you may have to make some lifestyle changes such as stop smoking and ensure blood pressure and cholesterol levels are within normal limits. It's important that you make these changes. Remember, only you can give yourself the benefit of a new start.

Preparing for Surgery

Most people need to prepare for heart surgery emotionally. If you have decided to have coronary artery bypass graft surgery, you may feel fearful and anxious. That's only natural. One way to reduce these feelings is to have a good understanding of the surgery. Reading this section and talking to your health team will help you understand what happens during the operation and afterwards. Share your feelings and your readings with family members so that everyone understands what CABGS means to you and what it involves.

Before surgery, it is important to let your surgeon know about all the medications you are taking. The surgeon will want you to keep taking some of these medications up until the night before surgery, but others, for example, any blood thinners, will need to be stopped in the days before the operation. Your surgeon will discuss these changes with you.

If you are a smoker, the best thing you can do to prepare for bypass surgery is stop smoking before the operation. This will lower the risk of lung problems after surgery and help you recover more quickly.

Surgery Check List

- Make sure you know what bypass surgery is and why you need it.
- Discuss the upcoming surgery with your family;
- Make a list of questions for your doctor;
- Check hospital visiting hours;

Usually a date is set for bypass surgery well in advance. If you have chosen to have CABGS, you may go to hospital a day before the operation to have routine tests performed. These tests include an electrocardiogram (which measures the electrical activity of your heart), blood and urine testing and a chest x-ray. Cardiac catheterization and coronary angiograms will also be carried out unless they have been recently performed.

Before the operation members of the health team will visit you. These people may include the surgeon, the anesthetist, the physiotherapist and the intensive care unit nurse, depending on your hospital. The health team members will help you understand the surgery so be sure to ask any questions you may have. You may find it helpful to write some questions down to have them ready for these visits.

During this time, you'll also be taught about what to expect after the operation. You will learn what exercises you will be asked to do after surgery. These exercises are very important to your recovery. The more you can prepare, the more comfortable your days after the operation will be, and the faster you are likely to recover.

Before the operation

Before surgery you will be shaved from your chest to your groin to clear the area for surgery. If blood vessels are to be taken from your leg, it will be shaved as well. You will also be asked to shower with an antiseptic soap to reduce the chance of an infection after surgery.

As with any other operation, you will be asked to sign a consent for surgery. This consent is one of the reasons you want to understand all about your operation - so you know what you're signing.

Before surgery you will likely give your glasses, contact lenses, hearing aids, dentures, watch, jewelry and money to the nursing staff. You may want to send anything you will not need for the next few days home with relatives.

About an hour before the operation you will probably be given a needle to help you to relax. Attendants will take you on a stretcher to the operating room. Once there, the anesthetist will give you medication that makes you sleep through the operation.

The operation will last between three and four hours. During this time your family can wait at home or in a hospital waiting room. If they decide to wait at the hospital, they can make use of the cafeteria or lounge areas to rest and relax while waiting. They may arrange to meet the surgeon at the end of the operation to hear first-hand details of the surgery.

Intensive Care

Once surgery is finished, you will be taken to an intensive care unit (ICU). This is a very specialized unit where nurses and doctors closely monitor patients, night and day. The amount of time spent in this unit varies from hospital to hospital and depends also on the patient's progress after surgery. Usually patients are in ICU for about six hours to three days. Family members can visit for brief periods of time very soon after the operation has ended. Visits are kept short, as the staff will be very busy caring for you. Also, for a few days after surgery you'll need a lot of rest. It is a good idea to check the hospital's visiting hours before surgery.

ICUs can appear strange and alarming to the patient and to family members. These units are very well lit, day and night. They are often filled with unfamiliar noises from breathing machines and heart monitors. The sight of a family member in this area and hooked up to an array of medical equipment can be quite disturbing. Knowing what to expect can help reduce this stress.

Tubes and wires

For most of the day after surgery you'll be asleep. During this time you will have a breathing tube in your mouth. This is connected to a machine that helps you breathe. While this tube is in place, you will not be able to speak. However, ICU nurses are highly skilled in knowing your needs and will help you communicate in other ways.

Once the breathing tube is removed you will be able to talk and take sips of water. When your stomach is ready, you will start drinking clear liquids and gradually resume a regular diet.

At first, you will have many wires attached to your chest. These connect you to a heart monitor that enables the staff to check the rhythm and speed of your heart. This monitor may beep at times but this does not necessarily mean a problem. Sometimes it just beeps when you turn over in bed! You will also be connected to several tubes (intravenous lines). These supply you with fluids and nutrients while you cannot eat or drink, and let staff give you medications without having to poke you with a needle! Chest tubes will also be in place to drain off the bloody fluid that normally gathers in the chest during the operation. These will be removed about a day after surgery. You will have a catheter or tube placed into your bladder during surgery to drain your bladder for the first day or so after the operation.

To be attached to all these tubes and wires can be an overwhelming experience. It is important to remember that this equipment is routinely used to help patients recover from bypass surgery. One by one the tubes will be removed. This is a good way to measure your progress. As each tube is removed, you are one step closer to home.

Pain – what to expect

You can expect some pain or discomfort after bypass surgery. However, hospital staff are aware you will feel discomfort, so they'll be giving you pain relief medication through your intravenous line on a regular basis. You can help them by letting them know whenever you are having pain so they can adjust your medication for best results.

Once your intravenous tubing is removed, you'll be given medication for pain. Pain begins to subside after about three days. In the first week or so, you can help reduce pain by checking your posture while standing, sitting and walking. Good posture can help prevent painful muscle spasms.

Fever and disorientation

Fever is also common after bypass surgery. You might experience sweating at night. Medications will be given to bring your temperature back to normal.

It is also worth remembering that you may become confused or disoriented in the ICU, especially at night, because of medication, loss of sleep and discomfort. This is a temporary problem and will disappear once you are moved to a regular nursing unit where you can return to your normal day and nighttime patterns.

Road to Recovery

You will likely spend five to ten days in hospital. It may seem like a long time, especially if you are weak and feeling some discomfort. Try to remember that you are making progress every day and you are now well on the road to recovery.

Activity and exercise

Soon after surgery, hospital staff will be urging you to start some basic exercises. These are very important for your recovery. Lying in bed for long periods can make even healthy people less fit. Exercise is important to good health - even right after a major operation! For this reason, members of your health team will ask you to carry out the exercises you were taught before your operation. These include turning from side to side every two hours, foot and ankle exercises, deep breathing and coughing.

The coughing and turning will cause some pain at first, but they are vital to prevent any lung problems after surgery. It is important to take your pain medication regularly so that you are comfortable enough to do these activities. The staff will also show you how to hold a pillow across your chest. This support often makes coughing less painful.

The staff will also help you to sit in a chair or walk around your room. Even this small activity helps strengthen your body and prevent problems. As your energy and strength return, you will increase your level of activity until you are ready to go home.

"Bathing, bandages and the incision"

For the first few days after surgery, hospital staff will help you take sponge baths. After this, you'll be able to shampoo and take showers on your own.

After CABGS, you may find that your ankles swell. If you experience this you will be given elastic stockings to wear to reduce swelling and improve circulation. The best exercise to reduce swelling is walking. Putting your feet up when resting also helps. You may have numbness or a burning sensation along the leg incision. This is nothing to worry about.

Don't be alarmed at the colour of your incision - it is normal for the area to be purple or red at first. It will fade to pink and then to normal skin colour over the next few months. It will take from six to nine weeks to heal completely. During this time you should not lift anything heavier than 12 kilograms (30 pounds) in order to let the bone in your chest heal.

Hospital discharge

Your discharge date from hospital arrives at last! Most patients are happy to head home to familiar places and routines. On the other hand, it is very common to experience some anxiety upon leaving the hospital with its highly trained staff and reassuring equipment. You may wonder if you are really well enough to go home. Remember the hospital staff would not send you home unless they thought you were ready to go!

Usually patients travel home with their families by car. If you are going to travel by bus, plane, or train, be sure to inform your nurse in advance, so special arrangements for a wheelchair and other assistance can be made.

Home again

While you will be able to help with light activities around the house, you will need someone to assist with shopping, laundry and cooking for the first two weeks or so. Try to arrange for in-home help well in advance to reduce some of the stress associated with going home. For the first few days, you will likely find that even simple tasks such as taking a shower or walking upstairs will make you very tired. This is normal.

Often, bypass patients feel "down" for a few days after returning home from the hospital. Weakness, continuing discomfort and a sense of helplessness can all contribute to post-operative depression. If this is the case, be sure to talk with your family and your doctor about it. Some hospitals offer group counseling sessions to help bypass patients deal with depression or fear.

When can I resume "intimate relations" after surgery?

You are ready to resume sexual activity when you and your partner feel relaxed, rested and ready. The amount of time will vary from couple to couple. Fear and anxiety often leads to a delay in returning to sexual relations. Some people are concerned that sexual activity might be too hard on the heart. If you can walk up two flights of stairs with ease, your heart is ready! Eating and drinking make extra work for the heart, so it is best that you wait at least three hours after eating a heavy meal or drinking alcohol before sexual intercourse. There is no "ideal position" for sex after bypass surgery. Choose a position that is good for you and your partner. Sexual relationships are an intimate matter. Be sure to discuss any feelings and concerns you might have with your partner. If you feel your sexual relations are not "back to normal" a few months after surgery, or if you are troubled by chest pain or severe shortness of breath during sex, speak to your doctor.

Can I continue to drink alcohol after surgery?

Excessive alcohol makes the heart work harder, raises your blood pressure and increases your cholesterol levels, so any drinking should be done in moderation. One drink a day is generally considered an acceptable level of alcohol intake.

Can I travel after surgery?

Ask your doctor when you can resume traveling. Most bypass patients are medically well enough to travel within weeks after their operation. However, until you are completely fit and well rested you may want to avoid the stress and fatigue of long journeys.

DYSLIPIDEMIA – Abnormal Blood “Fats”:



What is cholesterol?

Cholesterol is a soft waxy substance manufactured by human and animal bodies. One of the lipids (fats) found in the blood, cholesterol is a vital chemical building block that the body uses to make cell membranes and hormones. Without cholesterol, the body couldn't function.

Some people have too much cholesterol in their blood. This condition is called hypercholesterolemia, and it is a major risk factor for atherosclerosis, a disorder that can lead to circulation problems, heart attacks and strokes.

When there is too much cholesterol in the blood, the excess can settle on the inside of the blood vessels. Over time, fatty deposits called plaque build up in the blood vessels, clogging them so that blood can't flow properly. When this happens, chances of a heart attack or stroke are increased.

What causes high cholesterol?

The level of cholesterol in the blood (and the balance between "good" and "bad" cholesterol) is determined by the genes, how well the liver functions (since it is the liver that manufactures 80% of the cholesterol in the blood), and diet.

Some people can eat a diet high in saturated fats and still maintain a low blood cholesterol level. For most people, however, eating foods lower in fat is essential to keep blood cholesterol levels at a healthy level.

What are the different kinds of cholesterol?

We need to distinguish between two very different types of cholesterol: low density lipoprotein (LDL) cholesterol and high-density lipoprotein (HDL) cholesterol.

Low-density lipoprotein (LDL) cholesterol

LDL cholesterol is often called the "bad" cholesterol. It doesn't really deserve this name - our bodies need normal amounts of LDL cholesterol for cell growth and repair. However, if blood levels of LDL cholesterol are too high, they can cause the gradual buildup of plaque on the walls of our blood vessels. This leads to a condition called atherosclerosis, which is the main cause of heart disease and stroke. Sometimes plaque breaks off and triggers the formation of blood clots that block the flow of blood. If one of the arteries in the heart is blocked, the result is a heart attack. If the circulation to the brain is blocked, it may cause a stroke.

High-density lipoprotein (HDL) cholesterol

HDL cholesterol is often referred to as the "good" cholesterol because it actually helps to carry away LDL cholesterol from the blood vessel walls. Current research indicates that HDL cholesterol may help to protect us from atherosclerosis and heart disease, so higher levels of this substance are considered good. You may be asked to become smoke-free and make dietary and lifestyle changes if your blood levels of HDL cholesterol are too low in comparison to your LDL level. Keeping the right balance between LDL and HDL levels is important to good health.

Triglycerides

The body contains another type of fat called triglyceride. While not a cholesterol, triglyceride is the most common form of fat found within our bodies. This substance seems to have some effect on heart disease, although the exact relationship is not clear at present. For this reason it is usually tested at the same time as blood cholesterol levels.

Unlike LDL cholesterol, triglycerides do not adhere to the walls of the blood vessels. Triglycerides are more like a "thick cream" in the blood and increase the tendency of the blood to clot. The greater the tendency to clot, the greater the risk of a heart attack or stroke.

High triglyceride levels are often associated with excess alcohol consumption, excess weight or poorly controlled diabetes. Their presence may therefore be a signal that additional heart disease risk factors are present or that lifestyle changes are needed.

Why are cholesterol levels so important?

Several major studies have shown that lowering blood cholesterol levels reduced the risk of coronary heart disease. One major study published in 1995 in the *New England Journal of Medicine* found that lowering blood cholesterol levels by diet and medication reduced the risk of heart attack in middle-aged men with elevated cholesterol by about 30%. Some research suggests that atherosclerosis may be stopped and even reversed if cholesterol levels are sharply lowered.

Lowering blood cholesterol levels by just 1% in middle-aged men is linked to a 2% decrease in the chance of heart disease. At this time there is no similar research on women so these findings cannot directly be applied to females.

The connection between high cholesterol levels in children and their risk of heart disease in later life is also unclear. However, we do know that it's very important for growing children to have an adequate amount of fat in their diet. Parents who have concerns about the amount of fat in their child's diet should speak with a qualified health professional before making dietary changes.

Elevated blood cholesterol is an important risk factor for heart attack and stroke in adults. However it is far from being the only one. When thinking about cholesterol, it's important to remember the "big picture."

What's the correlation between the fat we eat and the fat that is already in our blood?

Cholesterol is found in some of the foods Canadians normally eat. We refer to this as dietary cholesterol. Fat, especially saturated fat, in the diet has a greater effect on blood cholesterol than dietary cholesterol. For this reason, the total amount of fat in our diet has a far greater impact on our blood cholesterol levels than dietary cholesterol.

Different kinds of fats

Shoppers beware! Not all fats are created equally. Just as there are "good" and "bad" cholesterols, there are "good" and "bad" fats. Foods can contain either saturated fats ("bad") or unsaturated fats ("good"). Saturated fat raises blood cholesterol levels. In fact, a high intake of saturated fat in the diet is the main dietary cause of high blood cholesterol. Unsaturated fats, on the other hand, tend to lower cholesterol levels.

Saturated fats

Keeping "bad" and "good" fats straight can be confusing, so here's an easy rule of thumb: at room temperature, saturated fats are usually solid. These fats are found mainly in foods of animal origin. Sources include fatty cuts of meat, poultry with the skin on and whole milk dairy products such as cream, cheese and butter. A few vegetable fats are also high in saturated fats. The most common of

these are tropical oils: palm oil, palm kernel oil and coconut oil, which, along with trans-fatty acids can be found in commercially made muffins, cookies and crackers. Trans-fatty acids have the same effect on blood cholesterol as saturated fats. They are created when vegetable oils are hydrogenated, that is, when liquid oil is turned into hard fat like shortening.

Unsaturated fats

Unsaturated fats are the "good" ones. Here's an easy way to remember them: they are usually liquid at room temperature. There are two types of unsaturated fats: polyunsaturated fats and monounsaturated fats.

Polyunsaturated fats are found mainly in vegetable oils. Excellent sources include corn, safflower, sesame, soybean and sunflower oils. Many soft margarines are also made from these oils. Polyunsaturated fats are also found in some fish and shellfish. Polyunsaturated fats lower blood cholesterol levels.

Monounsaturated fats are found in canola, olive and peanut oils and in avocados. These fats tend to lower cholesterol and may also help the body maintain proper levels of HDL cholesterol (the "good" cholesterol).

How do I interpret my own cholesterol levels - what's "good" and what's "bad"?

To classify your risk category and optimal cholesterol range:

See attached Appendix 1 – Summary of recommendations for management of dyslipidemias and the prevention of cardiovascular disease. *Canadian Medical Association Journal* Oct 28, 2003.

There's no denying it — the results of a cholesterol test can be a little confusing! Yet all these numbers can mean only one of three things:

1. Your cholesterol levels are within healthy limits.

OR

2. Your cholesterol levels are slightly elevated. You should consider changing your lifestyle. In particular, try hard to become smoke-free, get more exercise and maintain a healthy body weight.

OR

3. Your cholesterol levels are significantly elevated. You need to change your lifestyle. You need to become smoke-free, get more exercise and maintain a healthy body weight. You may also need medication to help bring cholesterol levels down.

How do I get my Cholesterol tested?

As part of your regular checkup, your doctor will probably test your blood cholesterol levels. Most tests will measure:

- Total blood cholesterol
- LDL cholesterol
- HDL cholesterol
- Triglycerides

In Canada the results of the cholesterol tests are given in millimoles per litre (mmol/L), because this country now uses SI (Standard International) units for this type of measurement. In the United States, the results of cholesterol tests are expressed in different terms, using units of milligrams per decilitre (mg/dL). Since many of the books and magazine articles on cholesterol Canadians read are written in the U.S., this different system of measurement can cause confusion.

Don't let the numbers scare you

If you've just received your test results and they're higher than you'd like — don't be alarmed! It can be very misleading to simply look at blood work results on their own. Cholesterol levels can change from one visit to the next. In fact, it's now recommended that the average of three or more readings should be used to obtain a true picture of your cholesterol levels. Also, cholesterol and triglycerides are hard to measure accurately — it is important that blood work is done by a reputable laboratory.

Keep in mind that a cholesterol blood level on its own is just a number. When deciding what is the "right" level of cholesterol for you, your doctor will take into account your age, sex and the number of other heart disease risk factors you have.

Finally, remember that cholesterol levels change with time. If your blood cholesterol level is in the "normal" range, you should probably be tested again in five years time. If your results were higher than those in the "normal" range, you will be asked to have your cholesterol levels checked more frequently.

While you shouldn't panic or feel guilty if your cholesterol levels are higher than normal, you should also know that your risk of heart attack is double that of people in the "normal" group.

If any of your cholesterol levels fall outside the "normal" range you should seek the advice of a qualified health professional.

How do I optimize my cholesterol levels?

While many drugs are now available to lower cholesterol, experts agree that the first line of defense against high cholesterol levels is an improved diet. This section looks at lifestyle recommendations and the relationship between diet and blood cholesterol levels.

Lifestyle recommendations

Managing high cholesterol

- Know your actual cholesterol levels (HDL, LDL, triglycerides);
- Discuss with your doctor where your levels should be;
- Eat white meat or lean cuts of red meat;
- Remove skin and fat from chicken;
- Use "low fat" or "no fat" dairy products, dressings, mayonnaise;
- Eat regular well-balanced meals to avoid the urge to snack;
- Increase servings of fresh fruit, vegetables and grains (increase fibre);
- Consult a dietitian;
- If you smoke, follow the plan to reduce and become smoke-free;
- Plan to increase your physical activity.

Managing high triglycerides

- Reduce the amount of fat in your diet from all sources;
- Reduce the amount of sweet baked goods, chocolate, and other high-sugar foods;
- Discuss your level of alcohol intake with your doctor and reduce it if necessary;
- Increase physical activity;

- Call your local Heart and Stroke Foundation office for more information on heart healthy nutrition;

Drug therapy

For those people whose cholesterol level does not respond to dietary intervention - including people who have a genetic predisposition to high cholesterol levels - drug therapy may become necessary. Drug therapy is usually only considered when:

Dietary intervention has failed to bring cholesterol levels to acceptable levels
AND/OR

Elevated cholesterol levels occur along with definite coronary heart disease
OR

Two other risk factors for coronary heart disease
AND

There are no contraindications for cholesterol-lowering treatment (other diseases or therapies)

What types of drugs are used to treat high cholesterol?

There are many drugs used for treating elevated cholesterol. Each of them has its advantages and disadvantages. If a patient does not respond adequately to a single drug, combined drug therapy may be considered.

Bile acid sequestrants

These drugs (such as Questran[®] and Colestid[®]) work in the intestine to bind bile acids, which are then excreted. This stimulates the liver to remove more Low Density Lipoprotein (LDL or "bad" cholesterol) from the blood in order to manufacture more bile acids. Bile acid sequestrants can reduce total cholesterol by 20%, and may raise "good" cholesterol by 8%, but may also interfere with the absorption of several drugs, including digitalis, Coumadin[®] (warfarin), beta blockers, antibiotics and thyroid medications. Bile acid sequestrants do not reduce triglycerides in some people, and may even increase the triglyceride level. Constipation and other gastrointestinal disorders are relatively common side effects.

Fibric acids

This category is mainly represented by the drug gemfibrozil (Lopid[®]) and by clofibrate and fenofibrate (Lipidil[®]). These drugs are prescribed to lower elevated levels of blood triglycerides and to increase HDL or good cholesterol levels. They may also cause a moderate reduction in LDL (the "bad" cholesterol).

Gemfibrozil may increase the effect of anticoagulant drugs, so patients taking Coumadin[®] (warfarin) must be careful. It has relatively few side effects, but the chances of developing gallstones or liver dysfunction are increased. These drugs should not be taken during pregnancy.

Statins

The statins are a family of cholesterol-lowering drugs that work by reducing the activity of an enzyme in the liver that regulates cholesterol production. As the liver synthesizes less cholesterol, it absorbs more "bad" cholesterol (LDL) from the bloodstream. There are many statins, the most commonly used being lovastatin (Mevacor[®]), pravastatin (Pravachol[®]) and simvastatin (Zocor[®]).

Statins can reduce total levels by 30 to 40% and increase "good" cholesterol (HDL) by up to 8%. Lovastatin can significantly lower "bad" cholesterol (LDL) levels. Recent research has shown that pravastatin can help to prevent first heart attacks and simvastatin can reduce mortality among those who have had heart attacks. As a rule, statins cannot be combined with fibric acids. Lovastatin may increase bleeding with warfarin. The drugs appear safe, although safety over the long term (e.g., 20 years or more) is not established. About one in 100 persons may experience changes in liver function tests or muscle enzyme levels, but these are reversible when the drug is stopped. Side effects may include headaches, nausea, cramps, diarrhea or constipation.

Niacin

Niacin can be purchased as a vitamin supplement, but should not be taken as a cholesterol-lowering medication unless prescribed by a doctor. At the high doses necessary to lower cholesterol, niacin is as powerful as any prescription drug, and should be monitored for effects and side effects. Niacin works by

reducing the liver's production of lipoproteins needed to carry cholesterol and triglycerides in the blood. Side effects can include flushing and itching, particularly during the first several days of therapy. Flushing and itching can be minimized by taking ASA (Aspirin[®]) for several days prior to beginning to take niacin, but this should only be done on the advice of a doctor. At high doses, niacin can cause liver function abnormalities. It can also increase blood sugar levels in people with underlying diabetes. Sustained-release forms of niacin have been associated with severe liver damage, even at low doses.

Probucol

Probucol works in the bloodstream to reduce the oxidation of LDL ("bad") cholesterol, making it less damaging to the walls of blood vessels. It may also increase the return of cholesterol from blood vessels to the liver for excretion. It lowers total and LDL cholesterol, but may decrease HDL as well. Probucol is often used in combination with other lipid-lowering medications. About 10% of patients experience an increase in bowel frequency during therapy.

Medication tips

People who have been prescribed a cholesterol-lowering drug should be sure to ask their doctors:

- Why this particular drug was chosen;
- How it should be taken (how often, at what time of day, etc.)
- Whether there are side effects to watch out for and report;
- Whether this drug will interact with other drugs or alcohol

DIABETES - High Blood Sugars:



What is diabetes?

Diabetes is a disorder in the body's ability to use blood sugar (glucose). Glucose is the main source of energy for the human body. It is taken from the starches and sugars that people eat. It travels through the bloodstream, circulating throughout the body.

Normally, the body's tissues can absorb the glucose and use it for energy with the help of insulin. Produced by the pancreas (an organ behind the stomach), insulin is a hormone secreted in response to the natural increase in blood sugar after a meal. Unless the body has enough insulin and the ability to use insulin properly, glucose will simply build up in the bloodstream and then get flushed from the body in the urine, rather than go into the cells to feed them. Therefore, people with untreated diabetes may have dangerously high blood sugar levels. These high blood sugar levels can lead to a variety of symptoms (e.g., weakness, thirst) in the short-term, and serious consequences such as heart attack, stroke or other consequences of diabetes in the long-term.

"Juvenile diabetes" (develops in childhood) must be treated with insulin. "Adult onset diabetes" often develops in overweight adults. This type of diabetes can sometimes be eliminated or controlled by diet and weight loss. Diabetes results in circulation problems due to blood vessel damage.

What causes the different types of diabetes?

There are two main types of diabetes: type 1 and type 2.

Type 1 diabetes (insulin dependent diabetes mellitus - IDDM) is thought to be caused by a combination of genetic and environmental factors that results in a lack, or complete absence, of insulin. This is a rare and severe form of diabetes. It affects about 5 to 10 percent of all diabetics and develops before the age of 30. For reasons largely unknown, the body's immune system attacks itself, destroying over 90 percent of its own insulin-producing beta cells in the pancreas.

Much more common (~90-95% of all diabetes cases), is type 2 diabetes (non insulin dependent - NIDDM). The likelihood of onset increases with age; 15 percent of people over 70 have type 2 diabetes. Blood glucose levels are usually more stable in these patients. Obesity seems to play a large role in the development of type 2 diabetes; up to 90 percent of these patients are obese. Also, both type 2 diabetes and obesity tend to run in families. Patients with type 2 diabetes do manufacture insulin, sometimes even more than necessary. However, for some reason their bodies reject and/or do not detect it, resulting in what the body perceives as a deficiency. This insulin blockage is due to cell abnormalities of unknown cause in the liver and muscles.

Diabetes can also be caused by drug use, the use of certain steroids, or pregnancy (a temporary complication known as gestational diabetes).

Before the discovery of insulin in 1921, the long-term prognosis for diabetics was poor. Today, most diabetes can be managed and controlled with a combination of insulin treatment (either medications or injections) and lifestyle modifications. Other methods of administering insulin, such as nasal sprays and skin patches, are currently being researched.

What is the treatment for type 1 diabetes?

Type 1 patients must administer daily injections to maintain adequate glucose levels. Diet and exercise must also be carefully coordinated with insulin injections. Insulin is injected by the patient (or by a child patient's parent) under the fat layer of the arm, leg or stomach. Because the bodies of type 1 patients would destroy insulin if it passed through the normal digestive process, insulin must be injected and not taken by mouth. New forms of insulin include nasal sprays, external and implantable pumps and methods that are transdermal (through the skin, usually in the form of a patch). These new forms are still considered experimental and are currently being tested for safety and effectiveness.

What is the treatment for type 2 diabetes?

People with type 2 diabetes are often treated with medication. Depending on the severity of the condition, they may be able to take oral medications instead of injections. However, some insulin injection may still be used. Insulin is generally injected by the patient (or a child patient's parent) under the fat layer of the arm, leg or stomach.

Is diabetes linked to cardiovascular problems?

Yes. Both forms of diabetes can increase the risk of high blood pressure, atherosclerosis, coronary heart disease and stroke, particularly if blood sugar levels are poorly controlled. Insulin resistant people also have an increased risk of developing cardiovascular problems. More than 80% of people with diabetes die from some form of heart or blood vessel disease.

Diabetes is considered a major risk factor for cardiovascular disease. People with diabetes can reduce their health risk by modifying their other risk factors for cardiovascular disease, such as smoking, lack of physical activity, high blood pressure, excess weight and high blood cholesterol levels.

How is diabetes related to other health conditions?

Over time, elevated blood sugar levels can cause a variety of other health problems, including damage to the eyes, kidneys, nerves and blood vessels. Damage to the blood vessels contributes to the thickening of their walls, causes leakage, aids in the build-up of fatty materials in the blood and fosters excess plaque growth in the arteries. Studies have shown, for example, that poorly controlled type 1 diabetes is associated with calcification, a process in which plaque grows progressively harder and more brittle. Calcification occurs when calcium deposits in the blood attach to cholesterol deposits on the walls of arteries. All of these changes contribute to conditions such as the following:

- Coronary artery disease.
Restricted blood flow due to narrowed or partially blocked coronary arteries.
- Peripheral arterial disease.
Restricted blood flow due to narrowed or partially blocked peripheral arteries.
- Cardiomyopathy.
Restricted blood flow due to inflammation of the heart muscle.
- Kidney disease

Heart attacks and stroke are more common in diabetics than in the general population. Atherosclerosis (hardening of the arteries) is a leading contributor to heart disease, and is up to six times more common in diabetics than in non-diabetics. Diabetes can interfere with circulation in both large and small blood vessels. As a result, major organs of the body may not get enough oxygen-rich blood. In fact, two-thirds of all diabetic patients die from some form of heart or blood vessel disease. Studies also find that, among young women with type 1 diabetes, there is a higher risk and greater severity of heart disease compared to male diabetics.

What lifestyle changes are important for all diabetics?

In addition to keeping insulin levels within the normal range, making some lifestyle changes can help diabetics to avoid long-term consequences such as heart attack and stroke. These include the following:

- Maintaining a balanced diet low in fats and oils, low in sweets, and high in fiber
- Eating regular meals and light snacks
- Lowering cholesterol levels
- Maintaining proper weight to avoid obesity - a major risk factor for type 2 diabetes
- Engaging in regular exercise, which lowers blood sugar levels and helps the body to use insulin

What can I do to prevent diabetes or identify it early?

- If you have a family history of diabetes and/or you are overweight, ask your doctor to test your blood sugar levels.
- Lose weight if you are overweight.
- Eat a balanced diet, reduce fat and eat more high-fibre foods and complex carbohydrates.

- If your doctor has prescribed medication (e.g. insulin or an oral tablet) to control your diabetes, take it exactly as directed.
- Monitor your blood sugar at home (ask your doctor or diabetes educator for instructions). Notify your doctor if you cannot keep your blood sugar in control.
- Control your blood sugar well and follow the advice of your doctor.
- Get active! Check with your doctor before changing your level of activity.

What happens if blood sugar levels get too high?

High blood sugar levels result in the following symptoms of diabetes:

- Excessive urination
- Increased thirst or hunger
- Slow-to-heal infections, especially in the feet
- Unexplained weight loss
- Excessive fatigue
- Itching
- Blurred vision
- Nausea and/or abdominal pain
- Acetone-like breath (similar to the smell of nail polish remover)
- Low blood pressure (hypotension)

What is ketoacidosis?

Untreated, the combination of high blood sugar levels and low insulin levels can lead to a potentially fatal condition called ketoacidosis. Ketoacidosis is the result of the body's breaking down fats into substances called ketones, which gradually build up in the bloodstream in the absence of enough insulin. This build-up causes the blood to become increasingly acidic, which could lead to either coma or death. Ketoacidosis is a more common complication in type 1 diabetes, when injury, infection or missing a treatment can provoke symptoms. Individuals with type 2 diabetes may have a buildup of ketones, but usually without the degree of acidosis found in type 1. Symptoms in type 2 are typically due to skipped meals as well as low insulin levels brought on by uncontrolled hyperglycemia (elevated blood sugar levels).

Diabetics need to get immediate medical attention if they experience warning signs of ketoacidosis, which include the following:

- Frequent urination
- Nausea and vomiting
- Extreme thirst
- Slow, deep breathing
- Abdominal pain (especially in children)
- Feeling very tired or weak

What happens if blood sugar levels go too low?

Hypoglycemia is the medical term for low blood sugar levels. Severe cases can lead to fainting and shaking, which is often frightening for both the patient and people around him or her. Other symptoms of hypoglycemia include the following:

- Sweating
- Nervousness
- Hunger
- Dizziness
- Paleness
- Headache
- Numb or tingling lips
- Feeling shaky

In general, people can get mild hypoglycemia if they have not eaten for several hours. However, those with diabetes may experience more severe hypoglycemia in a variety of situations, which include the following:

- Skipping a meal or snack
- Doing unexpected exercise (e.g., running excessively)
- Taking too much medication

Because even slightly high insulin can lead to hypoglycemia, diabetics are advised to carry any of the following with them at all times:

- Hard candies
- Fresh orange
- Fruit juice, especially orange juice
- Regular soda (not diet)
- Sugar packets

Why are young children developing adult-onset diabetes?

Previously seen only in adults, "adult-onset" or Type II diabetes is now being diagnosed in both girls and boys as a result of the dramatic increase in the number of overweight North American youths. According to the American Heart Association, almost five million children between the ages of 6 and 17 are considered obese (more than 20 percent over their ideal body weight), with many more classified as overweight. Obesity in children is rapidly becoming a national crisis in the United States. Experts predict that if children continue to gain weight as they have been since 1964, then about 1 in 3 children are currently at risk of being overweight or are already overweight.

Why is it important for diabetics to exercise?

Exercise, along with dietary management and medications, is one of the three key components of good diabetes management. Like everyone else, people with diabetes are encouraged to exercise for at least 30 minutes, most days of the week. In addition to the overall benefits of staying in shape, there are a number of important reasons why diabetics should exercise regularly, which include the following:

- Reducing the risk of cardiovascular problems
- Increasing levels of HDL ("good") cholesterol and decreasing levels of LDL ("bad") cholesterol
- Improving the body's ability to use insulin (either their own natural insulin, or that taken by mouth/injection). This is also known as decreasing insulin resistance.
- Exercise can reduce blood glucose levels and improve the body's ability to use glucose. With regular exercise, the amount of insulin needed by the body decreases.
- Losing weight to prevent or treat obesity (body mass index [BMI] of 30 or greater), which is directly related to Type 2 diabetes. This is important because almost 90 percent of diabetics are overweight. (BMI of 25 or greater).
- Improving blood flow, which reduces the risk of infection in the lower legs and feet.
- Regular exercise also provides psychological benefits, relieving depression and building self-confidence. It is also a great means to deal with everyday stressors, as it provides a boost of energy and relief from fatigue.

What are some general exercise precautions?

There are some precautions that everyone needs to take when exercising, including the following:

- **Starting slowly and building up to longer/harder workouts**
Start slow and building up to longer/harder workouts. Most health care professionals suggest that individuals should begin exercising gradually, working up to longer or harder workouts. It is important to consult your doctor before starting any exercise program. Trying to do "too much, too fast" can lead to serious health risks, such as heart attack, particularly if an individual has been inactive, has an existing condition, or is overweight. In these cases, it is vital to slowly build the endurance necessary for a longer and more strenuous exercise program.
- **Keeping track of one's heart rate**
Keep track of heart rate. To make the most of aerobic exercise, people need to determine their target heart rate (THR), which is 70 to 80 percent of one's maximum heart rate. The formula for

calculating the maximum heart rate is to subtract one's age from 220. For example, the maximum target heart rate of a 20 year old would be 200, and the person's target heart rate would be 140 to 160. The target heart rate is the rate at which exercise "counts." Exercising at or beyond one's maximum heart rate for too long may not be safe. Typically, 30 minutes of exercise while at the target heart rate is a good workout, but exercises performed below this rate can also be of some benefit.

- **Warming up slowly before exercise and cooling down slowly afterwards**

Regardless of the type of exercise performed, people need to prepare for the workout by gradually increasing their heart rate to their target heart rate (warming up), exercising at the target heart rate for a given period of time (working out) and gradually decreasing the heart rate until it nears the resting rate (cooling down). This places less stress on the heart and muscles. The key to this process is stretching before and after exercise. Before exercise, it is important to do light movements of the whole body that gradually speed up the heart rate. After exercise, the goal is to decrease the heart rate and relax the muscles by doing slow stretches.

Are there special precautions that someone with diabetes needs to take when exercising?

Some special precautions people with diabetes need to consider before exercise include the following:

- Seeing the physician who manages their diabetes before beginning any exercise program
- Knowing when to exercise, and when to avoid exercise
- Testing glucose levels both before and after exercise
- Wearing appropriate shoes and socks
- Having an exercise partner, snacks and medical I.D. on hand

Consult your health care provider before beginning any exercise program.

What guidelines should diabetics use in creating recipes?

In general, diabetics should follow the same Dietary Guidelines suggested by your physician as healthy for all people. Some of these guidelines are as follows:

- Eat a variety of foods.
People are encouraged to eat whole grains (e.g., bread or cereal), lean meats, poultry or fish, low-fat or fat-free dairy products and whole fruits and vegetables every day.
- Reduce the amount of total fat, saturated fat, and cholesterol in one's diet.
Experts advise that the total amount of fat in a heart-healthy diet should be less than 30 to 35 percent of total calories, and the amount of saturated fat should be less than 10 percent of total calories. It is important to note that many "low cholesterol" products are often high in saturated fat. Choosing these high saturated fat products will not be helpful in reducing blood cholesterol levels.
- Diabetics were once told to avoid eating sugar (sweets). However, the latest research has shown that it is more important to eat carbohydrate-consistent, balanced meals.
Modern research suggests that most diabetics can eat sugar in the same, moderate amounts that all people can eat sweets. Diabetics simply need to plan ahead and adjust their overall food intake, as well as their insulin/medication as recommended by their physician to maintain their blood sugars under control. Diabetics are especially encouraged to eat carbohydrate-consistent meals and to avoid overeating. They may be encouraged to snack between meals to maintain consistent blood sugar levels throughout the day. Anyone with diabetes should consult with their physician and diabetes team when designing their daily meal regimen.
- Limit the amount of salt and sodium in one's diet.
Not only are people encouraged to reduce the amount of salt in their recipes, but also they are encouraged to limit their use of products (e.g., canned soup and sauces) that are quite high in sodium. This is especially important for diabetics because their disease is associated with high blood pressure (hypertension).
- If you drink alcohol, do it in moderation.
Diabetics are encouraged to speak with their physician about how much alcohol is appropriate for them. They may be advised to eat food when drinking alcohol, especially if they are taking medication.
- Balance food intake with exercise.
Obesity (body mass index [BMI] of 30 or greater) is strongly linked to type 2 diabetes, and exercise is an important part of treatment for all diabetics who have been cleared by their physician.

HYPERTENSION – High Blood Pressure:

What is blood pressure?

Your blood pressure is a measure of the pressure or force of the blood against the walls of your blood vessels. The pressure is measured in units called mm Hg (a measurement that is short for millimetres of mercury).

Since the pressure changes when the heart contracts and relaxes, blood pressure is expressed as two numbers:

- The systolic pressure represents the pressure when the heart contracts and forces blood into the blood vessels. This is the higher of the two numbers and is usually expressed first (e.g. a blood pressure of 120/70 means the systolic pressure is 120 mm Hg).
- The diastolic pressure represents the pressure when the heart is relaxed. This is the lower of the two numbers and is usually expressed second (e.g. a blood pressure of 120/70 means the diastolic pressure is 70 mm Hg).

Blood pressure varies considerably throughout the day. It is usually lower while you are at rest, and higher when you are active. Even lying down or standing up can change your blood pressure. Other things, such as your emotions, pregnancy, smoking, the general environment, and medication can change your blood pressure.

An acceptable blood pressure is less than 140 mm Hg for the systolic reading and less than 90 mm Hg for the diastolic reading. For people with diabetes or kidney disease, an acceptable blood pressure is less than 130 mm Hg for the systolic reading and less than 80 mm Hg for the diastolic reading. A single or occasional blood pressure reading greater than 140/90 mm Hg (or 130/80 mm Hg for people with diabetes or kidney disease) does not necessarily mean you have high blood pressure. If your blood pressure is high when it is measured, you will likely be told to have your blood pressure taken again at a later date. Your doctor will not make a diagnosis based on one high reading alone. By keeping a record of your blood pressure on an ongoing basis, you and your doctor can decide whether or not your blood pressure is in the normal range.

How is blood pressure measured?

Blood pressure is usually measured using a blood pressure cuff (a *sphygmomanometer*). You should sit quietly for at least 5 minutes before your blood pressure is taken. There is no need to prepare for having your blood pressure taken. To make your blood pressure reading as accurate as possible, try to avoid eating, smoking, drinking tea or coffee or doing heavy physical exercise for at least half an hour before it is taken. Let the person taking the blood pressure know if you are feeling ill, stressed, anxious or rushed at the time of your appointment. If you take medication for your blood pressure, use a nicotine patch or nicotine gum, or are taking any over-the-counter medications such as cough or cold pills, tell your health professional.

How often should I have my blood pressure checked?

It is recommended that all Canadians over the age of 20 have their blood pressure checked regularly, at the minimum every 2 years or as frequently as recommended by their physician. If your blood pressure is higher than normal, you will probably need to have your blood pressure checked more frequently. Your doctor will tell you how frequently you should have your blood pressure checked.

How good are public blood pressure machines?

Many public places such as drug stores now have blood pressure measurement machines. Many of these machines are calibrated regularly and should be accurate. However, there are a few points you should remember when using these machines:

- Such machines should not be used as a substitute for having your blood pressure checked regularly by a health professional.

- These machines cannot tell you what your blood pressure means or what you should do next. For this, you will need to talk to your doctor.
- "One size fits all" machines may not work well for children or people with arms that are either smaller or larger than normal.
- To get an accurate reading, you have to:
 - Sit quietly for at least 5 minutes before taking your blood pressure.
 - Avoid eating, smoking, doing heavy physical exercise or drinking tea or coffee for at least half an hour before taking your blood pressure.

What about personal blood pressure monitors?

Today, many forms of personal or home blood pressure monitors are for sale. Each type of home unit has its advantages and disadvantages. If you are considering a home blood pressure monitor, talk with your health professional about which type of unit may be right for you and how to use it.

Blood pressure self-measurement may be appropriate for people who:

- Want to play a greater role in monitoring their high blood pressure
- Suspect their blood pressure is high only in the doctor's office or clinic
- Are encouraged to do so by their health professional.

There are three main types of home monitoring blood pressure units:

1. Mercury sphygmomanometer
2. Aneroid equipment
3. Automatic equipment

Children and adults with smaller or larger-than-average-sized arms may need special-sized cuffs. Such cuffs may be available in some pharmacies or medical supply companies.

Tips on choosing and using a personal blood pressure monitor

- Talk with your health care professional about the kind of equipment you should use.
- Choose a unit that has been tested to meet the validation requirements of either the Association for the Advancement of Medical Instrumentation (AAMI), the British Hypertension Society (BHS) or the European Society of Hypertension (ESH). Your doctor, pharmacist or the product manufacturer can help you find this information.
- Read the instructions that come with the unit.
- Once you've made a purchase, take the unit to your health care professional to determine if your device provides the same reading as the doctor's office equipment.
- Ask your health care professional to help you learn how to use your unit and what you should do if your reading is abnormally high or low.
- Remember that home blood pressure measurement is not a substitute for periodic evaluation of your blood pressure by your doctor or other health professional.

What is a 24-Hour Ambulatory Blood Pressure Monitor?

An automated 24-hour blood pressure monitor records multiple blood pressure readings throughout an entire day, while you are involved in normal activities. 24-hour ambulatory blood pressure monitoring is often used to

diagnose so-called "white coat hypertension." (White coat hypertension is used to describe a person who has high blood pressure readings at the doctor's office, but does not have high blood pressure most other times.) If the 24-hour monitor shows that your blood pressure is usually within a normal range, the doctor will often recommend against starting medications to lower blood pressure.

What is high blood pressure?

In adults, high blood pressure or *hypertension* is usually defined as a blood pressure that is consistently greater than or equal to 140 mm Hg systolic pressure, or greater than or equal to 90 mm Hg diastolic pressure. However, if you have several risk factors for heart disease and stroke or other problems related to high blood pressure (such as diabetes or kidney disease), your doctor may decide to treat your blood pressure even if it is not as high as 140/90. If you have diabetes or kidney disease, high blood pressure is defined as blood pressure that is consistently greater than or equal to 130 mm Hg systolic pressure, or greater than or equal to 80 mm Hg diastolic pressure.

In the majority of cases it is called "**primary**" or "**essential**" hypertension. This refers to the fact that the exact mechanism that caused the high blood pressure is not known. However, we do know that there are many risk factors that increase the chances of developing essential hypertension

In about 10% of the people with high blood pressure, the problem is caused by an identifiable, underlying medical problems, such as kidney disease, hormonal disorders or other diseases or certain drugs, or if you have had a stroke or heart attack already. If the problem can be corrected, the blood pressure can usually return to normal. This type of high blood pressure is called "**secondary hypertension**".

High blood pressure is often referred to as the silent killer because there are usually no symptoms. High blood pressure can double or even triple your risk of stroke, heart disease and kidney disease. The only way to find out if you have high blood pressure is to get your blood pressure checked by your doctor or other qualified health professional. Know your blood pressure and discuss with your doctor how often you should have it checked.

What are the risk factors for high blood pressure (primary or essential hypertension)?

- **Age:** Blood pressure tends to rise with age. About half of people over the age of 65 have high blood pressure.
- **Ethnicity:** The incidence of high blood pressure is higher among members of some ethnic groups, such as South Asians, First Nations, Aboriginal Peoples or Inuit, and Black Canadians.
- **Family History:** If one of your parents has high blood pressure, you have a 1 in 5 chance of developing the condition. If both of your parents have high blood pressure, your risk is 1 in 3
- **Obesity:** Excessive weight is a risk factor - especially if weight is stored around the abdomen.
- **Diabetes:** People with diabetes are at increased risk for high blood pressure.
- **Stress:** Repeated stress may raise BP levels or contribute to unhealthy lifestyle choices.
- **Excessive alcohol consumption:** Alcohol increases blood pressure.
- **Cigarette Smoking:** Smoking may cause high blood pressure in certain individuals.

High blood pressure in women:

Oral Contraceptives: For reasons that are not yet clear, a small percentage of women who take birth control pills develop high blood pressure. It is very important that your blood pressure is checked before you go on "the pill" and regularly as long as you continue this medication.

Women who have a history of stroke, blood clots, heart attack, liver disease, breast cancer, high blood pressure, or who might be pregnant, should not take oral contraceptives. Cigarette smoking while taking the pill significantly increases the risk of complications such as blood clots.

Pregnancy: High blood pressure can occur during pregnancy, especially during the last three months. Women who are at increased risk for high blood pressure in pregnancy include:

- Teenagers and women over age 35
- African- or Black Canadians
- Women experiencing their first pregnancy
- Women with a history of high blood pressure, diabetes, kidney disease or heart problems
- Women whose mothers had a high blood pressure disorder in pregnancy.

High blood pressure in children:

The normal blood pressure for a child varies according to his/her age and size. Special standards have been set to determine what constitute normal blood pressure for children. The American Academy of Pediatrics recommends that children's blood pressure should be checked annually starting at the age of 3 years.

The risk of developing high blood pressure increases with age, and many more adults than children have high blood pressure. In children, high blood pressure tends to be associated with other diseases or medical problems, such as kidney disease, some heart problems or endocrine (hormone) disorders. However, a small proportion of children have "essential" hypertension – high blood pressure that is not due to a single, medical problem.

A number of factors can increase a child's risk of essential or primary high blood pressure. They are:

- A strong family history of high blood pressure
- Being overweight
- Kidney, heart or hormonal diseases or disorders

It is important that high blood pressure in children be treated. Untreated high blood pressure may lead to heart disease, strokes, kidney failure or damage to the eyes.

Why should high blood pressure be treated?

High blood pressure can double or even triple your risk of heart disease and stroke and increases the risk of kidney disease. If you have high blood pressure, you must take steps to control it. Controlling your blood pressure can:

- Reduce your risk of stroke by at least 40%
- Reduce your risk of heart attack by at least 10%

How is high blood pressure treated?

A number of lifestyle changes can help to reduce your blood pressure. Your physician may also prescribe blood-pressure-lowering medications. In people with secondary hypertension (high blood pressure due to another disease), treating the underlying problem may also be required to lower the blood pressure.

Lifestyle changes to reduce blood pressure

- Stop smoking!
- Maintain a healthy body weight.
- Eat a healthy, balanced, reduced-fat diet.
- Reduce the amount of salt in your diet.

- Participate in regular physical activity.
- Limit alcohol intake to no more than two drinks/day
- Take time to relax.

What about medications to treat high blood pressure?

If your doctor prescribes medication for your high blood pressure, it is very important to take it regularly, in the amount prescribed by your doctor. Take your medicine at approximately the same time every day. Never increase your dose yourself, skip taking your medication, or "double up" your dosage if you miss a few days or don't feel well. Because high blood pressure is silent, how you feel is not a good indication of whether or not you "need" your medication. Do not stop taking your blood pressure medication once your blood pressure becomes normal. You must continue to take your medication, as your doctor has prescribed, to keep your blood pressure under control.

What are the different types of blood pressure medications?

Diuretics

Diuretics are a family of drugs commonly referred to as "water pills" that increase the kidneys' excretion of sodium or salt, which in turn reduces the volume of blood and helps to lower blood pressure.

Beta Blockers

Beta Blockers are a family of drugs that slow down the rate of the heart, the pumping force of the heart and the amount of blood pumped by the heart per minute. These actions help to lower blood pressure.

Calcium Channel Blockers

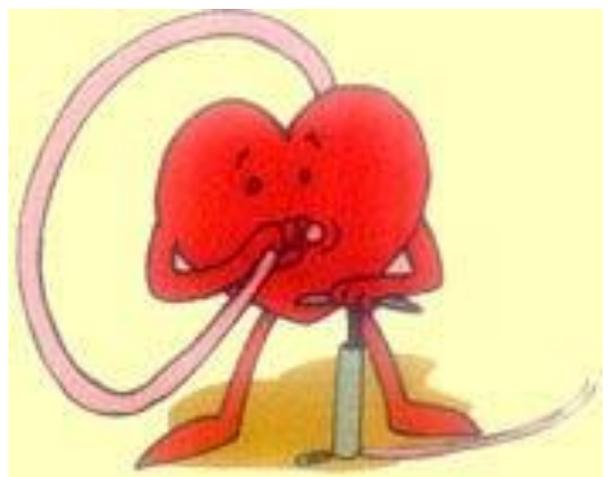
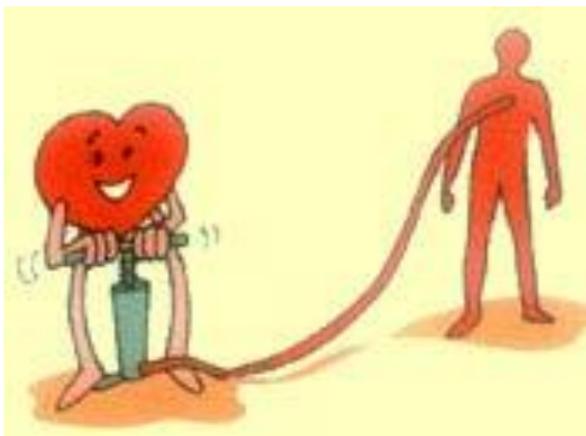
Calcium Channel Blockers are a family of drugs that block the passage of calcium into muscles that control the size of blood vessels. This action dilates or opens up the blood vessels and thus, helps to lower blood pressure.

ACE Inhibitors

ACE inhibitors are a family of drugs that relax blood vessels by reducing the production of an enzyme required to produce a chemical (angiotensin II) that causes blood vessels to narrow, constrict or tighten. This action allows blood to flow more easily through the body and thus, helps to lower blood pressure.

Other Blood Pressure Lowering Medications

Other classes of drugs include angiotensin-II-receptor antagonists (angiotensin receptor blockers or ARBs), sympathetic nerve blockers and centrally acting antihypertensives.



OBESITY:



What is a “healthy” weight?

Using the relationship between weight and height, Health Canada has established a range of healthy weights for Canadian adults, ages 20 to 65. It has also identified the weight ranges that put people at risk of health problems.

The BMI estimates the total body mass of an individual rather than the mass of fat carried by that individual, but research has shown that for most people, body fat and body mass tend to be closely related.

How can BMI be used to determine obesity?

The World Health Organization (WHO) has standardized the definition of obesity according to a measurement called the body mass index (BMI). This internationally recognized index uses an individual's body weight (in kilograms) and height (in meters) to determine his or her risk of obesity.

$$\text{BMI} = [\text{weight (in kilograms)} \div \text{height (meters)}^2]$$

After calculating one's BMI, the result can be compared to the WHO standard classification for obesity. Since muscle weighs more than fat, the BMI calculator may have limitations with regard to athletic, muscular individuals. And in some cases, other tests may be required to determine if a person's weight has a negative effect on his or her health.

BMI (kg/m²)	Classification	Disease Risk*
<18.5	Underweight	Low
18.5 - 24.9	Normal	Low
25.0 - 29.9	Overweight	Increased
30.0 - 34.9	Obesity I	High
35.0 - 39.9	Obesity II	Very high
>40	Extreme Obesity III	Extremely high

What is obesity?

Obesity is defined as a condition in which people have a body mass index of 30 or greater. The prevalence of obesity in the United States has more than doubled between the years 1960 and 2000, with the greatest increase from 1980 forward. Currently, more than one-third of Americans are obese. Obesity to be a major risk factor for a host of serious health conditions, which include the following:

- Cardiovascular disease (e.g., high blood pressure and coronary artery disease), increasing the risk of heart attack
- Cerebrovascular disease (e.g., carotid artery disease), increasing the risk of stroke
- Type 2 diabetes
- Respiratory problems
- Certain forms of cancer (e.g., colon, kidney, breast, uterine)

As a major risk factor, obesity is the second leading cause of preventable death, surpassed only by smoking. Fortunately, for most people, weight gain can be prevented or controlled by adequate diet and exercise. Ideally, good habits begin in childhood, because studies have shown that overweight children are likely to carry this condition into adulthood.

Generally, obesity develops when the amount of energy units (calories) consumed through food is greater than the energy spent through metabolism and physical activity. Excess calories are stored in the body as fat; if too much body fat builds up, weight gain is inevitable. People also tend to gain more weight if they are older and/or have a low metabolic rate. Other factors (e.g., genetic, socioeconomic, psychological and medical) are also involved, but the relationship among these factors and the extent to which each contributes to obesity is less understood.

Why is preventing obesity important?

People who are overweight or obese are at risk of developing high blood pressure, high blood lipids and diabetes - all of which put them at high risk of cardiovascular or heart disease. Working to reach and maintain a healthy weight is a good way to prevent heart disease.

How does obesity increase the risk of heart disease?

There are two basic ways in which obesity increases the risk of heart disease.

First, it can indirectly contribute to heart disease by causing changes in the body that increase the risk of heart disease. These changes include the following:

- Raising levels of LDL
- Raising levels of triglycerides
- Reducing levels of HDL
- Elevating blood pressure.
- Increasing the risk of Type II diabetes

The second way in which obesity increases the risk of heart disease is by causing unhealthy changes in the heart itself. The left ventricle (the lower-left chamber of the heart) is responsible for pumping oxygen-rich blood from the heart, out the aorta and to the rest of the body. As the heart struggles to compensate for the extra body mass through which it must circulate blood, the left ventricle can become enlarged. This could develop into a potentially fatal condition called left ventricular hypertrophy. Furthermore, obesity can lead to thicker walls within the left ventricle, which can eventually limit the heart's ability to contract properly. Over time, this could lead to heart failure - a condition in which the heart is no longer able to pump enough blood to meet the body's demand.

Fortunately, research has showed that both the direct and indirect effects of obesity on heart disease are minimized or eliminated altogether if people achieve and maintain a healthy weight.

What can be done to treat obesity?

If you are more than 30 pounds (13.5 kg) overweight you are at higher risk of heart disease and stroke. Shape is also an important factor. Excess weight around your middle (waist, abdomen and upper body) puts you at even greater risk than if you are generally overweight. Your risk can be determined by your waist-to-hip ratio (WHR). Losing excess weight can help control other risk factors such as high blood pressure, high cholesterol and diabetes.

Most cases of obesity can be prevented or treated through strategies such as the following:

- Reducing fat intake.
- Choosing a more active lifestyle.
- Avoiding smoking and alcohol use.
- Counseling.
- Medication.

If a healthy diet, exercise, stress management and counseling are ineffective, then medications may be prescribed. Drugs used to treat obesity usually affect levels of certain hormones (e.g., serotonin and noradrenaline) in areas of the brain associated with food intake and satisfaction. This temporarily decreases the urge to eat and, with appropriate diet and exercise, supports weight loss efforts. There are some drawbacks, however. These drugs can produce serious side effects, such as high blood pressure in the blood vessels of the lungs (pulmonary hypertension) and valvular heart disease. These medications should only be used by patients whose treatments are closely monitored by a qualified physician.

- Surgical intervention.

In select cases, surgery may be the treatment of choice for people with clinically severe obesity who have not been helped by other medical therapies. One common surgical technique is gastric stapling (the "tummy tuck"), which uses bands or staples to decrease the amount of space in the stomach available for food. Another type of surgery is the gastric bypass, in which part of the small intestine is bypassed as food passes out of the stomach. The gastric bypass involves significant changes in how food and drink can be taken in, and people are encouraged to learn all about the surgery before having it done. For all surgical candidates, an integrated medical program must be in place to provide guidance on diet, physical activity and support before and after the surgery.

Other helpful tips (General):

- Lose weight slowly. Make it a long-term commitment.
- Eat healthy foods: more fruit and vegetables, more complex carbohydrates (pasta, rice), more fibre (whole grain breads and cereals).
- Reduce fat in your diet.
- Use less fat in cooking. Bake, broil, steam, boil, microwave or barbeque your foods. Try some delicious, low-fat recipes from one of the Heart and Stroke Foundation cookbooks
- Drink lots of water.
- Don't go grocery shopping on an empty stomach.
- Eat only when hungry.
- Decrease portion size. Divide your dinner plate into four sections. Fill 3/4 with grains and vegetables; limit meat or meat alternatives to the remaining quarter.
- Get some regular physical activity. Choose an activity that fits into your day - such as a walk at lunchtime.
- If overeating is your way of coping with stress, identify the source of your stress and learn new ways to cope
- Choose healthy snacks like fruit or plain popcorn rather than chips and chocolate bars

Is obesity genetic?

The role of genetics is one of the most controversial aspects of the obesity debate. It is believed that heredity plays a strong role in the development of obesity. Studies of adopted children and twins have independently concluded that weight among siblings and parents are often very similar. In one study, adults adopted as children have body types that are more similar to those of their biological parents than those of their adoptive parents.

These results, which seem to show a relationship, or correlation, between genetics and obesity have led researchers within the last several years to investigate whether a genetic origin can be positively established. If so, it may be possible to use such scientific knowledge to make genetically engineered drug therapies that impact hormones such as the following:

- Leptin - A hormone that regulates appetite.
- Melanocyte-Stimulating Hormone (MSH)

What about different diets/supplements?

The good news is that many steps can be taken on one's own to achieve weight loss. This includes, for example, reducing portions or changing the types of foods eaten. However, individuals should be wary of "fad" diets and "miracle cures." Experts recommend a gradual and systematic program of weight loss, with a typical goal of losing 10 percent of weight within a six-month period. For example, a woman weighing 170 pounds would strive to lose 17 pounds in the next six months.

People should also be wary of "wonder supplements." Many diet pills have been associated with serious health risks, and people are urged to consult with their physician before taking them. Most of these drugs contain caffeine-like stimulants that can do serious harm to the cardiovascular system, such as elevating blood pressure and causing abnormal heart rhythms (arrhythmias). Unfortunately, there is presently no cure or even remedy for obesity in a pill. Weight loss requires a serious commitment to a well-structured program of healthy diet and regular exercise.

Studies continue to show that structured, disciplined weight-loss programs of diet, exercise, support and other strategies successfully help people to slowly lose weight and keep the weight off for five years.

What about commercial weight loss programs?

The Heart and Stroke Foundation does not endorse any commercial weight loss program. Effective weight loss programs should include:

- Appropriate health risk screening;
- Personalized weight loss program;
- Medical supervision;
- Counseling by qualified health professionals;
- Assistance in establishing lifelong healthy food habits;
- Increased physical activity.

What about obesity in children?

Overweight children do not always become overweight adults, but children who are obese over a long period of time and those who become obese in later childhood and adolescence are more likely to constantly struggle to control their weight and to grow up to be obese adults.

Research indicates that more Canadian children are overweight and obese than in the past. In 1981, about 14% of girls and 18% of boys were obese. By 1991, 24% of girls and 26% of boys were considered overweight or obese.

The weight gain in children is due primarily to lack of physical activity, rather than poor eating habits. To reverse that trend, children should become more active and eat properly. Active, healthy children have a better chance of becoming active, healthy adults.

How to help/prevent my child from getting overweight?

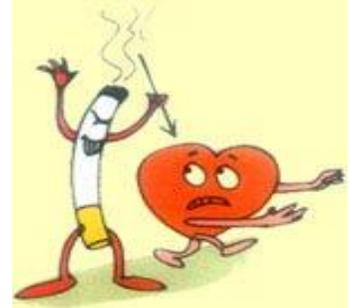
- Encourage your children to get moving – set an example for them
- Limit the amount of television they can watch and the time they can spend playing video and computer games.
- Organize family outings, such as hiking, biking, swimming and skiing.
- Encourage your children to participate in any sports they enjoy.
- Encourage your children to develop healthy eating habits and enjoy healthy foods.



SMOKING

What are the long-term risks of smoking?

- Hardening of the arteries leading to premature risk of heart disease and stroke;
- Frequent colds, smoker's cough, chronic bronchitis;
- Gastric ulcers;
- Increase in heart rate and blood pressure;
- Premature and more abundant face wrinkles;
- Emphysema, heart disease, stroke;
- Cancers – head and neck, esophagus, lungs, pancreas, cervix, uterus and bladder
- Diminished or extinguished sense of smell and taste.
- Increased risk of impotence



Just the facts - smoking statistics

Smoking is a dangerous health hazard for anyone. It is the single most important cause of preventable illness and premature death for Canadians.

Heart disease rates are 70% higher for smokers than non-smokers.

- Tobacco use among Canada's youth has increased at an alarming rate in recent years. In 1991, 20% of Canadians aged 15-19 smoked, now that number has increased to 28% of boys and 30% of girls.
- Smoking will account for more than 50% of deaths before the age of 70 among current 15 year old smokers.
- Over 90% of teenagers who smoke as few as 3-4 cigarettes a day are trapped into a career of regular smoking which typically lasts some 30-40 years.
- Canadians under the age of 19 consume about 1.7 billion cigarettes yearly.
- Among children as young as 6-12 years, 7% have already tried cigarettes.
- 26% of young women who smoke began smoking before the age of 13! 83% before age 16, and almost all before age 18.
- If you start to smoke at age 13, and smoke an average pack-a-day, by age 30 you will have spent \$20,000-\$25,000 on cigarettes!!! Think about how much you would have if you invested that money instead!!

Tobacco and sports

- Smoking causes your lungs to work harder.
- Smokers get short of breath when doing sports.
- Smoking causes less oxygen to be available for your working muscles.
- Smokers have less strength and endurance.
- Smoking lowers the amount of oxygen in the blood. This means less oxygen for important organs in the body like the heart and brain.

- Smoking causes the heart to beat faster and pump less blood with each beat.
- Smoking causes blood pressure to rise.
- Non-smokers do better than smokers in the one-mile run and other fitness tests.
- Most professional athletes do not smoke.

How does smoking affect your heart?

To understand how smoking affects your heart, you need to know what your heart does. The job of your heart is to pump blood through the blood vessels to all parts of your body. To do this, your blood vessels need to be open and flexible. As blood travels around your body, it delivers oxygen and nutrients, which you need for energy, and it picks up waste products, such as carbon dioxide, which must be removed. Without a good supply of oxygen and nutrients, and without a good waste disposal system, you simply cannot have good health.

Research by the Heart and Stroke Foundation has proved that smoking dramatically increases your risk of heart disease and stroke. Nicotine, carbon monoxide and tar are just three of many harmful chemicals in cigarettes.

Other toxins associated with smoking:

Carbon monoxide

- Is the same odorless gas that is found in car exhaust.
- Reduces the amount of oxygen in the blood going to your heart. As a result, the heart has to work harder to get enough oxygen to the body. The heart, like all muscles, needs oxygen to do its work.

Nicotine

- Makes the heart beat faster, so it has to work harder.
- Causes blood vessels to narrow. This increases blood pressure and makes the heart work harder to push blood through the arteries.
- Increases the buildup of plaque deposits along the inside walls of the arteries or blood vessels. This also increases blood pressure, makes the heart work harder, and can lead to blood clots.

Tar

- Damages delicate lung tissue by forming brown, sticky deposits that can cause cancer and many other diseases.

Is there any "safe" tobacco product?

The bottom line is that no cigarettes are safe. Low tar and low nicotine cigarettes may be even more harmful because smokers inhale more deeply and smoke more cigarettes to get the amount of nicotine they want. Smoking is the largest preventative cause of heart disease, stroke, lung cancer, chronic lung disease, chronic bronchitis, emphysema and a major cause of mouth and throat cancer.

The evidence is clear. If you smoke the odds are higher that you will end up with heart disease, stroke or cancer.

CEREBROVASCULAR ACCIDENT (CVA) – Stroke:

What is a stroke or “brain attack”?

Also known as a cerebrovascular accident (CVA), a stroke is a life-threatening event in which part of the brain is not getting enough oxygen. It may be due to either a prolonged lack of oxygen-rich blood to the brain (cerebral ischemia) or bleeding into or around the brain (cerebral hemorrhage). Medical personnel treating a stroke are challenged to treat the patient as quickly as possible to avoid permanent tissue damage or death. They must maintain the patient's breathing, reduce fever (if present), run tests to determine the cause of the stroke, administer appropriate medications and perform any necessary procedures while racing against the clock to re-establish blood flow to the brain.

Stroke is the third leading cause of death in the United States, behind heart disease and cancer. Each year, about 700,000 people suffer a stroke and around 200,000 of these are recurrent strokes.

People who survive a stroke should begin stroke rehabilitation as soon as possible to regain as many lost functions (e.g., lack of coordination or strength) as possible. Most recovery occurs during the first few months following a stroke. However, new intensive rehabilitation techniques are offering new hope for recovery even a year or so following a debilitating stroke.

What are the different types of stroke?

There are two different types of strokes:

1. **Ischemic.** About 88 percent of strokes are ischemic (caused by a severe episode of cerebral ischemia). The brain does not get enough oxygen-rich blood, usually due to a blood clot that is blocking an artery leading to the brain. The blood clot may have formed in an artery (a thrombus), often narrowed by "hardening of the arteries" (atherosclerosis), causing a thrombotic stroke. Alternatively, a blood clot may have lodged in the artery after traveling through the bloodstream from another part of the body (an embolism), which would be termed embolic stroke. Embolic strokes are a complication of blood pooling in the upper chambers of the heart (atria) in people who have abnormal heart rhythms (arrhythmias) such as atrial fibrillation. The risk of stroke from atrial fibrillation can be reduced by taking anticoagulants. In addition, blood clots may originate from the lower-left chamber of the heart (left ventricle), particularly in patients with weakened heart muscle. When blood returns to the affected area of the brain (reperfusion), further damage can occur. Returning blood carries white blood cells that can block smaller blood vessels and release toxins harmful to brain cells.
2. **Hemorrhagic.** A hemorrhagic stroke is caused by excessive bleeding (hemorrhaging) within or around the brain. Bleeding within the brain is known as a cerebral hemorrhage, which is often a complication of high blood pressure. Bleeding around the brain is known as a subarachnoid hemorrhage, which could be caused by a ruptured cerebral aneurysm, a head injury or other causes. About 12 percent of strokes are hemorrhagic. Of the two forms of stroke, a hemorrhagic stroke poses the more immediate danger. However, like heart-related problems, ischemic stroke has a number of risk factors that can be controlled. If an individual is already taking preventive measures against heart diseases like atherosclerosis and coronary artery disease, the risk of stroke may be reduced as well.

The carotid arteries are two of the major blood vessels carrying blood to the brain. Like other arteries in the circulatory system, these vessels are susceptible to hardening and narrowing as a result of built-up plaque, leading to atherosclerosis. People whose arteries have narrowed from atherosclerosis are at increased risk of an ischemic stroke for two reasons. First, a blood clot or piece of fatty plaque may break off and travel from the carotid artery to the brain. Second, a small blood clot could form within the narrowed artery, obstructing blood from flowing through it.

The risk of stroke increases with age, but young people could have a stroke from cocaine use, high blood pressure, a brain injury, carotid artery dissection or other causes. Men are more likely to suffer a stroke, but women are more likely to die from one. Men are more likely than women to suffer a second stroke.

Studies have shown that individuals with markers for inflammation of the carotid arteries are at greater risk of stroke than those without inflammation, as measured by the amount of C-reactive protein present (as

determined by a C-reactive protein test). This protein is associated with inflammation and is considered to be a marker for the risk of stroke.

What are the risk factors associated with a stroke?

- Advanced age. The incidence of stroke almost doubles above the age of 74 in both men and women. The odds of having a stroke before the age of 70 for both men and women is one in 20.
- High blood pressure (hypertension).
- Atrial fibrillation (associated with 15 percent of strokes).
- Diabetes.
- Smoking habit. Smoking increases the risk by up to three times that of nonsmokers.
- Family history of stroke.
- Low levels of HDL ("good") cholesterol.
- Obesity (more than 20 percent over one's ideal weight, or body mass index 30 or greater).
- Lack of exercise.
- Carotid artery dissection. A tear in the inner lining of the carotid artery, creating a space between the inner and outer layers that could cause a stroke if blood leaks into it.
- Excessive use of alcohol.
- Drug abuse (e.g., cocaine)
- People also face a higher risk of stroke during surgeries or catheter-based procedures, which has a higher risk of blood clot formation.

Other possible contributors to stroke risk include:

- Sleep apnea. A condition in which a person's breathing stops and starts many times during sleep.
- Atrial flutter. A type of atrial tachycardia, which is an unusually fast heart rhythm that originates in the upper chambers of the heart (atria).
- Depression. Although the exact mechanism is not clearly understood, studies continue to show an association between chronic depressive symptoms and increased risk of stroke.

What are the symptoms of a stroke?

Just as some people experience silent heart attacks with no symptoms, people may experience a silent stroke. In fact, about one-third of elderly people may have had a silent stroke, which often damages their cognitive abilities. A silent stroke is a stroke in which brain damage occurs, but the person does not show any obvious symptoms (see below).

Studies have shown that people who experience silent strokes have twice the risk of developing dementia. In addition to the elderly, other people at higher risk of a silent stroke are those who smoke and those with diabetes and high blood pressure.

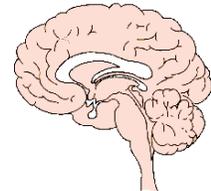
Symptoms that do appear can vary according to which type of stroke is present. For example, the symptoms of an embolic stroke tend to hit suddenly, whereas the symptoms of a thrombotic stroke develop more gradually. The symptoms of both of these types of ischemic strokes may include one or more of the following:

- Blindness in one eye or hearing problems in one ear
- Confusion

- Dizziness or loss of balance/coordination
- Nausea and/or vomiting
- Numbness or weakness on one side of the body - the side opposite from where the stroke has occurred
- Seizures
- Severe (and blinding) headache similar to a migraine
- Trouble speaking or understanding speech

A cerebral hemorrhagic stroke tends to produce symptoms that hit suddenly and then continue to worsen. These symptoms include the following:

- Confusion
- Nausea and/or vomiting
- Severe headache



A subarachnoid hemorrhagic stroke tends to produce similar signs as a cerebral hemorrhage, with the following additional signs:

- Pain upon looking at or into a light
- Painful or stiff neck

If a stroke continues to progress, then coma and/or death could follow. If the symptoms of ischemia are only temporary, then the condition is known as a "mini-stroke" or transient ischemic attack (TIA). A TIA is the result of a brief interruption in the blood flow to the brain. It does not cause permanent damage. However, 40 percent of those who have had a mini-stroke are likely to have a major stroke at some point in the future. Therefore, people should seek emergency medical treatment immediately if they experience any symptoms of a stroke, regardless of the degree or duration of the symptoms.

If a stroke or TIA is suspected, you should NOT take aspirin. Aspirin could make a stroke worse. If you're in doubt about whether you are experiencing a stroke, call your doctor or go to the emergency room. You should not attempt to drive yourself or walk to the emergency room. If no one is available to transport you, call 9-1-1.

How is a stroke diagnosed?

When a patient shows symptoms of a stroke, the physician will promptly evaluate the patient's medical history and quickly run tests such as a computed tomography (CT) scan. The CT scan can help the physician determine whether the patient is having a cerebral hemorrhage or cerebral ischemia. This information determines the course of emergency treatment. The CT scan may also help the physician locate the exact position of the damage.

Once the patient is stabilized, the complete evaluation of a patient who has had a stroke can take the physician several days. Tests that may be run during this time include the following:

- Physical examination, during which the carotid artery will be examined with a stethoscope. If the physician hears an abnormal sound (a carotid bruit), there is a higher chance of finding atherosclerosis or carotid artery disease - conditions that increase the risk of stroke.
- A carotid ultrasound is a painless strategy for assessing the presence of plaque in the carotid artery. It uses high-frequency sound waves.
- Magnetic resonance angiography (MRA) is another noninvasive diagnostic test used to assess the degree of blockage in the carotid arteries. The MRA is a variation of the magnetic resonance imaging (MRI) scan, which is also very important in diagnosing a stroke.

- An electrocardiogram (EKG) will be done to identify any cardiac problems that may have led to the stroke, such as a prior heart attack. Patients who have had a heart attack in the past are at increased risk of blood clots forming in the left ventricle, which if pumped through the aorta and up to the carotid artery, could trigger a stroke. Patients are also at increased risk of developing a stroke if arrhythmias such as atrial fibrillation are present. Tests may also be done to assess overall brain functions, as measured by electrical activity. These tests can reveal how much neurological damage was done as a result of the stroke. Among the most common of these tests are:
- Electroencephalogram (EEG). During this painless test, small metal devices (electrodes) are attached to the scalp. The electrodes are connected by wires (leads) to an electroencephalograph machine that charts the electrical activity of the brain.
- Evoked-potential study. The brain's response to sight, hearing and touch are tested and measured.

How is a stroke treated?

People having symptoms of a stroke should call 9-1-1 immediately. Upon arriving at the hospital, the hospital staff will use strategies as determined by information from an emergency CAT scan. These strategies include the following:

- Maintaining breathing in patients who may be losing consciousness. This is done through the use of breathing equipment and/or supplemental oxygen.
- Reducing fever (if present) with medications.
- Performing a CAT scan to determine whether someone is suffering from an ischemic stroke or a hemorrhagic stroke. If it is an ischemic stroke, then thrombolytic medications may be given intravenously to dissolve the obstructing blood clots. However, giving thrombolytic medications to a patient having a hemorrhagic stroke would worsen the existing bleeding in the brain and should be avoided.
- Special attention may be given to maintaining nutritional needs intravenously or through the mouth and preventing pneumonia, a common complication after a stroke. People who survive a stroke will often need to undergo treatment (e.g., stroke rehabilitation) to deal with some of the long-term effects of the event. The goal of the treatment is to minimize as much neurological damage as possible, such as impaired movement or speech. The sooner that treatment is begun, the more likely it is that patients will regain significant functions. Individuals may also experience depression, which may be related to the temporary or permanent loss of basic functions. If this should occur, patients are urged to seek the help of a qualified counselor for support and treatment.

What potential stroke treatments are being researched?

Scientists are continuously exploring new methods of treating strokes and preventing recurrent strokes. Currently, research is ongoing in several areas, including:

- Antibiotics. Studies have found that atherosclerotic plaque can harbor bacteria, which, in turn, may increase the tendency for plaque rupture. Researchers are investigating whether antibiotics (specifically, penicillin) can exert any effects against such bacteria, thereby increasing the plaque's stability and reducing the risk of it breaking off and causing a stroke.
- Mechanical thrombolysis. These are devices that use catheter-delivered tools to break up or remove blood clots. Currently, clot-busting drugs are currently the only method available to break up an existing blood clot in the brain. However, they can take up to an hour to be effective. Devices currently being tested use lasers, sound waves, suction, spinning blades or snares to remove clots.
- Neuroprotective agents. Neuroprotective agents represent another avenue of stroke treatment. These agents attempt to rescue brain cells from injury caused by an ischemic stroke. Some agents attempt to increase the flow of blood to the region of brain experiencing stroke. Other agents may prevent damage caused by blood returning to the affected area of the brain.

- Stem cell transplants. Stem cells are basic cells that have the ability to develop into many different types of cells. They start out very similar to each other, but depending on where they develop, the cells become highly specialized to their individual functions. Researchers are investigating a variety of methods in which stem cell transplants could be used as a treatment for stroke damage and other conditions involving damaged brain cells.
- Hypothermia. Researchers are currently studying whether lowering a patient's body temperature can decrease the amount of damage that occurs during a severe stroke.
- Cholesterol-lowering drugs. Recent studies indicate that statins may decrease a patient's stroke risk.

More investigation is needed to determine the safety and effectiveness of these potential treatments, and to determine the best method of administering these treatments to patients.

What happens after a stroke?

Up to 30 percent of stroke survivors face permanent disability, making it a leading cause of long-term disability. Between 50 and 70 percent of stroke survivors recover to the point that they are able to remain independent. Three months after a stroke, about 20 percent of patients require institutional care and 15 to 30 percent of stroke survivors become permanently disabled. About 22 percent of men and 25 percent of women who have suffered a stroke will die within a year and 14 percent of people who have had a stroke or TIA (mini-stroke) will suffer a recurrence within a year.

In general, a more severe stroke will require more time in post-stroke rehabilitation to bring back as much of the patient's functioning as possible. Changes in functioning that may be addressed in rehabilitation include the following:

- Confusion or dementia
- Difficulty swallowing/eating
- Drooping on one side of the face/mouth
- Lack of balance/coordination
- Paralysis on one side of the body
- Trouble controlling one's bladder or bowels (incontinence)
- Trouble seeing or hearing clearly
- Trouble speaking clearly
- Weakness (e.g., being unable to make a strong fist with both hands)
- Depression in both the patient and his or her family members is also common after having a stroke. Increasing numbers of people are facing these post-stroke challenges as death rates from stroke drop and survival rates climb.

About 10 percent of post-stroke patients will experience pain in those areas that lost sensation following their stroke. The cause of this condition, called central post-stroke pain is unknown and can be difficult to treat. A drug used in the treatment of epilepsy (lamotrigine) is being tested as a potential treatment of patients experiencing central post-stroke pain. The medication may lead to a 30 percent greater reduction in pain. Further testing is needed.

Can strokes be prevented?

Preventive measures do not fully protect an individual against having a stroke but can go far to reduce the risks of such an event. Many of the preventive measures involve lifestyle changes and are similar to those that can help prevent heart disease. Lifestyle measures include the following:

- Controlling high blood pressure (hypertension). Blood pressure abnormalities must be continually monitored and controlled because they are a chief contributor to strokes.
- Getting treatment for atrial fibrillation or atrial flutter.
- Getting treatment for sleep apnea.
- Learning stress management techniques and seeking help for depression or drug abuse.
- Reducing cholesterol levels, perhaps by taking cholesterol-reducing drugs.
- Increasing one's level of exercise.
- Maintaining an ideal weight.
- Refraining from or quitting smoking.
- Limit use of alcohol to about one glass of wine or one beer per day, which may help in the prevention of strokes.
- Controlling diabetes.
- Eating a heart-healthy diet.

Balloon angioplasty and stenting of the carotid arteries are minimally invasive procedures that have been performed to prevent TIA and stroke. These procedures are still being investigated to determine their effectiveness but represent an alternative to more invasive surgical procedures.

For people who have obstructed or partially obstructed carotid arteries, and have already had a stroke or TIA related to that condition, a surgery known as a carotid endarterectomy may be an option to prevent another life-threatening event. This surgery may also be performed if the person has not had a stroke or TIA but has greater than 80 percent blockage in the carotid arteries. A carotid endarterectomy involves the removal of fatty build-up from the carotid arteries supplying blood to the brain. While the person is under general anesthesia, the plaque from the artery is removed along with the entire inner lining of the artery.

A carotid aneurysm that has not yet ruptured may be diagnosed early, particularly if it was causing warning signs that led the patient to seek treatment. Surgery may be necessary to repair the aneurysm, preventing a hemorrhagic stroke.

Gratitude and Appreciation

The organizing committee hereby acknowledges the contributions of the various organizations and individuals who helped put this symposium and souvenir booklet together. This symposium would not have been possible without the hard work and dedication of all those involved.

2004 Booths and Speakers

Booths: AADAC, Canadian Diabetes Association, Safeway, Shoppers Drug Mart, Neelam Makhani

Speakers: Dr. Phil Hardin, Dr. Ruth Collins-Nakai, Dr. Sajad Gulamhusein, Dr. Arvind Koshal, Ms. Neelam Makhani, Dr. Zaheer Lakhani, Dr. Sita Gaurishankar, and Dr. Lee Jones

2004 Youth Volunteers

Chintan Acharya
Krishna Chavda
Priya Kaliandasani
Geetika Mehra
Shalini Puri
Anuj Ranjan
Milan Raval
Sohni Sharma
Sangeeta Zilka

Hernish Acharya
Sona Chavda
Sachin Katyaj
Nisha Mehra
Seema Rajani
Tapasya Ranjan
Shipra Seth
Sumir Sharma
Satroopa Zilka

Nayha Acharya
Alpesh Desai
Vijay Makwana
Bhavna Parihar
Vishaal Rajani
Anjali Raval
Madhukar Sharma
Arpana Singh
Bani Puri

Adult Volunteers

Kiran Mehra
Gunjan Sharma
Preetam Sharma
Rajeshwar Singh
Mukund Mehta
Dr. Pramod Verma



SPONSORS

Major Contributors

Alberta Health & Wellness	\$8000
Health Canada	\$5000
Maanaw Seva Association	\$5000
Shanti-Niketan Society	\$5000
Sabex Inc.	\$1000

GOLD SPONSORS (\$500 +)

Bank of Nova Scotia
Radhey & Krishna Gupta (Rohit Group)
Safeway Canada
Shoppers Drug Mart
Anonymous

SILVER SPONSORS (\$250 +)

Amar Bhasin
Rakesh Dhir
Bayer

BRONZE SPONSORS (\$100 +)

AIMS Fine Chemical (Dr. Inder Pal Singh)	Bhartiya Cultural Society
Dr. Sunil & Nandini Desai	Mira & Dr. Kris Dhunoo
Gastown Novelties (Chandar Sheikhar)	Incan Int. (Gajender Goyal)
India Grill (Gurmeet & Amar Kapur)	Bareia & Dr. Naresh Jha
Dr. Anil Joy	Dr. Pradeep Kulkarni
Anjana & Vinod Marwaha	Aruna & Mahendra Mehta
Pacific Imports (Sunil Goel)	Daksha & Dr. Hasmukh Rajani
Sci Med (Dr. Seema & Dr. Rajan Gupta)	Beena & Raj Sehgal
Madhu & Satish Sehgal	Basanti & Saraswati Singh
Indo Canadian Women's Association	Mr. Parmod Shah
Dr. G. S. Paul	Dr. R. L. Singh
Mr. Raj Sharma (Maurya Palace)	Vinti & Sunil Goel
Prabha & Nand Bhasin	Indra & Dr. Ram Gupta
Becton & Dickson	