



Role of Insulin Resistance for Regulation of Blood Sugar Levels

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DESCRIPTION

Insulin resistance and diabetes are related conditions that affect how your body uses insulin, a hormone that helps regulate blood sugar levels. Insulin resistance is when your cells don't respond well to insulin and can't take up glucose from your blood effectively. This causes your pancreas to make more insulin to try to lower your blood sugar levels. Over time, this can lead to high blood sugar levels and increase your risk of developing prediabetes or type 2 diabetes.

Diabetes is a chronic disease that occurs when your blood sugar levels are too high, either because your pancreas doesn't make enough insulin (type 1 diabetes) or because your body doesn't use insulin well (type 2 diabetes). Type 2 diabetes is the most common type of diabetes and is often caused by insulin resistance. Diabetes can cause serious complications, such as heart disease, kidney disease, nerve damage, and vision problems.

Insulin resistance and diabetes can be prevented or delayed by maintaining a healthy weight, eating a balanced diet, exercising regularly, and managing stress. If you have insulin resistance or diabetes, you may need to take medications or insulin injections to help control your blood sugar levels. You should also check your blood sugar levels regularly and follow your doctor's advice on how to manage your condition.

The main cause of insulin resistance is not fully understood, but some factors that may contribute to it are:

- Excess body fat, especially around the abdomen and organs (visceral fat).
- Physical inactivity or sedentary lifestyle.
- Genetic factors or family history of diabetes.
- Chronic stress or certain diseases that affect hormone levels.
- Pregnancy or previous diagnosis of gestational diabetes.
- Certain medications, such as steroids.

Insulin resistance can lead to high blood sugar levels and increase the risk of prediabetes and type 2 diabetes. It can also be associated with other conditions, such as obesity, cardiovascular

disease, nonalcoholic fatty liver disease, metabolic syndrome and Polycystic Ovary Syndrome (PCOS). Insulin resistance and diabetes may not cause any noticeable symptoms until they lead to high blood sugar levels. Some of the symptoms of high blood sugar levels are extreme thirst or hunger, feeling hungry even after a meal, increased or frequent urination, tingling sensations in hands or feet, feeling more tired than usual, frequent infections.

There are some natural ways to improve your insulin sensitivity and reverse insulin resistance. Some of them are reducing your sugar and carbohydrate intake especially refined and processed foods that spike your blood sugar levels. Eating a balanced diet that includes plenty of fiber, protein, healthy fats, and antioxidants from fruits and vegetables. Practicing mindful eating and avoiding overeating or binge eating. Trying intermittent fasting or time-restricted eating, this can lower your insulin levels and give your cells a break from glucose. Drinking green tea, which contains catechins that can enhance insulin's effectiveness and lower blood glucose levels. Adding vinegar to your meals or drinks, this can delay food release from the stomach and improve insulin's action. Exercising regularly, especially strength training and High-Intensity Interval Training (HIIT), which can increase your muscle mass and glucose uptake by the cells. Losing excess body weight, especially around the abdomen and organs, which can reduce inflammation and insulin resistance. Getting enough sleep and managing stress, which can affect your hormone levels and blood sugar regulation.

CONCLUSION

Some people with insulin resistance may also develop a skin condition called Acanthosis Nigricans, which appears as dark, velvety patches on the neck, armpits, or groin. This is caused by the excess insulin stimulating the growth of skin cells. Eating foods that have a low Glycemic Index (GI), which means they raise your blood sugar levels slowly and steadily. Examples are oatmeal, beans, lentils, nuts, seeds, and non-starchy vegetables. The best way to know if you have insulin resistance or diabetes is

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Received: 02-Jan-2023, Manuscript No. DCRS-23-20514; **Editor assigned:** 04-Jan-2023, PreQC No. DCRS-23-20514 (PQ); **Reviewed:** 18-Jan-2023, QC No. DCRS-23-20514; **Revised:** 25-Jan-2023, Manuscript No. DCRS-23-20514 (R); **Published:** 01-Feb-2023, DOI: 10.35841/2572-5629-23.8.143

Citation: Ferrannini G (2023) Role of Insulin Resistance for Regulation of Blood Sugar Levels. Diabetes Case Rep. 8:143.

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to have your blood sugar levels checked regularly by your doctor. They may use tests such as fasting blood glucose, A1C, or glucose tolerance test to diagnose your condition.