

# Glucose management for safe and effective exercise in Type 2 diabetes

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# Learning objectives

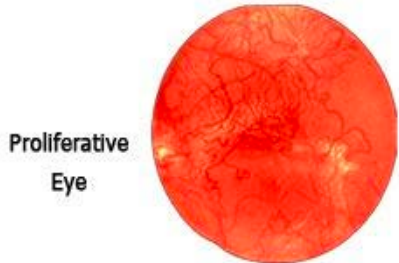
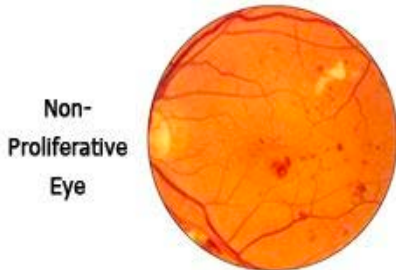
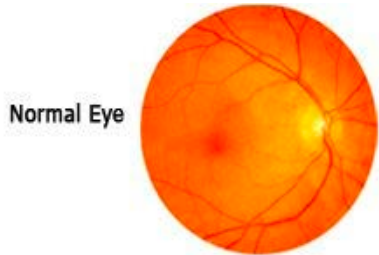
- **Who** – Who is safe to exercise?
- **What** – What type of exercise should you do?
- **When** – When should you do the exercise?
- **How** – How should you exercise?
- **Why** – Why should you exercise?

# Who is safe to exercise?



**EXERCISE?**  
i thought you said  
"Extra Fries"

# Eyes and Exercise



Safe to do any form of exercise

If not having injection or laser  
Then you are able to do  
moderate intensity exercise and  
free weights

# Feet and exercise



Able to do any exercise  
Check feet regularly

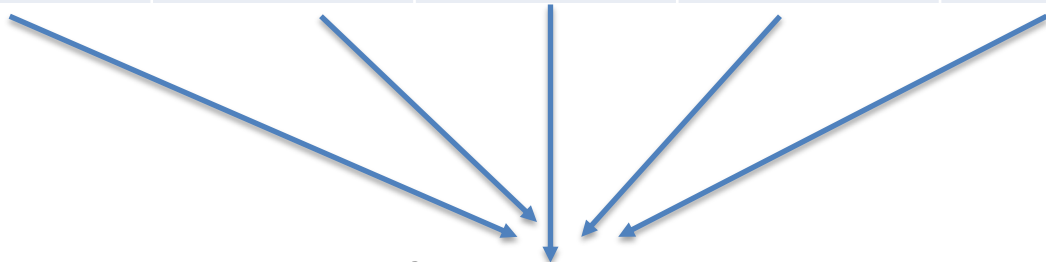


Able to do exercise but not weight  
bearing exercise.  
Check feet regularly



# Kidneys and exercise

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Normal function	Mild kidney function	Moderate kidney function	Severe kidney function	Kidney Failure
90-100% function	60-89% function	30-59% function	15-29% function	0-14% function



Safe to exercise

# Heart and exercise



Heart disease

AUTONOMIC NEUROPATHY

See doctor before start to exercise



Start with low intensity aerobic exercise

# Diabetes treatment and exercise

Type of drug	Risk of low blood sugar
Metformin	No risk
Sulphonylureas (Eg.gliclazide)	Low
DPPIV inhibitor (eg. saxagliptin)	Very Low
Rosiglitazone	Very low
GLP-1 (eg. liraglutide, Exenatide)	Very low
SGLT-2 inhibitor (eg. empagliflozin)	Very low
Insulin (insulatard)	Low



# Who is safe to exercise?

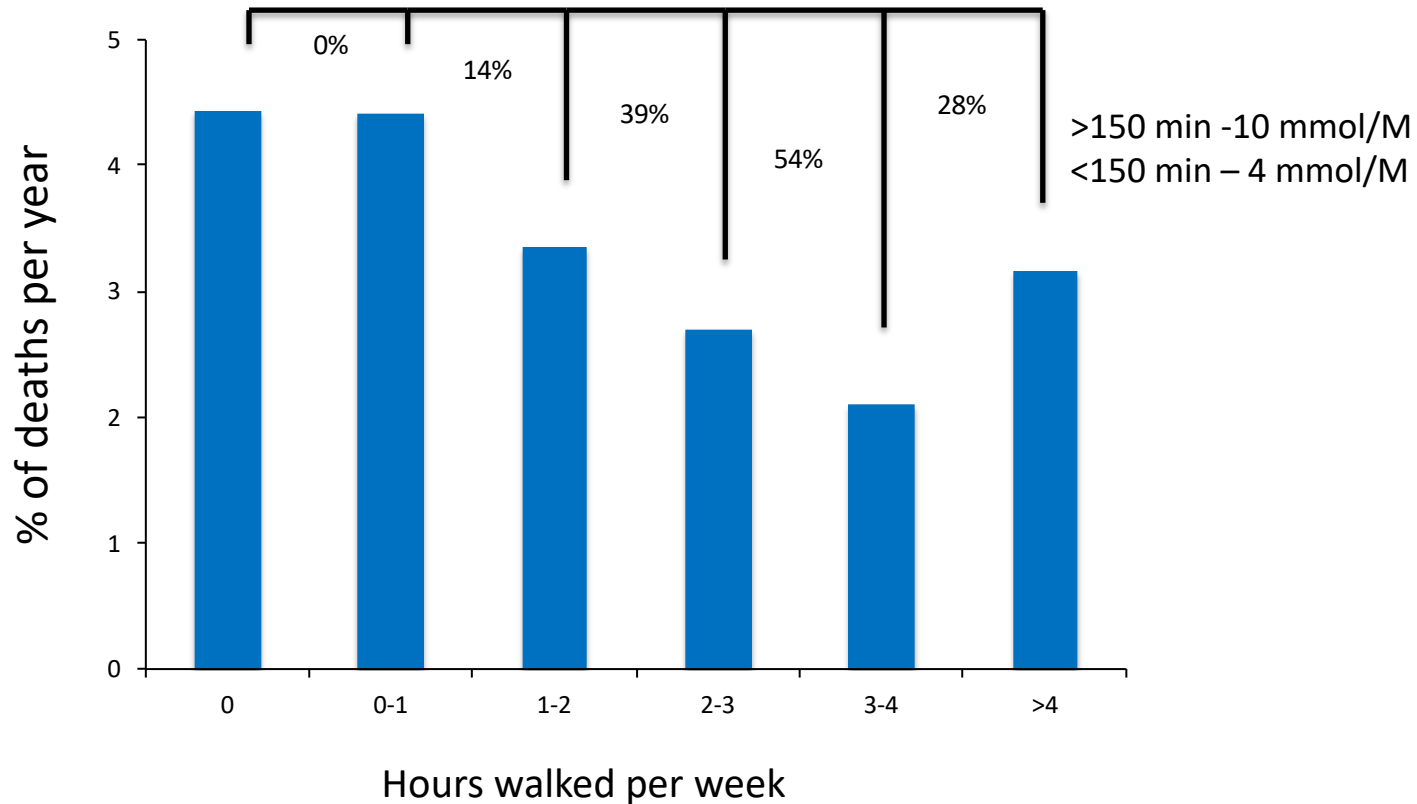
Complication	Advice
Heart disease	<p>If have heart disease (angina, heart failure) then do not exercise without confirmation from your GP or diabetes team.</p> <p>If you have chest pain then do not exercise without being checked out by your GP.</p>
Loss of sensation (neuropathy)	<p>Wear appropriate shoes and check feet regularly.</p> <p>Do not exercise when you have foot problem that is under review by GP or diabetes Team until problem resolved (for example have a foot ulcer).</p>
Eye problems (retinopathy)	<p>Avoid vigorous exercise if under review of eye team or asked to have eye photos more frequently than once a year.</p>
Kidney problems (nephropathy)	<p>No restrictions.</p> <p>There is evidence that regular exercise can protect kidneys</p>

# What type of exercise should you do?

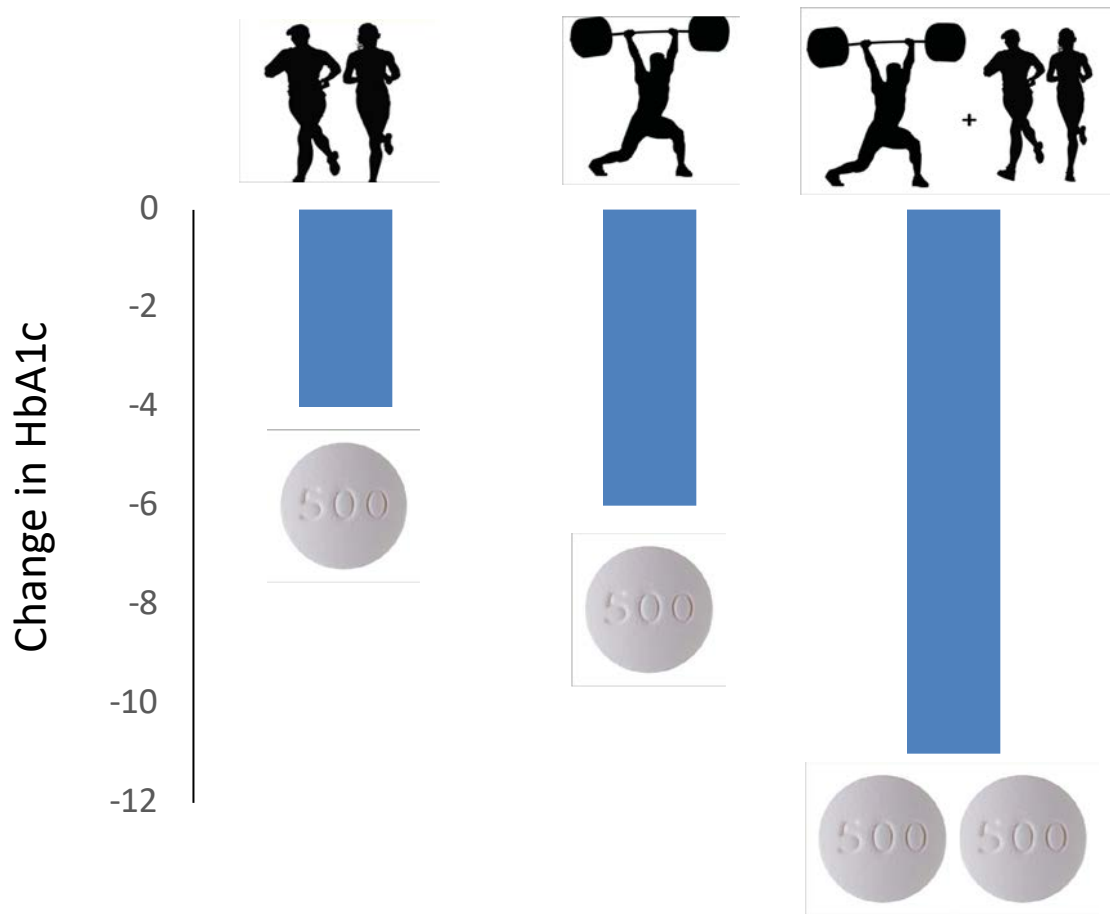


Hey Dude when I said “curls might help, that is not what I meant!”

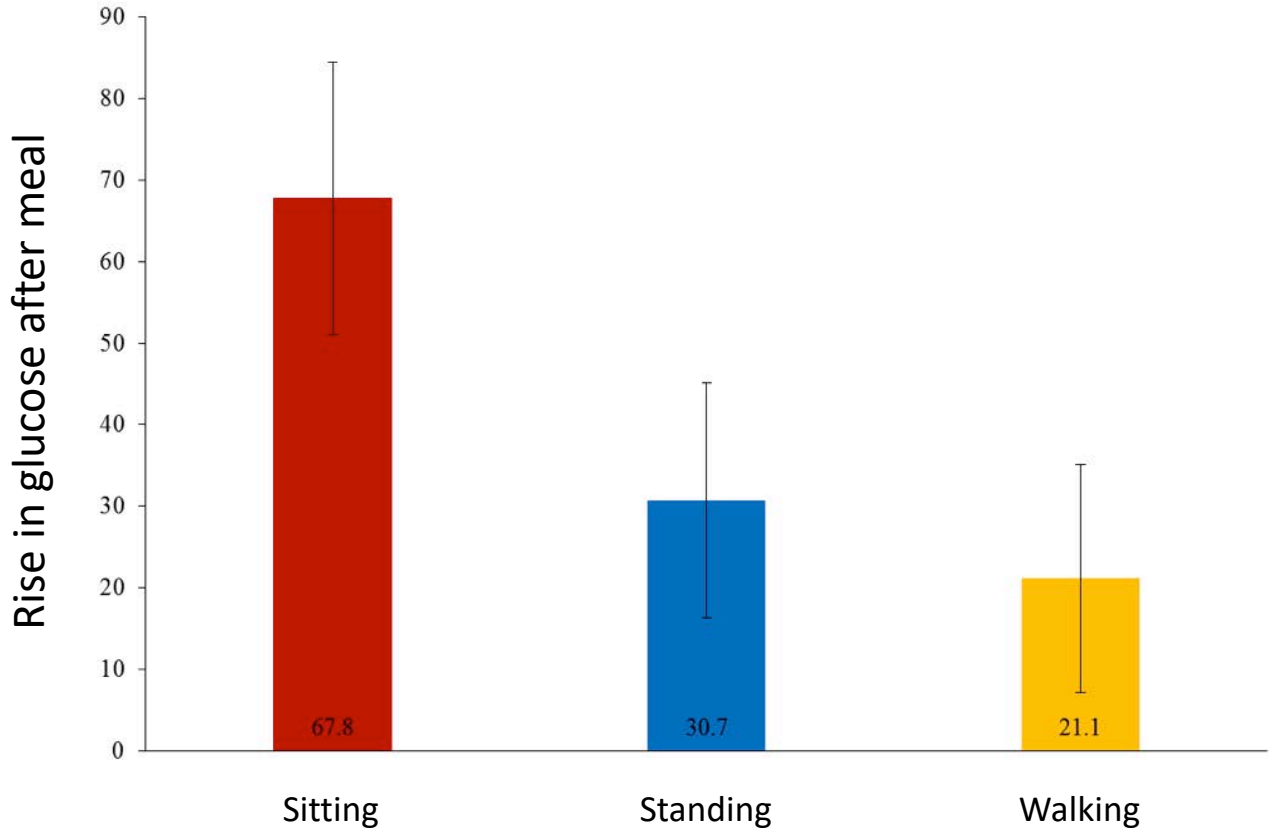
# What – the more you do the better



# What – combination of exercises is best



# What – breaking up sitting is important



# What type of exercise should you do?

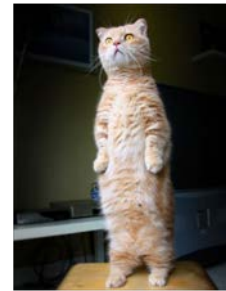
150 minutes per week of moderate to vigorous aerobic activity



Resistance training three times a week



Reduce sitting time – try to get up three times per hour



# When should you do the exercise?



# Benefits of morning exercise



- Morning exercisers have few scheduling conflicts
- Morning exercisers are more likely to stick with their regime.
- Morning exercisers have better sleep.
- Morning exercisers lose weight quicker
- Morning exercisers are more productive

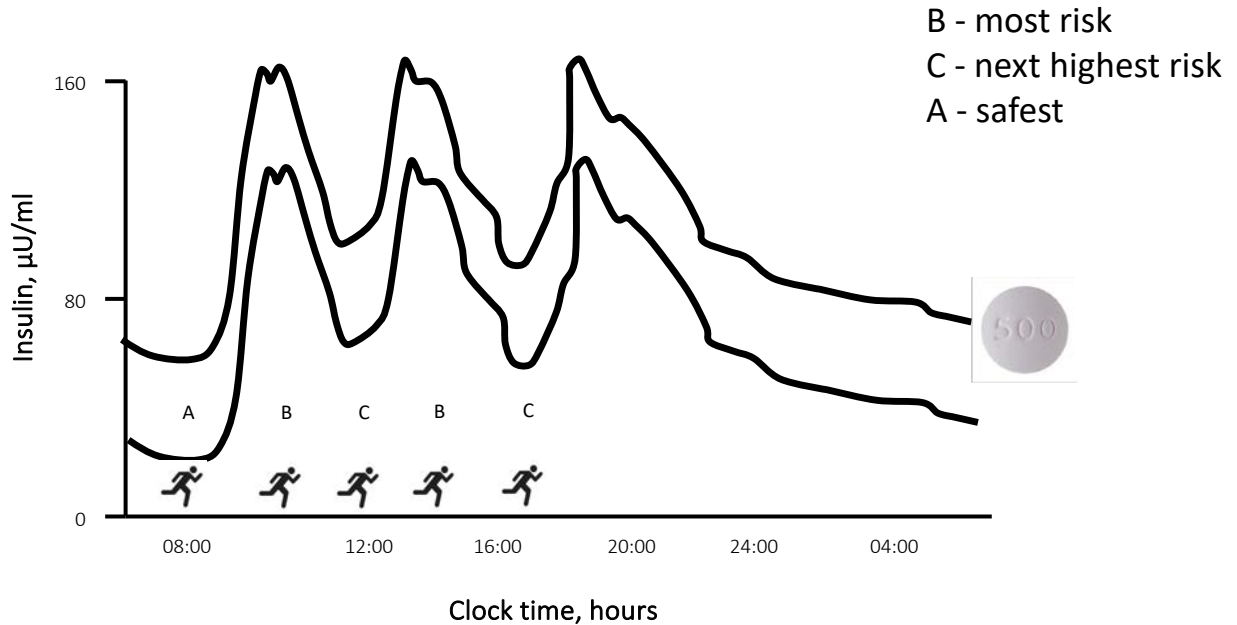


# Benefits of afternoon exercise

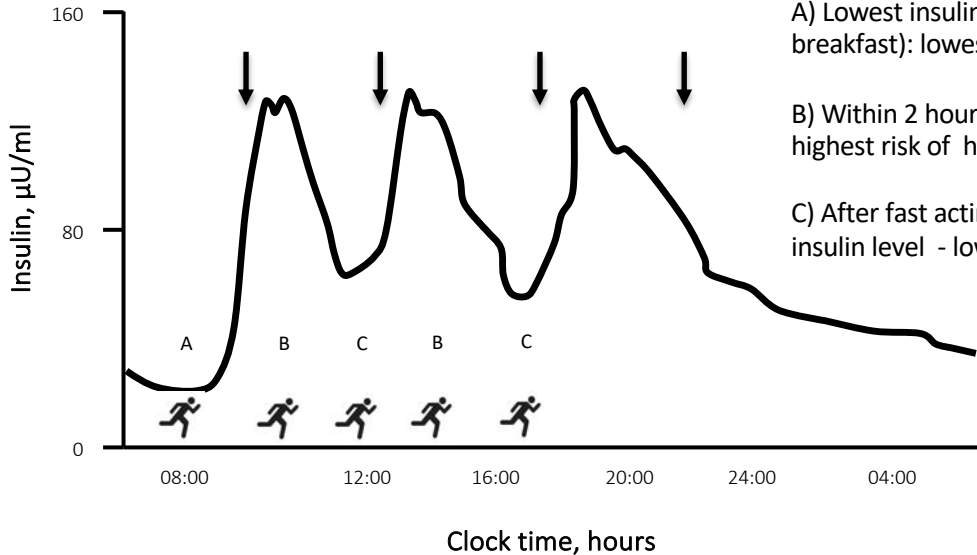


- Greater improvement in strength if exercise in afternoon
- Greater improvement in performance if exercise here
- Help to prolong concentrations

# Best time to exercise on sulphonylureas



# Best time to exercise on insulin






A) Lowest insulin level on waking (pre-breakfast): lowest risk of hypoglycaemia here

B) Within 2 hour window of fast acting insulin: highest risk of hypoglycaemia here

C) After fast acting insulin: second lowest insulin level - low risk of hypoglycaemia

# When you should you do the exercise?

Morning	Afternoon	Evening
		
Insulin sulphonylureas		

# How should you exercise?

**I DID A PUSH-UP TODAY.**



WELL, ACTUALLY  
I FELL DOWN, **BUT**  
I HAD TO USE MY  
MY ARMS TO GET  
BACK UP, SO . . .

CLOSE ENOUGH

**NOW I NEED CHOCOLATE**

# Set realistic targets

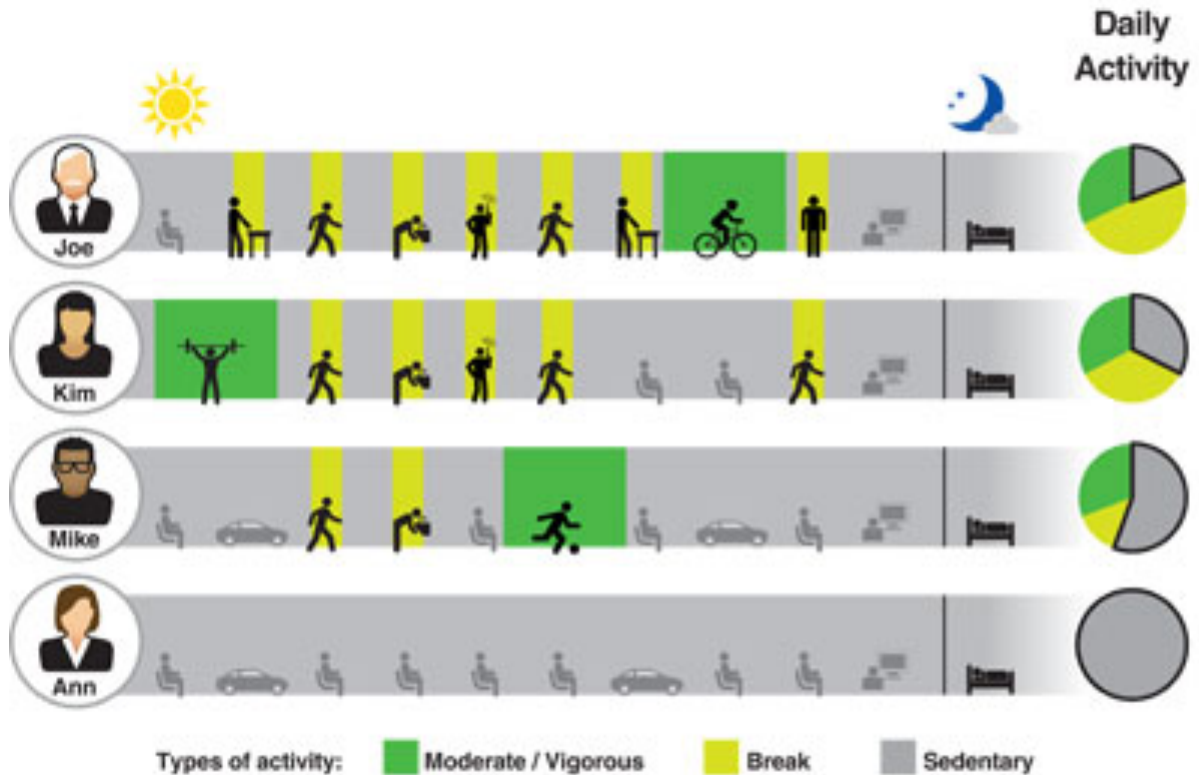


- Should set small targets that they can achieve
- Increase by 500-1000 steps per week
- 64% of targets set are too demanding

**Do exercise that you enjoy**



# 30 minutes moderate activity and try to reduce sedentary time





# Technology and exercise in groups helps



# Blood sugars and exercise

Only really needed if on Insulin or sulphonylureas

Have you had a severe hypo in last 24 hours?

Yes

Do not exercise

No

Check BG

<3.5

20 g Carb

Recheck At 15 min  
To ensure BG rising  
Wait 45 Min before Exercising

3.5-5.6

20 g Carb

Wait 15 min

5.7-6.9

Additional 15 g Carb

7.0-15

Proceed to exercise

>15

Recheck At 15 min

If decide to exercise  
Low intensity and monitor

# Top 7 tips for exercise

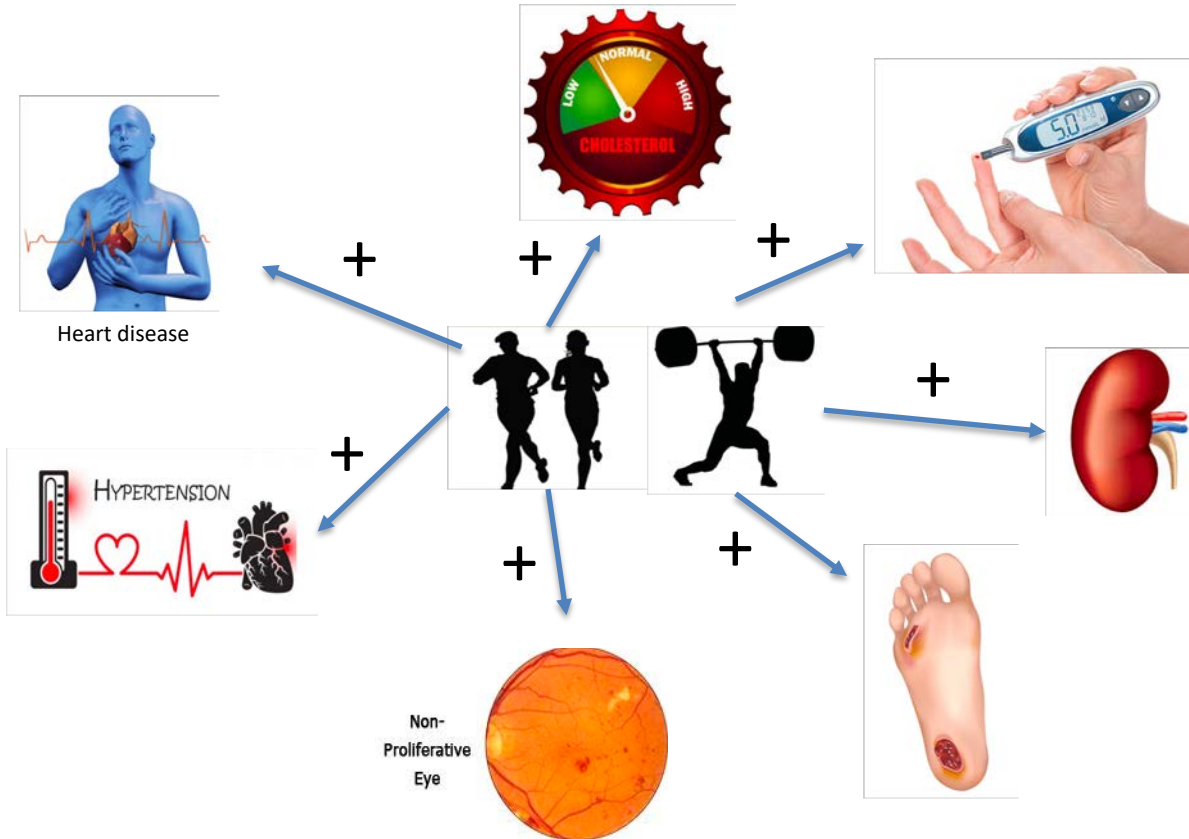
<b>Tips</b>	<b>Reason why</b>
<b>1. Do some thing you enjoy doing</b>	You are more likely to stick with an activity if you enjoy it.
<b>2. Start slow</b>	Starting slowly will prevent injury. If you have any medical conditions, speak to your healthcare team before starting any new activity.
<b>3. Warm up and warm down</b>	This will reduce the chances of injuring yourself.
<b>4. Make small changes</b>	Walking is free, and a simple way to improve your fitness. Try walking or cycling to work or going out to do chores. If too far get off a few bus stops or trains stop earlier and walk.
<b>5. Set yourself goals</b>	If you set goals you are more likely to keep doing your activity. Ensure these are realistic and that you set short-term and long-term goals. Monitor what you do and treat yourself when you achieve a goal.
<b>6. Variety is the spice of life</b>	Try swapping cycling on an exercise bike for cycling outdoors, or try a new activity. If you are starting a new activity think about how this might affect your diabetes and plan accordingly.
<b>7. Make it social</b>	Instead of meeting friends for a coffee or in the pub, why not suggest doing something active? You could join a club or play sports with your friends – golf or tennis.

# Why should you exercise?



**EXERCISING WOULD BE  
MUCH MORE  
REWARDING  
IF CALORIES  
SCREAMED  
WHILE YOU  
BURNED THEM.**

# Why should you exercise?



# Learning objectives

- **Who** – Almost everyone is safe to exercise
- **What** – Combination exercise + reduce sitting
- **When** – Depends on benefits looking for
- **How** – start slow and build up using targets
- **Why** – huge health and mental benefits

# Contact details

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