



HEALTHCARE
EVOLUTION

Insulin Resistance and Weight Management

CAN WE RESIST THE RESISTANCE?



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EMPOWERING AS MANY PEOPLE AS POSSIBLE TO LIVE A HAPPIER AND HEALTHIER LIFE!

PRESENTER DISCLOSURES

I have the following relationships with these commercial interests:

- Founder: Healthcare Evolution Inc.
- Consulting/Contracting Fees: Novo Nordisk – Obesity C.A.R.E Service; SRx Pharmacy – Calgary, AB
- Grant Funding: Canadian Foundation for Pharmacy – Innovation Fund Grant
- Advisory Board: CPhA Board Representative on the Pharmacy Examination Board of Canada (PEBC) Board of Directors
- Committee: Co-President for Obesity Canada Calgary Chapter

I have received no speaker's fee or support for this learning activity.



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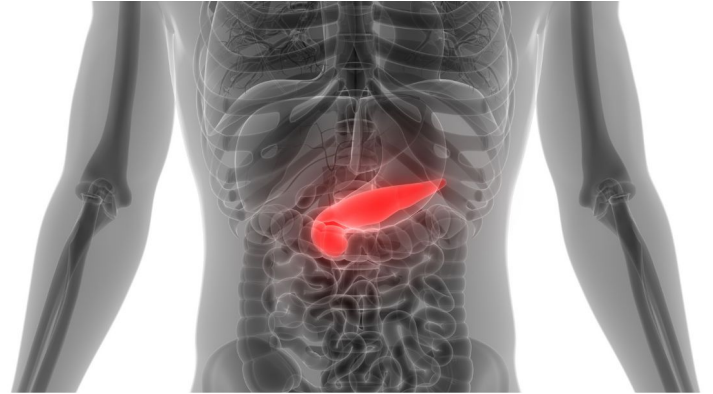
LEARNING OBJECTIVES

- 1) Discuss what is insulin resistance?
- 2) Explore does obesity cause insulin resistance or does insulin resistance cause obesity?
- 3) Review strategies on how to manage insulin resistance and your weight.



But first a bit of background...

- What is insulin?
 - Hormone released from our pancreas
 - Main function is to regulate nutrients in our body - primarily sugar, but it also regulates the uptake of protein and fats



But first a bit of background...

- What is insulin?
 - When you eat a meal, nutrients in your bloodstream increase
 - Your pancreas senses the above and releases insulin to manage
 - Note: Insulin shuttles a number of nutrients but sugar is the main one...
 - Insulin acts like 'key'...



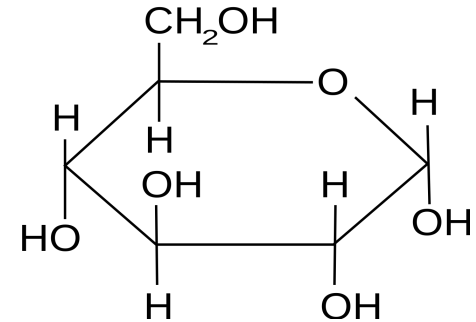
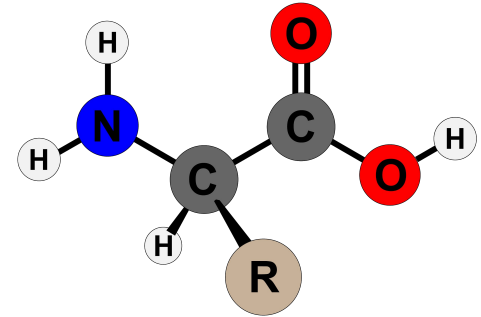
Insulin is a 'key'?

- In order to manage nutrients in our bloodstream our cells need to uptake those nutrients
 - When the concentration of nutrients becomes too high it can be harmful (i.e. in particular with high blood sugar)
- Insulin is the 'key' that opens that door on our cells to allow our cells to take up nutrients from the bloodstream
 - Main cells involved are muscle (~80%), liver, and adipose (fat) cells



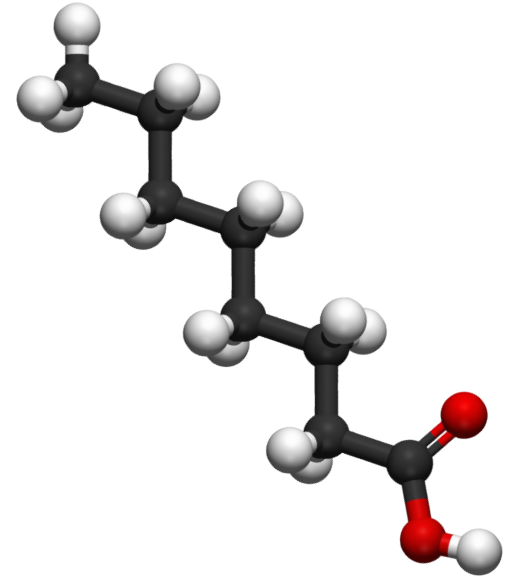
What are these nutrients?

- Protein is absorbed as amino acids
 - Building blocks for muscles, etc.
 - Too much protein - converted to sugar and stored as fat
- Carbohydrates absorbed as sugar (glucose)
 - Main energy source
 - Stored in muscle and liver as glycogen
 - Excess sugar is converted to fatty acids for storage as fat



What are these nutrients?

- Fat is absorbed as fatty acids and monoglycerides
 - Can be taken up by cells throughout the body to be used as energy
 - OR, if in excess, it will be stored as fat



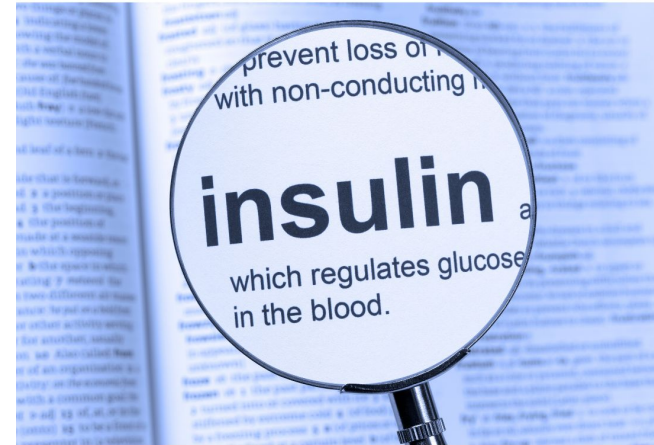
What is insulin resistance?

- Sometimes our cells will stop responding to insulin in the same way
- Previously only 1 'key' of insulin was enough to open the door
 - Now more keys or more insulin is needed to open the same door



What is insulin resistance?

- Pancreas
 - *“Hey, I’ve released my usual amount of insulin but blood sugar and nutrient levels are still high!?”*
 - So, the pancreas will increase production of insulin to overcome the resistance

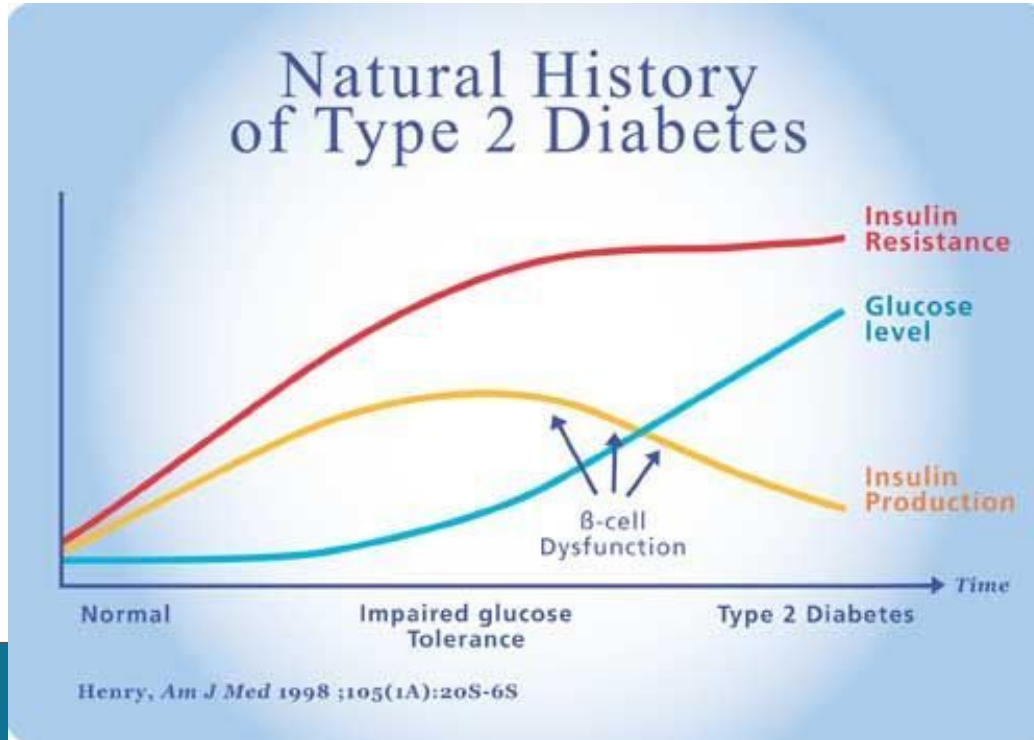


Problem with Insulin Resistance?

- Pancreas
 - At first, the pancreas can keep up and based on blood work (i.e. A1C or Fasting Blood Sugar) everything looks normal
 - Eventually....
 - The pancreas can no longer keep up
 - Beta cells or insulin producing cells start to breakdown and die



Problem with Insulin Resistance?



Difference between Type 1 and Type 2

- Type 1 Diabetes
 - Autoimmune condition where the body attacks our own beta cells and all insulin production stops
- Type 2 Diabetes
 - Insulin production continues but the tissue response to insulin decreases
 - Overtime insulin production can be greatly reduced



Because I like challenging the status quo.

- Observations from years down yonder
 - 1950s: net positive energy balance causes obesity
 - Belief that ‘..one gets fat by eating too much food.’
 - 1950s: found a 10% reduction in body weight could result in disappearance diabetes in individuals with obesity
- Current dogma - Obesity is the cause of Diabetes...Is it, though?



Challenging the status quo...

- Does obesity cause insulin resistance and type 2 diabetes?
- **Or, does insulin resistance and type 2 diabetes cause obesity?**



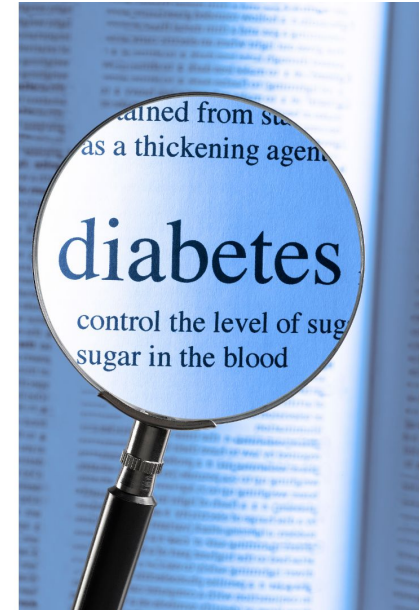
Here are some stats

- 63.1% of Canadian adults are considered overweight or have obesity (BMI $\geq 25.0 \text{ kg/m}^2$)
 - 26.8% have obesity (BMI $\geq 30.0 \text{ kg/m}^2$)
 - 36.3% considered overweight (BMI 25.0-29.9 kg/m^2)
- 89% of the individuals with Type 2 Diabetes are considered overweight or to have obesity (BMI $\geq 25.0 \text{ kg/m}^2$)
 - 13.4% of individuals with obesity have diabetes vs. 2.9% of individuals at 'normal weight'



So, Diabetes is one cause of Obesity?

- Almost everyone who has Type 2 Diabetes is overweight or has obesity
- Not everyone who has obesity develops diabetes



Are you confused yet?

- We are not 100% sure.....
 - Number of factors coinciding vs. a single driver
 - In reality, each individual will likely be different
 - i.e. In some, Obesity can be due to insulin resistance and in others there are other factors involved

My opinion: I am leaning towards insulin resistance and diabetes causing obesity.



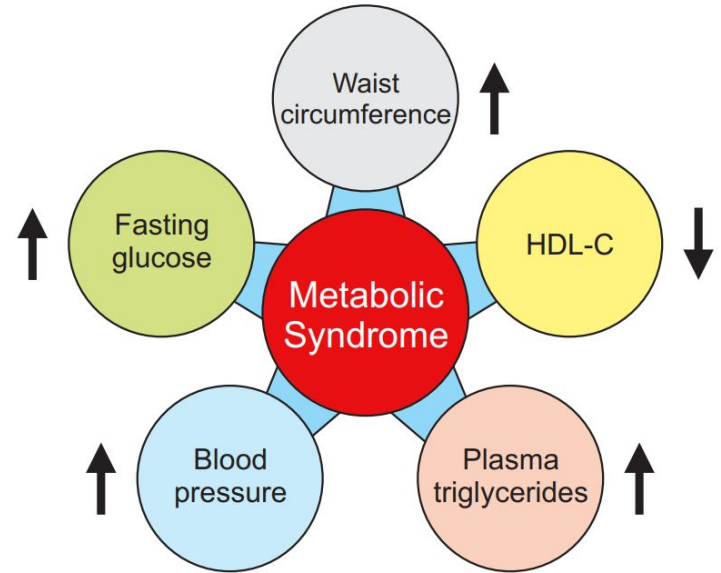
No easy answer...

- Risk factors associated with developing insulin resistance and diabetes:
 - Genetics
 - Inactivity
 - Obesity
 - Smoking
 - Lack of sleep
 - Inflammation - *fatty acids? Overnutrition?*



In reality, it's part of a bigger issue..

- Metabolic Syndrome - Not a disease:
 - Central obesity
 - Insulin resistance
 - High triglycerides
 - High cholesterol
 - High blood pressure
 - Reduced 'good' cholesterol
- Honourable mentions:
 - Fatty liver
 - Increased inflammation
 - Increased risk of clots
 - Reproduction issues



Metabolic Syndrome

- Greatest risk factor for:
 - Type 2 Diabetes
 - Increases risk by 5x
 - Heart Disease (Heart attack, stroke)
 - Doubles risk
- Considered a global epidemic
 - 25% of Americans
 - Rates continue to rise



Super...What do we do about it?

- Boring basics...
 - Dietary modifications
 - Increased physical activity
 - Sleep!
 - Stress Management
 - Quit smoking
 - Weight-loss?
- Medications
- Bariatric Surgery



Dietary Patterns

- Western Diet
 - High calories, cholesterol, saturated fat, refined sugars, proteins, salt and low fiber
- Over Consumption of processed food + inactivity = No bueno



There are no good and bad foods

- There is just FOOD
 - Food is like your 'friends'
 - Moderation in all things
 - Find foods you enjoy
 - Fundamental in sustainability

Goals:

- Decrease salt, cholesterol, and saturated fat intake
- Increase unprocessed whole foods (complex carbs), high fiber, unsaturated fats, nutritious protein sources



Avoid extremes

- Evidence for low carb diets (i.e. keto, IF) providing some benefit
 - Sustainability is an issue
 - Most people struggle to achieve 'true ketosis' - see previous webinars on Youtube!
- I strongly dislike specific 'diets'
 - Diabetic Diet
 - Insulin Resistance Diet
 - Evidence is limited and are often too restrictive



In Practice

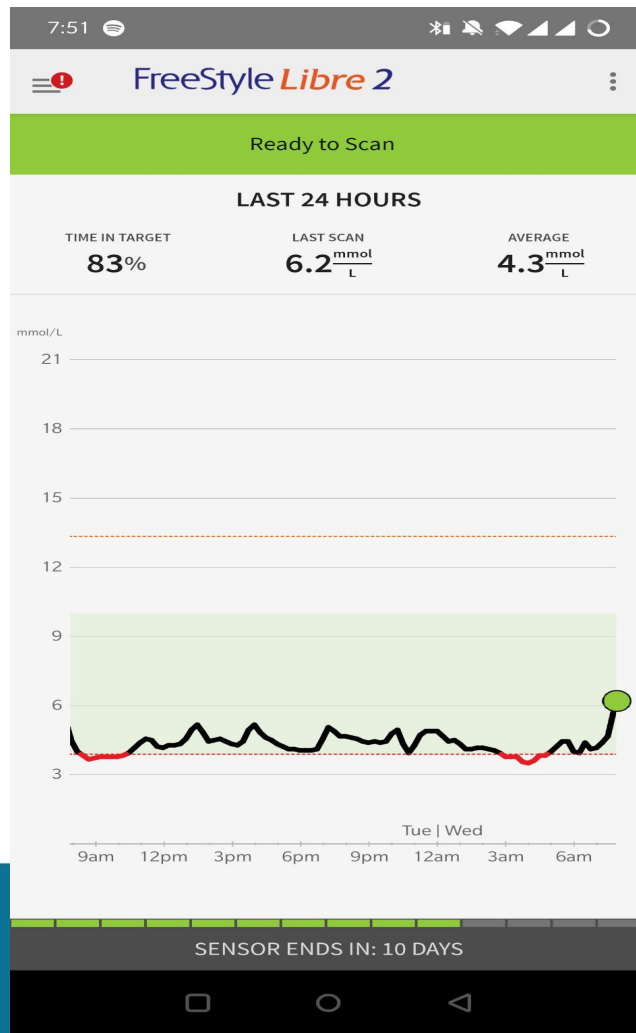
- For most 'low carb' is actually eating more appropriate carb portions....
- I am a fan of the portion plate
 - Use a salad plate vs. dinner plate
 - Focus on protein and veggies

Final Point:

- For anyone measuring blood sugars via CGM (Freestyle Libre, Dexcom)
- You will see a spike in your blood sugars after a meal - THAT IS OK



In Practice



Activity - What is the best?

- The science has gone back and forth whether resistance or aerobic activity is better
- Resistance Exercise = putting muscle under load (i.e. lifting weights, resistance bands)
- Aerobic Exercise = cardio (i.e. walking, running, etc.)



Activity - What is the best?

- Reality
 - Aim to do both
 - Equally important and beneficial
- If you had to choose?
 - Resistance training - can increase HR and better helps to preserve lean muscle tissue



Activity - What is the best?

Goals:

- For health not weight-loss
- Minimum 150 minutes/week or ~20 mins/day
- Find activities you enjoy

Some is good, more is better. Everything counts.
-Dr. Yoni Freedhoff

*Want additional activity support? Check out the app GoGetFit and use the code: **DBHCE***



Sleep...Please we all need to sleep more...

- So important - possible one the major risk factors for obesity?
 - Causes stress, inflammation, affects appetite, mood
- Sleep hygiene
 - Cool room and pillow, no lights, turn off screens an hour before bed
 - More important: Go to bed and wake up at the same time daily
 - Be patient...
- Have you been tested for Sleep Apnea?!



Stress Management..

- Challenging
 - Many situations are out of your control and we can't exactly change our circumstance (i.e. quitting our job)
 - Can we instead look at what we can control?
 - Regardless if you have mental health disorders or not I always recommend therapy
 - Do what makes you happy!



Weight-loss

- Evidence demonstrating benefit
- Losing 5-10% of your baseline body weight can dramatically reduce metabolic abnormalities
 - Possibly reverse insulin resistance and prevent diabetes
- Focus should be on Health
 - Weight-loss is often a secondary outcome



Medications

- No specific drugs to treat Metabolic Syndrome
 - Instead aim to manage the various abnormalities and provide cardiovascular protection
- Insulin Resistance/Weight-loss:
 - Metformin, GLP-1s (Ozempic, Trulicity, Saxenda), Thiazolidines - not used as much, SGLT
- High blood pressure and cholesterol meds
- Talk to your care team!



Bariatric Surgery

- Very effective especially for the extremes
- General Qualifications:
 - BMI \geq 40 or a BMI \geq 35 with obesity related comorbidities

Speak with your care team if you think this is something that may be beneficial for you!



Conclusions

- Complex interplay between Obesity and Insulin Resistance
 - Part of the bigger picture of Metabolic Syndrome
- Management is possible
 - Lifestyle modifications, Medications and Bariatric Surgery



Final Tips

- Collect the Data
 - Record everything you eat and consume over 1-2 weeks
 - Capture emotions, feelings, activity, where you are, etc.
 - We are building a skill around consistency, but also finding where we are at!
- Find the Patterns
 - i.e. Skip breakfast? Binging in the evening? Not sleeping well? Lack of activity?
- Start with ONE small change and be specific
 - Small meal for breakfast 3x/week, incorporating an afternoon snack or going for a walk at lunch
- Fail, learn what worked and what didn't work, then repeat



Always Remember:

Small tweaks, lead to massive peaks!



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LIVE WEBINAR WITH DR. DAN

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WEDNESDAY, MAY 19, 2021
AT 6PM (MOUNTAIN TIME)
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Let's connect!

Where to find me:



Channel: Dr. Dan - Weight-loss via Habit Mastery



Page: Dr. Dan - Healthcare Evolution (@theofficialdrdan)

Group: HE Family with Dr. Dan



Email: dan.burton@healthcareevolve.ca



Website: www.healthcareevolve.ca



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THANK YOU!
ANY QUESTIONS?



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