



Press material

DiabetesCoach

About DiabetesCoach

Diabetes is one of today's largest national diseases that demands a lot from the patient, since a great part of the treatment is based on self-care. Today's modern people demand functional web based solutions that will serve as supplements to visits at health care centres. DiabetesCoach is an internet based tool that has been developed to meet these demands and supports people with diabetes by giving them the ability to take their own control of their blood sugar level, weight and health. The tool can also be used for preventive purposes.

DiabetesCoach offers an editorial part that contains facts on diabetes, food and physical activities etc. Further, the tool contains a program that has been developed to take care of the patient's lifestyle and self-care. Based on a compiled personalised health profile the user of DiabetesCoach receives daily recommendations on food intake and physical activity.

The tool offers suited recipes, weekly menus, exercise suggestions, exercise programs, updated articles and foras where the user can share experiences. An updated Q&A database on diabetes is also available. These are some of the tools that make DiabetesCoach to a unique information source which contributes to a successful change of lifestyle. A lot of the information and advice are seasonal. For instance during the holiday period it is possible to receive specific suggestions suited specifically for that period. The DiabetesCoach also lists well-reputed names within the research on nutrition, physical activity and medicine.

How to use DiabetesCoach?

In order to use DiabetesCoach you log on to www.diabetescoach.eu. Registration is done through a personal profile and in the program individual health goals can be stated. The user enters regularly information about health, eating habits and physical activities which allow the tool to clearly describe which activity is missing and which needs to be reduced. The user will also be supported to control the sugar blood levels and can easily monitor

the development of health over time. Selected receipts and ready made weekly menus, exercise suggestions and exercise programs will lead to a changed and more balanced lifestyle. The longer the DiabetesCoach is used, the faster is the daily entering of information. The service is developing the user's unique profile including living habits, which are easy to reutilise. All recommendations are based on sound research. DiabetesCoach is based on the national nutrition data base in combination with European recommendations of the DNSG (Diabetes and Nutrition Study Group), which is a part of EASD (European Association for the study of Diabetes). The task of DNSG is to formulate the European nutrition recommendations for treatment and prevention of diabetes. The tool can also be used for preventive purposes.

To the nursing staff

The DiabetesCoach offers the nursing staff the possibility to continuously monitor the patient's nutrition intake, physical activity and insulin dosage as well as the blood sugar levels. In combination with the fact that the patient is sharing information with the nursing staff, the DiabetesCoach is a supplement to individual meetings. Foremost, DiabetesCoach is developed to facilitate the living for diabetics, even though there are expectations that the nursing staff's work will be facilitated by using DiabetesCoach. A special interface aimed to the nursing team is being developed.

Nodensa – enhancing life

DiabetesCoach has been developed by Nodensa AB. The company offers technical solutions to the healthcare sector with the aim to improve people's quality of life. Nodensa asserts that there are many opportunities in the development of self-care and prevention by using Internet. Nodensa carries on an intensive product and technical development in this domain. The aim is that the launch of the DiabetesCoach will be succeeded within the next years by a number of new self-care services on both the European and the American markets and hence contribute to an improved public health by simplified self-care.

Nodensa is managed by Mats Sköld, Daniel Arenholm and Martin Ohlsson, all having long experience of business development, marketing, technical development and healthcare. Together with well-reputed names within the research on nutrition, physical activity, medicine and behavioural science they run the business and marketing development, as well as the development of products, services and technology.

Diabetes

Diabetes Mellitus is the generic term of several diseases having various causes. Common for all types of diabetes is that the blood sugar (glucose) is increased above the normal level. That is the reason why diabetes has been called sugar disease. If the body is lacking the insulin hormone or if the body has larger insulin need than the pancreas is able to produce, the level of glucose in the blood will increase. Insulin is a vital hormone which regulates the body's blood sugar balance. The body's susceptibility to insulin can also be decreased which will lead to the fact that the available insulin can not be absorbed by the tissues.

The incidence of diabetes

Diabetes is one of today's largest national diseases. The amount of people who fall ill with diabetes has had an enormous increase and the illness can be considered as being a world wide epidemic. According to the International Diabetes Federation 246 millions of people have contracted diabetes and the amount seems to have a dramatic increase expecting the amount to be 380 millions by the year of 2025. According to the same source of information approximately 7.3 % of the adult population (20-79 years old), equivalent to 457 000 persons, have contracted diabetes in Sweden. Diabetes is the third most common cause of death in Sweden. Every hour round-the-clock a Swede dies from diabetes and its sequelae.

Approximately, 10-15% of all diabetics have contracted the type 1 diabetes. Sweden, ranked second after Finland, has the world's highest frequency of children who contract type 1 diabetes. Type 1 diabetes can also occur at an adult stage in life, although that is more unusual. Type 2 diabetes has become more common all over the world concurrently the living conditions have improved. Sometimes that type of diabetes is called "luxurious living" diabetes. With advancing age the risks will increase to contract diabetes.

Diabetes and public expenses

The public community needs to put resources at disposal in order to prevent an expecting diabetes epidemic. If that measure will not be taken the medical service will have difficulties in meeting the demands. Diabetes stands for approximately 8 % of Sweden's total expenditure on healthcare. Several financial calculations points at costs between 9 and 14 billions SEK, excluding sick-leaves and fall in production.

Various types of diabetes

There are mainly two types of diabetes: Type 1 diabetes and Type 2 diabetes. In addition to that there exists the pregnancy diabetes which often disappears after the delivery. Another type of diabetes is the secondary diabetes, which is caused by another disease or in connection with some medical treatments.

Type 1 diabetes is characterized by the fact that the body's own production of insulin has wholly or partially stopped working. At type 2 diabetes the body can still produce some insulin, but the amount is not sufficient to cover for the body's need of insulin. Both types have several common features but differ at some essential respects, amongst others how they are treated and the cause to the disease.

Type 1 diabetes

Type 1 diabetes is often contracted by children and younger adults, but do exist at all ages. The most common scenario is that a person will fall ill in the early teens. Type 1 diabetes is partly a hereditary disease. Probably the tendency to develop an immune defence that attacks and destroys the body's own insulin production cells is hereditary. There could be environmental causes that trigger the process, but it is not proven what kind of changes in the environment that causes the fact that diabetes has become more common amongst children.

In type 1 diabetes the insulin producing beta cells of the pancreas are attacked by the body's own immune system, which results in that the body can no longer produce its own insulin. Insulin controls the body's energy balance, inter alia making sure that glucose will reach the cells of the body. When lack of insulin the blood sugar level raises and sugar will be secreted to the urine as well as large amounts of liquid, which normally is used as fuel to the metabolism process. Hence, the body tries to cover for the energy needs by an increased combustion of body fat, which eventually will be out of control. This will lead to that degradable fat products, so called ketone bodies or "acids", will accumulate in the blood. This can lead to ketoacidosis (=acid poisoning). That is a state of emergency which can be life threatening if treatment is not immediately taking place.

Type 2 diabetes

In type 2 diabetes, the body does not produce enough insulin to meet the needs. The cells become less sensitive to insulin and a so called insulin resistance will occur. The sugar will not be absorbed by the body cells and instead the blood sugar level will increase. When the sugar has reached a specific level a state of glucose intolerance enters, which is a preliminary stage to type 2 diabetes.

The exact cause of the genesis of type 2 diabetes is unknown. Besides the fact that the disease often is hereditary, living habits have an impact on the risk to contract the disease. Wrong eating habits in combination with lack of physical activity can lead to overweight and stoutness, which is a common cause for body cells losing their sensitivity to insulin. It has become more common that also young people contract type 2 diabetes as a consequence of stoutness and not enough physical activity. Smoking is also a contributory element for contracting type 2 diabetes. Stress can also be a contributory element since the stress hormone cortisol increases the omental fat and decreases the insulin sensitivity in the muscles.

Opposite from what many might believe type 2 diabetes is more hereditary than type 1. More than one million people in Sweden carry the hereditary character that develops the type 2 diabetes. Living habits are considered to play an important role for type 2 diabetes where eating habits, overweight and a sedentary living has a remarkable influence on the genesis of the disease.

Symptom

When the blood sugar balance is disturbed sugar is secreted to the urine, which will result in common symptoms such as thirst, large quantity of urine, fatigue, irritation and infections. These symptoms occur for both types of diabetes. Type 1 diabetes patients develop these symptoms during a much shorter period than type 2 diabetes patients (weeks in contrast to years). Many people have type 2 diabetes or are on the bounds to contract it without being aware of it. The disease is often detected in connection to a regular health check-up when blood sugar and urine sugar are examined.

Sequelae

Diabetes is a serious and chronic disease. It is a disease that can attack all the organs of the body – heart, brain, kidneys and nerves. A high blood sugar level is in the long run deleterious to blood vessels and results in arteriosclerosis this in turn means vascular spasm, cardiac infarction and stroke. Complications in small blood vessels may lead to injuries on the retina which in the worst case can result in blindness. The kidneys' blood vessels may be affected including the risk of kidney diseases. Injuries on the nerves can contribute to decrease in sensitivity that may give rise to slow-healing ulcers, often on feet and legs.

There is a relation between type 2 diabetes and high blood pressure, omental fat and a deleterious composition of lipoproteins. These conditions often co-exist and are called the metabolic syndrome. It involves a considerable increased arteriosclerosis and risk for heart and vascular disorders.

The most important part of the treatment is a good diabetes monitoring, i.e. the blood sugar level is supposed to be kept as close as possible to the normal level. Not least it is important to keep blood pressure, impact on kidneys and blood fats under control.

Extensive research results show that a good monitoring of the diabetes can totally prevent or to a large extent reduce the risk to develop late diabetic complications.

Blood sugar monitoring

The blood sugar level is measured in millimol per litre, mmol/l. Healthy people measure between 3.5 and 6.1 mmol/l. A diabetic has a higher blood sugar level than a healthy person. A randomly measured blood sugar level that is more than 11 mmol/l takes a diagnosis for diabetes. The diagnosis is made of measurement of the fasted plasma glucose. The diagnosis diabetes is made if the level is 7.0 mmol/l or more, after two measurements.

If the blood sugar level is too low the diabetic is struck by what is called ill-effects from an overdose of insulin. This will occur if the blood sugar level falls under 3-4 mmol/l. The cause may be that too much insulin has been taken or that the diabetic has not eaten enough after the insulin injection. Common symptoms are sweating, hunger, shaking, anxiety, anger, irritation and palpitation which is caused by the increase of body's various stress hormones. This is a way for the body to utilise the sugar fallbacks that are stored in the liver and assure the brain of continuous supply of sugar.

Method of treatments

Irrespective of the type of diabetes the foremost goal of the treatment is to try to maintain an as normal blood sugar level as possible. Since type 1 diabetes is caused by the body's inability to produce insulin the treatment is meant to take over that production. There are a number of various insulin agents. By adding different substances or by an alteration of the insulin structure, types of insulin have been created that are absorbed by the body in various speeds. Hence, the types of insulin takes various time until reached impact. Insulin does not exist as tablets but is injected under the skin. The insulin treatment is life-long on type 1 diabetes. Nowadays, many diabetics use an insulin

pump which will give a continuously adjusted insulin dosage round-the-clock. However, insulin during meals is transferred by pressing the pump manually.

For about 1/3 of all people contracting type 2 diabetes in Sweden the treatment is about change of eating habits and daily physical activities in order to loose weight. The loss of weight assures that the body's own insulin production will be sufficient again and an increased physical activity will improve the sensitivity of the insulin. An additional 1/3 of the people also need tablets in order to keep the blood sugar in check. The medicine will stimulate the body's own insulin production or increase the cells' sensitivity to insulin. The last 1/3 of the people needs daily insulin injections, as with people having type 1 diabetes. Lately, it is more common that type 2 diabetics transfer to insulin treatment.

Treatment- self-care

The diabetes treatment is based to a great extent on self-care. Most of type 2 diabetics have slowly contracted a worsened sensitivity to insulin in principally muscles and the liver. The deterioration may continue over ten years. It is important to be aware of the possibility of slowing down that development by changing habits of living.

It can take a while before understanding how to balance the blood sugar level in the right way. Physical activity will result in a decrease of the blood sugar levels, because the sensitivity of the insulin will improve and the sugar will faster be absorbed by the body after a meal. It is also essential to improve the eating habits and quit smoking. For an over-weight person decreasing in weight is part of the treatment. Even a minor decrease in weight on a few kilos has an impact on lipoproteins, blood sugar levels and blood pressure.

References:

IDF - International Diabetes Federation
WHO – World Health Organization
The Swedish Diabetic Alliance
The Health Care Counselling
The Health Care Guide
The (Swedish) National Board of Health and Welfare

Advisory Board:

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DiabetesCoach is launched in March 2007. DiabetesCoach will be at disposal on pharmacies in the Nordic countries and www.diabetescoach.eu. Recommended price SEK 940 for a 12- months licence, i.e. SEK 2.60/day.

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Nodensa is a global healthcare solutions company - our fusion of innovative IT and medical technology allows us to enhance public health and the quality of peoples' lives. Nodensa has operated since 2006 from it's headquarter in Stockholm, Sweden. For more information, visit Nodensa online at www.nodensa.com