



## Jeff Donovan MD PhD FRCPC

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### INFORMATION ON METFORMIN

#### What is Metformin?

- Metformin is a medication that is formally FDA approved for treating type 2 diabetes
- The drug helps restore the body's response to insulin
- Metformin has three main mechanisms as it relates to blood sugar:
  - 1) it can reduce the liver's ability to make glucose
  - 2) reduce the ability of the gastrointestinal tract to absorb glucose
  - 3) increase insulin sensitivity
- Metformin may have other mechanisms as well. It is for these reasons below that we often consider using it in hair loss conditions,
  - The drug may have an impact on autoimmune diseases (including effects on monocytes, macrophages and neutrophils),
  - The drug may improve gut microbiota and have an "anti-fibrotic" effect as well.
  - These effects together make them ideal to consider in the treatment of scarring alopecia.

#### How is it prescribed?

- For patients with hair loss, Dr. Donovan starts 500 mg daily (taken with meals) and increases to 500 mg twice daily.
- The maximum dose is 1000 mg twice daily (although this dose is rarely used for hair loss patients)

#### Who should not take metformin?

- Dr. Donovan does not prescribe metformin to patients with poor kidney function (reduced GFR less than 30)
- Dr Donovan will not prescribe metformin to patients with heart failure

#### What are the side effects of metformin?

- |                 |                                      |  |
|-----------------|--------------------------------------|--|
| • Feeling weak  | • Diarrhea or sometimes constipation | • Muscle pain                                    |
| • Nausea        | • Metallic taste in the mouth        | • Low vitamin B12 levels (one third of patients) |
| • Vomiting      |                                      |  |
| • Upset stomach |                                      |  |
| • Gas           |                                      |  |
| • Heartburn     |                                      |  |

## INFORMATION ON METFORMIN

### What specific pieces of information should all patients remember?

- Metformin can rarely affect blood sugars in healthy people although usually it does not. If a patient has evidence of low blood sugar or “hypoglycemia” including sweating, feels shaky, has a rapid heart rate, blurred vision or dizziness a source of sugar should be sought (such as juice or a candy).
- The use of alcohol can increase the chances that a patient using metformin will experience low blood sugar and lactic acidosis. One can have a glass of alcohol while using metformin but excessive drinking can be harmful.
- Poor dietary intake or excessive exercise can sometimes increase the chances that a patient using metformin can experience hypoglycemia.
- Patients who use metformin must tell the radiology staff if they ever undergo tests in the radiology department involving iodinated contrast agents. Simply put, all patients who use metformin must always advise their health care practitioners that they use this medication.
- About 1/3 of patients who use metformin will experience reduced absorption of vitamin B12 from the gastrointestinal tract. Periodic monitoring of B12 levels is advised
- Metformin use should be reviewed by a physician every 6 months.
- The drug is quite a safe drug generally. Patients who develop sudden nausea, vomiting malaise, muscle pains, dizziness and rapid breathing should seek medical attention to rule out the rare possibility of a phenomenon known as “metformin associated lactic acidosis.”

### Are any blood tests needed while using metformin?

Dr Donovan generally orders baseline tests before starting such as hemoglobin A1c, fasting glucose, creatinine and vitamin B12 levels

### Under what situations should I stop metformin?

- All medicines can cause allergic reactions. Serious allergic reactions are very rare. Any sudden wheeziness, difficulty in breathing, chest pain, fever, sudden swellings, rash or itching (especially affecting the whole body) should be reported to a doctor immediately.
- Stop metformin if you feel unwell in any way and check with the doctor
- Patients with hair loss concerns who use metformin for hair loss (rather than diabetes) are advised to stop the drug if they develop infections and fevers. The drug can be restarted when general health returns to normal.

