



# Live it Highland

Living with  
Diabetes



# Introduction

This programme aims to support people with pre diabetes or diabetes (high blood glucose results) manage their condition to fit in with their lives.

## What is Diabetes?

This section is about understanding Diabetes and how it can be managed and about understanding any symptoms and long-term effects of raised blood glucose.



### What is diabetes?

Diabetes is when the body is unable to control the glucose level in the blood. This information is focused on type 2 diabetes.

- Type 2 diabetes is mainly influenced by life circumstances (what has happened to people) and lifestyle (what people do - eat, drink, move, sleep, stress and medication).
- Type 1 diabetes is when the body is unable to produce insulin and occasionally those with type 2 diabetes have latent type 1 diabetes. It usually affects younger individuals.



Both types of diabetes are long-term conditions. Good diabetes management reduces the risk of complications and helps people live well.

### What is pre diabetes?

When blood glucose levels are in the 'amber range' the blood glucose levels are over the normal range and below a definite diabetes diagnosis. A blood test called HbA1c is used to diagnose both pre diabetes (42 - 47 mmol/mol) and diabetes (48mmol/mol or above).

### How is diabetes monitored?

The blood test (HbA1c) gives an idea of how well your diabetes is controlled. It gives an idea of your diabetes control over the last 3 months. This test is taken at your review appointments. Everyone is different and their GP or Practice Nurse will discuss what the test means, and what your target might be.

Along with monitoring your HbA1c blood test, your blood pressure, cholesterol and other checks are done annually or more frequently. It is important you know what your results are. They are personal to you and valuable to motivate and monitor your overall health

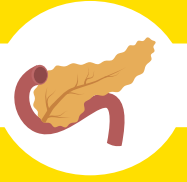
Low blood glucose levels will only occur if you are on specific medication (insulin or sulphonylurea, e.g. gliclazide). This is monitored with blood glucose testing.

### Why do I have diabetes?

It's difficult to know. It might be in genetic. 'It might be influenced by lifestyle. Long term chronic stress and/or psychological trauma can affect the way in which insulin is produced and used. Insulin resistance can in turn cause weight gain especially around your middle, and diabetes. Type 2 diabetes can be a side effect of some medications (eg. steroids).

## What is the pancreas?

The pancreas is an organ in the body. One of its jobs is to produce insulin.



## What is insulin?

Insulin is a hormone. Its main job is to control the amount of glucose in your blood. It helps glucose move from the blood to the cells of the body, where it is used for energy.

In both pre diabetes or type 2 diabetes there are higher glucose levels in the blood, either because not enough insulin is produced or the insulin isn't working properly. So, it's unable to help move glucose into the cells of the body. Think of it like the cell doors are not fully open, but half shut to the insulin and glucose.

## What is insulin resistance?

Insulin resistance is when cells of the body don't respond properly to the insulin. The cells doors have partially closed. The glucose then stays in the blood.

## What is glucose?

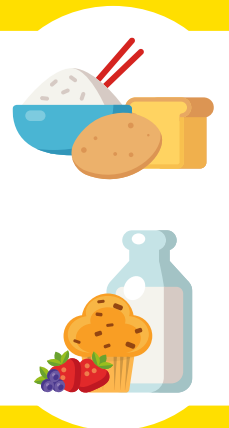
Glucose, also known as sugar, is your body's main source of energy. It comes from carbohydrates.

## What is a carbohydrate?

Carbohydrates are types of food. There are 2 types:

- Starchy carbohydrates in bread, rice, pasta, potatoes and cereals.
- Sugars: natural sugars in fruit and milk and added sugars in cakes, sweets and sugary drinks.

All carbohydrates breakdown to produce glucose, which is the body's main source of energy. They are an important part of the diet and provide energy, vitamins and minerals.



## What are the potential symptoms of high blood glucose?

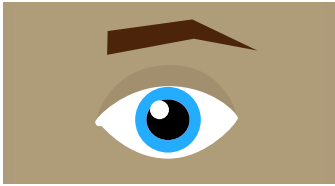
Some people do not have any symptoms and think they are fine, but still have diabetes. Other people find they may:

- Pass a lot of urine (as your kidneys try to flush out the excess glucose).
- Feel thirsty (to replace the lost fluid passed as urine).
- Be tired (as glucose cannot get into the cells to be used as energy).
- Have recurring infections (often genital as the glucose in your urine provides the ideal environment for bacteria to grow).
- Lose weight (as glucose can't be used for energy, the body uses fat and muscle instead).

When blood glucose levels are high, people experience a range of symptoms which can affect how they feel. Someone with type 2 diabetes may have the signs and symptoms for several years before it is diagnosed.

## What are the potential long-term effects of high blood glucose?

These changes can be picked up before too much damage is done. Attending regular appointments means we can pick these changes up early.



### Eyes

The back of the eye is called the retina. High blood glucose can damage this layer. This is called retinopathy.



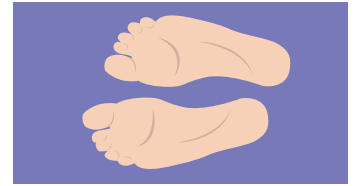
### Heart

Heart disease and stroke are more common in diabetes as people's arteries may become narrow. Managing high blood pressure and high blood fats can reduce risk\*.



### Kidney

The blood vessels that supply the kidneys can become damaged. This is known as nephropathy.



### Feet

High blood glucose can affect the blood vessel and the nerves in the feet. Foot ulcers can develop. Nerve damage is known as neuropathy.

## Remission of Type 2 Diabetes

Remission of type 2 diabetes means that blood glucose levels have returned to a healthy level without taking any diabetes medication. This is what we are aiming for. But not everyone will be able to go into remission. If you have pre diabetes or are in remission, it is important that you have annual checks with your Practice Nurse. They will check your long range blood glucose (HbA1c), and general health.

## Looking after yourself

There are things we can do to help you look after yourself; which of these is important to you?

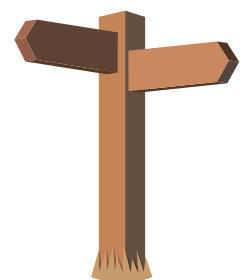
- Diet – food, mood and health.
- Activity – everyday enjoyable movement.
- Stress – family; money; violence and threat; abuse.
- Sleep – time, quality.
- Attending appointments.
- Something else?

## Key messages

- Diabetes is a long-term condition, but there are ways to manage this.
- In both Type 2 Diabetes and pre diabetes blood glucose levels are raised over a period of time. This is due to the pancreas not producing enough insulin or the insulin not working well enough (insulin resistance).
- Glucose, also known as sugar, comes from carbohydrates and is the body's main source of energy.
- The symptoms of high blood glucose levels can be: thirst, tiredness, many infections and peeing a lot.
- Having high blood glucose over long periods of time can lead to damage to your eyes, heart, kidneys and feet, but we know that managing blood glucose levels and HbA1c can significantly reduce the potential of these problems occurring.

## Resources:

- What is diabetes - a two minute guide  
[www.youtube.com/watch?v=wZAJVQWbMIE](http://www.youtube.com/watch?v=wZAJVQWbMIE)
- Diabetes - the basics  
[www.diabetes.org.uk/diabetes-the-basics](http://www.diabetes.org.uk/diabetes-the-basics)
- Prediabetes  
[www.diabetes.org.uk/preventing-type-2-diabetes/prediabetes](http://www.diabetes.org.uk/preventing-type-2-diabetes/prediabetes)



\*Your blood pressure and cholesterol will be checked regularly.

# Food, Mood and Diabetes

Food and diet has a key role in managing your blood glucose, your mood and overall well-being. These are affected by *what* we eat and *how* we eat.

Think about eating more 'everyday' foods – starchy carbohydrates, fruit, vegetables, pulses, nuts and seeds, rather than on limiting others. Often, when something is removed or restricted it becomes more desirable.



## What you eat

### Eating starchy foods regularly

- Helps manage blood glucose levels, energy and mood.
- These foods give you energy, fibre, vitamins and minerals.
- They should be the main part of every meal.

### Low carb or High carb?

- Low carb diets are not recommended for day-to-day diabetes management. Low sugar diets are.
- Base meals and snacks on starchy carbohydrates to help manage your diabetes, mood and weight.
- Some starchy foods are 'slow release' or low GI. These foods are digested and absorbed slowly. They help keep blood glucose stable. Examples:
  - Multigrain, granary, rye, seeded bread, sourdough bread
  - New potatoes in their skins, sweet potato, cold boiled potatoes
  - All pasta cooked until al dente, instant noodles
  - Basmati rice, long grain or brown rice
  - Bulgur wheat, barley, couscous, quinoa
  - Porridge, muesli, some low-sugar oat and bran-based cereals
  - Apples, oranges, apricots.



### Have foods containing fibre

- Fibre is found in fruit and nuts, lentil and beans, vegetable and wholegrain foods.
- Not everyone will be able to take lots of high fibre foods. Try and build up gradually.

### Sugar

Sugar in sweets, chocolate, cakes, biscuits, sugary cereals, jam, honey and drinks should be mainly avoided. Try sugar free squash and fizzy drinks and gum if you need it. Foods that contain sugar (cakes, puddings, etc) may be eaten occasionally as part of a meal.

### Drink

2 litres of fluid per day (for adults). Water is often the best choice, and milk, tea and coffee are part of most people's diet. Avoid sugary fizzy drinks and squash. Try sugar-free options. Also avoid pure fruit juice or smoothies on a day-to-day basis; have fresh whole fruit instead. They're okay in a small portion with meals occasionally.



## How you eat

- Eat foods you enjoy
- Have regular meals with starchy food throughout the day to help manage blood glucose levels and mood. Usually this would be breakfast, lunch and dinner and may include snacks in between.
- Try new foods. However, it is good to bear in mind that we often need to try new foods a few times before we like them. Eating a wide range of foods to give taste, texture and colour.
- Why do we eat?
  - People often eat to fulfil a need. This may be a physical need, like hunger or an emotional need like boredom, loneliness or stress. People often learn to ignore signals of hunger and fullness. If you can work out what your body is telling you then you are more able to meet your needs.
  - If you are living with trauma, eating may well provide comfort or safety. It can be the 'least worst' option, in comparison to, for example, substance misuse or self-harm. Removing or reducing 'safe foods' can be re-traumatising. Go gently.
- Eat with friends and family when possible.
- Take time to cook and eat and share ideas.
- Shop thoughtfully, being aware of adverts and marketing. This can help reduce waste and help with budgeting.



## What about weight?

### What about dieting?

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Reducing calorie intake (or increasing calorie output) is the main method that is used to lose weight. There are many different 'diets' - low carb; intermittent fasting (5:2); weight watchers, etc, that try and do this.

These diets give short term weight loss for less than half the people that start them. Most people do not get to their weight loss goal. Those that do are unable to maintain the weight loss over the long term, and so do not achieve the reported benefits of improved health. There are valid concerns that this focus on weight is ineffective at producing thinner, healthier bodies, and it may also have side effects like weight yo-yoing, feelings of failure, reduced self-esteem, eating disorders, weight stigma and discrimination. People can become obsessed with food and what their body looks like. They can be distracted from other personal health goals and what else is going on.

A health gain approach looks at supporting people to make changes they can stick to. These can improve wellbeing whether or not people lose weight.

### Size discrimination

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People come in a wide variety of different shapes and sizes and everybody deserves respect.

People with a high BMI may feel unfairly judged because of their size. They are less likely to access services when they need them.

In society, size discrimination is reinforced in the media and reflected in general attitudes. As with all forms of discrimination, people that suffer from discrimination within society are much more likely to have poorer outcomes.

## A healthy relationship with food

People eat for many reasons. The food choices that we make are rarely based on nutrition. A healthy relationship with food could be described as choosing food that brings pleasure – enjoying the foods you eat; eating foods that are good for your body; eating without guilt, shame or pain; eating in a sustainable way.

Many people will find these difficult – chronic dieters; those who live with trauma; people who experience poverty, inequality or disadvantage. There are no hard and fast food rules.

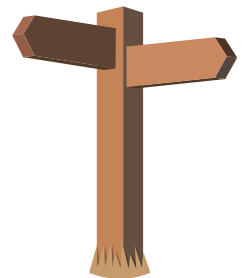
Acceptance, self-compassion and kindness are key.

### Key messages

- Enjoying regular meals through the day helps to steady blood glucose levels and mood.
- Enjoy more 'Everyday' foods.
- Enjoy starchy carbohydrates, fruit, vegetable, pulses, nuts and seeds.
- Hydrate - around 2 litres fluid a day.
- Removing or restricting food may make it more desirable.
- A health gain approach supports people to make changes they can keep and improve wellbeing.
- Acceptance, self-compassion and kindness are key.

### Resources:

- Everyday Eating for Health and wellbeing - [www.nhshighland.scot.nhs.uk/YourHealth/Documents/HealthyWeight/EverydayEatingFlyer-DigitalVersion.pdf](http://www.nhshighland.scot.nhs.uk/YourHealth/Documents/HealthyWeight/EverydayEatingFlyer-DigitalVersion.pdf)
- Highland food guide - Everyday eating - [www.nhshighland.scot.nhs.uk/YourHealth/Documents/HealthyWeight/HighlandFoodGuide-DigitalVersion.pdf](http://www.nhshighland.scot.nhs.uk/YourHealth/Documents/HealthyWeight/HighlandFoodGuide-DigitalVersion.pdf)
- NHS Highland website – Health and Wellbeing - [www.nhshighland.scot.nhs.uk/YourHealth/Pages/HealthyWeight.aspx](http://www.nhshighland.scot.nhs.uk/YourHealth/Pages/HealthyWeight.aspx)



# Activity and Diabetes

Being active and enjoying physical activity has an important role in managing blood glucose, mood and overall well-being. It helps if activity is regular, enjoyable and realistic.

## Regular

### General Recommendations

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For adults, aim for 30 minutes of activity on at least 5 days of the week. This activity can be broken up into shorter periods of time. 10 minute x 3 spread throughout the day. Moderate intensity produces health benefits.



### For diabetes

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The greatest effects on blood glucose control and insulin sensitivity happen when you do both aerobic and strength activities. The aim is to do both kinds of activity. Aim for activity on three days of the week with no more than 48 hours between activities.

## Enjoyable

You are more likely to try an activity which you like doing, and you are more likely to keep doing it. There are added benefits to being outdoors or doing activity with other people.

### Hydration - drinking enough

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Some people with type 2 diabetes may have relatively high blood glucose levels and a higher risk of dehydration.

### Hypos

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- There may be a fear of hypoglycemia (low blood glucose levels) with doing more physical activity. There is a very low risk of low blood glucose levels on the most tablets used in type 2 diabetes. Extra carbohydrate is not usually needed.
- The risk of hypoglycaemia may be higher for people on insulin, or sulphonylureas. Change may need to be made to dose or timing when doing more physical activity.

## Realistic

Realistic activity takes account of people's lives – health, size, ability, time and resources. The more realistic activity is, the more likely it is to become regular and enjoyable.

Some people may do very little activity; any activity is better than none.

Others do plenty of activity; a combination of aerobic and strength activities are effective for reducing HbA1c. In long term glycaemic control, intensity can be more important than the amount.

### Moderate Aerobic activity

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The aim of becoming more active is to slightly increase heart rate so that you can still talk but can't sing:

Walking, dancing, easy jogging, easy cycling and easy rowing, plus activities such as taking the stairs and house work.





## Strength activities

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These are activities when arms and legs are moved against a weight. The resistance could be your own body weight, gravity, bands, bars and dumbbells.

Doing more strength activities can lower blood glucose and improve insulin action. And it can improve your day to day movement.

Any activity where the body is moved against a weight is strength training. Things like gym work, yoga, swimming, pilates.



## Sedentary time - sitting still

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Time spent sitting still can have a poor effect on health. This is true even if you do some activity. The aim could be to reduce time spent sitting and increase time being up and about.



## Other benefits to regular, realistic and enjoyable activity

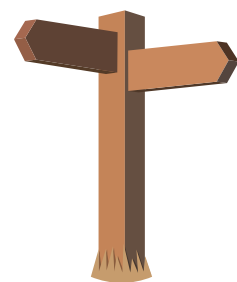
- Improved sleep.
- Improved mood.
- Improved balance and reduced falls.
- Pain management.
- Coping with stress.

## Key messages

- Any movement is better than nothing.
- Manage blood glucose, mood and wellbeing through enjoyable activities.
- Being more active with REGULAR, ENJOYABLE and REALISTIC activity.
- Keep hydrated.
- Reduce sedentary (inactive/sitting) time by introducing more movement throughout the day.
- A bit more movement is better than less movement.

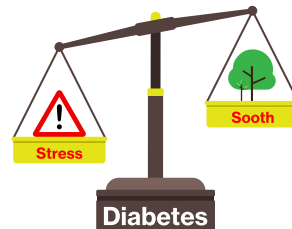
## Resources:

- Paths for All - [www.pathsforall.org.uk](http://www.pathsforall.org.uk)
- Think Health Think Nature - [www.thinkhealththinknature.scot](http://www.thinkhealththinknature.scot)
- High Life Highland - [www.highlifehighland.com](http://www.highlifehighland.com)



# Stress and Soothing

Managing stress, and how we react to stressful situations, can play a key role in managing diabetes. Stress happens when the body and mind reacts to events – the body prepares to do different activities and use energy. This includes our thoughts. When we feel pressure or problems. When we are excited or worried.



## Stress

### We are frightened, excited or worried

- Your brain and body react by turning on its 'emergency alarm' or 'activating system': the brain and body's response to threat.
- Many parts of both are involved: more hormones related to 'the stress response', such as cortisol and adrenaline are released, your blood circulates differently.



- Your thinking tends to speed up as your body begins to 'tense' for action, or else it may 'freeze' and you may feel you cannot move or think.
- You may find yourself feeling emotions like fear, apprehension, anger more often, or become anxious or depressed if the stress-producing event continues for a long time.

### Helpful

Some higher stated activation of this system benefit good function; for example, when we exercise, or need to act quickly in emergencies.

### Not helpful

- Too much activation, occurring too often or continued over time is not good for the body or mind. Mentally/ emotionally we feel 'stressed' or tired, low, or aggravated. Our immune and repair systems (protecting us from disease) will not function as well if this happens over a long time.
- For some people, chronic activation of the nervous system can occur over a long period, as a result of past events that continue to produce a traumatic response (e.g. violence, sexual abuse, hardships due to poverty, grief that has not healed, social abuse or bullying, racism). Some other people may experience events like these but also have protective factors that reduce the impact of these events, such as stable and helpful friendships, good work, other supportive experiences.

### When stress effects diabetes

- Too much activation leads to increased cortisol production. This slows insulin production, which interferes with our ability to use blood glucose – a situation that is already a problem for people with type 2 diabetes.
- Over time and for some people high levels of stress might mean less insulin is made.
- Worrying about things or losing sleep for a long time is very similar to feeling stressed out.
- Eventually, the pancreas may make less insulin than is needed.

### Diabetes influencing stress

Learning that you have diabetes, may feel stressful, and may lead to ongoing stress called -diabetes distress.

Also, some people may cope with stress by comfort eating, moving less, or they may smoke more, as they might do with any other ongoing stress. This is linked to poorer glycaemic control (i.e. managing blood glucose levels).

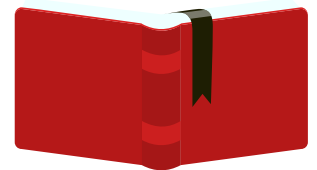
## Soothing

It may be helpful to think about what helps *you* best.

### Self-soothing

Whatever kind of stress you have, there are things that will help:

- Ask for help when you need it.
- Try and notice what happens to your body when you feel stressed – e.g. hot or cold, sweaty or clammy, heart racing or feeling faint.
- Notice which situations or events cause these stressful feeling.
- Try and find good ways to reduce your physical and emotional responses to stress.
- Learn to **assess** your stress levels and **respond** when they become too high by engaging in one of your 'de-stress' methods.
- Try out different kinds of relaxation practices, including muscular relaxation, mindful attention, using sound or visual events (i.e. soothing sounds or sights).
- Figure out what are for you, naturally relaxing activities.



### Remember

Relaxation strategies influence both body and mind. Find ones that work for you AND engage in relaxation, or soothing activities daily.

### Key messages

- Long term chronic stress and trauma may cause diabetes.
- Finding ways to reduce stress can help manage blood glucose levels.
- Noticing stress.
- Finding a way that feels right for you to manage stress.
- Explore new forms of relaxation.

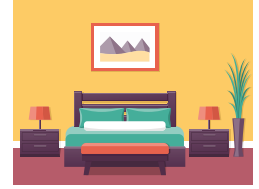
### Resources:

- Stress & Anxiety Companion app (NHS England)  
[www.nhs.uk/apps-library/stress-anxiety-companion/](http://www.nhs.uk/apps-library/stress-anxiety-companion/)
- Relaxation - audio only (NHS Grampian)  
[www.youtube.com/watch?v=lw5NIP2M9N0](http://www.youtube.com/watch?v=lw5NIP2M9N0)
- Steps for Stress | Relaxation exercise (NHS Inform)  
[www.youtube.com/watch?v=FuEcLeNQe2Q](http://www.youtube.com/watch?v=FuEcLeNQe2Q)



# Good Sleep Matters

Regular sleep and an established sleep cycle are important for maintaining our physical bodies and our mental health. If you have type 2 diabetes your sleep routine plays a key part in managing blood glucose levels. There are ways to improve sleep.



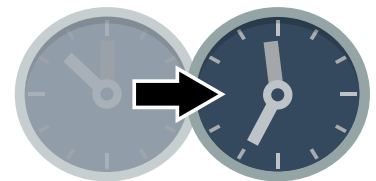
## Importance of sleep

- Our bodies can heal and rebuild itself during a good sleep cycle. Good sleep is key for our general health.
- Good sleep plays a role in our ability to manage our blood glucose control.
- Good sleep is just as important for our emotional well-being as our physical health.
- Too little sleep feels similar to being 'stressed out'.



## How much sleep do you need?

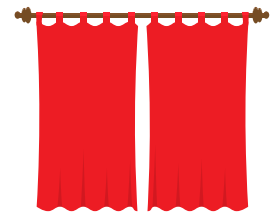
- People vary. Everyone needs between 5 and 9 hours per night.
- Most people get less sleep than they need once in a while.
  - If this happens too often, too little sleep hurts your health.



## What is 'sleep hygiene'?

The term 'sleep hygiene' means good sleeping habits. Things like:

- Getting ready for sleep.
- Having a calm sleeping area or room.
- What we do when getting to sleep is difficult.
- How much time we give ourselves to rest.



## Good sleeping habits

- Try and set regular sleep times - when you go to bed and when you wake up. Avoid naps as a rule.
- Cut down both long periods of sleep and long periods of being awake. Especially if these are changed by drugs or foods.
- Caffeine disturbs sleep. Avoid tea, coffee, cola and energy drinks in the afternoon and evenings.
- Alcohol disturbs sleep.
- Try and reduce stressful things before bedtime.
- Create a relaxing sleeping place.
- Use your bed for sleeping or sex or rest, but not other things.
- If you don't fall asleep within 20 minutes, sit up or get up and stay warm and relaxed. Focus your mind on a relaxing activity for a while until you become sleepy again.
- If you feel stressed or worried have a notebook by your bed and write down, in a single sentence or two, the problem and remember to think about it the next day. Check this in the morning.
- During the day, ensure you get adequate physical exercise.
- Avoid computer and phone screens just before bed as they stimulate the wakeful part of your brain.
- Avoid very heavy meals at night.
- Keep a sleep diary and after a week, consider factors that seem to have contributed to good or less good sleep.

## Key messages

- Good quality sleep is important to your health – and your ability to help your body regulate itself, including your health/ blood glucose levels.
- Improving your sleep hygiene takes practice, so don't give up if it takes a while to alter your pattern of sleep.
- Try out new ways to improve your sleep hygiene but don't get frustrated if it is difficult.
- Different things will work for different people, we are all individual.
- Try out different apps or exercises to see if they help and if they don't, try something else.

With very serious sleep difficulties, this would require assessment by a psychologist. Possible onward referral to a specialist sleep clinic (Glasgow/Edinburgh).

## Resources:

- Free or low cost apps with NHS approval -
  - 6 week programme online/app - [www.sleepio.com](http://www.sleepio.com)
  - Sleepstation - sleep improvement & insomnia course - [www.sleepstation.org.uk](http://www.sleepstation.org.uk)
  - Pzizz app - [www.nhs.uk/apps-library/pzizz/](http://www.nhs.uk/apps-library/pzizz/)



# Notes

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Live it Highland was adapted from the **Control It** programme  
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Live it Highland was designed by Heather Crockett, Mary Reid  
and Fiona Clarke with support from Fiona MacLeod and the  
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