

DIABETES RISK SCORE

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Welcome

Thank you for downloading the Diabetes UK Diabetes Risk Score.

To help you carry it out, this document includes information on the following:

- What is the Diabetes Risk Score? This gives background information and includes frequently asked questions
- How to use the Diabetes Risk Score
- What Your Score Means
- Example role plays

Also available as separate downloads are:

- Diabetes Risk Score
- Letter for GP (for those at moderate or high risk)
- Healthy eating information sheet
- Physical activity information sheet

References are available on request from: clinicaladvisor@diabetes.org.uk

What is the risk score?

Diabetes UK's Diabetes Risk Score is a questionnaire designed to be completed unaided or with minimal help. However, it can be completed with the aid of Healthcare Professionals. This gives the assessor the opportunity to deliver lifestyle intervention dependent on modifiable risk factors which can increase the value of the questionnaire.

The questionnaire is based on the risk factors of Type 2 diabetes and is designed to determine a person's risk of Type 2 diabetes within the next 10 years. The risk score also identifies those with impaired glucose regulation (IGR) and so at risk of developing Type 2 diabetes.

It was developed by Diabetes UK in conjunction with Leicester University and Leicester University Hospitals using data from 6,390 subjects aged 40–75 from the ADDITION-Leicester screening study in a multi ethnic UK setting (76% White European, 22% South Asian, 3% other). It was developed using logistic regression models for predicting IGR and Type 2 diabetes using data from self-reported questionnaires.

The risk score is not appropriate for pregnant women or those under 18 years of age.

It is based on a points system which, when added together, gives risk and is then classified from low to high.

Everyone who completes the risk assessment will be offered lifestyle intervention advice.

Those at moderate or high risk will be advised to visit their local surgery for a follow-up consultation and possible diabetes diagnosis tests.

Frequently asked questions

Why does Diabetes UK now not advise capillary blood glucose testing?

Capillary blood glucose testing (a finger prick test) provides a snapshot of a person's risk of diabetes at a moment in time. In Type 2 diabetes, progression to symptomatically high levels of glucose is very slow. It can take up to 10 years for the person with high glucose levels to start having symptoms of diabetes and be diagnosed. This is why so many people have undiagnosed Type 2 diabetes.

Is the capillary blood glucose test (finger prick test) a diagnostic test of diabetes?

No, the capillary blood glucose test cannot be used to diagnose diabetes. In the past this has been used at Diabetes UK testing events to measure random blood glucose (RBG). If the RBG was high the person was sent to their GP for follow up. If it was normal they were not. The problem with this measure is it does not take into consideration the risk factors for diabetes and can falsely reassure people who may be at risk of diabetes but have a normal blood glucose level.

Why use a risk score?

The Diabetes Risk Score determines risk of Type 2 diabetes over the next 10 years. A person identified with increased or low risk will be given lifestyle advice in order to keep the risk low for the future. A person identified at moderate or high risk will be asked to visit their local GP surgery for lifestyle intervention advice and possible diabetes diagnostic tests. This is a more effective use of NHS resources and there is less chance of false negatives or positives.

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How does the risk score fit with the National Vascular Screening programme? (England only)

The NHS health checks programme aims to screen all people between the age of 40–74 for kidney disease, heart disease and diabetes. In order to determine a person's risk of diabetes the Diabetes Risk Score can be used, potentially limiting the number of people referred on to have diabetes diagnostic tests (lab tests).

Although Diabetes UK risk assessments will feed into the national programme it is important to remember that Diabetes UK is not restricting screening to those between 40–74 years but will be assessing anyone over the age of 18 years old with the exception of pregnant women.

Is the risk score recommended by NICE?

Yes. In the NICE Public Health Guidance document Preventing Type 2 diabetes: risk identification and interventions for individuals at high risk it is recommended as a tool to identify those at risk of developing Type 2 diabetes. You can read the document at:

<http://publications.nice.org.uk/preventing-type-2-diabetes-risk-identification-and-interventions-for-individuals-at-high-risk-ph38/recommendations#recommendation-1-risk-assessment>

What if a person is shown to be at low or increased risk and has symptoms of diabetes?

Anybody who presents with the symptoms of diabetes should visit their GP as soon as possible regardless of their risk score.

How to use the questionnaire

The Diabetes UK risk score works on a points based system. Each question has multiple choice answers with different mark allocations. At the end all the points are added up and the score is put into one of the categories of risk.

THE QUESTIONS AND HOW THE SCORE IS ALLOCATED

How old are you?

The older people get the more at risk they are of developing Type 2 diabetes. There is also a link between ethnicity and age, ie if you are white and over 40 or Black, Asian or from another minority ethnic group and over 25 you are at increased risk. In developing the Diabetes Risk Score all risk factors for Type 2 diabetes were looked at and weighted according to a person's overall risk of diabetes, therefore by completing the whole questionnaire the person's complete risk will be assessed.

Are you female or male?

Males have a slightly increased risk of Type 2 diabetes in comparison to females.

What is your ethnic background?

The age and ethnicity link is taken into consideration with the whole risk score rather than being reflected in each of the questions. The weighting that people get in this question affects each of the other questions such as age. For example:

A South Asian woman aged 25 years will receive a lower score for the age question. However, she will be compensated with higher scoring given in the ethnicity question.

A White European woman aged 44 years will receive 0 points for these categories but if she has a higher BMI or waist circumference these risk factors will be taken into consideration with the risk score.

Do you have a father, mother, brother, sister and/or own child with Type 1 or Type 2 diabetes?

Having a blood relative with diabetes increases risk of Type 2 diabetes. The closer the relative the greater the risk.

DIABETES RISK SCORE

Measure the person's waist circumference

The larger your waist circumference is, the higher your risk. A person's waist measurement is scored according to the category it comes into. The bigger their waist, the higher their score will be.

Calculate the person's Body Mass Index (BMI)

The larger the person, the higher their chance is of developing impaired glucose regulation (IGR) and/or Type 2 diabetes. BMI is used for this classification. In order to calculate a person's BMI you need to measure their height and weight.

Have you been given medicine for high blood pressure or told that you have high blood pressure by your doctor?

High blood pressure can also be referred to as hypertension or a person being hypertensive. High blood pressure increases the risk of Type 2 diabetes. If a person does not know if they have had high blood pressure before or if they are taking blood pressure medication then the answer would be 'no'.

ONCE THE SCORE IS OBTAINED

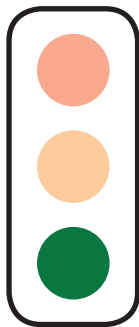
When the scores are added up use the What your risk score means information sheets provided as part of this pack to explain the result to the person.

Those with 'moderate' and 'high' risk will require a GP referral letter, provided as part of this pack.

Offer everyone the healthy eating and physical activity information sheets.

DIABETES RISK SCORE

What the score means



GREEN (LOW RISK)

- You scored _____ points.
- **LOW** risk of developing Type 2 Diabetes.
- **1 in 20** chance that you will develop Type 2 Diabetes in the next ten years.

Let's take a look at where you scored and what this means.

Not a diagnosis

The assessment identifies the risk of developing Type 2 diabetes.

Factors

Go through the factors which contributed to the person's score. Explain why.

i.e. "so you scored 5 points because of your BMI. The more overweight you are the higher your risk becomes, however by losing just 10% of your body weight you will reduce your risk"

REMEMBER

Non modifiable risk factors

e.g. Ethnicity, gender, family history. They can't change/influence these factors. They just need to be aware these increase their risk

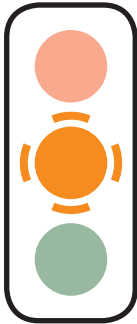
Potentially modifiable risk factors

e.g. BMI, waist circumference. They can have influence over these factors. If they don't score highly here – lifestyle change isn't applicable.

In the future

Remind them – as they get older and if their weight/waist circumference increases, their risk will increase.

DIABETES RISK SCORE



FLASHING AMBER (INCREASED RISK)

- You scored _____ points.
- **INCREASED** risk of developing Type 2 Diabetes.
- **1 in 10** chance that you will develop Type 2 Diabetes in the next ten years.

Let's take a look at where you scored and what this means.

Not a diagnosis

The assessment identifies the risk of developing Type 2 diabetes.

Factors

Go through the factors which contributed to the person's score. Explain why.

i.e. "so you scored 5 points because of your BMI. The more overweight you are the higher your risk becomes, however by losing just 10% of your body weight you will reduce your risk"

REMEMBER

Non modifiable risk factors

e.g. Ethnicity, gender, family history. They can't change/influence these factors. They just need to be aware these increase their risk

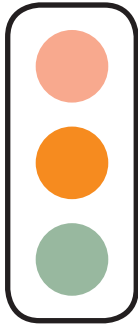
Potentially modifiable risk factors

e.g. BMI, waist circumference. They can have influence over these factors. If they don't score highly here – lifestyle change isn't applicable.

In the future

Remind them – as they get older and if their weight/waist circumference increases, their risk will increase.

DIABETES RISK SCORE



AMBER (MODERATE)

- You scored _____ points.
- **MODERATE** risk of developing Type 2 Diabetes.
- **1 in 7** chance that you will develop Type 2 Diabetes in the next ten years.

Let's take a look at where you scored and what this means.

Not a diagnosis

The assessment identifies the risk of developing Type 2 diabetes.

Tell them they need to go to their GP surgery to discuss their risk of Type 2 diabetes.

FILL IN THE GP LETTER AND GIVE IT TO THEM

Factors

Go through the factors which contributed to the person's score. Explain why.

i.e. "so you scored 5 points because of your BMI. The more overweight you are the higher your risk becomes, however by losing just 10% of your body weight you will reduce your risk"

REMEMBER

Non modifiable risk factors

e.g. Ethnicity, gender, family history. They can't change/influence these factors. They just need to be aware these increase their risk.

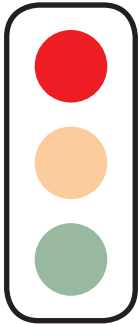
Potentially modifiable risk factors

e.g. BMI, waist circumference. They can have influence over these factors. If they don't score highly here – lifestyle change isn't applicable.

Ignorance is not bliss

With Type 2 diabetes, **the sooner you know** whether or not you have the condition, **the sooner it can be treated.** If it is left untreated it can lead to serious complications, e.g. blindness, heart attack, stroke, kidney failure or amputation.

DIABETES RISK SCORE



RED (HIGH)

- You scored _____ points.
- **HIGH** risk of developing Type 2 Diabetes.
- **1 in 3** chance that you will develop Type 2 Diabetes in the next ten years.

Let's take a look at where you scored and what this means.

Not a diagnosis

The assessment identifies the risk of developing Type 2 diabetes.

Tell them they need to go to their GP surgery to discuss their risk of Type 2 diabetes.

FILL IN THE GP LETTER AND GIVE IT TO THEM

Factors

Go through the factors which contributed to the person's score. Explain why.

i.e. "so you scored 5 points because of your BMI. The more overweight you are the higher your risk becomes, however by losing just 10% of your body weight you will reduce your risk"

REMEMBER

Non modifiable risk factors

e.g. Ethnicity, gender, family history. They can't change/influence these factors. They just need to be aware these increase their risk.

Potentially modifiable risk factors

e.g. BMI, waist circumference. They can have influence over these factors. If they don't score highly here – lifestyle change isn't applicable.

Ignorance is not bliss

With Type 2 diabetes, the **sooner you know** whether or not you have the condition, **the sooner it can be treated**. If it is left untreated it can lead to serious complications, e.g. blindness, heart attack, stroke, kidney failure or amputation.

DIABETES RISK SCORE

ROLE PLAY

Mrs Walton

- 65 year old white woman
- weight 100kg
- height 173cm
- BMI 33
- waist circumference 136cm
- prescribed blood pressure medication last year
- mother and uncle have Type 2 diabetes.



Go through the risk assessment questionnaire using the case study above.

What is Mrs Walton's risk?

Are her risk factors potentially modifiable or non-modifiable?

How might Mrs Walton react to her risk?

What materials would you give her?

Mrs Walton scores 33 points and is at high risk.

Her risk factors are both modifiable and non-modifiable.

Non-modifiable – her age and family history.

Potentially modifiable – BMI, waist circumference

Non – modifiable:

Talking about her family history may have emotional resonance for Mrs Walton. She may tell you stories of family members experiences with diabetes. It is important to acknowledge any reaction and to signpost her to the Diabetes UK Careline.

Potentially modifiable:

Mrs Walton is overweight and her large waist measurement is also increasing her risk. Show her on the BMI chart where her BMI puts her and where the healthy weight range would be for her.

DIABETES RISK SCORE

Do not be judgemental about her weight and do not assume that weight is always on an upwards trajectory. Mrs Walton may already have lost some weight or have tried to. If this is the case react positively and acknowledge that significant weight loss does not happen overnight but changing parts of her lifestyle (e.g eating more healthily and increasing her level of physical activity) will all help towards gradual and sustainable weight reduction.

Explain that losing weight and reducing her waist circumference would improve her overall health and specifically reduce her risk of developing Type 2 diabetes. Even losing 10% of her body weight would have a positive impact on her health.

Going to her GP:

Explain to Mrs Walton that she needs to go to her GP surgery to make an appointment. It will be up to her HCP team to decide if she needs to be given a diagnostic test for diabetes. This is very important as the sooner she knows if she has diabetes, the sooner her treatment can begin. This will help lessen her potential of developing diabetic complications.

DIABETES RISK SCORE

ROLE PLAY

Mr Wong

- 65 year old Chinese man
- weight 60kg
- height 165cm
- waist circumference 89cm
- brother has Type 2 diabetes
- no history of high blood pressure.



Go through the risk assessment questionnaire using the case study above.

Use the measurements given to calculate his BMI.

What is Mr Wong's risk?

Are his risk factors potentially modifiable or non-modifiable?

How might Mr Wong react to his risk?

What materials would you give him?

Mr Wong scores 22 points and is at moderate risk.

His risk factors are non-modifiable.

Non-modifiable – Age, ethnicity, gender & family history

Potentially modifiable – none

Non – modifiable:

Mr Wong may ask why his age scores so much. Explain the older we get the more at risk of Type 2 diabetes we become.

Mr Wong may ask why his ethnicity makes such a difference to his score. Explain that all ethnic groups apart from White European carry a higher risk for Type 2 diabetes; we are not entirely sure why this is.

Talking about his family history may have emotional resonance for Mr Wong. He may tell you stories of family members experiences with diabetes. It is important to acknowledge any reaction and to signpost him to the Diabetes UK Careline.

DIABETES RISK SCORE

Going to his GP

Explain to Mr Wong that he needs to go to his GP surgery to make an appointment. It will be up to his HCP team to decide if he needs to be given a diagnostic test for diabetes. This is very important as the sooner he knows if he has diabetes, the sooner his treatment can begin. This will help lessen his potential of developing diabetic complications.

DIABETES RISK SCORE

MEASURING HEIGHT AND WEIGHT

Height measurement

- 1** The height should be measured with the base plate on a firm and level surface.
- 2** Ask the individual to remove their shoes and stand on the base plate with their back to the measure. Those without socks should stand on the paper towel provided.
- 3** Ask the subject to stand as tall and straight as possible with feet together and arms loosely at the side and shoulders relaxed
- 4** Head straight, chin level. Lower head plate so it gently rests on the highest part of the subject's head. Press down to flatten hair.
- 5** Read the height measurement from where the arrow points to on the measure

Weight measurement

- 1** The individual should remove their shoes and coat and heavy outerwear for this test. Those without socks should stand on the paper towel provided.
- 2** Ensure scales have been calibrated/serviced within the specified time range
- 3** Set scale to '0'
- 4** Wait for the weight to register properly
- 5** Record weight on card provided at the event

In order to measure a person's waist make sure that they only have one layer of clothing on and you have a tape measure that is taut when you pull it and will not break. These will be provided in each of the consulting rooms at the road shows.

Ideally measure around the midpoint between the iliac crest (the top of the hip bone) and the bottom rib. You can get the person to point these two points out for you and you can measure the midpoint.

However, it is less intrusive and accurate enough for our purposes to ask the person to hold the end of the tape measure just above their belly button, you can then walk around them or ask them to turn around and take the measurement that way. Also, ask the person not to breathe in and to relax.

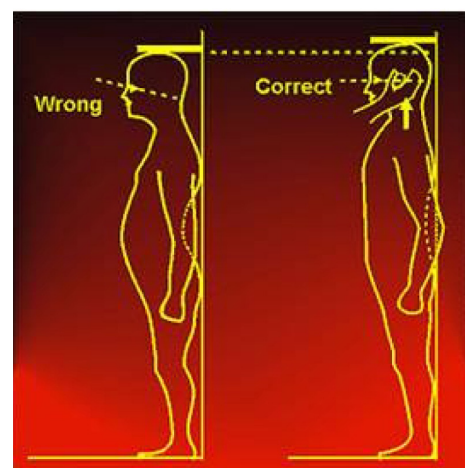
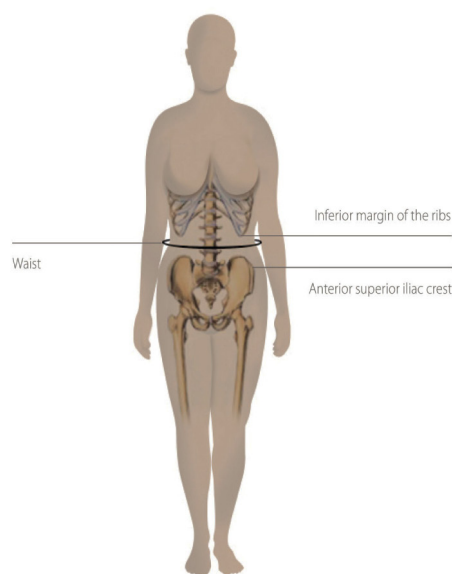


FIGURE 8.1

Guide to measuring waist circumference



Source: *Diabetes Atlas 3rd Ed.*, © International Diabetes Federation, 2006

DIABETES RISK SCORE

BMI measurement

The more overweight a person is the more at risk they are of developing IGR and/or Type 2 diabetes. To classify this, the risk score uses a measure called the BMI – Body mass index. This is a weight to height calculation. The calculation is not appropriate for use in those with high muscle bulk or those under 18 years of age. A BMI of 20–24.9 is within the healthy weight range.

Calculating BMI

There are weighing scales, used at Diabetes UK Roadshows, which can calculate the BMI for you. Available from: <http://www.proweight.co.uk/seca-portable-adult-scale-class-approved-p-192.html>

If you do not have access to these you can use a calculator to work out the BMI using this formula:

$$\text{BMI} = \text{Weight (kg)} \div (\text{Height (m)} \times \text{Height (m)})$$

Example 1

Someone who weighs 60 kg and is 1.70 m and has a BMI of 20.8

BMI Calculation = $60 \div (1.7 \times 1.7) = 20.8$.

This person is in the healthy weight range

$$1.7 \times 1.7 = 2.89$$

$$60 \div 2.89 = 20.8$$

Example 2

Someone who weighs 72.7kg and is 1.68m and has a BMI of 25.8

BMI Calculation = $72.7 \div (1.68 \times 1.68) = 25.8$.

This person is in the overweight range.

$$1.68 \times 1.68 = 2.8$$

$$72.7 \div 2.8 = 25.8$$

Use the conversion chart to illustrate a person's BMI.

