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*Advancing Understanding.  
Improving Lives.*




*Avancer la compréhension.  
Améliorer la vie.*

# A CLINICIAN'S GUIDE TO UNDERSTANDING AND TREATING METABOLIC SYNDROME

## Waypoint Centre for Mental Health Care Outpatient Services Program (OPSP)



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## Introduction

Metabolic Syndrome is a cluster of phenomena including abdominal obesity, high blood pressure, elevated blood glucose levels, elevated triglycerides, and decreased levels of high density lipoproteins.

Without intervention and lifestyle change this condition leads to some non-fatal but debilitating health problems including respiratory difficulties, chronic musculoskeletal problems, and infertility. However, without intervention Metabolic Syndrome also leads to more life-threatening and serious problems such as cardiovascular disease, Type II diabetes and certain forms of cancer, especially hormonally related and large bowel cancers.<sup>1, 2,3,4,5,6,7,8,9</sup>

Metabolic Syndrome is being increasingly diagnosed in people living in industrialized countries of the world and is due to a combination of genetic predisposition, poor dietary choices, the degree to which foods are being processed, sedentary lifestyle, chronic stress, inadequate sleep, and a pervasive sense of emptiness. Currently it is estimated that 25-34% of the Canadian population are suffering from this condition.<sup>10,11</sup>

People who suffer from mental illness have a higher incidence of Metabolic Syndrome (55-60%)<sup>12,13,14,15,16,17,18,19,20,21,22,23,24,25</sup> probably for genetic reasons but also because those living with mental illness are often struggling to survive on a limited budget, often have co-morbid addictions, have limited resources with which to access fitness pursuits, and often have sub-optimal medical care.<sup>18,26</sup> In addition, the medications prescribed to alleviate symptoms of mental illness often cause an increase in appetite and interfere with sugar metabolism, thus causing extra weight gain and further exacerbation of the problem.<sup>12,13,14,15,16,17,18,19,20,21,22,23,24,25</sup>

A team of staff at the Outpatient Services Program of the Waypoint Centre for Mental Health Care were very concerned about the dramatic increase in metabolic syndrome they were witnessing in their clients and planned, developed and implemented a program to address this growing problem. In consultation with clients a program has gradually evolved which is helping clients become aware of how their bodies work at a metabolic level, and how to adopt strategies and lifestyle changes to reverse the symptoms of Metabolic Syndrome. The program has proven to be both popular and successful with clients and was honored by the Ontario Minister of Health in October 2010 when it received the 2010 Innovation Award in recognition of excellence in Improving Patient/Resident Centeredness. To date, successes are largely anecdotal and rigorous evaluation will hopefully bear out the value of this initiative which is running on minimal capital expenditure at this point, and is heavily dependent on the goodwill and enthusiasm of the staff. Peer-support participation at every stage of the process of planning, development and implementation has contributed greatly to the success of the program. The emphasis is on the client achieving clarity of thought and greater available energy, and is predicated on the belief that knowledge delivered in a highly understandable and practical format will empower clients to be informed in making better choices for themselves.

This handbook is intended to convey to health care practitioners the strategies we have found to be effective with our vulnerable population (clients living in the community with serious mental illness and features of Metabolic Syndrome). It is not meant to be in any way an exhaustive treatment guideline, nor is it aspiring to publication in any medical journal. The project commenced in 2009 and is in the early stages of evolution. It is the hope of the team, however, that users of this handbook will derive useful tips and strategies which can be applied to anyone suffering from Metabolic Syndrome, with or without a co-morbid mental illness.

## Metabolic Syndrome

Obesity, and in particular, Centripetal Obesity, has become a huge focus of concern for the World Health Organization in recent years. As per the No-Nonsense Guide to World Food, published by the New Internationalist, written in 2008 by Wayne Roberts (recipient of the Canadian Eco-Hero of the Year Award from Planet Focus in 2008)<sup>27</sup> one person in every six of the current population of the world will die as a result of over-eating while one person in every seven will die as a result of under-nourishment. The ethical, political and healthcare implications of this are colossal. The WHO estimates that there are currently more than one billion members of the population who are overweight (recent estimates are in the range of 1.6 billion), 300 million of whom are clinically obese. Obesity brings about marked personal suffering to an individual affecting self-confidence, employment opportunities, relationship prospects and finances. For health care planners the rise in obesity levels worldwide has huge financial implications. According to the WHO Global Strategy on Diet, Physical Activity and Health (2010)<sup>28</sup> Obesity accounts for between 2 and 7% of total healthcare costs in developed countries. This document also states "The likelihood of developing Type II Diabetes and Hypertension rises steeply with increasing body fatness. Confined to older adults for most of the 20th century, this disease now affects obese children even before puberty. Approximately 85% of people with Diabetes are Type II, and of these, 90% are obese or overweight . With "Westernization" of developing countries this is increasingly becoming a worldwide problem and not confined to the industrialized world.

Centripetal Obesity is the principal feature of Metabolic Syndrome which in Canada now affects 25-34% of the General population<sup>10,11</sup> and up to 66% of those suffering from Serious Mental Illness<sup>12,13,14,15,16,17,18,19,20,21,22,23,24,25</sup> The following is a direct quote from Cardiology Research and Practice Volume 2011(2011) "Obesity, particularly abdominal Obesity, is associated with resistance to the effects of Insulin on peripheral glucose and fatty acid utilization. The resulting hyperinsulinaemia and hyperglycemia as well as the release of adipocyte cytokines have been shown to induce vascular endothelial dysfunction, an abnormal lipid profile, hypertension, and vascular inflammation all of which are atherogenic." <sup>1</sup> The clustering of metabolic cardiovascular risk factors under a common pathogenic process (insulin resistance) was described for the first time in 1988 by Reaven <sup>29</sup> leading to the concept of Metabolic Syndrome. Since then multiple definitions have been made, all of them describing some combination of insulin resistance, dyslipidaemia, elevated fasting blood glucose, abdominal (centripetal) obesity, and hypertension. Centripetal adipocytes secrete inflammatory cytokines (e.g. MCP 1, TNF a, IL 6, Leptin, and C reactive protein) leading to a low-grade inflammatory state thought to be responsible for insulin resistance and endothelial dysfunction.<sup>31,31,32</sup>

### **Waist circumference is the new vital sign!** <sup>33</sup>

Essentially the principal problems in Metabolic Syndrome are (1) Insulin Resistance and (2) Centripetal Obesity.

Factors which contribute to Insulin Resistance/desensitization and centripetal obesity include:

- Genetics
- Cultural Background
- Weight
- Age
- Diet high in simple carbohydrates and highly processed foods
- Sedentary lifestyle

- Smoking
- Stress
- Psychotropic medications
- Diagnosis of a mental illness
- Lack of Sleep
- High levels of Stress

Metabolic Syndrome is a "sentinel" condition which, if left untreated, heralds the development of Cardiovascular Disease and Type II Diabetes Mellitus.<sup>1,2,3,4,5,6,7,8,9,25,29</sup> When interventions are effective, and in particular when clients lose weight, there is a reversal of the features of Metabolic Syndrome greatly improving quality of life<sup>34</sup> reducing the need for medications<sup>25,29</sup>, and ultimately reducing the financial burden on the healthcare system.

The Burden of Cardiac Disease written by Ben Chan and Wendy Young in 1999 is the first chapter in a book entitled "Cardiovascular Health and Services in Ontario",<sup>35</sup> produced by the Institute for Clinical Evaluation Services with the support of the Heart and Stroke Foundation of Ontario. The chapter includes detailed estimates of the direct and indirect costs of Cardiovascular Disease in Ontario which amount to \$5.5 billion per year ( 2% of the Provincial gross domestic product). Cardiovascular Disease accounts for 20% of acute care hospital costs, 15% of homecare costs, 10% of medical services, and 17% of drug expenditures. Cardiovascular Disease is the leading single cause of mortality in Ontario and has a particularly strong impact on the middle-aged and elderly population.

Useful information regarding diabetes in the population of Ontario is found in the report written on behalf of the Ontario Ministry of Health and Long-Term Care by Dr. Colin O. D'Cunha the Chief Medical Officer of Health in 2009<sup>36</sup> in which he states : In Ontario over 628,000 people have been diagnosed with Diabetes. Another 300,000 people do not know they are suffering from it. ( 21% of people with Diabetes in Ontario have Eye Disease BEFORE being diagnosed). In the general population in Ontario Diabetes affects 3% of people aged 35-64 and 10% of people aged 65 and older. Four out of every 10 people with Diabetes will develop debilitating and long-term complications such as blindness, kidney failure and heart disease. Some will undergo foot, toe or leg amputation. All of these complications are devastating for the individual, the family, and the healthcare system. Diabetes is estimated to cost the Ontario Health System just under one billion dollars annually. One Ontarian is newly diagnosed with Diabetes every 20 minutes. Treating and managing Diabetes in Ontario is estimated to cost \$4,500 per person per year for each person with the disease. Besides physical problems, people with Diabetes may experience anxiety and depression; they lose productivity due to work and school absences and may see a decrease in their earning potential because of disease complications.

Of particular note is the fact that among the Aboriginal population 10% of the population aged 15 and over have Diabetes, while 23% of the population over 65 years of age have the disease. Before 1940 there was NO evidence of Diabetes among Aboriginal people in Canada. Today rates in the Aboriginal population across Canada are three times the national average because of genetic susceptibility, transition to a sedentary lifestyle and adoption of a diet high in fats and sugar. Given current trends it is estimated that 27% of Aboriginal people in Ontario will get Diabetes within 20 years. Sandy Lake Reserve in Northwestern Ontario has the third highest rate of Diabetes in the world where 26% of the population has Type II Diabetes.

In Canada the definition for Metabolic Syndrome is based on guidelines derived from:  
Health Canada. Canadian Guidelines for Body Weight Classification in Adults 2003  
Canadian Cardiovascular Society Position Statement 2006  
Canadian Diabetes Association Clinical Practice Guidelines Expert Committee 2003

Using these guidelines Metabolic Syndrome exists if 3 or more of the following criteria are met:

- Abdominal Obesity Waist Circumference: Men  $\geq$  102cms, Women  $\geq$  88cms
- Decreased serum HDL levels. Men  $<$  1.0mmol/l, Women  $<$  1.3mmol/l OR receiving Lipid regulating medication
- Increased serum Triglycerides  $\geq$  1.7mmol/l OR receiving Lipid regulating medication
- Increased Fasting Glucose  $\geq$  5.7mmol/l OR receiving Insulin/Oral hypoglycemic agents
- Increased Blood Pressure  $\geq$  130/85 OR receiving Antihypertensive medications

Clients suffering from Metabolic Syndrome will often describe lack of clarity of thought, difficulty concentrating and "brain fog". They complain of lack of available energy, feeling "sluggish" and sleepy all of the time. They often describe a feeling of general malaise and often experience anxiety and depression. Clients with Metabolic Syndrome also complain of joint pains, headaches, and of feeling moody, restless and edgy. These feelings are often accompanied by a lack of self-confidence leading to a reduction in participation in recreational and vocational activities, further complicating the condition and leading to financial compromise.



## **Our Approach to Intervention**

### **The Metabolic Clinic at the OPSP of the Waypoint Centre for Mental Health Care**

In July 2009, recognising the increasing incidence of weight gain and associated metabolic issues, a group of interdisciplinary staff at the OPSP collaborated with clients to identify the metabolic risk factors amenable to intervention and to develop a program accordingly. With the help of the hospital librarian, an extensive literature review was undertaken. Site visits to programs providing interventions were undertaken - notably the clinic at the Centre for Addiction and Mental Health (CAMH) under the leadership of Dr. Cohn and the clinic at Ontario Shores Hospital under the leadership of Jason Moores, RN. While these programs differed significantly from ours in terms of allocated resources much was gained to assist with the planning, development and implementation of the OPSP program.

Within Waypoint Centre, other departments were approached to assist with the program and it was clear many staff were identifying an increase in Metabolic Syndrome in their clients also, thus enthusiasm and participation was high. Ongoing support in the form of manpower, knowledge, and wisdom was, and continues to be, provided by Rehabilitation Services, Spiritual Services, Georgianwood Addiction Services, the Psychosocial Rehabilitation Program, Pharmacy Department, Dietary Services, Patient/Client and Family Council and the Research Department.

The Ontario Peer Development Initiative (OPDI) was being developed within the organization at the same time which allowed for a mutually beneficial alliance to develop between Peer Support Workers and healthcare providers. It was recognized that a holistic approach to intervention was required, based on the principles of **informed choice**, focusing on educating clients in a non-judgmental, user-friendly way so they could take the information away and apply it to their lives in their own way and at their own pace over time.

Although we recognized the necessity to educate clients regarding the importance of reducing centripetal obesity, we decided that the focus of our program would be on assisting clients attain clarity of thought (by reducing the "brain fog" which accompanies Metabolic Syndrome) and helping them increase their available energy rather than placing all of the emphasis on weight loss.

### **The referral process**

Referrals may be made by any staff member within the organization or any clinician following an OPSP client in the community. It is hoped that with appropriate resources this service might ultimately be made available to local health care agencies/providers. Clients may self refer. The existence of ANY of the criteria for Metabolic Syndrome is sufficient. Clients on a Second Generation Antipsychotic Medication without any criteria for Metabolic Syndrome are also accepted (notably Early Psychosis Intervention clients).

### **Referral information required:**

- Serum lipid levels
- Serum fasting glucose levels
- Current weight measurement
- Waist measurement



- Blood Pressure
- List of current medications with particular reference to hypoglycaemic agents, lipid medications & anti-hypertensives
- List of psychotropic medications including anti-psychotic, anti-depressant, anti-anxiety, mood stabilizing medications, medications for insomnia
- Medical diagnoses
- Psychiatric diagnoses
- Family history
- Client level of insight into the issues pertaining to Metabolic Syndrome and willingness to make lifestyle changes to address it.

### **Referral process**

Every client referred to the program is seen and assessed by the psychiatrist/physician.

If found to be appropriate for the program the client is then seen on an individual basis by a dietician, therapeutic recreationist and pharmacist. The client also establishes a therapeutic relationship with the Metabolic Nurse who sees them briefly every week.

### **Consultation with the physician/psychiatrist**

Every client referred to the Metabolic Clinic at the OPSP of the Waypoint Centre has the opportunity for a one-to-one meeting with the psychiatrist/physician prior to initiating participation in the groups. Clients may be accompanied by a caseworker or family member. The objectives of this meeting are as follows:

- **Exploration of clinical history, including medical and psychiatric diagnoses, including co-morbid addictions medication history, current medications, intercurrent stressors, sleep pattern, eating habits, recreational and vocational history, family history with particular attention to Diabetes, Cardiovascular Disease and Hypertension, cultural background, any addiction issues**
- **Review of bloodwork, waist measurement, Blood Pressure, weight. Establish how many criteria for Metabolic Syndrome are met and inform the client of the diagnosis and its implications**
- **Identification of medications likely to be a contributory factor towards Metabolic Syndrome e.g. Second Generation antipsychotics, Valproic Acid**
- **Identification of medications which may gradually be reduced or withdrawn with progressive weight loss e.g. oral Hypoglycemic Agents, Lipid medications, Anti-Hypertensives**
- **Assessment of client readiness and motivation to change lifestyle**
- **Assessment of level of support available to client e.g. caseworker, family, friends**
- **Identification of source of ongoing psychological support to address ongoing emotional issues contributing to current maladaptive lifestyle choices**
- **Explore potential financial supports e.g. Mandatory Special Needs Diet Allowance for clients on ODSP, subsidized memberships to local YMCA, Good Food Box, use of local Food Banks**
- **Introduction to Insulin Resistance and the factors which contribute to it. Identification of the factors which cannot be changed (e.g. culture of origin, psychotropic medications which are providing relief from psychological distress), and the factors which it is within the power of the client to change with guidance and support e.g. food choices, level of activity, sleep pattern, stress level**

- Consent to Disclosure to allow communication between members of the support network for the client
- Outline of the program to prepare the client for what to expect and to allow the client to consider whether or not the program is likely to be of benefit and whether or not this is the right time for participation
- Discussion with respect to smoking reduction/cessation. Exploration with the client regarding the dilemma pertaining to the likelihood of initial weight gain with smoking cessation, although circulating lipids and glucose levels will significantly improve. Often the client decides to try reduction during the Metabolic Program with a view to participation in the Smoking Cessation program at a later date when weight is under better control

### **Consultation with the dietician**

- The registered dietician at the metabolic clinic provides individual nutrition-focused sessions with each client prior to the beginning of the modules.
- The focus of these appointments is to make individual nutrition plans that take into account all of the barriers and lifestyle factors that are unique to a specific individual.
- These sessions are geared towards client needs, motivation, and ability at that point in time.
- Follow up appointments are also available for clients to assist in the long term implementation of nutrition goals.

### **Consultation with the therapeutic recreationist**

- Defining leisure and identifying current interests and participation patterns
- Current motivations for participating in Leisure- active or not?
- Strategies to use successful motivators for current leisure to include active leisure
- Disability related barriers to involvement & any other barriers to involvement (social/ economic/ planning)
- Discussion on overcoming barriers
- Available personal resources and community resources
- Potential goals for increasing active living
- Action plan for starting or increasing physical activity
- Creation of, or inclusion to a community/home based physical activity program that addresses personal leisure needs and motivations

### **Consultation with the pharmacist**

- The pharmacist is responsible for reviewing all medications with clients of the Metabolic Clinic.
- During the appointments, clients are educated on how to best use their medications and expected results from drug therapy.
- Applicable clients are encouraged to keep track of their chronic physical conditions, such as diabetes, hypertension, etc.
- Supplementary non-drug methods of controlling such conditions are also discussed. In addition, the need for supplementation (multivitamins, calcium, vitamin D, etc.) is evaluated at each session.
- Lastly, pain and sleep patterns are assessed and the pharmacist reviews both drug and non-drug options with clients.

- Items discussed at the initial meeting are followed up with clients after 3-4 weeks.

### **The role of the metabolic nurse:**

- Provide trusting therapeutic relationship one to one and within group
- Monitor and record weekly weights, blood pressures, and waist circumferences
- Review metabolic baseline screening blood work and follow up results
- Weekly and/ or as requested one on one discussion either face to face and/ or via telephone regarding personal achievements and barriers in goal attainment
- Weekly one on one dialogue for clarifying questions or concerns, resource acquisition or personal support
- Offer motivational strategies and exchanges regarding individual needs with Staying Motivated biweekly hour and half hour support group
- Promotion of peer support services when struggling

Following the individual interventions as outlined above, the client attends a series of 11 consecutive modules each lasting 2 hours over an 11 week period. Each module is facilitated by 2 team members and is partly didactic utilizing a classroom setting and partly psychotherapeutic using group dynamic therapeutic factors. The didactic portion seeks to empower the client to address Metabolic Syndrome risk factors which are amenable to change.

The current content of each module is outlined below. The content of each module has changed and evolved based on client evaluation and feedback over time.

### **Therapeutic Modules**

- The client will be expected to attend 11 modules each lasting two hours over the course of 11 weeks.
- The modules are intended to be partly didactic and partly supportive utilizing group therapeutic factors
- During a break in the module the peer support worker provides a nutritious snack for everyone utilizing the knowledge obtained from the program
- Each client sees the metabolic nurse to have measurements performed of waist circumference, weight and blood pressure

# module 1

## Getting Started and Understanding my Metabolism



## Module 1

### Getting Started

Prior to the didactic presentation by the Metabolic Nurse, the Psychiatrist makes a presentation:

- Introductions
- Explanation regarding confidentiality within the group
- Letter of welcome and encouragement including the dates of modules, how to contact us etc.
- Validation regarding feelings of grief, resentment and self-hatred as a result of having developed features of Metabolic Syndrome. Encouragement of forgiveness of self and taking pride of ownership in the decision to make changes.
- Distribution of:
  - \* binders containing all of the data which will be explored in the modules
  - \* pedometers for use during the program to document and encourage activity
  - \* Log book to document food ingestion and activity during the program
  - \* tape measure to keep personal track of changes in waist circumference.
- Introduction to the physiological concepts underlying Insulin Resistance and the factors which contribute to Metabolic Syndrome.
- Introduction to the importance of Centripetal Obesity and the ways in which Centripetal Adipocytes cause morbidity.
- Encouragement of mindfulness in making food choices when shopping, eating for comfort, eating out etc. Importance of mindfulness in making decisions regarding activity, sleep, using illicit substances, using alcohol, choosing who to spend time with etc. Clients are encouraged to develop a personal mantra or use visual cues to keep focused e.g. a "note to self" on the refrigerator / food cupboard to remind oneself of personal goals. Clients are also encouraged to be mindful of the ways in which we are subject to "obesogenic" forces in our culture e.g. large plate and portion sizes in restaurants, encouragement to "supersize" in a "more is better" maladaptive advertising strategy, false claims on highly processed foods etc..
- Sharing of strategies witnessed by the team to have worked with previous clients e.g. making a point of always having a breakfast, not eating at night, having a jug of chilled water available in the refrigerator, preparing fruits and vegetables in batches to be available for times of compulsive / emotional eating, having boiled eggs available as a readily available source of protein for snacks.
- Congratulations on having made the decision to make the lifestyle changes necessary towards physical and emotional health.

## Understanding my Metabolism

### Learning objectives

1. Understand functions of the body's metabolism
2. Understand Metabolic Syndrome and the diagnostic evidence
3. Understand contributing risk factors to Metabolic Syndrome
4. Identify individual signs and symptoms of Metabolic Syndrome
5. Provide reversal strategies for Metabolic Syndrome

## **Metabolism**

- The process of cellular conversion of food into fuel for available energy

## **Metabolic function**

- Breakdown of medications
- Absorption with digestive process
- Repair of damage
- Healing injury
- Elimination of toxins
- Promote growth

## **Healthy metabolism**

The pancreas secretes insulin in response to ingested glucose and facilitates the transport into the cells for available energy. The additional circulating insulin then converts glucose into glycogen. The glycogen is stored in the muscles and liver for periods of needed energy.

## **Unhealthy metabolism**

Overload of circulating glucose in the blood causes the pancreas to overproduce the hormone insulin. Cells are overwhelmed by the amount of circulating glucose and refuse the transfer of glucose into the cell. The glucose becomes converted to fat and deposited within the visceral and centripetal sites.

## **Metabolic Syndrome**

Cluster of symptoms, specifically three or more that potentiate the development of Cardiovascular Disease and Type II Diabetes.

## **Screening or diagnostic evidence of Metabolic Syndrome**

- Centripetal obesity
- Hypertension
- Elevated fasting blood glucose result
- Elevated triglycerides
- Decreased HDL

## **Individual signs and symptoms of Metabolic Syndrome**

- Reduced mental clarity (brain fog)
- Fatigue
- Weight gain
- Insomnia
- Depression
- Moody, restless or feeling edgy
- Inflammatory response with pain, swelling or headaches

### **Risk factors with Metabolic Syndrome**

- Genetic and cultural predisposition
- Age
- Psychotropic medication use
- Inadequate dietary value
- Overconsumption of alcohol, and sugar
- Sedentary lifestyle
- Stress
- Smoking
- Insomnia

### **Metabolic Syndrome reversal strategies**

- Engagement in daily physical activity (minimum of 12 minutes daily)
- Limiting or restricting salt intake to regulate blood pressure
- Making healthy food choices (reduce sugar, fat or complex carbohydrate intake)
- Routine sleep rituals
- Reduction in smoking followed by cessation
- Stress reduction modalities (meditation, yoga)

## module 2

# How Metabolic Syndrome Affects Body Function And Organ Systems





## Module 2

### How Metabolic Syndrome Affects Body Function And Organ Systems

#### Learning objectives

1. Understand how Metabolic Syndrome affects each of the body organs at a biochemical level
2. Recognize client responsibilities in the maintenance of healthy lifestyle choices

#### Effects on the body

- Centripetal obesity as the cardinal feature in Metabolic Syndrome :
  - impairs the normal functioning of all of the body organs as a result of pressure effects
  - increases risk of cardiovascular disease and inflammation as centripetal body fat cells release adipocytokine damaging the lining of the arterial walls
  - causes great personal suffering because of body image issues and stigmatisation
  - contributes to the development of osteoarthritis
- High blood pressure
- Increased fasting blood sugar levels
- Low HDL cholesterol levels
- High triglyceride levels
- Increased risk of developing heart disease
- Increased risk of developing diabetes
- Insulin resistance

#### Insulin resistance

- Increased risk of developing diabetes & heart disease
- Undetected diabetes can lead to:
  - vision loss
  - increased sensitivity in feet to hot or cold (potential for injury)
  - decrease in circulation to limbs
  - increased sensations of prickling, tingling, burning or numbness
  - increased incidences of gangrene ending in amputation
  - increased risk of heart attacks and strokes

#### Kidney disease

- increased blood glucose
- compromised filtration
- proteinuria
- increased vascular pressure

#### Altered liver function in metabolic syndrome may result in

- Decreased breakdown and absorption of medications
- Inability to metabolize hormones
- Dysmenorrhoea or amenorrhoea
- Breast engorgement, testicular shrinkage, and pubic hair loss in men
- Decreased libido or impotence

#### Cardiovascular disease

- angina/myocardial infarction
- increased incidence atherosclerosis
- decreased blood flow to heart
- increased risk of oxygen deprivation to heart muscle
- "silent" heart attacks with diabetics as decreased coronary artery blood flow symptoms may be absent

#### Vision

- Retinal changes such as
  - thickening of vessel walls
  - loss of retinal nerve fibres
  - thickens several times its normal thickness
  - micro hemorrhages

#### Gastro intestinal system

- Delayed gastric emptying
- Early feeling of fullness
- Bloating/Nausea/Vomiting
- Constipation or diarrhea

#### Integumentary

- untreated diabetes results in peripheral nerve damage
- Vessels thicken or occlude circulation

#### Sexual dysfunction

- Altered sexual function in both men and women as a potential complication of diabetes

#### Men

- Impotence
- Orgasm without ejaculation (retrograde ejaculation)

#### Women

- vaginal dryness
- ↓ libido
- lack of orgasm
- ↑ vaginal infections
- UTI

#### Client responsibilities may include:

- Annual physical examination and screening
- Attention to daily nutrition habits
- Daily routine of physical activity
- Routine skin examination & care
- Routine eye examination
- Daily dental hygiene and annual dental examinations
- Proper fitting foot wear
- Stress reduction through relaxation
- Adherence to healthy sleep ritual

**modules 3 and 4**

# **Eating Well**

modules 3 and 4 **Eating Well**



## Modules 3 and 4

### Eating Well

#### Learning objectives

1. “Just The Basics”<sup>37</sup> and the Glycemic Index<sup>38</sup> from Canadian Diabetes Association
2. Read and understand food labels
3. Eat well while spending less
4. Understand the importance of eating regularly
5. Make healthy choices while eating out
6. Understand appropriate food choices within each food group

#### Eating well means

- Knowing **when** to eat
- Knowing **what** foods to eat
- Knowing **how much** to eat

#### When to eat

Three meals a day

- Have meals at regular times every 4 - 6 hours
- Include appropriate snacks **if needed**

#### What foods to eat

<p>Meat and alternatives</p> <p>Animal sources</p> <ul style="list-style-type: none"> <li>• Choose lean, low fat varieties</li> <li>• Prepare food in a way that does not add fat</li> </ul>	<p>Vegetable/Legume sources</p> <ul style="list-style-type: none"> <li>• Beans (e.g./ baked beans, vegetarian chili, bean salad)</li> <li>• Tofu (e.g./ Stir fry with tofu)</li> <li>• Veggie “meats”</li> <li>• Nuts and nut butter</li> </ul>
<p>Dairy sources</p> <ul style="list-style-type: none"> <li>• Low fat cheese (20% MF or less)</li> <li>• Low fat cottage cheese</li> </ul>	<p>Milk and alternatives</p> <p>Choose:</p> <ul style="list-style-type: none"> <li>• 1% MF or skim milk</li> <li>• Low fat soy milk</li> <li>• Fat free yogurt</li> </ul>
<p>Vegetables</p> <ul style="list-style-type: none"> <li>• Vegetable soup</li> <li>• Salads</li> <li>• Raw, cooked or frozen vegetables</li> </ul>	<p>Fruits</p> <ul style="list-style-type: none"> <li>• Enjoy any kind of fruit</li> </ul>
<p>High-fibre foods</p> <ul style="list-style-type: none"> <li>• Legumes and lentils</li> <li>• Whole grains</li> <li>• Fruit</li> <li>• Vegetables</li> <li>• Oatmeal and bran</li> </ul>	<p>Grain products</p> <ul style="list-style-type: none"> <li>• Choose whole grain breads and high fibre cereal foods more often</li> </ul>

The typical North American eats only 10-15 grams of fibre daily versus the recommended 25 grams daily.

#### **Include a source of fibre at each meal**

- Breakfast - high fibre cereal, whole grain bread
- Lunch - bean or lentil soup, fresh fruit
- Dinner - vegetables, whole wheat pasta

#### **Benefits of eating high-fibre foods**

- Slow rise in blood sugar levels
- Reduction in blood cholesterol
- Bowel regularity
- Help with satiety

#### **Fat: Food groups**

- Oils and Fats
- Meat and Alternatives
  - Animal Sources
  - Vegetable Sources
- Milk and Alternatives

#### **Different types of fat**

##### **Fats to include more often**

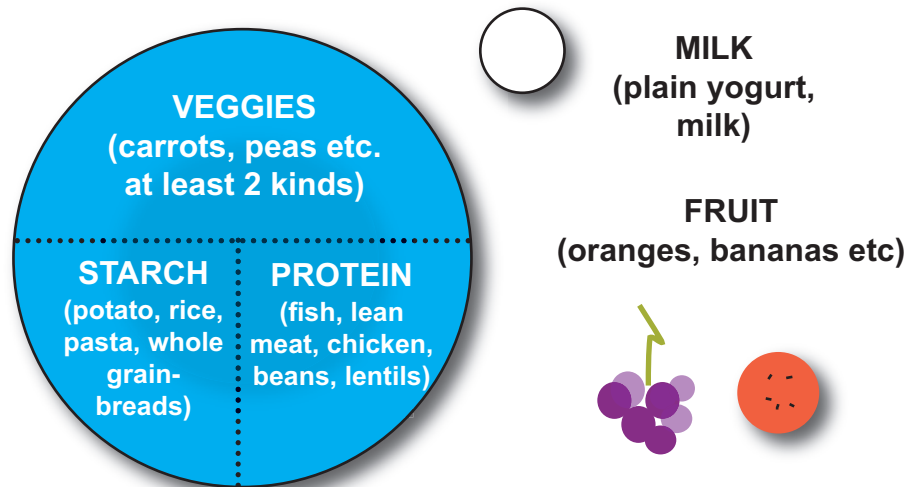
- Unsaturated Fats
  - Monounsaturated
  - PolyunsaturatedE.g. Vegetable oils, margarine, nuts & seeds, avocado, olives

##### **Fats to have less often**

- Saturated Fats  
E.g. Animal fats, dairy fats, tropical oils (palm and coconut oils), chocolate
- Trans Fats  
E.g. Partially hydrogenated shortening or margarine, deep-fried foods, commercial baked goods, cookies, crackers and snack foods
- Dietary Cholesterol  
E.g. Egg yolk, shrimp, squid, organ meats

## Portion sizes – *Just The Basics*<sup>37</sup>

- *Just The Basics*<sup>37</sup> is a tool used to teach appropriate portion sizes. It focuses on using a plate model where half of the plate is composed of vegetables, a quarter of a plate is composed of carbohydrate/grains and starches and the last quarter of the plate is composed of protein/meat alternatives. In addition to the above *Just the Basics* teaches to also include one fruit and one dairy product with a meal.<sup>37</sup>



## Snacks

- Snacks are not necessarily essential to healthy eating and should only be used when hungry between regular meals
- Healthy snacks should include at least 2 food groups in appropriate portions
- 10 nuts (any kind) & 1 small fruit
- 1 small apple & 1 tsp of peanut butter
- Half cup low fat yogurt & one small fruit
- 1 ounce of low fat cheese and 4 whole wheat crackers
- 1 plain rice cake and ¼ cup low fat cottage cheese
- 2 cups low fat popcorn
- Half canned fruit (canned in juice) and half cup low fat cottage cheese
- ¼ cup dried fruit and 5 nuts
- Veggies and 2 tbsp dip

## Nutrition labeling summary

- Use Nutrition Facts, the ingredient list, nutrition claims and health claims to make informed food choices
- Nutrition Facts are based on a **specific** amount of food - compare this to the amount you eat
- Use the % Daily Value (DV) to see if a food has a little or a lot of a nutrient. Remember: 5% DV or less is a little, 15 % DV or more is a lot<sup>39</sup>

## **Glycemic Index**

The Glycemic Index<sup>38</sup> is a scale that ranks carbohydrate-rich foods by how much they raise blood glucose levels compared to a standard food. The standard food is glucose or white bread<sup>38</sup>

### **Eating low GI foods may help to**

- Manage blood glucose levels
- Manage cholesterol levels
- Control appetite
- Decrease risk of heart disease
- Decrease risk of Type II Diabetes

### **Eating well while spending less**

- Plan your meals
- **Grocery shop with a list**
- Shop at grocery stores
- Shop above or below eye level
- Take advantage of coupons & sales when appropriate
- Cook in large batches and plan for leftovers
- Prevent waste
- Drink tap water
- Buy less prepared foods
- Compare prices
- **Buy no-name products**

### **Eating out**

When eating out it is important to apply all of the principles of eating well as discussed above. Below are general tips:

- Ask for a take-out container to portion food before you start eating
- Share a meal with a friend
- **Avoid deep fried or high fat food**
- Choose more fruits and vegetables
- **Avoid foods with a lot of extra sauces**
- **Avoid buffets**
- **Avoid drinking pop/juices/mixed drinks**

# module 5

## Meaningful Leisure Leads to Healthy Lifestyle



module 5

Meaningful Leisure Leads to Healthy Lifestyle



## Module 5

### Meaningful Leisure Leads to Healthy Lifestyle

#### Learning objectives

1. Understand benefits of being active
2. Understand components of physical activity and fitness
3. Understand how recreation and leisure can reduce barriers and motivate to help stay on track

Recreation is the activities that are fun and enjoyable whereas leisure is the experience when the recreation is GOOD.

#### Components of leisure include:

- Freedom from obligation and freedom to do
- Time passes quickly
- Experience is enjoyable

#### Successful recreation therapy<sup>40</sup>

- Reduces anxiety and stress
- Promotes adjustment to disability
- Promotes community integration
- Reduces depression & negative symptoms
- Allows the acquisition of knowledge & skills
- Prevents decline in health status
- Increases independence
- Decreases social isolation
- Increases focus on control
- Increases motivation to participate with care plan goals

#### The benefits of activity on:

##### Health

- Build and maintain bones and muscles
- Wellbeing
- Weight control
- Reduces the risk of dying prematurely

##### Stress

- Promoting relaxation
- Providing a psychological distraction
- Changing mood
- Enhancing personal resources such as self-esteem and self-efficacy
- Providing time and opportunity to work through problems

- Regulating emotional and physiological reactions to a stressful event

**Illness prevention**

- Reduces the risk of developing heart disease or colon cancer by up to 50%
- Reduces the risk of developing type II diabetes 50%
- Helps to prevent / reduce hypertension

**Disability prevention**

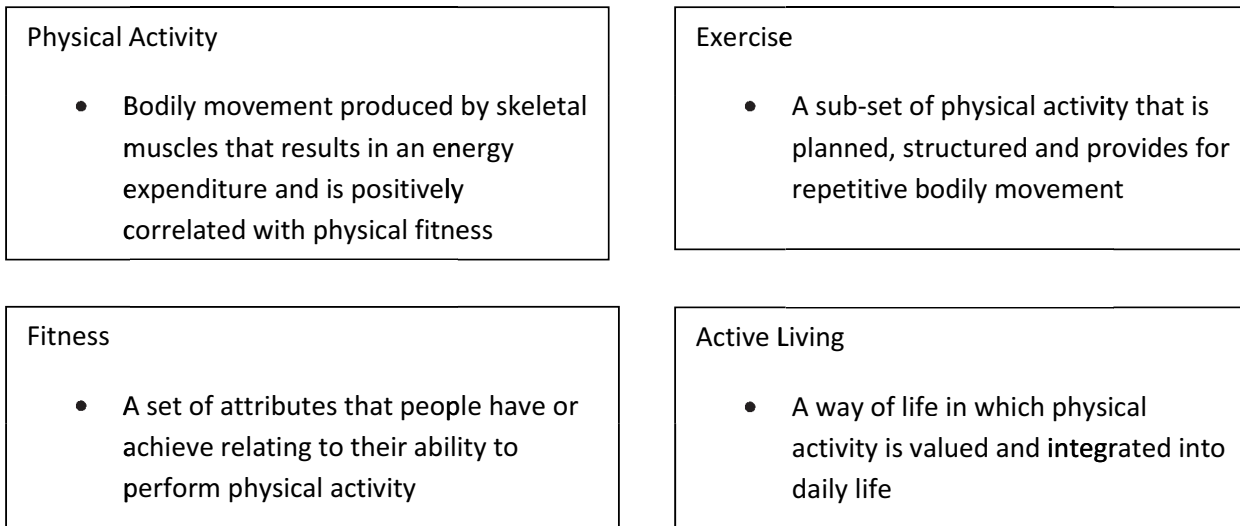
- Helps to prevent / reduce osteoporosis
- Reduces the risk of developing lower back pain
- Can help in the management of painful conditions, like back pain or knee pain

**Individuals with mental illness**

- Normalizing activity
- Side effects free
- Continuous treatment

(source: Bingham, P., B (2009) Literature Review. minding our bodies. Review accessed August 12, 2010, [www.mindingourbodies.ca/sites/mindingourbodies.ca/files/mob\\_literature\\_review\\_0.pdf](http://www.mindingourbodies.ca/sites/mindingourbodies.ca/files/mob_literature_review_0.pdf). and [www.mindingourbodies.ca](http://www.mindingourbodies.ca))<sup>41</sup>

**Components of physical fitness<sup>41</sup>**



**How much activity do you need?**

- Physical Activity Guide Recommends 30-60 minutes of moderate physical activity daily or 150 minutes weekly<sup>42</sup>
- Should include resistance activity on at least 2 days
- Suggest adding up activities in periods of 10 minutes
- Every 10 minutes count!

The length of time will depend on the amount of effort

- Light – 60 minutes
- Moderate – 30-60 minutes
- Vigorous – 20-30 minutes

Canada's Guide to Physical activity recommends the following<sup>42</sup>:

- 30-60 minutes of moderate physical activity daily
- Endurance – 4 to 7 days a week
- Flexibility – 4 to 7 days a week
- Strength – 2 to 4 days a week

(Source: <http://www.phac-aspc.gc.ca>)<sup>42</sup>

## **Barriers**

### **Environmental**

- Lack of facilities nearby
- Lack of safe places
- Insufficient programs
- Lack of a partner/support
- Lack of transportation

### **Individual**

- Social isolation
  - Stigma
  - Fear of injury/not having the skill
  - Leaving activities during early onset of illness
  - Transportation
  - Cost
  - Impact of medications (side effects)
- (source: [www.mindingourbodies.ca](http://www.mindingourbodies.ca))<sup>41</sup>

## **Overcoming Barriers**

- Have a Specific Measurable Attainable Realistic & Timely (SMART) goal and update it regularly
  - Check in with a friend or worker to monitor success
  - Use internet for resources
  - Rewards
  - Have a start date and an end date for a new activity/goal
  - Learn individualized strategies for motivation
  - Incorporate stages of change into the plan
- (source: [www.mindingourbodies.ca](http://www.mindingourbodies.ca))<sup>41</sup>

# module 6

## Recognizing and Reducing Stress



## Module 6

### Recognizing and Reducing Stress

#### Learning objectives

1. Learn about biochemical and metabolic aspects of stress
2. Warning signs and symptoms of stress
3. Identify the effects of chronic stress
4. Learn stress reducing strategies

#### What is stress?

- Stress is the body's way of responding to any kind of demand
- Perception of stress is highly individualized

#### Biochemical and metabolic aspects of stress

##### Fight or Flight response

- The hypothalamus prompts the adrenal glands to release a surge of stress hormones including adrenaline and cortisol inducing the fight or flight response
- When the perceived threat has passed, adrenaline and cortisol levels drop, heart rate and blood pressure return to baseline levels, and other systems resume regular function

#### Stress hormones

- Adrenalin increases your heart rate, elevates blood pressure, shortens breathing and boosts energy supplies
- Cortisol increases blood glucose, enhances the use of glucose in the brain and enhances tissue repair. It alters immune system responses and suppresses non essential functions such as that of the digestive system, the reproductive system and growth processes
- This natural alarm system also communicates with regions of the brain controlling mood, motivation and fear

#### Internal stressors

Not all stress is caused by external factors, stress can also be self-generated:

- Procrastination
- Inability to accept uncertainty
- Pessimism
- Negative self-talk
- Unrealistic expectations
- Perfectionism
- Lack of assertiveness

## External/environmental stress

- Financial
- Family
- Relationships
- Social pressure
- Changing circumstances
- Time management
- Conflict
- Irritation
- Frustration

## Stress warning signs and symptoms

### Emotional symptoms

- Moodiness
- Irritability/short temper
- Agitation
- Feeling overwhelmed
- Sense of loneliness and isolation
- Depression/sadness

### Cognitive symptoms

- Memory problems
- Inability to concentrate
- Poor judgment
- Negative thinking
- Anxious or racing thoughts
- Constant worrying

### Behavioural symptoms

- Appetite changes
- Sleep disturbances
- Social isolation
- Procrastination
- Use of substances/nicotine
- Nervous habits (e.g. nail biting, pacing)

### Physical symptoms

- Aches and pains
- Diarrhea/ constipation
- Nausea
- Vertigo
- Chest pain/tachycardia
- Decreased libido
- Frequent colds

## Chronic stress

When the fight or flight response remains activated:

- The body's stress-response system is usually self-regulating
- When the stress-response system remains activated for a long period of time there is a cumulative buildup of stress hormones, disrupting almost all body's processes. If not properly metabolized over time, this increases the risk of numerous health problems

## Symptoms of chronic stress

- Headache
- Irritable bowel syndrome
- Compromised immune function which includes chronic fatigue, autoimmune diseases like rheumatoid arthritis, lupus, allergies and worsening of skin conditions
- Sleep disturbances
- Digestive problems
- Depression
- Obesity
- Memory impairment
- Heart disease

## Stress management strategies

### Body

- Relaxation exercises
- Go for a walk
- Exercise regularly
- Eat regularly/healthy foods
- Drink plenty of water
- Get adequate sleep
- Abstain from substances/alcohol
- Avoid caffeine, sugar, junk food

### Emotions

- Meditate
- Listen to music
- Take a hot bath
- Self-soothing
- Journal feelings
- Read inspirational material
- Use of spiritual faith for support

### Thinking

- Group therapy i.e. CBT, anger management
- Awareness of negative self-talk
- Gratitude journal

### Social

- Maintain a positive social support system
- Assert needs
- Set limits and boundaries

### Problem solving

- Seek assistance from knowledgeable people
- Deal with problems as they arise
- Use different problem solving strategies
- Communicate concerns
- Be willing to compromise

### Distraction

- Develop hobbies
- Take a break
- Go to a movie/watch T.V.
- Socialize with friends
- Read
- Spend time with pets

### Relaxation and stress reduction exercises

- Deep breathing
- Progressive muscle relaxation
- Meditation
- Yoga
- Guided imagery
- Visualization

# module 7

## Filling the Emptiness





## Module 7

### Filling the Emptiness

#### Learning objectives

1. Address issues of emotional and spiritual self care which support wellness
2. Explore various coping strategies from emotional and spiritual perspectives
3. Gain practical tools for self care

#### The gift of Diabetes – My story

Rev. Robitaille shares his personal story in dealing with his diagnosis of Type II Diabetes and the way he reframed that for improved health

#### The role of control

- Pareto's Principle: The 80/20 correlation.  
People generally spend 80% of their time fussing about things they cannot control and only 20% doing something productive

#### Flip it

- Spend 80% of your time **doing something productive** and only 20% **fussing about things** you cannot control
- Ask the critical question: **What can I control in this circumstance?**

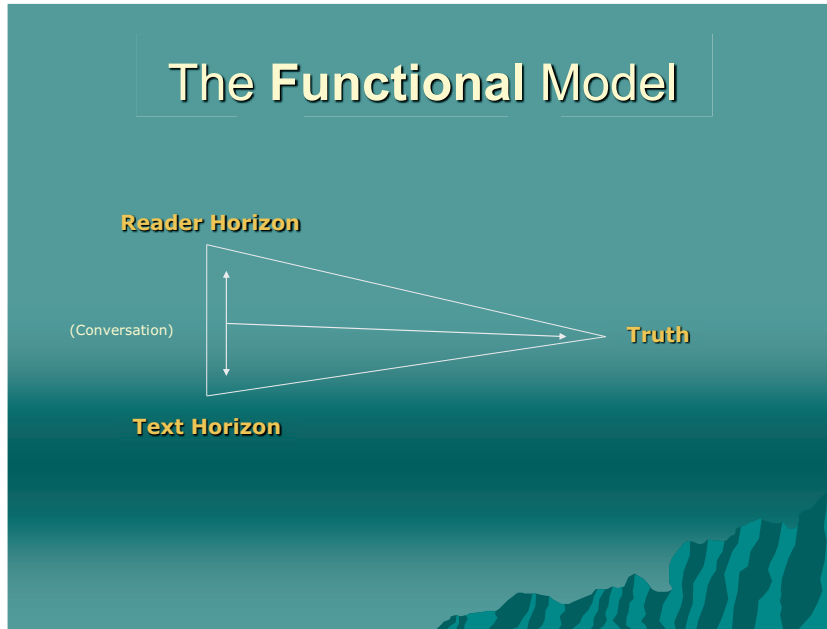
#### Learning to reframe

- Changing the perspective
- "Some people sing because they're happy; others are happy because they sing!" – John Maxwell
- The most important work of wellness occurs **between your two ears**.
- **The Pollyanna Principle**  
-Finding the "nugget of gold that is present in every cup of sand." –Marsha Linehan

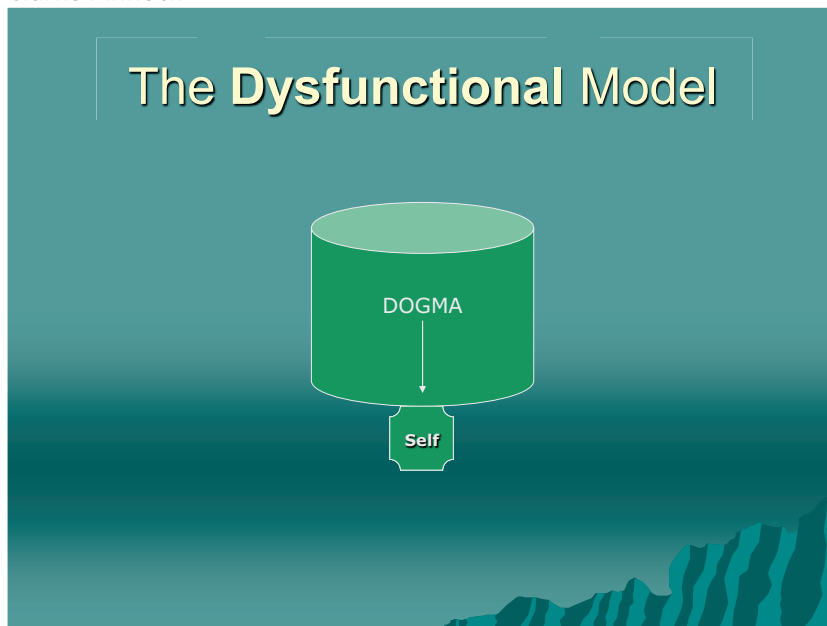
#### Things we can control

- How we think
  - Reflexively: "I am healthy" to "I am sick"
  - Adjustment: "I am not my illness"
- What we do
  - Walking - Rev. Robitaille has found this to be the most important discipline
  - Soul work - Activities that **nurture the whole being**. e.g., music, gardening, volunteering, spirituality
  - Activities -Things that support wellness (active, meaningful).  
-Things that challenge wellness (sedentary, selfish).  
-Balance

- What we don't do
  - Things that rob us of identity. Based on your own **moral code**.
  - Things that stress us out. Output that exceeds input.
  - Things that we don't want to do. Things that violate the "wise self."- Marsha Linehan
  - The people with whom we will and will not do things. People who do not apply peer pressure. Sometimes we can be too nice!
- What we believe...

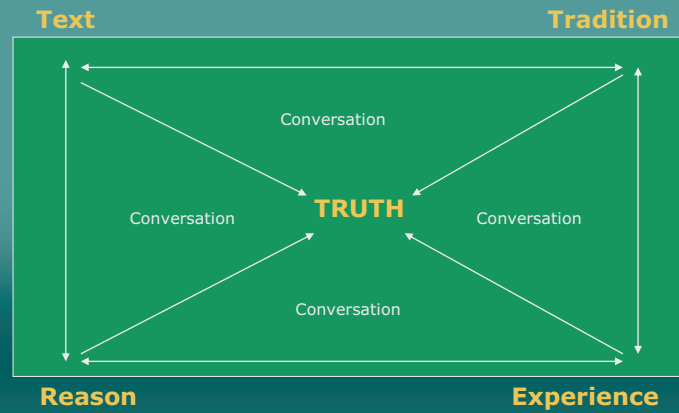


Clarke Pinnock



Glenn Robitaille

# More Functional Dogmatic Model



The Wesleyan Quadrilateral

John Wesley

## Nine critical principals

- Feel your feelings deeply
- Tell the “microscopic truth” (that which cannot be argued)
- Only make agreements you can keep
- Trust your “gut” (the wise self)
- Allow others to earn trust
- Be who you are – be authentic
- Balance
- Moderation
- Sincerity

# module 8

## Sleeping Well



## Module 8

### Sleeping Well

#### Learning objectives

1. Identify and understand the stages of sleep and how the body heals and repairs itself during sleep
2. Understand the biochemical and metabolic aspects of sleep
3. Be able to describe the relationship between sleep and appetite
4. Become familiar with strategies for healthy sleep habits

#### What is sleep?

- Sleep is a complex process of restoration and renewal of the body. It is not simply a state in which the brain is resting; the brain stays active. It occurs cyclically about every 24 hours involving two distinct stages: rapid eye movement sleep (REM) and non-rapid eye movement sleep (NREM)
- It is governed by an internal biological clock affected by light and dark
- It affects our entire life, from how we look, to how well we feel and perform throughout the day

#### Sleep stages and brain activity NREM Sleep<sup>43</sup>

##### Stage 1 (Drowsiness)<sup>43</sup>

- Lasts just five or ten minutes
- Eyes move slowly under the eyelids
- Muscle activity slows down
- Easily awakened

##### Stage 2 (Light Sleep)<sup>43</sup>

- Eye movements stop
- Heart rate slows
- Body temperature decreases

##### Stage 3 & 4 (Deep Sleep)<sup>43</sup>

- Difficult to awaken
- Often groggy and disoriented for several minutes after waking
- Brain attempts to recover from sleep deficits and restores energy
- Blood flow decreases to the brain
- Blood flow increases to muscles
- Growth hormones are released for growth, muscle development and general development
- Improved immune functions
- Inadequate deep sleep results in the strongest effects of sleep deprivation

## **Sleep stages and brain activity REM Sleep<sup>43</sup>**

- Where most dreaming occurs
- Occurs about 70 – 90 minutes into sleep cycle
- Usually have 3 – 5 REM episodes per night
- Associated with processing emotions, retaining memories, and relieving stress
- Breathing is rapid, irregular and shallow
- Heart rate increases
- Blood pressure rises
- Sexual organs can become aroused
- Regions of brain used in learning and developing new skills are stimulated<sup>43</sup>

## **The importance of time**

- Sleep “timing” is controlled in large part by the circadian clock, the inner “biological clock,” that responds to light signals through the eyes and promotes wakefulness<sup>44</sup>
- Sleepiness occurs when the circadian clock causes the release of melatonin and causes a gradual decrease in core temperature
- Melatonin is a hormone, the levels of which increase during the night and decrease at dawn
- Because of the timing of the biological clock and other bodily processes, it is natural to feel drowsy between midnight and 7 a.m. and again in the mid-afternoon between 1 p.m. and 4 p.m.
- Most adults need 7 – 8 hours of uninterrupted restorative sleep each night<sup>44</sup>
- Chronic lack of sleep can trigger the development of serious conditions
- Sleep is closely associated to our physical and emotional well being
- Symptoms of sleep deprivation include fatigue, daytime sleepiness, irritability, memory loss, decreased concentration, unclear thinking, emotional difficulties, stress, anxiety and depression
- Lack of sleep changes hormone levels in the body
- Disrupted sleep is sleep that does not follow the typical sleep phase cycle or does not remain in each of the cycles long enough resulting in an inadequate amount of deep sleep and total sleep<sup>44</sup>
- Disrupted sleep can be caused by individual behaviours or as a result of sleep disorders such as sleep apnea, insomnia, restless legs and narcolepsy

## **The restorative power of sleep**

- NREM sleep is important for restoring physiological functions while REM sleep is important for restoring mental functions
- During sleep the rate of cell division and protein synthesis increases
- Hormonal events are impacted by the amount and quality of sleep

## **Metabolic consequences of sleep deprivation**

- Sleep loss may play a role in diabetes and obesity by causing:
  - increased insulin resistance
  - increased cortisol levels (which also indirectly increases insulin resistance) leading to hyperglycaemia<sup>45</sup>

- Decreased growth hormone leading to reduced muscle mass and strength, an increase in fat tissue, and a weakened immune system
- Decreased thyroid stimulating hormone (TSH) which leads to a significant effect on growth, glucose and fat metabolism, immune function, and thought processes
- Decreased leptin (the hormone which signals the brain when you are full thus reducing appetite)
- Increased ghrelin (the hormone which is secreted by the stomach which stimulates appetite)

**With sleep deprivation the decrease in *leptin* (the appetite suppressant), and the increase in *ghrelin* (the appetite stimulant), hunger and appetite are increased, especially for high-carbohydrate foods. Typically after one night of sleep deprivation there is a 10% increased calorie consumption.<sup>46</sup>**

### **Sleep Apnea and the Risk of Metabolic Syndrome**

- In sleep apnea (which affects 4% of men and 2% of women)<sup>47</sup> breathing can stop hundreds of times during the night often for a minute or longer causing an interruption in sleep. This is often accompanied by snoring and causes significant daytime sleepiness.
- Sleep apnea sufferers are 9 times more likely to have diabetes than those without the sleep disorder<sup>47</sup>
- Due to the repeated interruptions in breathing, blood oxygen levels decrease, prompting a release of the stress hormone cortisol. This results in increased blood sugar along with a rise in blood pressure and problems with cholesterol metabolism
- In Metabolic Syndrome cytokines released by centripetal adipocytes cause widespread low grade inflammation in blood vessels and joints. Sleep is essential for healing to occur and to reduce chronic pain

## Obstructive Sleep Apnea and Diabetes

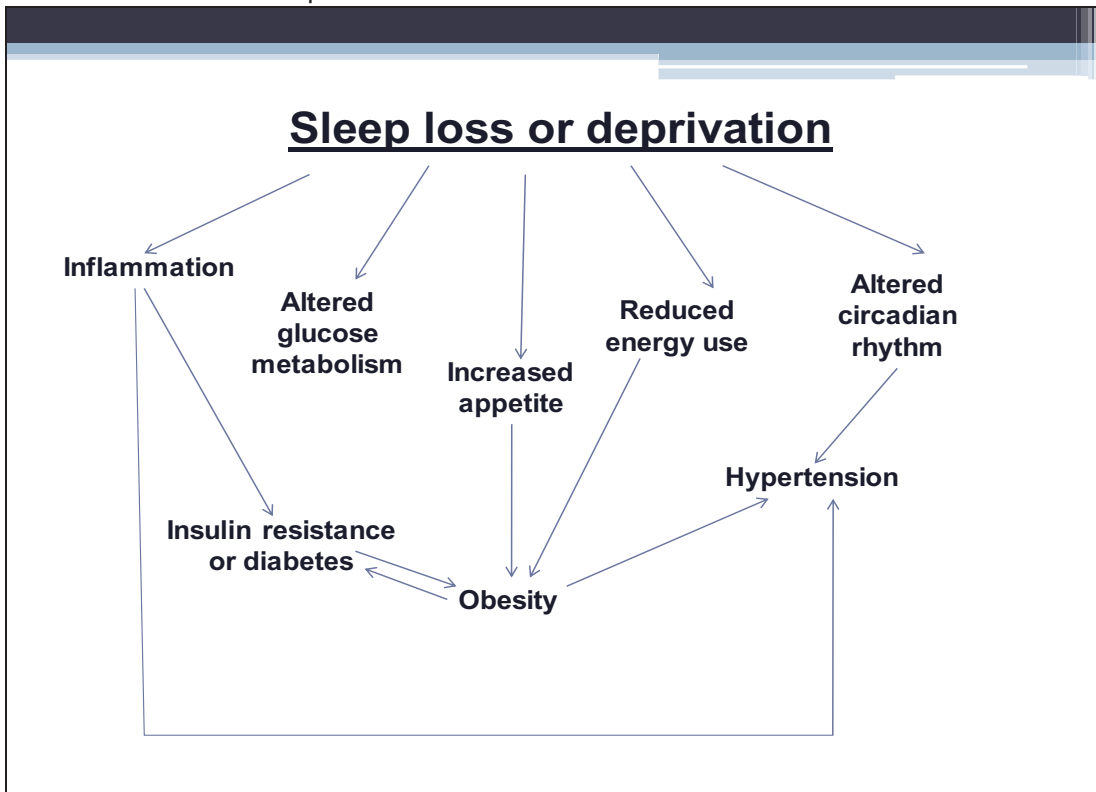
Obstructive sleep apnea is a common sleep disorder that disrupts healthy sleeping patterns and affects up to 4% of men and 2% of women. The condition causes a person's breathing to become irregular or briefly stop as the result of a collapsed airway. Each pause in breathing, called an apnea, can last from a few seconds to minutes, and may occur 5 to 30 times or more an hour.

Studies have shown that diabetes and sleep apnea are closely related, and sleep apnea sufferers are nine times more likely to have diabetes than those without the sleep disorder. Treating sleep apnea with continuous positive airway pressure (CPAP) not only helped people sleep better, but it also improved their blood sugar (glucose) levels.



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Association between sleep duration and metabolic function <sup>48,49</sup>





### **A healthy sleep ritual includes**

- Adequate sunlight exposure (minimum of 30 minutes per day) is key to regulating daily sleep patterns
- Adherence to a sleep schedule - e.g. going to bed and waking at the same time each day
- Exercise during the day but not within 4 hours of sleep
- Avoidance of caffeine and nicotine
- Avoidance of alcoholic drinks before bed
- Not lying in bed awake for more than 20 minutes. Encourage client to engage in a relaxing activity to induce sleep
- Avoidance of large late night meals
- Avoidance of beverages after 8pm
- If possible, medications which disrupt sleep should be taken in the morning
- Restriction of napping to under an hour. No napping after 3pm
- Engagement in relaxing activities before bed - e.g. reading leisure material, listening to music or taking a hot bath
- Conducive sleep environment i.e. room should be dark, cool, quiet
- Nurture the senses i.e. lavender scents, cozy socks, warm blankets

### **Foods which aid sleep**

- Warm milk – releases tryptophan and serotonin
- Bananas – contain natural muscle relaxants and release serotonin and melatonin
- Cherries and oatmeal – great sources of melatonin

# module 9

# Addictions



## Module 9

### Addictions

#### Learning objectives

1. Recognize the way in which food relationships often resemble an addiction
2. Learn stages of change
3. Learn strategies for overcoming this.

Unlike illicit drugs and alcohol, food is essential to life and thus we cannot seek to abstain from it. This makes the addictive aspects of eating challenging to overcome.

#### Stages of change

It can be very useful to regard change in relation to food ingestion in the same way one would prepare for recovery from addiction to drugs/alcohol using the Stages of Change as defined by Dr. Prochaska<sup>50</sup>:

- Precontemplative      Not thinking about change
- Contemplative        Thinking about changes
- Preparation          Ready to make changes
- Action                Making changes by modifying behaviours
- Maintenance        Consistently maintaining changes over time
- Termination        Relapse / Not attending to tasks of maintaining change
- Recycle                Return to earlier stage of change

#### Behavioural changes related to the first four stages could include:

- Shopping for groceries at a different time of day
- Not entering the aisles which stock processed food or complex carbohydrates
- Use a list to help facilitate sticking to a meal plan and avoid impulsivity
- Spend time with friends who make good decisions regarding food ingestion
- Engage in meaningful daily activities to reduce time available for preoccupation with food
- Increasing activity level by getting off the bus a stop before your own

Eating disorders including anorexia and bulimia nervosa, and obesity have shared behaviours that closely resemble substance use disorders:

- Obsessive thinking about food
- Loss of control with respect to food
- Preoccupation with food, meal planning, stealing food, communicating using food (gifts, entertainment)
- Use of food to avoid emotions such as anger, boredom, fear, loneliness
- Denial of problematic behaviour and habits regarding food ingestion
- Difficulty fulfilling obligations
- Continued abuse of food despite negative consequences
- Numerous medical, social and psychological difficulties as a result of food ingestion

# module 10

# Medications

module 10

Medications



## **Module 10**

### **Medications**

#### **Learning objectives**

1. Learn how medications are metabolized and processed in the body
2. Learn how smoking can interfere with medications
3. Learn how to manage pain using medications and non medicinal interventions
4. Understand the benefits and risks involved with medications

#### **A few things to consider**

- Risk factors for heart disease and other disorders in people with mental illnesses
  - Don't seek help
  - Reduced physical activity
  - Smoking
- Poor diet

#### **Antipsychotics – Typical**

These were the first group of psychotropic medications that were used, however are not as commonly used today due to their side effects listed below

- Fluphenazine
- Haloperidol
- Chlorpromazine

Side effects include:

- Tremor
- Slurred speech
- Anxiety/Paranoia
- Dystonia
- Akathisia
- Sexual dysfunction (increased prolactin)

#### **Antipsychotics – Atypical**

Within the last 15 to 20 years, this newer class of psychotropic medications which do not have the above adverse effects have been introduced.

- Ziprasidone
- Risperidone
- Quetiapine

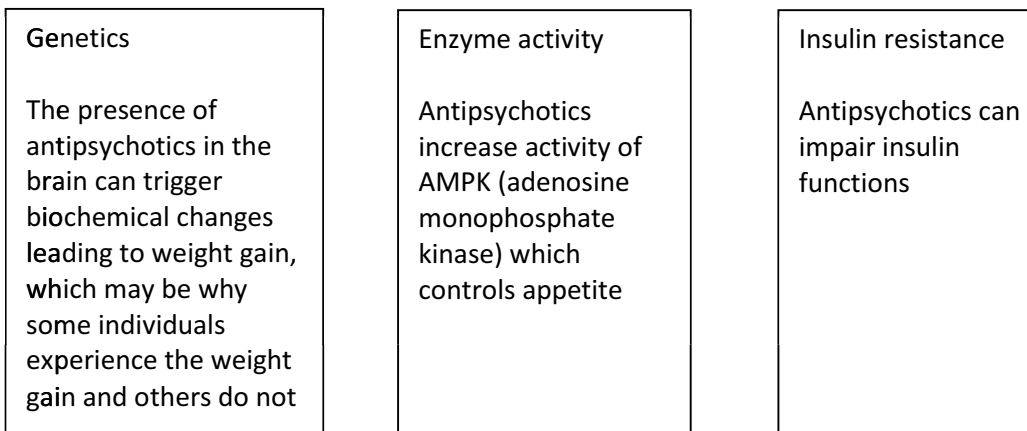
- Olanzapine
- Clozapine

Side effects include:

- Weight gain
- Type II Diabetes Mellitus
- Hyperlipidemia
- QTc interval prolongation
- Myocarditis

### Weight gain

- Weight gain from atypical antipsychotics is not fully understood
- There is an individual variability as to who will gain weight
- Weight gain is likely to occur from a combination of different factors:



### Resolutions

- When weight gain is minimal – diet and exercise can generally be used to prevent Metabolic Syndrome
- When weight gain is significant other strategies are used in addition to a healthy diet and exercise
  - Changing drug to another agent with lower risk of weight gain
  - Dose reduction: weight gain is related to dose (generally) higher the dose, the greater the weight gain
  - Lifestyle changes are key - working with a physical therapist and dietician have proven to be helpful

### Smoking 'The Cardinal Sin'

- Smokers are twice as likely to have a heart attack (cigarette smoke makes it easier for LDL cholesterol to clog up arteries).

- Quitting for just 2 years will drop risk of a heart attack to the level of someone who never smoked

### **Smoking and Medication**

- Increases metabolism of many medications by activating a greater number of enzymes in the liver
- Some of these same enzymes are responsible for breaking down antipsychotics so, in order to maintain appropriate levels → (generally) higher doses needed in smokers
- Quitting smoking will likely require a dose reduction in order to maintain the same drug level
- The following medications are metabolized by Cytochrome P450 (in particular 1A2) enzymes which are induced by cigarettes. The plasma concentration of these medications will decrease as a result of the enzyme induction. Nicotine does not affect the activity of these enzymes thus replacement therapy can be safely used for smoking cessation.
  - Clozapine
  - Olanzapine
  - Haloperidol
  - Fluvoxamine

### **Sleep and medication**

Always ensure that sleep hygiene has been tried before medications are used.  
Below is a list of medications that can be used for sleep:

- Non-prescription: diphenhydramine (Benadryl)
- Prescription i.e.
  - Zopiclone (Imovane/Rhovane)
  - Antidepressants (Trazadone, Mirtazapine, Paroxetine, etc.)
  - Antipsychotics (Seroquel, Zyprexa, etc.)
  - Benzodiazapines

### **Medications that can impair/affect sleep:**

- Steroids
- Antihypertensive/Heart medications (Anti-arrhythmics, beta blockers)
- Antidepressants (SSRIs like Fluoxetine and Sertraline)
- Nicotine Replacement Therapy (patches especially: best to remove them at night)
- Stimulants (e.g. ADHD medications such as Methylphenidate and Dextroamphetamine)
- Some herbs (e.g. St. John's wort, SAM-e, Chinese ginseng)

Note: SAM-e is "S-adenosylmethionine"

### **Pain and medication**

#### **Non-drug options:**

- Exercise regularly and daily
- Hot or cold therapy

- Decreasing weight
- Calcium/Vitamin D/Magnesium supplements (must be taken at least 1.5 to 2 hours away from some medications as they may interfere with medication absorption)

### Creams/Ointments

<p><b>Capsaicin</b></p> <ul style="list-style-type: none"> <li>• Can be helpful for some people if pain is specific and localized</li> <li>• Usually needs to be applied three to four times daily for several weeks before optimal benefit seen</li> <li>• Burning sensation at beginning of therapy – apply away from eyes, nose, etc.</li> </ul>	<p><b>Voltaren Emugel</b></p> <ul style="list-style-type: none"> <li>• Anti-inflammatory (diclofenac)</li> <li>• Applied two to three times daily</li> <li>• Should not be used for more than 7 days if no improvement seen – consult!</li> <li>• Generally should not be used if already on another anti-inflammatory</li> </ul>
<p><b>Aspirin</b></p> <ul style="list-style-type: none"> <li>• For pain, need doses of 325mg to 650mg</li> <li>• Caution: a single dose can precipitate asthma in ASA-sensitive people</li> <li>• Can cause stomach bleeds</li> </ul>	<p><b>Advil/Aleve (Ibuprofen/Naproxen)</b></p> <ul style="list-style-type: none"> <li>• Can precipitate asthma in ASA-sensitive people</li> <li>• Stomach bleeds can occur <u>without warning</u></li> <li>• Caution with long term use (high blood pressure, kidney failure, ulcers)</li> <li>• If using ASA: take NSAIDs at least two hours away</li> </ul>
<p><b>Tylenol (Acetaminophen)</b></p> <ul style="list-style-type: none"> <li>• No anti-inflammatory activity</li> <li>• No risk of stomach bleeds</li> <li>• Caution: serious risk in overdose – fatal liver injury (may be irreversible)</li> <li>• Max: 4 grams daily for most people (8 extra strength tablets)</li> <li>• Caution if using ASA, warfarin or other blood thinners</li> </ul>	<p><b>NSAIDs</b></p> <ul style="list-style-type: none"> <li>• Caution (especially with long term use): stomach upset/bleeds, renal failure, cardiovascular events</li> </ul>
<p><b>Steroids</b></p> <ul style="list-style-type: none"> <li>• Very effective in reducing/eliminating most kinds of pain</li> <li>• Almost every part of the body may be affected by side effects</li> <li>• Long term use should be supplemented with calcium/vitamin D to prevent osteoporosis</li> </ul>	<p><b>Narcotics</b></p> <ul style="list-style-type: none"> <li>• Prescribed according to pain pattern, individual, lifestyle, drug interactions</li> <li>• Can be used safely long term if used as prescribed</li> </ul>
	<p><b>Tramadol</b></p> <ul style="list-style-type: none"> <li>• Blocks pain receptors in brain</li> <li>• Used for nerve pain, back pain, arthritis, fibromyalgia</li> <li>• Tramacet: has acetaminophen (Tylenol)</li> <li>• Compared to narcotics....less constipation and less 'high', BUT, can still get upset stomach.</li> </ul>



Other medications such as anticonvulsants, antidepressants, baclofen and cyclobenzaprine can also be used for pain.

### **Hurt is not equal to harm**

- Not all pain is due to a physical reason. It is usually a brain phenomenon and it can be treated or reduced with higher level **brain function**  
E.g. walk for the time that pain is usually tolerable and gradually increase this activity regardless of pain level
- Medications can improve quality of life IF used appropriately. Always consult with a doctor and/or pharmacist

# module 11

## Walking Tall



## Module 11

### Walking Tall

#### Learning objectives

1. Understand and encourage use of individual confidence building skills
2. Educate recognition of individual body shape (unisex) and self acceptance of body image
3. Provide knowledge on how to dress according to individual body shape

**The inclusion of Peer Support in this section is fundamental in the delivery of the shared experience of personal self esteem struggles and acceptance**

#### How to Walk Tall & Exercise Self Confidence

- Emphasize the importance of communication through body language
- Effective communication of self confidence by understanding one's individual perception of what self confidence means, opportunities to identify barriers altering self perception

#### Instructions on how to Walk Tall

- An interactive exercise that demonstrates walking with confidence:
  - Hold your shoulders up and back straight
  - Hold head up
  - Take long steady strides
  - Smile and make eye contact
- An interactive exercise to identify unisex body shapes
  - There are 5 main body types for a man and a woman
    - Hourglass:** well proportioned with a shapely bust and defined waist
    - Rectangle:** well proportioned and relatively lean but lack curves
    - Apple:** well proportioned with a little bit of extra around the middle
    - Pear:** Torso width is smaller than the width of the hips
    - Inverted Triangle:** Shoulder and torso width is wider than the width of the hips
- An interactive visual exercise utilizing a full length mirror to reflect and accept body archetype

#### How to dress according to body shape

- Find well fitting clothes no matter what shape or size, minimizing trouble areas can increase confidence
- Understand colors, styles, patterns which compliment individual body shapes and sizes
- Understand the importance of footwear to promote confident posture and gait as well as style and comfort

#### The importance of positive self talk

- Communicate use of positive affirmations in daily life

## **Graduation Day**

Clients meet with staff to provide an opportunity for clients to refresh their memories and clarify issues taught at each of the modules. Feedback is obtained from clients in both oral and written format. Staff take the opportunity to encourage clients to attend the Staying Motivated Group and to maintain healthy lifestyle choices learned during the program. Each client receives a certificate of accomplishment and clients and staff celebrate together. A letter is sent to each client's respective family doctor/nurse practitioner regarding completion of the program. Each client receives a requisition form for post program bloodwork.

## **Aftercare**

- Clients are encouraged to continue psychological therapeutic work with case-manager/clinician
- Clients are encouraged to continue with individualized diet
- Clients are encouraged to continue with individualized activity program
- Clients are offered the opportunity to attend the "Staying Motivated" group which is held at the Outpatient Services Program twice per month.

## Client testimonials

My son Christopher was 6'6" and weighed 425 pounds when he first started the Metabolic Clinic. Prior, he was diagnosed with Diabetes and was insulin dependant. He also had a heart condition cardiomyopathy, an enlarged heart. He desperately needed to lose weight to save his life and give him a better quality of life. The cardio unit Doctors at South Lake Hospital, who monitored his internal defibrillator, were encouraging Chris to lose at least 125 pounds. This would qualify him to be put on the heart transplant list.

When Chris started the metabolic program he gave it his all. He would come home and tell me all about it and how excited he was to be involved in such a great helpful informative program. I remember thinking how I wished I could be involved with the Metabolic Clinic as it was so full of information and the support was amazing. Chris needed structure and encouragement to keep him on track. Not long after he started this program Chris started walking up and down King Street in Midland and walking at the mall and every time Chris and I went to Wal-Mart he walked all over the store, as opposed to before having to ride a mobility cart.

It wasn't long after starting the metabolic clinic that the pounds and inches came off as he changed his eating habits and was getting the exercise he needed. He even took on a paper route to get more exercise. Chris lost a total of 75 pounds. He was so proud of his accomplishments and thankful for the support, education of the metabolic group members and staff. He encouraged me to get involved for my own wellness. I talked to my worker at the Outpatient Services Program and completed an assessment and the required tests which further led to me being accepted into the Metabolic group. I was so delighted and told Chris that I was starting the Metabolic Clinic in January 2011.

He was so happy for me and could hardly wait.

Unfortunately, Chris would never see me start the Metabolic Clinic because he passed away on November 6, 2010 due to his heart condition. I wanted to make Chris proud of me and I started the Metabolic Clinic as scheduled. I am enjoying the group and find the information so valuable, teaching me so much about metabolic syndrome and my body. I am losing weight, inches, getting mobile and feeling healthier. Thank you Metabolic Clinic for teaching my son a better quality of life even though it was cut short due to his heart condition. Thank-you Chris for introducing me to a healthier way of life.

Marilyn W.  
Client

For many years I struggled with mental illness and as a result of my illness and its treatment I struggled with weight gain. The Metabolic Clinic program educated me on eating healthy, being active, on sleep and stress. It taught me how to fill the emptiness I feel by spending time with friends and family instead of filling it with food. I was able to gain valuable information about my condition that had changed my life for the better. I have more energy, I feel better about myself and all of my physical and healthy changes have impacted my mental health in a positive way. Since participating in the program I have lost a staggering 65 lbs, my goal is to continue to lose more and I am confident that with the tools and knowledge I have been given, I will meet my ultimate goal. The weight loss not only helped my overall general health but has also made an improvement in a back injury that I have suffered with for over 2 years.

I have had such great personal success with this program, I felt and continue to feel that I want to share my results and resources with my peers. By having the enthusiasm to help with this program many doors have opened up to me in education, relationships, and the most positive outcome is my own personal sense of success and worth. As a Peer Support Worker, I help those who are going through the program by being a source of inspiration, a positive role model, and example of success, and someone who is only a phone call away. Even though I have struggled with mental illness for over 30 years, my illness does not define me. I have the right to feel good, and look good despite the need for my psychiatric medications. I am aware of the risks they pose with regards to weight gain, but now have the knowledge, information, and willpower to do something about it.

Sherri K.

Client, and Peer Support Worker

The Metabolic Clinic has helped me so very much. It has taught me to not focus on dieting so extremely but a healthy plan of eating. I have lost weight and inches due to the process and continue to be mindful of it due to the Metabolic Clinic. In the class we had a dietitian come in and teach us healthy food choices, shopping on a budget etc.. We learned to chart everything that we eat and drink in a day, as looking back on our food choices puts it in perspective. We gave each other ideas to help one another with our food choices. Doctor Duncan and the other facilitators were the best, always there to support us, being very encouraging with a quick hug or words of congratulation. In each session we had a healthy snack which was so nice and giving us all time to come together as a group as we formed a great bond.

Way to go metabolic clinic! Thank you so much

Karen B.

Client

I want to tell you about the 10 week Metabolic Program, offered through the Waypoint Centre for Mental Health Care - Outpatient Services Program, that I had the pleasure and privilege of attending. I have been over weight for many years. I have dieted many times and on a few occasions I have lost large amounts of weight. Medication side effects, apathy, lifestyle, heredity, lack of funds and lack of self-worth have all contributed to me putting the weight back on. Many programs that I have attended have educated me in what foods I need to eat, the foods I need to avoid and exercise required to reduce the pounds, but the Metabolic Program did much more.

I learned Metabolic Syndrome is prevalent in about 55 – 60 % of the mentally ill population and it is killing many of us. The program is an educational series and a support group rolled into one, with the objective of providing self-help knowledge. The goal of the program is not to lose weight. That is the side effect. The goal is to learn about the Metabolic Syndrome that is affecting our lives and to learn every day techniques to improve our health. Each week we were educated about another part of the puzzle. It was about understanding what was happening to our bodies and how our bodies were processing the foods we eat, including sugars, fats, salts and fibre. It was about becoming active, one step at a time. Modules included understandable information about a healthy diet, stress reduction, food addictions, the importance of sleep, our personal spirituality (what to do to fill that empty hole) and about an active way of life. We took one step at a time, literally. We didn't try to do it all at once. It was more about a change in life style. We learned how to dress for our body type and we learned that we were in control of our own lives.

In addition to the numerous clinicians providing their expertise, there was a Peer Support worker who attended every meeting. She too was struggling with both mental health issues as well as metabolic syndrome and she was an absolute inspiration to us all. The group dynamics were also a big aspect of why this program is so successful. Together we learned the meaning of peer support. We did round tables and individually talked about what was and what was not working for us. We reflected about how other parts of our lives were interfering in our health. We supported each other, we learned from each other and we cried with one another when one of our own passed away.

The program was not perfect. There were timing issues, staffing issues and even the weather got in the way at times. But each week we were asked for our opinion of how to make things better. We were listened to when we realized that the Metabolic Program and the Healthy Lifestyles support group could be linked to address some of the shortcomings. That is what really makes this program work. It is Client Driven and it will continue to evolve and get better and I am healthier today because of it.

Cyndi R.  
Executive Director of the Patient/Client & Family Council

## Future Directions

- Members of the OPSP Metabolic Clinic have been asked to participate in the newly established Waypoint Centre for Mental Health Care Task Force whose mandate it is to advise regarding introduction of interventions for our inpatient population who suffer from Metabolic Syndrome
- Inclusion of a Physiotherapist to assist clients with activation in the presence of disability/pain
- One-to-one follow up by metabolic clinic staff if resources permit
- Inclusion of a cooking module/cooking club
- Formal research to document success
- Creation of a handbook for consumers
- Cookbook for consumers living with Metabolic Syndrome
- Satellite clinics in remote areas with established high risk populations e.g. Aboriginal groups
- Consumer newsletter to be written by Peer Support Workers



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## Helpful Resources

- “Exercise is Medicine” is a resource for professions in healthcare to promote exercise as part of a treatment regimen. [www.exerciseismedicine.org](http://www.exerciseismedicine.org)
- Minding Our Bodies is a three-year project (2008-2011). Our goal is to increase capacity within the community mental health system in Ontario to promote active living and healthy eating for people with serious mental illness to support recovery- [www.mindingourbodies.ca](http://www.mindingourbodies.ca)
- **Ophea (Ontario Physical and Health Education Association)** is a not-for-profit organization dedicated to supporting schools and communities through quality program supports, partnerships, and advocacy. Ophea is led by the vision that all kids will value, participate in, and make a lifelong commitment to healthy active living - [parc.ophea.net](http://parc.ophea.net)
- Public Health Agency of Canada’s primary goal is to strengthen Canada’s capacity to protect and improve the health of Canadians and to help reduce pressures on the health-care system [www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)

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**For more information or to contact the Metabolic Clinic team of the Outpatient Services Program, contact Waypoint Centre for Mental Health Care toll free at 1-877-341-4729.**



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