



Exercising with Diabetes: HIIT Your Targets

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What is Diabetes



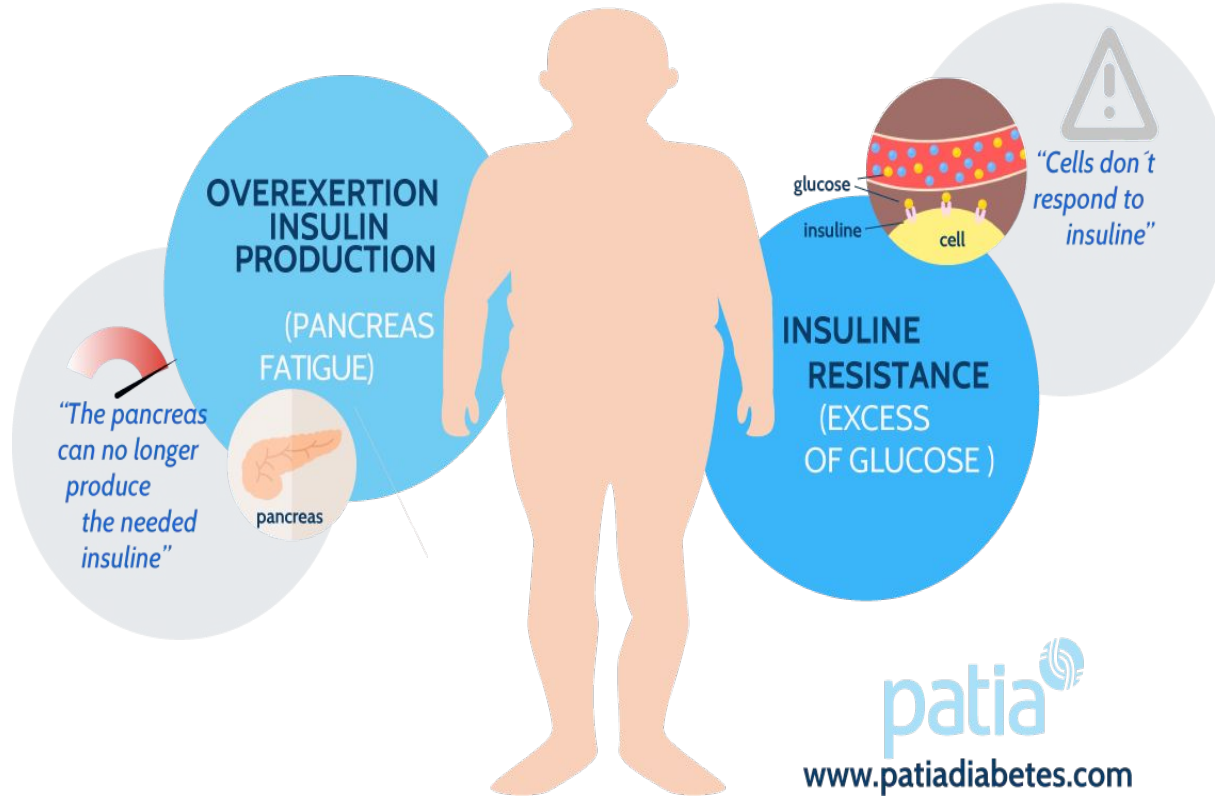
Diabetes

- Diabetes is a disease where your body has an inability to produce sufficient amounts of insulin OR an inability to respond to the insulin produced by your body.
- Insulin is a hormone produced by your pancreas (located just behind your stomach). Insulin is responsible for controlling blood sugar levels by allowing cells located in your muscles, fat and liver to absorb glucose (sugar) and use it for energy.
- When the use of this hormone becomes inappropriate, our blood sugar levels become uncontrolled. This may lead to a buildup of blood sugar within the body and our cells 'starve' of energy.



OBSESITY

T2 DIABETES

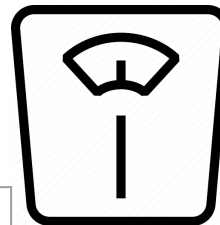


Types of Diabetes

Type 1	Type 2	Type 3
<ul style="list-style-type: none">• Is an autoimmune disease where you are insulin-dependent and typically develops in childhood• People with this type cannot produce insulin on their own which means they cannot regulate their blood sugars	<ul style="list-style-type: none">• People cannot use their insulin properly that is made by their bodies. It is commonly developed in adulthood• It can sometimes be managed with healthy lifestyle but may also require insulin therapy	<ul style="list-style-type: none">• Temporary gestational diabetes due to pregnant



Causes of Diabetes

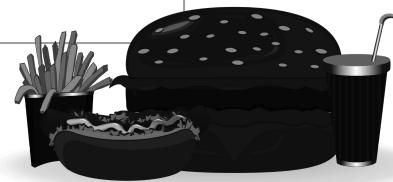


Type 1

- Exact cause is unknown
- The immune system attacks and destroys your insulin-producing cells in the pancreas
- This leaves you with little to no insulin which makes sugar build up in your bloodstream

Type 2

- Genetic and environmental factors play a role
- Being overweight and inactive is strongly linked to type 2 diabetes but not everyone who has type 2 diabetes is overweight



Symptoms of Diabetes

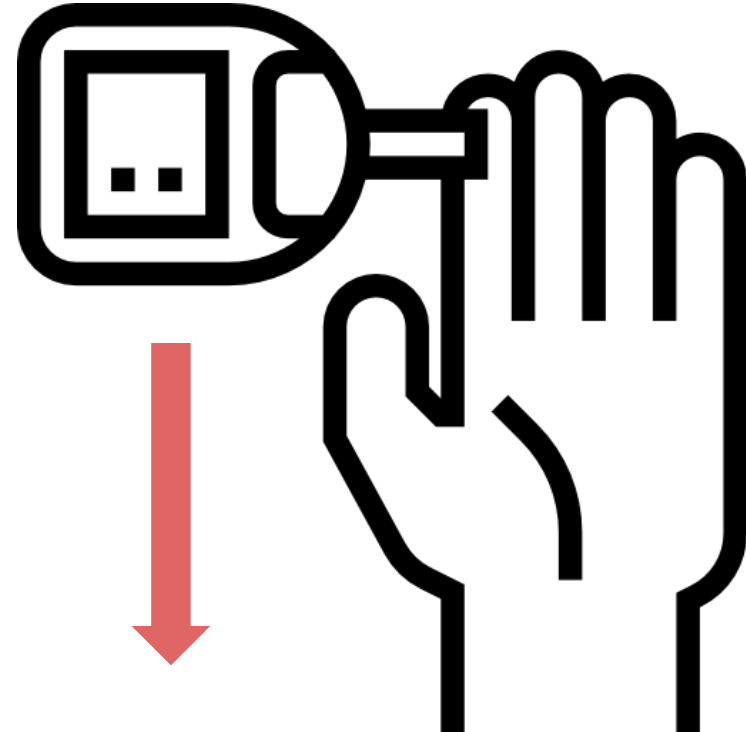
Both type 1 and type 2 have similar symptoms:

- Increased thirst and frequent urination
- Extreme hunger or unexplained weight loss
- Presence of ketones in urine
- Fatigue, irritability, blurred vision
- Slow healing sores and frequent infections (typically in the gums and skin)



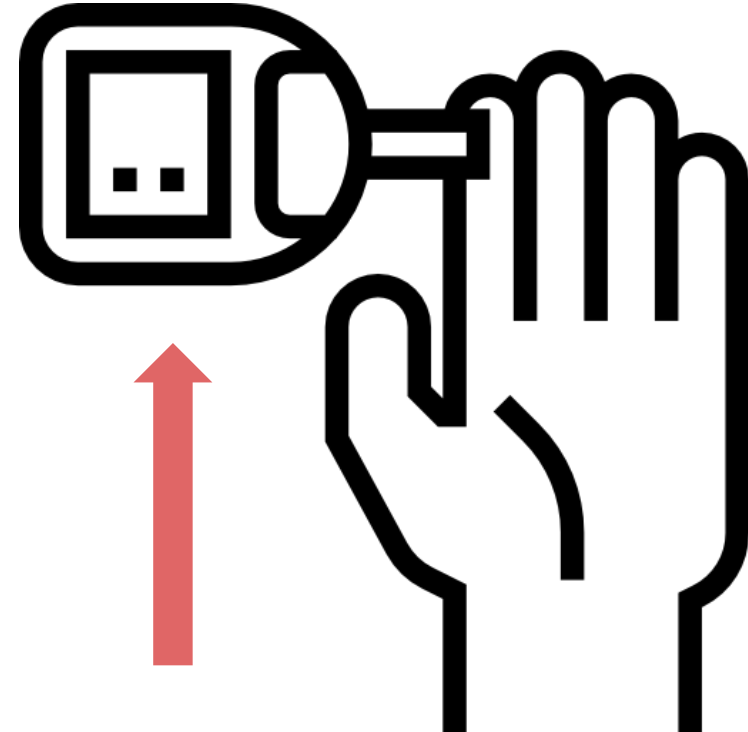
Low Blood Sugar

- Also known as Hypoglycemia
- Caused by:
 - Minimal sugar in the bloodstream
 - Not enough food
 - Excessive exercise
- Risks:
 - Decreased nutrients to the brain
 - Insulin shock/reaction



High Blood Sugar

- Also known as Hyperglycemia
- Caused by:
 - When too much sugar is present in the bloodstream but cannot get into the surrounding tissues thus leading to cell starvation.
 - Ketoacidosis: increase of ketone (a chemical) in the blood often presents as breath that's fruity smell.
- Risks:
 - Possible coma



Symptoms of Diabetes

Major signs and symptoms of hyperglycemia and hypoglycemia are similar:

- Altered level of consciousness
- Dizziness
- Drowsiness
- Rapid breathing
- Rapid pulse
- Feeling ill



Blood Glucose

- The American Diabetes Association (ADA) provides guidelines for blood glucose levels for person with diabetes.

Fasting (before first meal)	
Person without Diabetes: 3.9-5.5mmol/L	Persons with Diabetes 4.4-7.2mmol/L
2 Hours after meals	
Person Without Diabetes: 7.8mmol/L	Persons with Diabetes: 10mm/L

- Prior to moderate exercise roughly 30g of carbohydrates would be recommended if blood glucose was 5.5mmol/L to prevent hypoglycemia.
- 15g is recommended to treat mild/moderate hypoglycemia

Prevention of Diabetes



1. Eat healthy foods
2. Get more physical activity
3. Lose excess weight



Management of Diabetes

- Regular insulin therapy using a syringe or a continuous pump
- Thoroughly monitoring your blood sugar to make sure it is in your proper range. Some people bring juice boxes or sugar packets if they think it is too low.
- Some oral medications are taken to help break down sugars
- Some people need pancreas transplants or bariatric surgery to help manage their diabetes



PROTECT YOURSELF FROM DIABETES

Follow these steps to keep your health on TRACK.

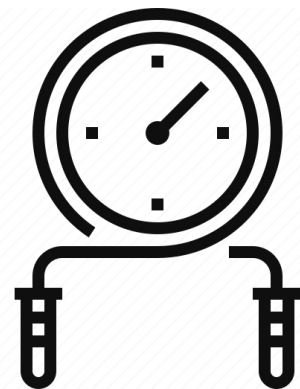


Diabetes control: Necessity of 'health discipline'. Advanced Diabetes Centre. (2016, April 7). Retrieved January 4, 2022, from <http://advanceddiabetescentre.com/blog/diabetes-control-necessity-of-health-discipline/>

High Intensity Interval Training

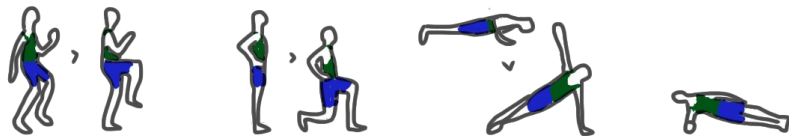
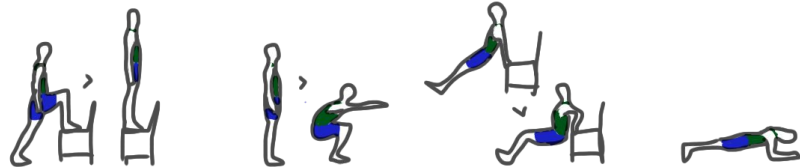
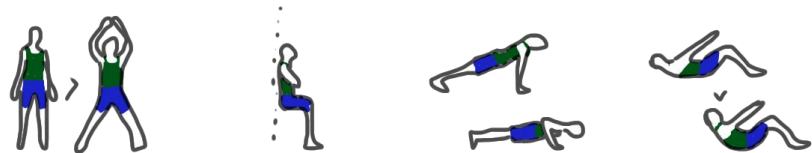
Health Benefits of HIIT

- **High Intensity Interval Training (HIIT)** is a form of exercise training which is **fast paced** in nature and consists of **short bursts** of intense activity **followed by** rest or less intensive activity.
- HIIT workouts are convenient as they can be time-sensitive yet effective and challenging to your body
- HIIT is designed to help individuals lose weight, build muscle, and boost their metabolism.
- Another bonus: HIIT keeps you burning calories for up to **2 hours AFTER** your exercise session



Examples of HIIT Workouts

- **Stationary bike:** sprints on and off for 15 seconds
- **Running stairs:** on and off for 15 seconds
- **Other Aerobic activities:** jumping jacks, quick feet, jogging on the spot with time off and on
- **Strength/resistance activities:** push -ups, burpees, and squat jumps with time off and on
- **Other exercise that include weights:** dumbbells, resistance bands or other equipment.



Diabetes and the Benefits of HIIT Training

Diabetes and HIIT Training

- New research has revealed that HIIT workouts increases your glucose metabolism in muscles as well as insulin sensitivity in Type 2 Diabetics
- An example from studies showed just after a two-week period of completing HIIT workouts, the glucose uptake in thigh muscles actually returned to a normal level.



Precautions When Exercising with Diabetes



- Always monitor your blood sugar before and after exercise
- Have carbohydrates with person (typically simple ones such as a juice box, an apple, or granola bar)
- Ease into the exercise with a good warm-up
- Stay hydrated
- If you are concerned, consult your doctor before performing any new exercises or starting new exercise routines

Advice from Dr. Lai



“Low blood sugar kills.

High blood sugar is killing me slowly.

Keep hydrated 🍺 🥂 🧊 .

Make every heart count ❤️.”



Workout Session

30 Minutes



Warm-Up

30 Seconds each exercise



- Marching on the spot
- Shoulder rolls
- Side steps
- Arm circles
- Side bends with arms
- Butt kicks
- Ankle circles
- Torso twists
- Neck rolls
- Front leg swings

Guided HIIT Exercises

Remember

- Always maintain a proper body position
- Breathe during each exercise
 - Holding your breath increases your internal pressure, thus increasing your blood pressure
- Not sure if you are doing it correct? Ask!



Session Breakdown

2 Rounds

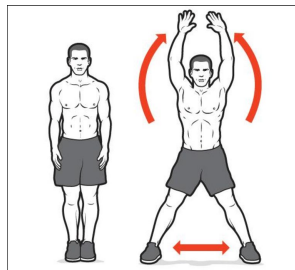
10 Exercises

45 seconds on/15 seconds off

— Lets Begin !

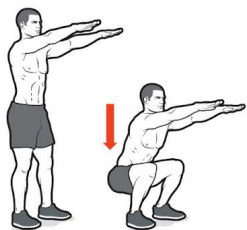
1

Jumping Jack



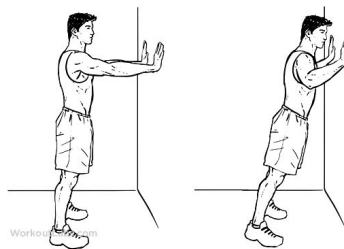
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Squats



3

Wall Push-ups



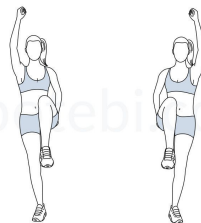
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Wall Sit



5

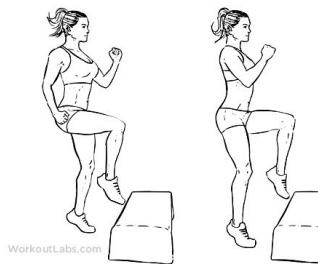
Standing Mountain Climbers



60

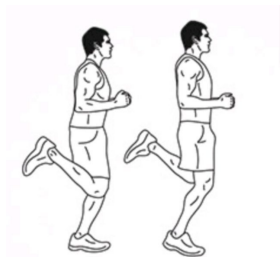
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Toe-Taps



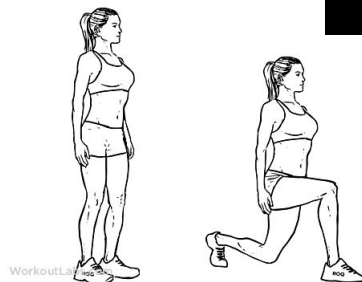
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Butt kicks



8

Reverse Lunges



9

Kettlebell Swing



10

Cardio Punches



Break 2 Minute



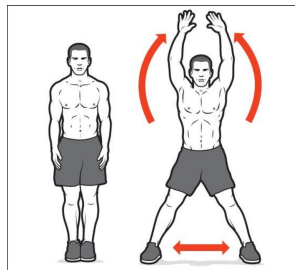
2:00

MakeAGIF.com

— Round 2

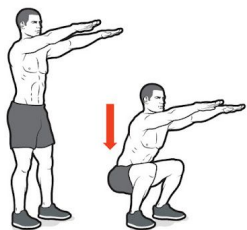
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Jumping Jack



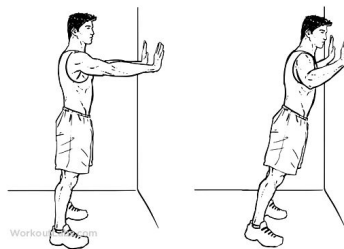
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Squats



3

Wall Push-ups



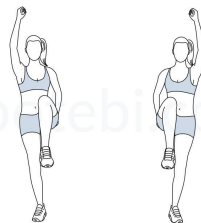
4

Wall Sit



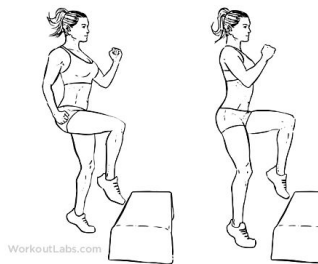
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Standing Mountain Climbers



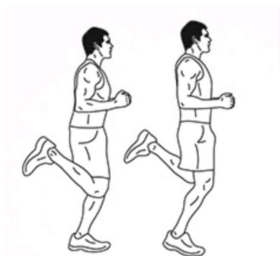
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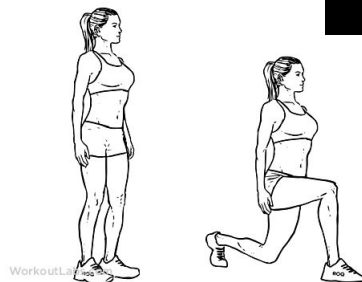
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10

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Cool-Down

Chair Yoga Video



[5-Minute Break - Office Yoga - Bing video](#)

Thank
you!

References

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