

BIBLIOGRAPHY

CENTRE DE JOUR DU DIABÈTE DE L'ESTRIE. *Mieux connaître le diabète*, Centre hospitalier universitaire de Sherbrooke, 2002, 121 p.

PROGRAMME MÉDECINE - PROGRAMME - CLIENTÈLE DIABÈTE. *Mieux connaître votre diabète*, brochure # 321-1, Complexe hospitalier de la Sagamie, 202, 17 p.

Centre intégré universitaire de santé et de services sociaux de l'Estrie—Centre hospitalier universitaire de Sherbrooke website : www.santeestrie.qc.ca

DIABETES CANADA. 2018 *Clinical Practice Guidelines*, April 2018.

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Québec 

**Educational
program for people
with diabetes**

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Medication

GENERAL RECOMMENDATIONS

When taking your medication :

- ◆ Get informed about the way it acts and how to take it;
- ◆ Take it at the time and in the dose indicated on your prescription;
- ◆ Eat three meals a day, at regular hours;
- ◆ Check your blood glucose several times a day and write down the results in your logbook;
- ◆ Inform your doctor or pharmacist of any side effects that are uncomfortable or bother you;
- ◆ If you change your eating habits, begin a physical activity program or have lost weight, check your blood sugar more often, as it could be lower;
- ◆ If you experience hypoglycemia, talk to your doctor or diabetes educator so he/she can adjust your treatment;
- ◆ Avoid excessive consumption of alcohol.

We hope that this information will help you better understand your medication.

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NATURAL PRODUCTS

Certain natural products may have an influence on your blood sugar.

We recommend that :

- ◆ You inform your doctor or pharmacist before deciding to start any non-prescription treatment;
- ◆ You do not replace your medication with "miracle" products which have not been proven to be effective;
- ◆ You mention to your doctor or pharmacist if you use natural products for other aspects of your health.

INSULIN AND TYPE 2 DIABETES

Many persons with **type 2** diabetes are able to control their diabetes with a healthy diet, physical exercise and medication. However, this combination of measures may not work over time. Insulin injections may then become necessary to maintain your blood sugar at a good level.

For more information on treatment with insulin, refer to booklet #3—Insulin and Special Situations.

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**Better knowledge of your medication
makes it easier to follow the treatment correctly.**



Pain and fever

- ◆ First choice : - Acetaminophen
Examples : - Tylenol™
- Atasol™
- ◆ Second choice : - Ibuprofen
Examples : - Motrin™
- Advil™

Constipation

- Basic measures :
- Regular exercise
 - Eat fiber-rich foods
 - Drink 6 to 10 glasses of water per day
- ◆ First choice : - Metamucil™ sugar free
- Benefibre™ sugar free
- Lax-a-day™
- Relaxa™

Heartburn

- ◆ First choice : - Maalox™ regular, Gaviscon™ liquid
- Zantac™
- Diovol™ regular

Warning! If you suffer from heartburn for more than 2 weeks, talk to a health care professional.

Dry cough (without secretions)

- ◆ First choice : - Products with dextrometorphan, represented by the letters DM
Examples : - Balminil DM™ sugar free syrup
- Benylin DM™ sugar free syrup

Warning! Many products contain DM in combination with products that are not recommended for people with diabetes, for example: Balminil DM-D-E™. When in doubt, talk to your pharmacist.

Heavy cough (with secretions)

Basic measure : HYDRATION
(Drink lots of warm liquids)

Expectorants : Not advised

Sore throat = Lozenges

- ◆ First choice :
 - Cepastat™ sugar free
 - Bentasil™
 - Stepsils™ sugar free
 - Chloraseptic™
 - Halls™ sugar free



This is the second chapter of this educational program. It will be explained to you by your pharmacist or nurse. Its purpose is to inform you about :

- ◆ Different medications used in the treatment of diabetes;
- ◆ Possible side effects;
- ◆ Appropriate time to take your medication;
- ◆ Possible drug interactions;
- ◆ Over-the-counter medications.

INTRODUCTION

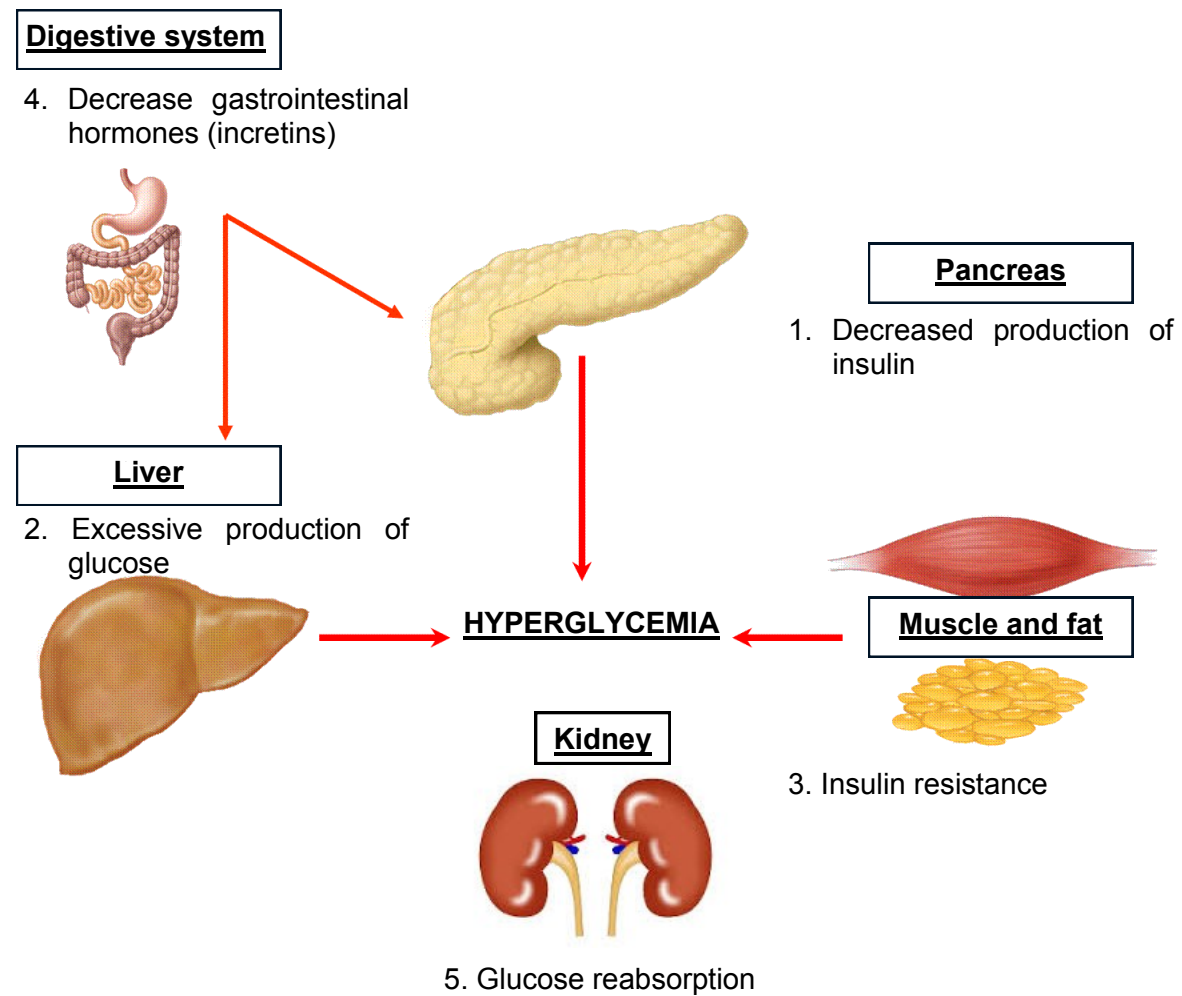
Treatment of **type 2** diabetes rests in large part on :

- ◆ Adopting healthy eating habits;
- ◆ Maintaining a healthy weight or losing weight;
- ◆ Exercising regularly;
- ◆ Managing stress.

If, in spite of these efforts, your blood glucose level remains high, the use of one or several medications may be called for. These medications do not replace a balanced diet, they must be considered as a complement to it.

REMINDER

The 5 main anomalies caused by type 2 diabetes



OVER-THE-COUNTER DRUGS

Products for colds, influenza and foot care

- ◆ Avoid preparations that contain several drugs (e.g. Neo-Citran). Choose instead a preparation with one single ingredient for one symptom, such as a cough syrup to soothe a cough;
- ◆ Avoid preparations that contain a lot of sugar. Choose a preparation without sucrose;
- ◆ When you buy footcare products, always ask the pharmacist for his/her advice.

Here are a few suggestions for allowed medications :

Nasal congestion

Basic measure : Drink 8 to 10 glasses of water or warm liquids a day.

- ◆ First choice :
 - Salinex™
 - Hydrasense™ medium stream
 - Sinus Rinse™
- ◆ Second choice :
 - Otrivin™ nasal spray (Maximum use : 3 to 5 days)
 - Dristan™ nasal spray (Maximum use : 3 to 5 days)

DRUG INTERACTIONS

- ◆ Certain medications or natural products may increase or decrease the effect of your diabetes medication; this is called drug interaction;
- ◆ **Speak to your doctor or pharmacist before taking any new medication.**

OVER-THE-COUNTER DRUGS

General advice

- ◆ Always inform health care professionals (doctors, dentists and pharmacists) that you have diabetes and tell them about the medications you are taking. Have your list of all prescribed and non-prescribed medications including natural products, vitamins, products for influenza, etc. You can obtain a list from your pharmacist.
- ◆ Choose your pharmacist carefully and stick with him/her. Your pharmaceutical profile will thus be complete and the advice you receive can be more personalized.
- ◆ Use only medications prescribed for YOU by the doctor or that are suggested to YOU by the pharmacist.

If your doctor prescribes one or several drugs for diabetes, it will be important to continue to do blood glucose self-monitoring so he will be able to adjust your treatment.

WHAT MEDICATION IS USED TO CONTROL DIABETES ?

An oral medication for the treatment of diabetes is a tablet or pill taken by mouth which causes a lowering of blood glucose; **it is not insulin in pill form.**

The oral hypoglycemic drugs currently available in Canada act on the 4 main anomalies caused by type 2 diabetes.

- 1) Metformin;
- 2) Insulinosecretors;
- 3) Incretins;
- 4) Insulin sensitizer;
- 5) Sugar absorption retardant;
- 6) SGLT-2 inhibitors.

The majority of people tolerate drugs for diabetes quite well. Most of the related side effects involve the digestive system. It is, therefore, important that you follow the dose prescribed for you by your doctor, and take it at the time you are told to by your pharmacist.

1) **METFORMIN**

GENERIC NAME	COMMERCIAL NAME
Metformin	Glucophage™ Glumetza™

Action : Decreases the production of sugar by the liver.

Allows the cells to use the glucose (sugar) more efficiently by decreasing the resistance to insulin.

Attention

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
FOUL TASTE IN THE MOUTH	<ul style="list-style-type: none"> • Take the drug with food. • Change pharmaceutical company.
GASTRO-INTESTINAL DISCOMFORT (particularly diarrhea)	<ul style="list-style-type: none"> • Take the drug with food. • Gradually increase the dose.



This medication does not cause weight gain or hypoglycemia. It can sometimes promote weight loss.

THE APPROPRIATE TIME TO TAKE YOUR DIABETES MEDICATION

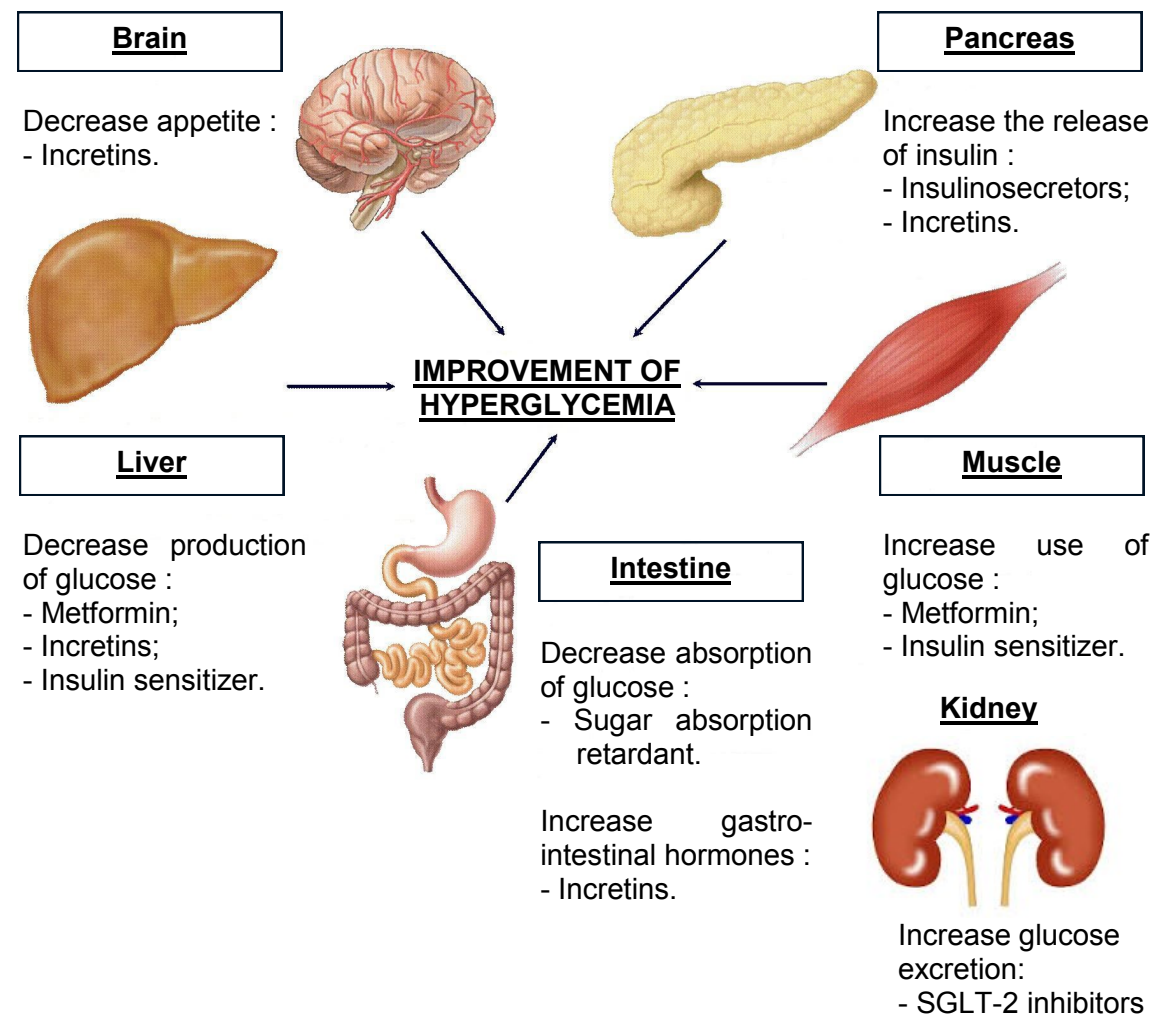
- ♦ Always take your medication with a meal;
- ♦ Do not ever take it at bedtime (unless indicated otherwise);
- ♦ Never double the dose (even if you are eating a heavy meal or you have forgotten a dose).

If you forget to take a dose and you realize it :

- 1) **Less than 30 minutes** after the end of the meal : Take the dose;
- 2) **More than 30 minutes** after the end of the meal : Wait until the next meal to take the dose. If you should be taking another dose at the next meal, do not take the dose you forgot (do not double the dose).



Mechanisms to improve blood glucose



2) INSULINOSECRETORS

GENERIC NAME	COMMERCIAL NAME
Glyburide	Diabeta™
Gliclazide Gliclazine MR	Diamicon™ Diamicon MR™ (prolonged action)
Glimepiride	Amaryl™
Repaglinide	Gluconorm™

Action : Stimulate the pancreas to increase the production of insulin.

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
RISK OF HYPOGLYCEMIA	<ul style="list-style-type: none"> • Monitor blood sugar regularly. • Follow schedule and dose prescribed. • Take 3 meals every day, at regular hours.
INCREASED SUN SENSITIVITY	<ul style="list-style-type: none"> • Apply sunscreen (SPF 15 or more).
WEIGHT GAIN	<ul style="list-style-type: none"> • Eat a balanced diet. • Be physically active on a regular basis.

3) INCRETINS
(Increase in the gastro-intestinal hormones)

NOM GÉNÉRIQUE	NOM COMMERCIAL
Alogliptin	Nesina™
Dulaglutide	Trulicity™
Exenatide	Bydureon™ Byetta™
Linagliptin	Trajenta™
Saxagliptin	Onglyza™
Liraglutide	Victoza™
Lixisenatide	Adlyxine™
Saxagliptin	Onglyza™
Semaglutide	Ozempic™
Sitagliptin	Januvia™

Action : Decrease the production of sugar by the liver.

Stimulate the pancreas to increase the production of insulin.

Dulaglutide/Exenatide/Liraglutide/Lixisenatide/
Semaglutide :
Slow gastric emptying.

COMBINATION OF MEDICATIONS

It is possible to get some medications combined with another one, in the same tablet. This makes it possible to lower the amount of tablets taken in one day, without affecting the efficiency.

NAME OF THE COMBINED MEDICATION	MEDICATIONS INCLUDED IN THE TABLET
Glyxambi™	Empagliflozin + Linagliptin
Invokamet™	Metformin + Canagliflozin
Kazano™	Metformin + Alogliptin
Komboglyze™	Metformin + Saxagliptin
Janumet™	Metformin + Sitagliptin
Jentaduetto™	Metformin + Linagliptin
Soliqua™	Glargine insulin + Lixisenatide
Steglujan™	Ertugliflozin + Sitagliptin
Segluromet™	Metformin + Ertugliflozin
Xigduo™	Metformin + Dapagliflozin
Xultophy™	Page 15 Degludec insulin + Liraglutide

6) SGLT-2 INHIBITORS

GENERIC NAME	COMMERCIAL NAME
Canagliflozin Dapagliflozin Empagliflozin Ertugliflozin	Invokana™ Forxiga™ Jardiance™ Steglatro ^{MD}

Action: Lower the kidneys' capacity to reabsorb glucose (sugar) when glycemia reaches a certain level, allowing the kidney to let more glucose pass into urine.

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
GENITAL YEAST INFECTIONS	<ul style="list-style-type: none"> • Good hygiene (dry well) • Apply usual treatment if you believe you have an infection, talk to your doctor if you have repetitive infections
URINARY TRACT INFECTIONS (symptoms: urinary burning, cloudy or smelly urine)	<ul style="list-style-type: none"> • Good hydration • Talk to your doctor if you think you have an infection
LOW BLOOD PRESSURE	<ul style="list-style-type: none"> • Monitor your blood pressure when initiating treatment
DEHYDRATION	<ul style="list-style-type: none"> • Good hydration

 **Attention**

The medication does not cause hypoglycemia and may help lose weight.

3) INCRETINS

(Increase in the gastro-intestinal hormones)

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
NONE REPORTED FOR ALOGLIPTIN, LINAGLIPTIN, SAXAGLIPTIN AND SITAGLIPTIN	
NAUSEA AND DIARRHEA (DULAGLUTIDE, EXENATIDE, LIRAGLUTIDE, LIXISENATIDE AND SEMAGLUTIDE ONLY)	<ul style="list-style-type: none"> • Increase the dose gradually. • Listen to your satiety signals during meals. • If nausea occurs between meals, have a little snack (such as biscuits).
HEADACHE	<ul style="list-style-type: none"> • Take analgesic medication (acetaminophen, if needed).

 **Attention**

Alogliptin, linagliptin, saxagliptin and sitagliptin cause neither weight gain nor hypoglycemia.

Dulaglutide, exenatide, liraglutide, lixisenatide and semaglutide may help lose weight and do not cause hypoglycemia.

4) INSULIN SENSITIZER

GENERIC NAME	COMMERCIAL NAME
Pioglitazone	Actos™

Action : Allows the cells to use glucose (sugar) more efficiently (decrease the resistance to insulin).

Decreases the production of sugar by the liver.

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
<p>SWELLING (EDEMA) AND WEIGHT GAIN</p> <p>HEADACHE</p> <p>FRACTURE (POST-MENOPAUSAL WOMEN)</p>	<ul style="list-style-type: none"> Tell your doctor if you have any undesirable side effects.
<p>WEIGHT GAIN</p>	<ul style="list-style-type: none"> Eat a balanced diet. Be physically active on a regular basis.

★ Attention

This medication does not cause hypoglycemia.

This medication begins to act 1 to 4 weeks after the beginning of treatment, and reaches its maximum effect in 6 to 12 weeks after beginning the treatment.

Taking this medication is contraindicated for people with heart failure.

5) SUGAR ABSORPTION RETARDANT

GENERIC NAME	COMMERCIAL NAME
Acarbose	Glucobay™

Action : Lowers glycemia after meals by delaying the absorption of sugars in the intestine.

SIDE EFFECTS	TO PREVENT SIDE EFFECTS
<p>GASTRO-INTESTINAL DISCOMFORT</p> <p>DIARRHEA</p> <p>FLATULENCE (GAS)</p>	<ul style="list-style-type: none"> Increase the dose gradually.

★ Attention

This medication causes neither weight gain nor hypoglycemia.

It is recommended that you take this medication with the first mouthful of your meal.

If you must take an insulinosecretor drug with Glucobay^{MD} and you experience **hypoglycemia**, take **glucose tablets** or milk; any other solutions (sugar, soft drink, juice) will be much less effective.