As we know, smoking is one of the highest risk factors in diabetes and heart disease. More smokers die from coronary heart disease than from lung cancer. Tobacco intervention is a challenge for every health professional who is associated with the care of patients with diabetes. Most smokers do not want to quit smoking. The most effective smoking cessation program and motivating factor in making a decision to quit smoking, may be a health problem. Diabetes is a chronic disease that requires lifestyle changes and this includes smoking cessation. We as health professionals need to find innovative ways to motivate people to quit smoking. This in turn may give them the motivation to give up smoking.

Health Professionals must remember that when a person is newly diagnosed with Diabetes Mellitus they are overwhelmed with new information and asked to make numerous lifestyle changes. These include, nutrition and diet changes, glucose monitoring, new medications, weight loss, smoking cessation and understanding what it is like to live with a chronic disease. When a person with diabetes has come to terms with the most important lifestyle changes and is refocused, this may be the time to introduce information on smoking cessation.

There is not a one-step program or group of factors that will work for everyone. There are numerous programs, devices, methods, medication, policies and legislation that may influence smokers to quit, however, ultimately the task that must be faced is that the smoker alone has to make the decision to quit.

Our facility has adapted the Freedom From Smoking Program from the American Lung Association. The Alberta Lung Association offers a certification course based on this program. A two day course gives you the tools to be able to facilitate a program in your community. The course can be used to counsel patients on a one on one basis or in a group. The program targets the adult group. www.ab.lung.ca/healthprofessionals.html.

As you are aware, smoking and diabetes is a high risk combination for a number of reasons. Firstly, smoking robs the blood of oxygen because of the high affinity hemoglobin has for carbon monoxide in comparison to oxygen. This in turn makes oxygen less available for body cells. This causes the heart to work overtime in order to get enough oxygen. Respiratory and heart rates increase. Secondly, nicotine causes vasoconstriction increasing blood pressure as well as it increases the build-up of lipid deposits along the inside walls of the arteries (atherosclerosis) which can lead to cardiovascular disease and stroke. In May 2000 a working group of Canadian experts updated guidelines regarding dyslipidemia. They placed “individuals over the age of 30 years that have diabetes mellitus in a very high risk category for Coronary Heart Disease placing them
at the same risk level as people who have had a heart attack or stroke". (Fodor JG, Frohlich J, Genest J Jr, McPherson PR for the working Group on Hyper-cholesterolemia and Other Dyslipidemias). A very important reason for smoking cessation.

Individuals have taught themselves to smoke. They practiced until the learned behavior became automatic and triggered behavior. For a person to quit smoking they must therefore unlearn this automatic behavior. This is a process that substitutes healthy alternatives rather than smoking. Smoking is a two-fold addiction that has been learned and both physical and psychological behavior must be modified in order to become a successful nonsmoker.

Physical Addiction

Nicotine is a highly addictive drug. Within seven seconds of inhaling cigarette smoke, nicotine goes to your brain and relieves the stress the body feels when it is without the drug. Nicotine temporarily makes you feel good and makes you want more. Physical cravings for cigarettes are due to low levels of nicotine in the body. In combination with physical addiction, physical habit becomes a strong ally. Each puff of a cigarette helps to create a strong “hand to mouth” habit. Each cigarette brings the hand to the mouth 10 times, smoking one package a day repeats this action 250 times, or over 1500 times a week and over 90,000 times a year. This results in strong physical behavior. Add to this, the emotional tie that cigarettes are good friends that help through stressful, happy and fearful times presents a great psychological behaviour.

Psychological Behaviour

Smokers fall into two groups of people. Those that have tried to quit five or six times and have tried every known device, method or medication to help them quit. The other falls into the category of having smoked more than thirty years and has never had any intention of quitting. Smokers tend to use cigarettes when they are nervous, stressed, to relax, take a break, talking on the phone, and socially when they drink alcohol. This psychological behaviour that promotes the cigarette as a friend and a controlling friend, increases dependence. This control is shown in everyday life, when home life, working schedules, and every waking moment is controlled by the cigarette. Smokers reward themselves for a job well done; they will do certain activities and reward themselves with a cigarette. Stressful and fearful times allow the smokers the “friend” who will be with them and comfort them when no one else will, this strengthens the ties. People who smoke also see smoking as a big part of who they are. Thus, it can have a strong hold on their lives.

Increasing information on the harmful effects of smoking and second hand smoke has brought about changes in laws related to smoking in public places. There are fewer and fewer places to smoke. Thus, hard core smokers are being forced into entering smoking cessation programs before they are ready. The stages of quitting will help the healthcare professional identify the needs of various smokers. Smokers need to know that each attempt at quitting smoking is a step toward success.

There are five stages of quitting (Prochaska and DiClements Journal of Consulting and Clinical Psychology (Vol 51, No3, 1983).

These include:

1. Precontemplation: No intention of quitting. Not open to negatives of smoking. May be open to benefits of quitting. These people need support, they do not need to be nagged about smoking and quitting. You need to understand
how they are thinking. Be positive, listen in an empathetic way to the patient’s pros and cons regarding smoking. Recognize their fears about stopping smoking. They are aware of the negatives and health risks of smoking. Family members and health professionals need to let them know that they care about them and their health.

2. Contemplation: Evaluating smoking behavior. Open to education and feedback. At this stage a person is ready to discuss their habit. Encourage them to discuss why they smoke, their feelings about continuing to smoke and about quitting. Check that the patient feels capable of quitting. Encourage them to quit and express your confidence in them to quit. Help the patient set short term goals. Give them educational materials on quitting. They need to understand their smoking behavior and what techniques they can use instead of smoking cigarettes.

3. Action: Ready to quit and remove themselves from smoking environments. This is the time health professionals need to be very supportive. A quit date should be chosen preferably one week away, a meaningful date, birthday, anniversary, or family day. Have the patient write down why they are quitting, keep track of the cigarettes they smoke, how they feel about each cigarette, cut down on the cigarettes that are not meaningful, i.e., the ones that are smoked because they are bored, really do not have a craving for. Then cut these out the week before they quit. Trying lower nicotine cigarettes, usually does not work, smokers only smoke more. Suggest they write a letter to the cigarette and their feelings about quitting. Discuss behavioural strategies for coping with cravings. This is the time, if appropriate, to offer stop smoking medications. Discuss use and side effects. Make sure they reward themselves for small achievements.

4. Maintenance: Have quit for at least six months or longer. Need help learning to continue resisting the temptation to return to smoking. Facts, benefits and new lifestyle opportunities are helpful. Review patients drinking, eating, and sleeping habits. Check for family support. New hobbies, fitness classes a holiday as a reward for the amount of monies they have saved from not smoking. Anniversary dates should be rewarded.

5. Relapse: Those who have failed at their quit attempt may go through precontemplation phase again emotionally and will try to quit again. Listen to the patient’s positive and negative feelings about smoking. Review coping strategies, withdrawal symptoms, stress these symptoms are their body’s way of recovering from smoking, they are positive signs.

BC Doctors’ Stop-Smoking Program website www.bcdssp.com has some additional information.

How do you determine what stage a smoker is in? The Alberta Lung Association Material has some sample material that maybe helpful:

1. Have you smoked at least 100 cigarettes in you entire life?
   a. Yes - Go to question 2
   b. No - Ask how you can help, e.g., problem with passive smoking

2. Have you smoked any cigarettes during the past six months?
   a. Yes - Continue questions.

3. Do you smoke cigarettes now?
   a. Yes - Continue question.
   b. No - Recent quitter. Action Stage

4. Are you seriously considering quitting within the next six months?
   a. Yes - Contemplator
   b. No - Precontemplator

5. In the last year, how many times have you quit for at least 24 hours?
   a. None - Precontemplator
   b. One or more - Relapser.
We know smoking is a very high risk factor for anyone with Diabetes Mellitus. We as Health Care Professionals need to be supportive, and encouraging when introducing information to patients about smoking cessation. Smoking cessation is a process. There is not one single program that will work for every smoker. Along with their Physician, they should review as many resources and programs as possible, and choose the one that works for them. Education, knowledge, and commitment to smoking cessation programs by health care professionals will help people with diabetes reach their goal of becoming nonsmokers.

Diabeaters, a brand new Canadian website and on-line store, launched August 2002 with their debut at the American Association of Diabetes Educators and the Canadian Diabetes Association conference. The website, created by Lee-Anne Kennedy R.N. C.D.E., from Deep River, Ontario, brings a host of resources to both educators and consumers alike.

**RESOURCES FOR YOU - THE EDUCATOR**

For the Professional, the Diabeaters Professional Shop has a large variety of teaching tools and resources for use in diabetes clinics, including Power-Point cartoons, Glucose Wands, Meals-For-Good-Health Teaching Binder, HbA1c Pillow, and the Insulin Resistance Expanding Globe.

Visit the Diabeaters Teaching Treasures, a section dedicated to the free sharing of program tools and ideas that are used daily in clinics. If you have developed ‘teaching treasures’ such as teaching sheets, clinic forms, overheads, games and so on, submit them to the Teaching Treasure section. It’s a great way to save others from reinventing the wheel! (A peer panel will choose a ‘Diabeater of the Year’ from all Teaching Treasures submitted).

The Diabeaters Professional Message Board, brought to you in partnership with the Canadian Diabetes Care Guide, is an upbeat place to network and discuss issues with your colleagues year round. There is also the Professional ‘Ask The Expert’ section on the message board, in which to pose professional-related questions to a variety of experienced diabetes educators, including dietitians, nurses, pharmacists, as well as other visiting guests.

The Diabeaters’ Clip-Art Gallery is a fabulous selection of diabetes related cartoon clip-art by Diabeater’s artist Yves Lessard, a nurse from Hull Quebec. The clip-art gallery has a registration of $19.99/year, and offers the added attraction of submitting your personal cartoon requests for inclusion in the gallery!

Finally, the Diabeaters E-Cards are a selection of free electronic greeting cards that can be individually personalized and are a great way to keep in touch with your friends, colleagues and clients!

**RESOURCES FOR YOUR CLIENTS**

Diabeaters has a variety of resources available for those affected by diabetes. The ‘Everyday Resources’ Shop has an abundance of diabetes related products, Low-Sugar Keys, Digi-Walker pedometers, books, calendars, bathing suits, shoes and seamless socks.

The ‘Diabeaters Live Well’ section has tips on keeping well with diabetes including the Diabeaters Wellness Card and foot care tips. This section is updated regularly.

The Diabeaters Message Board provides public visitors a place to network and discuss issues with others affected by diabetes. There is also an ‘Ask The Expert’ section for the public, where members can post a wide variety of general diabetes-related questions to a panel of diabetes educators. The Diabeaters E-Cards are also available free to the general public!

Log on to www.diabeaters.com, and discover the many resources available! Diabeaters can also be contacted by phone toll free at 1-866-DIABEAT. Samples of Diabeaters postcards are included in your professional pack and are a great way to tell your clients about Diabeaters. If you would like to order more for your clinic, contact info@diabeaters.com.
You know that Equal has the great taste people love. In restaurants and at home, Equal provides all of the sweetness of sugar, with only a fraction of the calories and carbohydrates. Equal not only tastes great but is available in convenient tablets for hot beverages, packets for hot or cold beverages, and Spoonful for cooking and baking.

With the grocery store shelves filling up with more and more choices every day, you may ask yourself what makes Equal the best choice among sugar substitutes.

When Equal was introduced over two decades ago, it revolutionized the way we eat by allowing people to enjoy the great taste of sugar, with fewer calories and carbohydrates. Since then, Equal has been on a mission to help people experience great taste and maintain a healthy lifestyle. We take this to heart. And nowhere is this more evident than at the heart of Equal – our test kitchen.

In the Equal Test Kitchen, we create new versions of favourite recipes that not only use Equal, but also take into account other nutritional factors, such as fat content. We test these recipes in our kitchen to ensure consistent success.

Unlike other makers of sugar substitutes, we pay close attention to all the food values (fats/carbohydrates), to give you recipes that not only taste delicious but can easily fit into any healthy eating plan. Take the Bittersweet Chocolate Torte recipes for example. It’s lower in calories but we think that it is every bit as decadent as the traditional recipe. That’s why you can count on us to be your partner in your patient’s sweeter, healthier lifestyle. The choice is simple. The solution is Sweet. Equal works!

For a complete list of our fabulous recipes, including drinks, deserts, baked goods, and main courses, visit http://www.equal.com.
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RASPBERRY TEA REFRESHER

Just follow our 3 simple steps:

1. EMPTY 1 pouch CRYSTAL LIGHT Raspberry Ice Tea Low Calorie Drink Mix in a large glass pitcher.
2. ADD 2 cups cold water
3. STIR in 4 cups cold sparkling water and 1 cup frozen raspberries. Serve immediately.

QUICK TIP: Substitute raspberry sparkling water for the plain sparkling water, if desired.

Makes 6 (1 cup) servings.

Per Serving
Calories 19  Protein 0.5 g
Fat 0.1 g  Carbohydrate 3.8 g

Canadian Diabetes Association
Food Choice Value

SMUCKER'S
No Sugar Added Fruit Spreads

Here’s a tasty treat for people who follow a sugar-reduced or carbohydrate-reduced diet. J.M. Smucker’s delicious line of No Sugar Added Fruit Spreads is sweetened with Sucralose, the only sweetener that’s actually derived from sugar.

“The advantage of Sucralose over other artificial sweeteners is that it delivers a similar taste to that of sugar,” Product Manager Peter Saikali points out. “So our No Sugar Added Fruit Spreads really match the tasty, wholesome fruit flavour that makes our regular brand the best loved jams in Canada and the U.S.”

Sucralose has other advantages for people with diabetes. The body does not recognize it as a sugar or carbohydrate, so it does not influence carbohydrate metabolism, insulin secretion, fructose absorption, glucose absorption, glucose utilization and short- or long-term blood glucose control.

The Smucker’s line of No Sugar Added Fruit Spreads includes everyone’s favourite fruit flavours – Strawberry, Raspberry, Apricot, Orange and Blueberry. Each 15 mL serving (1 tbsp) has just 20 calories, 0 g fat and 5.4 g of carbohydrate. In Canadian Diabetes Association food value terms, that represents a 1/2 Fruits & Vegetables Choice rating.

“People with diabetes and consumers with low sugar needs can spread our No Sugar Added Fruit Spreads on thick, just the way they used to enjoy their jam, but without the added sugar,” adds Mr. Saikali. For anyone who is sacrificing sugar, that’s sweet news indeed.
Helping People with Diabetes Change:
Stages of Change

By Julie Devlin, RN, CDE

The Stages of Change model, also known as the Transtheoretical Model of Change (TTM), has become the focus of a unique program for diabetes educators in Canada. A small group of educators were motivated to pursue the development of this theory in their diabetes practice, after attending a 1994 seminar introducing James Prochaska and his original TTM work in smoking cessation.

The central hypothesis of the TTM is that not all individuals are prepared to take action to change their behavior at a given point in time. Further, individuals pass through stages varying in their characteristics related to self-efficacy and decisional balance. By knowing the individual's stage, helping professionals can design/select the strategy that is "The right thing for that person at that time".

Contemporary diabetes management is based on an implicit assumption that all those attending a diabetes education program are prepared to change. Many diabetes education/management programs have little to offer those individuals currently unwilling to attend diabetes education programs or to follow through on self-care behavioural recommendations. TTM offers these individuals and their care providers a new approach in addressing changing behaviours for diabetes care.

By studying how people changed behaviours, with or without help, a pattern of five stages has emerged, each defined by the person’s intention to change within a given timeframe, along with descriptors or characteristics common to each of these stages.

The Stages of Change
Change of any kind comes in stages. Success is movement from one stage to the next. The stages are:

Precontemplation
When someone has no intention of changing a particular behavior.

Contemplation
When they are thinking about change but the barriers to change still outweigh the benefits.

Preparation
When the reason to change begins to outweigh the barriers and the subject starts making a plan to begin change in the next 30 days.

Action
The slipperiest stage, when the subject has changed the behavior but is at most risk of sliding back or recycling into an earlier stage. Support and encouragement can help keep the subject from losing confidence and slipping back.

Maintenance
When the new behavior has been successfully in place for six months or more. Here again support reduces the risk of recycling.

The Stages of Change Model may be used to guide any therapeutic intervention, whether it be an individual encounter, a one-page poster or an entire program of learning. With individuals, it may be used to guide the content, pace and style of your assessment process and individuals plan of care. With group classes, it may be used to develop stage-based objectives and plan appropriate teaching strategies to accomplish them. It may be used to develop teaching tools or handout materials that are appropriate for different learning objectives. In fact, the LifeScan Education Institute used the Stages of Change as a platform to develop the Test For Success teaching tool, which assists Diabetes Nurse Educators in teaching blood glucose management to their patients. In addition, the LifeScan Education Institute developed the poster “What Happens To Your Blood Sugars When?” that assists people in the precontemplation stage of the Stages of Change.

The TTM does not replace guidelines for good communication/education skills – it suggests that we could use them more effectively through a stages of change approach to assessment and planning. The programs have been a great success with over 30 workshops held in various provinces across Canada. For more information about this workshop or how to organize a workshop in your area, please contact the LifeScan Education Institute Coordinators at (604) 320-2908. To find out more about the Test For Success teaching tool or the precontemplation poster please contact your local sales representative.
LIPID MANAGEMENT

In May 2000, a working group of Canadian experts updated the Canadian guidelines on the management and treatment of dyslipidemia. They made numerous changes from the previous guidelines that are important. The most significant, however, affects people with diabetes.

In these guidelines, individuals over the age of 30 who have diabetes mellitus (defined as a fasting blood glucose level of ≥ 7.0 mmol/L) have been moved into a new category. They are now considered to be at “very high risk” for CAD — placing them at the same risk level as people who have had a heart attack or stroke.

A recent study published in the U.K. has also shown that in diabetic patients, lipid management is even more important than glucose management for the reduction of cardiovascular risk. It was found that intensive blood glucose control in patients with type 2 diabetes reduced the incidence of retinopathy and nephropathy, but had less of an impact on CAD risk. It has been shown in a study published in the New England Journal of Medicine that type 2 diabetes increases the risk of CAD by a factor of two to four. For this reason, the Canadian working group described lipid lowering and blood pressure control as “major priorities” for these patients.

The guidelines also recommend target lipid levels for people in various risk groups. They suggest that very high-risk patients, including people with diabetes, aim to keep LDL cholesterol levels below 2.5 mmol/L, triglyceride levels below 2.0 mmol/L and the ratio of total cholesterol to HDL cholesterol below 4.0.

The guidelines also recommend that people with diabetes whose lipid levels are above their targets immediately begin drug treatment in conjunction with diet and lifestyle changes, rather than first trying diet and lifestyle changes alone. This change underlines the need for aggressive lipid management in these very high-risk patients.

For patients with elevated LDL cholesterol levels, with or without abnormal triglyceride levels, the class of drugs called “statins” are recommended as the drugs of choice. Research has shown that in people with diabetes, a statin drug can reduce the likelihood of a cardiovascular event and may increase survival. These drugs cause relatively few side effects and are all available in once-a-day tablet forms.

For further information on cholesterol and your heart, call: 1-877-4-LOW-LDL (1-877-456-9535).

References:

Sponsored by an unrestricted educational grant from Pfizer Canada Inc.
Diabetes, a medical condition that affects more than two million Canadians can also cause erectile difficulties (ED). About half of diabetic men between the ages of 40 and 50 have some degree of ED. By age 70, this figure is closer to 95 per cent. For these men and their sexual partners, loss of self-esteem, embarrassment and relationship difficulties are not uncommon – ED can cause significant personal and emotional stress that affects all aspects of their lives.

Yet, many men are still uncomfortable discussing ED with their physicians, and in some cases, their partners. It may surprise them to learn that the majority of Canadian family physicians have prescribed an ED treatment, reflecting their willingness and ability to diagnose and treat this condition. It also shows that men are not alone in their concern about ED.

“There is an increased incidence of ED among men with diabetes, which may be seen as a complication,” said Dr. Brewer Auld, urologist and Chair of the Canadian Male Sexual Health Council. “These men, however, can manage both their diabetes and their ED effectively – leading to a striking improvement in their well-being. With effective treatments readily available for ED, all men – including men with diabetes – are encouraged to talk to their doctor about their ED.”

For most Canadian adults, sexual health is an important part of their overall well-being. In fact, most men and women expect to enjoy a healthy sexual relationship, including the option of sexual intercourse, well into their older years. Men who receive effective treatment for ED are usually thrilled with their improved sexual activity.

What Is ED?
ED is typically defined as the persistent inability to attain and/or maintain an erection that is satisfactory for sexual performance. The easiest to recognize, of course is complete ED, which is the inability to achieve an erection in any circumstance. But ED is more precisely a condition that occurs in various degrees. In fact, the majority of men with ED (82 per cent) have mild to moderate ED, which can be defined as intermittent and/or increasing loss of penile rigidity with an associated impact on sexual activity.

Regardless of its degree of severity, men should consider ED a legitimate medical concern deserving of treatment. ED is not an inevitable result of aging.

How Is ED Associated With Diabetes?
For men with diabetes, the blood vessel problems and nerve damage that may be present with diabetes can also cause a slow and progressive deterioration of erection quality over time.

ED may also be caused by factors such as smoking, obesity, excess alcohol use and stress. Scientists believe that these factors may also be associated with type 2 diabetes, the kind that affects 90 per cent of Canadians with diabetes. Removal of these contributing factors could be important in preventing or minimizing the physical and emotional impact of both diabetes and ED.

Can ED be Treated in Men with Diabetes?
The good news is that regardless of the cause, the majority of cases of ED are treatable. ED doesn’t need to be a difficult subject to discuss, especially since today’s treatment options can give new hope for restoring sexual functioning. It is encouraging for men and their partners to know that there are safe and effective treatments now available. Your doctor can help you to decide whether or not to treat your erectile dysfunction and identify the best treatment option for you.

For more information on ED in men with diabetes or ED in general, call 1-800-951-2033 (an ED information line answered by a nurse) or visit www.yoursexualhealth.com.

Sexual Health Inventory for Men (SHIM) questionnaires have been included in this package to facilitate self-diagnosis of erectile dysfunction within individuals that consult with you.
What is the association between diabetics and dry eye syndrome?

Dry eye syndrome is a disease of the surface of the eye that causes burning, stinging, grittiness and discomfort. This disease is very common in the general population with estimates of up to 28% of adults having the disease. It is also true that patients with diabetes have this disease more often than those without diabetes. The Canadian Dry Eye Epidemiology Study found that 37% of patients with diabetes had dry eye symptoms.

Because diabetes can affect the nerves of the ocular surface and cause a reduced sensitivity, diabetic patients can have this disease and not know that they do have it.

It is therefore important that people with diabetes are aware of this potential problem and that they make sure that their eye doctor looks carefully at their ocular surface.

What is dry eye?

Although the term dry eye suggests that a reduced tear flow is the sole cause of the problem, there are many ways that dry eye can occur. The normal tear film on the surface of the eye is a very complex structure that is secreted by a number of glands around the ocular surface and lids. The tear film is replenished by each blink and the used tears are pumped into the small holes in the upper and lower lids near the nose. They then pass through a small canal and flow into the nose and eventually down the throat.

If any of these glands malfunction because of inflammation or lack of blood supply or improper nerve stimulation, the tear film becomes thin or has a poor composition and this is called a dry eye. Also if the lids do not blink fully, or if they remain partially open during sleep, dry eye can result. The patient with dry eye will feel uncomfortable and the doctor evaluating the dry eye will see dead and dry cells on the surface of the eye and often lid redness and crusting.

What is the tearfilm and why is it so important for healthy eyes?

The tear film is made up of three main layers: the underlying mucin layer, the middle watery layer and the surface oily layer. The surface cells of the eye manufacture the mucin that coats the eye and makes it wettable. The lacrimal gland is located under the upper lid and formulates the watery middle portion of the tears. This gland is turned on when we are upset and cry and when we are irritated by wind or cold or by any foreign object such as an eye lash that might enter the eye. Along the lash line of the lids are several oil secreting glands called the meibomian glands that secrete oil on to the surface of the tear film to protect it from evaporation. These oil glands secrete with each blink as the lid muscles squeeze out some of the oil onto the surface of the eye. The tear film serves many purposes. A healthy tear film allows light to pass through to the retina so that we can see properly. It also nourishes the cells on the surface of the eye to keep them healthy and it protects the eye from infection because of its ability to flush bacteria from the surface and because of the specific proteins that are contained in the tear film that act as antibiotics.

How do we measure the tear film?

Optometrists will examine the surface of the eye using a biomicroscope or slit lamp. An overall look at the surface will show how thick the tear film is and how red or swollen the surface structures are. There are two dyes, one yellow (fluorescein sodium) and one red (rose bengal) that highlight cells that are dead or dry on the surface of the eye. Patients with severe dry eye will have many dry cells. Fluorescein sodium can also be used to measure the tear film break up time. If you hold your eyes open after a blink, the tear film will stay stable for a period of time and then evaporation spots are seen. The healthy tear film will stay stable for more than 10 seconds. The tear flow can be measured by inserting small paper strips on the
lower lid and waiting five minutes while the tears accumulate on the filter paper. Patients with very dry eyes will wet the strip less than 5 millimeters in 5 minutes. The lids can be observed with the slit lamp. Here we look for crusting of the lashes and in-turned lashes. The ability of the oil glands to secrete is demonstrated by pressing on the lid margin and observing the secretions. Healthy glands secrete a drop of baby oil like fluid onto the surface of the eye with a very mild push. Unhealthy glands may not secrete at all or will secrete toothpaste like fluid under great pressure. These tests allow us to diagnose dry eye disease, its severity, and the likely cause of the patient’s particular dry eye condition.

**How do we treat dry eye disease?**

The good news about dry eye disease is that the condition almost never leads to loss of vision. It does however leave the patient more open to irritation and infection. Since people with diabetes may have more problems healing from infections, it is important that they understand the treatment and use them routinely and appropriately.

One of the most natural treatments for dry eye is simply blinking. Studies have shown that computer use and intense near work cause the blink rate to slow to about one half of the normal rate. Dry eye patients are encouraged to take the time to think about blinking regularly during the day and to even squeeze blink a few times to encourage the oil glands in the lids to secrete more.

If the lids are red and the meibomian glands are not secreting well, lid treatments may be prescribed. The procedures include washing the lid margins and using hot soaks to encourage proper gland flow. Sometimes an antibiotic will be prescribed.

Drops for the ocular surface are the next form of treatment. There are many drops available. Some have preservatives that may be irritating to the eye if used more than 4 times a day. Ophthalmic decongestants, known as drops promoted to “get the red out”, should not be used as dry eye treatments as they may cause more redness after prolonged use. Dry eye patients should use their drops routinely or as prescribed by their health professional. Routine use of drops will prevent problems later in the day when symptoms are likely to be stronger. Those patients with more severe dry eye may be given preservative-free artificial tears for daytime relief, and/or ointments to be used at night. These should be used just before sleep as they will blur vision. Other available treatments for severe dry eye include punctal occlusion. Silicone plugs may be suggested to block the outflow of tears from the surface of the eye. Oral medications may help promote secretion from the lacrimal gland. Humidity shields can be fitted to glasses to prevent evaporation from the surface of the eye.

Practical efforts can help as well. Humidifying the home and work environment, keeping the car vents aimed at the feet so that the air currents do not interfere with your tear film, and avoiding smoky rooms when possible can help keep the eyes comfortable.

Maintaining good nutrition and a healthy lifestyle will certainly help diabetics’ condition and may help with their dry eye condition as well. Eating many fruits and vegetables, drinking 8 glasses of water a day, exercising regularly and avoiding excess coffee and alcohol and not smoking can only help tear glands to perform at their best.

Dry eye disease is a common complication of diabetes. Patients should be aware of this and be sure to have routine checkups that include careful observations of the eye surface tissue. Maintaining a healthy lifestyle, eating well, keeping the lids clean and the routine use of lubricants will help to keep your patients’ eyes healthy.
37.1% of diabetics report dry eye symptoms

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Diabetes and Nutrition

The role of carbohydrates and the glycemic index

By Serena Beber, RD, CDE

There are more than two million Canadians diagnosed with diabetes and, according to the Canadian Diabetes Association (CDA), there are many more who don’t know they have the disease.

Diabetes is a condition that requires people to provide their own care and self management, often in a home or community setting. To do this they require support.

In fact, the CDA identified accurate and detailed support and education from a trained and knowledgeable health professional as one of the key critical components of successful diabetes management.

Nutrition therapy is a vital aspect of diabetes management, and one that the family physician should be familiar with in order to provide the proper care for his or her diabetic patients.

Appropriate dietary choices can help lower and stabilize blood sugars, helping to minimize the highs and lows associated with many of the side effects and complications of diabetes. Canada’s Guidelines for Healthy Eating provides a helpful roadmap towards effective nutritional management of diabetes:

* Enjoy a variety of foods.
* Emphasize cereals, breads and other whole grain products, vegetables and fruit.
* Choose lower-fat dairy products, leaner meats and foods prepared with little or no fat.
* Achieve and maintain a healthy body weight by enjoying regular physical activity and healthy eating.
* Limit salt, alcohol and caffeine.

Dietary components affecting blood sugars

Dietary carbohydrates are a major part of our diet and should provide 50-60% of energy requirements. Carbohydrates are chains of sugar molecules. Carbohydrates include simple sugars, starches and dietary fibre. Simple sugars are monosaccharides or disaccharides (chains of one or two sugar molecules). Monosaccharides found in our food include glucose, fructose and galactose. Starches are often referred to as complex carbohydrates. Starches are long chains of sugar molecules. When digested, they are broken down into monosaccharides.

Monosaccharides are absorbed, enter the blood stream and are transported to the liver to become glucose. Glucose is either used as energy or may be stored for later use. Both the amount and the source of carbohydrates affect blood glucose levels. There are several considerations when determining how a particular food will affect the blood sugars. How quickly carbohydrate is digested and affects your blood glucose is different for every food. This is where the glycemic index comes into play.

The glycemic index

The glycemic index (GI) is a method of measuring the relative amount that a carbohydrate-containing food causes the blood sugar to increase. Some carbohydrates are broken down quickly and cause quick rises in blood glucose. These foods are considered to have a high glycemic index. Foods with a low GI cause the blood sugar to rise more slowly.

When a high GI food is eaten, the pancreas releases a surge of insulin, resulting in a decrease in blood glucose. The insulin spike can sometimes cause the blood glucose to drop too much. Foods with a lower glycemic index cause the blood sugar to rise slowly, resulting in a more appropriate release of insulin from the pancreas. This result is a more desirable steady raising and lowering of blood glucose levels.

GI food lists may use either white bread or glucose as the standard for comparison. Foods are compared against the standard based on the relative rise in blood sugar that a food with the same amount of carbohydrate (50 grams) would cause. For example, when white bread is given a glycemic index of 100, table sugar (sucrose) has a glycemic index of 83. This means that for the same amount of carbohydrates eaten as sugar, white bread will raise the blood sugar more quickly. Most health care professionals used to think that because bread is a complex carbohydrate, the body must break it down more slowly than simple carbohydrates like table sugar, but research has shown us otherwise.

Factors which affect the rate at which a particular food causes the blood glucose to rise include the amount of carbohydrate, the type of carbohydrate, the way the food is prepared and...
other foods that are eaten at the same time. Carbohydrates have different forms, sizes and chemical properties that affect blood glucose response.

**Fibre**
The fibre content of foods affects GI. Foods with higher insoluble fibre content have lower GI, decreasing the blood glucose response. Foods that are high in soluble fibre also have lower GI. Soluble fibre slows down the interaction between starch and enzymes during digestion. This improves blood sugar control in addition to lowering serum cholesterol. All individuals, especially those with diabetes, can benefit from increasing their total dietary fibre intake.

**Protein and fat**
Including protein and fat in a meal slows down digestion and absorption of carbohydrates, while, in turn, lowers the GI. People with diabetes have the same protein requirements as those without. Having a balanced meal which includes protein may stimulate insulin secretion and decrease serum glucose response. Because high fat intake is associated with poor blood glucose control, people with diabetes should follow Health Canada’s recommendations of dietary intake < 30% of Calories. In addition, <10% of fat intake should be from saturated fat and < 10% from polyunsaturated fat. Monounsaturated fats and omega-3 fatty acids may help improve glycemic control and decrease triglycerides. However, monounsaturated fat intake should not be consumed in quantities which promote weight gain.

**Food preparation**
The way that a food is cooked or processed affects its GI. When foods are cooked, the carbohydrate structure changes. It swells or becomes gelatinized, increasing GI compared with the raw form of the food.

Sugar helps decrease gelatinization of starch and can help lower GI. This helps explain why some foods that have a more refined sugar content have a surprisingly lower GI. For example, sweet potatoes have a lower GI than white potatoes and corn flakes cereal has a higher GI than sugar-coated corn flakes.

Acid slows digestion and absorption of foods, lowering GI. Including foods with vinegar or lemon juice in them may improve the glycemic response.

**Application of glycemic index**
Traditionally, nutrition education in diabetes has centred on the amount and type carbohydrates consumed, limiting simple sugars and emphasizing complex carbohydrates. Research is emerging demonstrating that the glycemic index of foods is a more accurate way to control blood glucose levels. However, the use of GI in diabetic education is not universally endorsed. The Canadian Diabetes Association, the Food and Agriculture Organization and the World Health Organization recommend the consumption of lower GI foods for people with diabetes to improve glycemic control. Presently, the American Diabetic Association does not endorse the use of GI for treatment of diabetes because of the limited number of foods studied, the complicated nature required to educate patients and the varied results from different studies. The ADA’s emphasis is the total amount of carbohydrates in meals and snacks.

Although some refined sugars have a lower glycemic response than some whole grains, they may also have less vitamins, minerals and fibre which are all important for good health. The GI can help make decisions but should not be used in isolation. Having a well-balanced diet that meets all nutrition needs is important.

**Table 1**

**Using the glycemic index to help optimize blood glucose control**

- Choose foods with a lower glycemic index whenever possible.
- Choose oat bran or pumpernickel bread more often than white bread.
- Choose fresh fruits instead of juice.
- Choose brown rice instead of instant rice.
- Choose pasta, rice or sweet potatoes instead of instant potatoes.
- When eating high glycemic index foods, combine with foods that have a lower GI or with protein and fat to achieve an overall lower GI.
- Add beans to soups, salads and chilies.
- Avoid high GI foods alone.
Table 2.  
GI values of some common foods*  (Reference Standard is glucose, GI=100)

<table>
<thead>
<tr>
<th>Milk Products</th>
<th>low GI (&lt;55)</th>
<th>Intermediate GI (55-70)</th>
<th>High GI (&gt;70)</th>
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<tbody>
<tr>
<td>Skim milk</td>
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<tr>
<td>Whole milk</td>
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<tr>
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<tr>
<td>Apple juice</td>
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<td>Banana</td>
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<td>Pear</td>
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<td>Cranberry juice</td>
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<tbody>
<tr>
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<tr>
<td>Potato</td>
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<tr>
<td>Sweet corn</td>
<td>59</td>
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<td>Instant potatoes</td>
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<td>Chick peas</td>
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<tr>
<td>Kidney beans</td>
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<tr>
<td>Spaghetti</td>
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<tbody>
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<td>Rye bread</td>
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<tr>
<td>Arrowroot cookies</td>
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<td>Bran muffin</td>
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<td>Bretone</td>
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<td>Digestive cookies</td>
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<td>Ryvita</td>
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<tr>
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<td>Cream of Wheat</td>
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<td>Quick oats</td>
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<tr>
<td>Sugar-coated corn flakes</td>
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<td>Sucrose</td>
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<td>Glucose</td>
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<td>Honey</td>
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<tr>
<td>Coca Cola</td>
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<tr>
<td>Gatorade</td>
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</table>

* Whenever possible, a Canadian product was given as an example.

Some population groups have difficulty with meeting their nutrient requirements. For these individuals, it is often helpful to take nutritional supplements either as a meal replacement or to complement their current intake. For people with Diabetes, a nutritional supplement such as Glucerna can be used as a snack or as a meal replacement. It is geared towards individuals with Diabetes. Glucerna has a lower carbohydrate content relative to standard supplements. The fibre content is beneficial for blood glucose control and high cholesterol levels often found in individuals with diabetes. In addition, the fibre can help improve poor bowel function that is common in those requiring supplements and in people with diabetes who have complications such as gastroparesis. Glucerna has a higher fat content than the standard formula which may slow gastric emptying and minimize postprandial glucose increases in patients with abnormal glucose tolerance. The effect of Glucerna versus a standard nutritional supplement was compared for the effect on blood sugar control and lipoprotein profile in patients with type 2 diabetes. Notwithstanding the high monounsaturated fat content of Glucerna, the lipoprotein profiles were not significantly different from those consuming the standard lower fat formula. As always, following a healthy meal plan developed with a dietitian is the best way to control blood sugars and promote optimal nutrition. The addition of supplements should be discussed with the dietitian.

References


A recent study* shows that the special combination of ingredients in Glucerna — including slow release carbohydrates — results in lower blood glucose response compared to ordinary bars.


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References Continued


Clips on Sugars, 2002. Canadian Sugar Institute

