

The Testing Booklet



THE UNIVERSITY
OF BRITISH COLUMBIA



Section One

An Introduction

Why are we doing this testing?

The study aims to investigate two strategies to support people with Type 2 diabetes increase and then maintain a physically active lifestyle, which includes exercising regularly.

What will these tests measure?

These tests will measure your height, weight, waist circumference, blood pressure, cholesterol, physical activity and control of blood sugar. This booklet will give you detailed instructions on how to take the measures. You will also have support from a member of the research team via phone or video call, at your request.

How many times do I need to complete these measurements?

Health assessments will be performed before the start of the exercise programme (week 0), on completion of the programme (6-months) and 6 months after the supported exercise programme has finished (12-months).

What do I do if I can't work the equipment?

You can request a phone call or video-call at any time with a member of the research team. Contact us, either via the (www.MotivateLJMU.co.uk) or email **MotivateT2D@ljmu.ac.uk**.



TOP TIPS



Take your measurements in the morning between 6am and 10am. The tests should take approximately 1-hour to complete.



Avoid any vigorous-intensity exercise for 24-hours prior to taking your measurements.



For the tests you need to be fasted. Please do not eat 8 hours before the tests and no caffeine or alcohol for at least 24-hours.

Here are some of our
top tips for measuring
your health!



Just before beginning your
measurements, drink a glass of water.



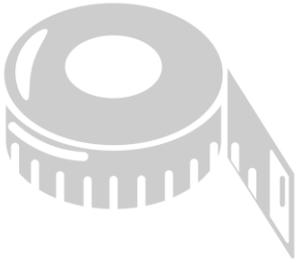
Before taking a blood sample, wash your hands
with soap and water for 2 minutes. Make sure
your hands are nice and warm!



Complete the all the measures in the
order set out within the booklet

What's in the box?

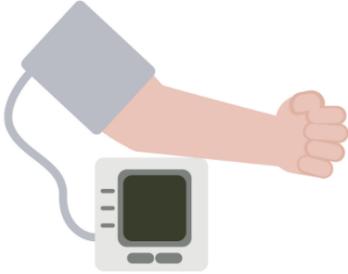




1. Tape Measure



2. Scale



3. Blood Pressure Monitor



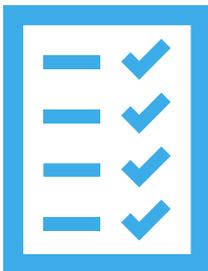
4. Blood Collection Kit



5. Flash Glucose Monitor



6. Physical Activity Monitor



7. Testing Checklist



8. Pre-paid Envelopes

YOUR CHECKLIST

Have you...

- Not eaten for 12 hours
- Had a glass of water

Do you have everything?

- Testing booklet
- Thin, flat object (e.g. a magazine, place mat, iPad)
- Tape measure
- Physical activity monitor
- Scales
- Blood pressure monitor
- Bloods kit
- Flash glucose monitor

INSTRUCTIONS

Height

Refer to the testing booklet for more details on measurements.

- 1: Do you know your height in cm or feet and inches? If so enter the measure and skip to #5.
- 2: With bare feet, stand against a wall.
- 3: Place flat object on your head and place a mark at the point where the object meets the wall with the sticker provided.
- 4: Measure the distance from the floor to the sticker with the tape measure.

Weight

- 5: Place scales on non-carpeted floor and stand on them to measure your weight.

Waist circumference

- 6: Lift up clothing, then wrap the tape measure around your waist at the level of your belly button.
- 7: Breathe out and record the number at which the end of the tape meets the remaining length. Do this **3 times**.

Blood pressure

- 8: Rest for 10 minutes before measuring your blood pressure.
- 9: Remove any clothing from your upper arm.
- 10: Wrap the cuff around your upper left arm and place your arm on table or arm rest of a chair
- 11: Press START/STOP. Be still, don't talk and relax throughout the test.
- 12: Repeat this **3 times** with one minute rest in between measurements.

RESULTS

Write all your measurements in this box.

Measurements	Results
Height	cm/in
Weight	kg/lbs
Waist Circumference #1	cm/in
Waist Circumference #2	cm/in
Waist Circumference #3	cm/in
Blood Pressure #1	mmHg
Blood Pressure #2	mmHg
Blood Pressure #3	mmHg

Turn over the page to continue the testing...

If at any time, you wish to speak to a member of the research team, please email

MotivateT2D@LJMU.ac.uk

YOUR CHECKLIST - Baseline

Refer to the testing booklet for more details on these measurements.

INSTRUCTIONS continued

Blood collection

- 13: Wash your hands in warm water for 2 minutes, and dry. Have tissue ready to help during collection.
- 14: Clean your little finger with the alcohol wipe.
- 15: Twist off the cap from the lancet.
- 16: Place the lancet on the outside of the little finger & apply pressure until you hear a click and feel a scratch.
- 17: Wipe the first drop of blood away with some tissue.
- 18: Massage the side of the hand from the wrist to the finger. As blood droplets form, gently touch them on the inside edge of the collection tube.
- 19: Fill the collection tube until 500µl. The 2nd line on the tube.
- 20: Replace the lid of the collection tube and invert the tube several times.
- 21: Clean the finger with tissue and apply pressure, put on a plaster if needed.
- 22: Place the collection tube back into the plastic clamp shell & seal.
- 23: Pack the plastic clamp shell into the prepaid envelope and post on the same day.

Glucose monitoring

- 23: Clean the back of your arm with an alcohol wipe & allow to dry.
Unscrew the cap from the grey applicator, and open the white sensor.
- 24: Insert the grey applicator into the white sensor by lining up the dark lines.
- 25: On a hard surface, press down firmly on the grey applicator until it clicks and comes to a stop.
- 26: Lift the sensor applicator out of the sensor pack. Be careful not to touch inside the sensor applicator.
- 27: Place the applicator over the clean area at the back of your arm and push down firmly to apply the sensor to the body.
- 28: Gently pull the sensor applicator away from your body. Make sure the sensor is secure. Wear for 14 days.
- 29: Scan the sensor with the reader to ensure the sensor is working. If it does not work, please contact us.

Physical activity monitoring

- 30: Wear the monitor on your non-dominant wrist (e.g. if you're right-handed, wear it on your left) for the next 14 days.
- 31: After 14 days, post both the Physical Activity Monitor and Glucose Sensor & Reader, using the prepaid envelope.

Questionnaires

- 32: Open the questionnaire link sent to you via email or text.
- 33: Complete the online questionnaires.
- 34: Complete the online survey.

If at any time, you wish to speak to a member of the research team, please email

MotivateT2D@LJMU.ac.uk

1. Height



TOP TIPS

Choose a good location

- If possible, the floor should be hard, avoid floors with carpets or rugs
- Find a place where you can clearly see a sticker on the wall
- You should be able to stand with your back flat against the wall

Step 1:



Make sure you have bare feet and are standing against a tall, solid wall.

Step 2:



Lay a thin, flat object on top of your head e.g. a book

Step 3:



Whilst holding the book still, place a sticker at the point where the object meets the wall.

Step 4:



Stand on the tape measure to measure the distance from the floor to the reference point. Make sure the tape measure starts at 0cm.

2.Weight



TOP TIPS

- Remove shoes and any heavy clothing, such as jeans or a jumper
- Stand with both feet in the center of the scales
- Record the full weight shown on screen (e.g. 86.7kg or 13.6st)

Step 1:



Place the scales on a flat, firm, non-carpeted surface if possible.

Step 2:



Make sure take off your shoes and wear as little clothing as possible.

Step 3:



Step on the scales and stand still whilst the scale measures your weight. Record your weight on the sheet provided.

3. Waist Circumference

TOP TIPS

- For an accurate reading, exhale before taking the measurement
- The tape measure should be placed just above your belly button
- You will need to measure and record your waist circumference **3 times**

Step 1:



Take the tape measure and wrap it around your stomach, under your clothing.

Step 2:



Thread the end of the tape measure into the holder

Step 3:



Press the SECA button to tighten the tape measure

Step 4:



Place the tape measure just above your belly button and exhale

Step 5:



Record the number at which the end of the tape meets the remaining length. Repeat **3 times**

4. Blood Pressure

TOP TIPS

- ❑ Sit upright in a chair, your back against the chair and feet flat on the floor
- ❑ Rest in a chair for 10 minutes before measuring your blood pressure.
- ❑ Don't talk during the measurement and try to relax
- ❑ The machine will show 2 numbers (e.g. 120 and 80) please record both of these numbers on your sheet



Step 1:

Plug the black cuff into the white blood pressure monitor



Step 2:

Remove any clothing from your upper arm and place your arm through the cuff with the wire at the bottom



Step 3:

Place the cuff just above the elbow and tighten, you should be able to fit a finger between the cuff and your arm



Step 4:

Press the START/STOP button to begin the measurement. Be still, do not talk and relax throughout the test.



Step 5:

Repeat this measurement **3 times**, with one-minute rest in between measurements.

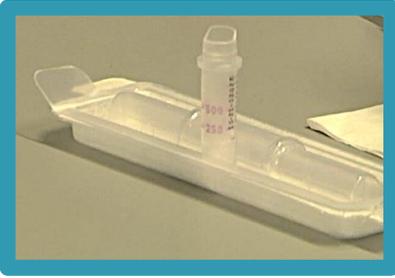
5. Blood Collection



TOP TIPS

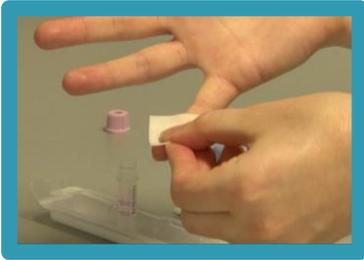
- Before you start drink a glass of water and sit in a warm room
- Wash your hands in warm water for 2 minutes before the measurement
- To help blood flow, try and remain standing during the measurement
- Have a piece of tissue to hand

Step 1:



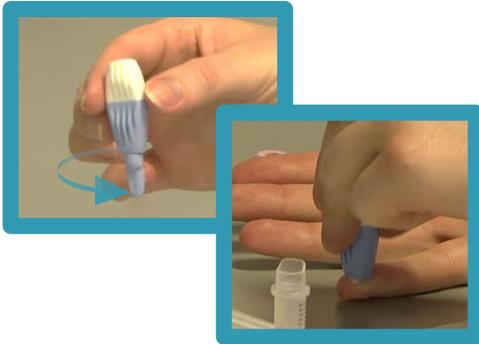
Open the packaging and remove the tube. Remove the lid of the tube. Close the packaging lid and place the tube upright in the holder.

Step 2:



Clean your finger with the alcohol wipe provided. We recommend your little finger.

Step 3:



Twist the blue cap off the lancet. Then place the end of the lancet firmly against your clean finger, apply pressure until you hear a click. You may feel a small sting.

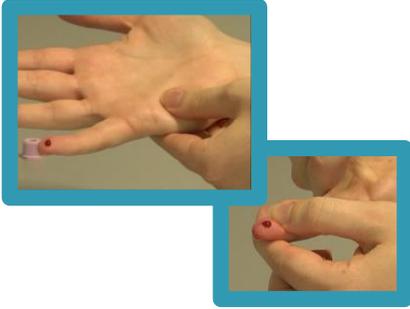
Step 4:



With a piece of tissue wipe away the first droplet of blood that forms.

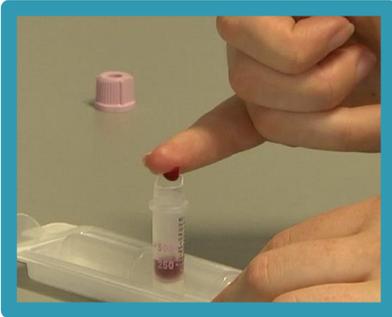
Step 5:

Massage the side of your hand, starting from your wrist all the way to your finger.



Step 6:

As the blood drops form, gently scrape them on the inside edge of the tube to collect them. Have a tissue ready if blood starts to drip down your finger.



Step 7:

Fill the tube to the **2nd line** marked. If you fail to collect enough blood from your selected finger, repeat the process on a different finger using the spare lancet.



Step 8:

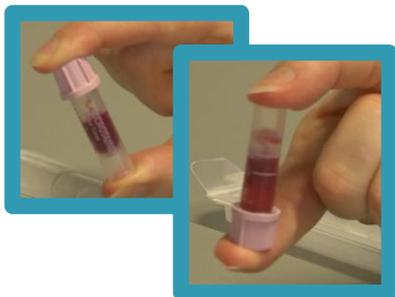
When you have finished filling the tube, hold some tissue to your finger and apply pressure until the bleeding stops. Apply a plaster if needed.





Step 9:

After blood collection, securely replace the lid of the collection tube. You will need push down on the lid until it click.



Step 10:

Invert the tube (turn upside-down) several times to mix the blood sample.



Step 11:

Place the collection tube back into the plastic packaging and seal.



Step 12:

Pack the plastic clamshell (with the tube inside) into the prepaid envelope. Post the envelope on the **same day** that you took the sample.

6. Glucose Monitoring

TOP TIPS

- ❑ Select a site on the back of the upper arm. Avoid scars, moles, stretch marks and lumps.
- ❑ The site should generally stay flat during normal daily activities (no bending or folding).
- ❑ You will wear the sensor for **14 days**. During this time you can get the sensor wet, but try to keep it as dry as possible.



Step 1:

Clean the back of your arm with an alcohol wipe and allow to dry.



Step 2:

Pull the tab to open the white sensor package. Unscrew the bottom of the cap from the grey applicator.



Step 3:

Line up the dark mark on the grey applicator with the dark mark on the white sensor pack.



Step 4:

On a hard surface, press down firmly on the grey applicator until it clicks. Now the applicator and sensor should be connected to the grey applicator.

Caution: The Applicator now contains a needle. Do NOT touch inside the Applicator



Step 5:

Place the grey applicator over the prepared site and push down firmly to apply the sensor to your body. You may feel a small sting as the needle goes in.



Step 6:

Gently pull the grey applicator away from your body. The white sensor should now be attached to your skin.

Caution: Applying the Sensor may cause bruising or bleeding. If there is bleeding that does not stop, remove the Sensor



Step 7:

Put the cap back on the grey applicator and discard the grey applicator and white sensor packaging.



Step 8:

You will then need to start the recording your glucose levels. To do this you will need the white glucose reader (see picture).

Press the Home button (circled red) to turn on the glucose reader.



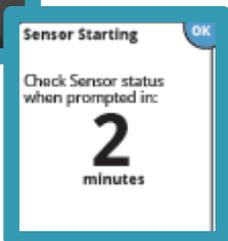
Step 9:

Touch 'Start New Sensor' on the white glucose reader.



Step 10:

Tap the reader to the sensor, it should beep. You can check if the sensor has successfully started in 2 minutes.



Note: If communication is not established within 15 seconds, the Reader displays a prompt to try again. Touch OK to return to the Home Screen and touch Start New Sensor to start the Sensor.



Step 11:

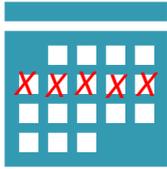
After 2 mins, when prompted, touch **yes** to check the Sensor status. Tap the reader to the sensor again, to verify the sensor is working.



If the sensor is working touch **OK** (top right of the screen).

Note: If the sensor is not working please contact a member of the research team.

Step 14:



You will need to wear the sensor for **14 days**. The sensor is water-resistant up to 1m.



Note: If the sensor falls off before the end of the 7 day period do not worry, please keep the sensor and email the research team.

Step 13:



After **14 days** you will need touch 'Get sensor data' and tap the reader to the sensor.

Then to remove the sensor, pull up the edge of the adhesive and slowly peel the sensor away from the skin.

Note: there may be a bit of blood afterwards, this is normal.



Step 14:

Place the white sensor in the clear biohazard bag before posting.

Envelope 2 (going back to LJMU) should then contain:

1. Physical Activity Monitor
2. White Sensor in Biohazard Bag
3. Glucose Monitor



7. Activity Monitoring



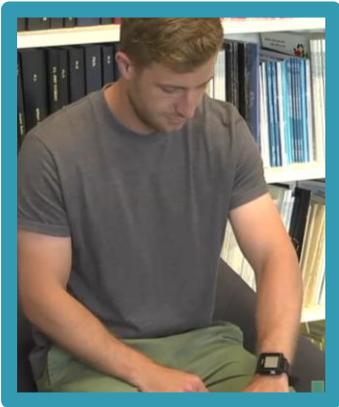
TOP TIPS

- Wear the monitor on your non-dominant wrist (e.g. left if you are right-handed)
- Keep on for 7 days
- Remove in the shower, bath or when swimming – but don't forget to put it back on afterwards!



Step 1:

Place the Physical Activity Watch on your non-dominant wrist e.g. left if you are right handed



Step 2:

You will need to wear the Physical Activity Monitor for **14 days**.

You should wear the glucose monitor for the same 14-day period.



Step 3:

Once you have worn the Physical Activity Monitor for **14 days**, you will need to post it back to us at LJMU. We have provided a pre-paid envelope in your testing pack.



Special Note:

Envelope 2 to post back to LJMU should contain:

1. Physical Activity Monitor
2. White Glucose Sensor, placed in the mailer pack
3. Glucose Monitor Reader

Section Two

The Results

What do these results mean?

The next section will explain what each measurement is and what your results mean.

Are there any normal values for these measures?

These results are solely being used for research purposes and cannot be used for diagnostic purposes. However, if any measures are identified outside of 'normal' ranges, you will be informed and encouraged to contact your GP.

What do I do now?

You're all done! All you need to do now is follow the exercise programme that works for you. If at any point you wish to get in touch with the research team, please do so using the email:

MotivateT2D@ljmu.ac.uk



Why is my Body Mass Index Important

When you know your height and weight, follow the lines on the chart (next page) to find out your Body Mass Index (BMI).

BMI is a measure of body fat that is used by the medical profession to determine a person's weight in regard to the height.

BMI applies to adult men and women and assesses whether people are underweight, of a healthy weight, overweight or clinically obese.

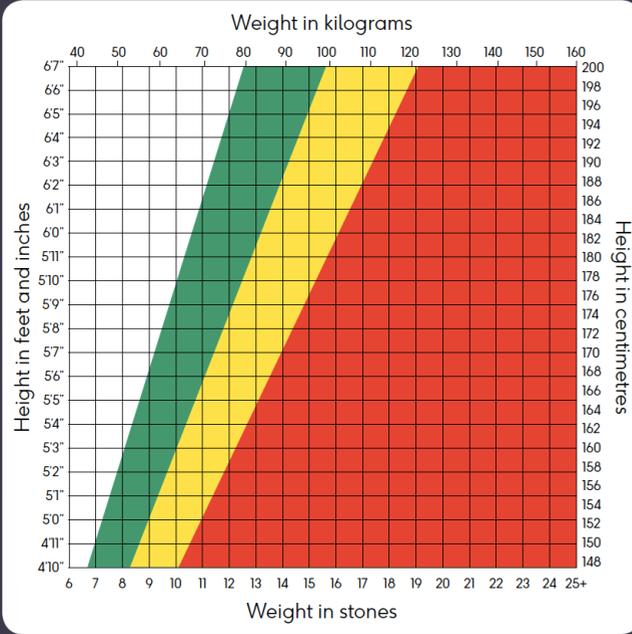
People who are classed as clinically obese possess a greater risk of developing diabetes, as well as cardiovascular diseases, cancer and suffering a stroke.

Why is my Waist Circumference Important

Regardless of your BMI, you should try to lose weight if you have a high waist circumference (>102cm in men or >88cm in women). This is because your risk of getting some health problems is affected by where you store your body fat, as well as your weight.

Carrying too much fat around your middle (waist) can make it more likely for you to have conditions such as heart disease or a stroke.

Find out your BMI



Underweight
BMI below 18.5

Ideal Weight
BMI 18.5-24.9

Overweight
BMI 25-29.9

Obese
BMI above 30

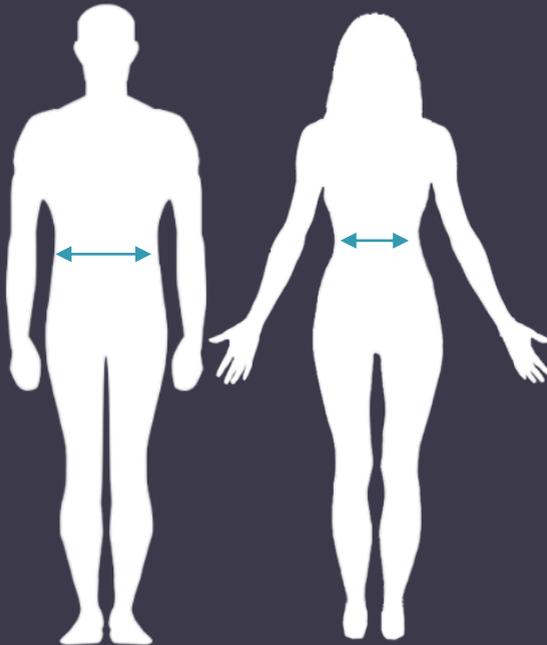
Waist Circumference

Men

Low: 94cm or lower

Medium: 94-102cm

High: 102cm or higher



Women

Low: 80cm or lower

Medium: 80-88cm

High: 88cm or higher

What is blood pressure?

Blood pressure is the pressure your heart uses to push blood through your blood vessels and around your body.

There are two numbers used to describe blood pressure and it's measured in millimetres of mercury (mmHg). It's written like this: 130/80mmHg. And you'll hear your doctor say '130 over 80'.

The first number is the most amount of pressure your heart uses to push the blood around, when your heart is beating. The second number is the least amount of pressure, when your heart is relaxed between beats.

High blood pressure?

High blood pressure means that your heart has to work harder to pump blood around your body, so the pressure is always higher than it should be.

People with diabetes and high blood pressure are more at risk of having a heart attack or stroke.

Blood Pressure Results

Blood Pressure	
Ideal	90/60mmHg to 120/80mmHg
Increased Risk	120/80mmHg to 140/90mmHg
High	140/90mmHg



If your blood pressure was over 180/120mmHg please seek medical advice and then contact a member of the research team

What are you measuring in my blood?

Using your finger prick blood sample we will be measuring a number of health makers. For example your cholesterol and HbA1c levels.

Your blood samples will be sent to Monitor My Health an NHS trusted lab.

What is HbA1c?

The term HbA1c refers to glycated haemoglobin. It develops when haemoglobin, a protein within red blood cells that carries oxygen throughout your body, joins with glucose in the blood, becoming 'glycated'.

By measuring glycated haemoglobin (HbA1c), clinicians are able to get an overall picture of what our average blood sugar levels have been over a period of weeks/months.

For people with diabetes this is important as the higher the HbA1c, the greater the risk of developing diabetes-related complications.

What is Cholesterol?

We will measure your HDL cholesterol (good cholesterol) and LDL-C (bad cholesterol). If the levels of your bad cholesterol become too high and the good cholesterol too low you are at increased risk of developing cardiovascular complications. We will also measure triglycerides, which can have bad effects on your health if levels are high, too.

For most people, eating a healthy, balanced diet and being physically active is enough to keep cholesterol levels healthy.

HbA1c



Cholesterol

	Healthy Levels
HDL	1 or above
HDL-C	4 or below
Triglycerides	2.3 or below



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