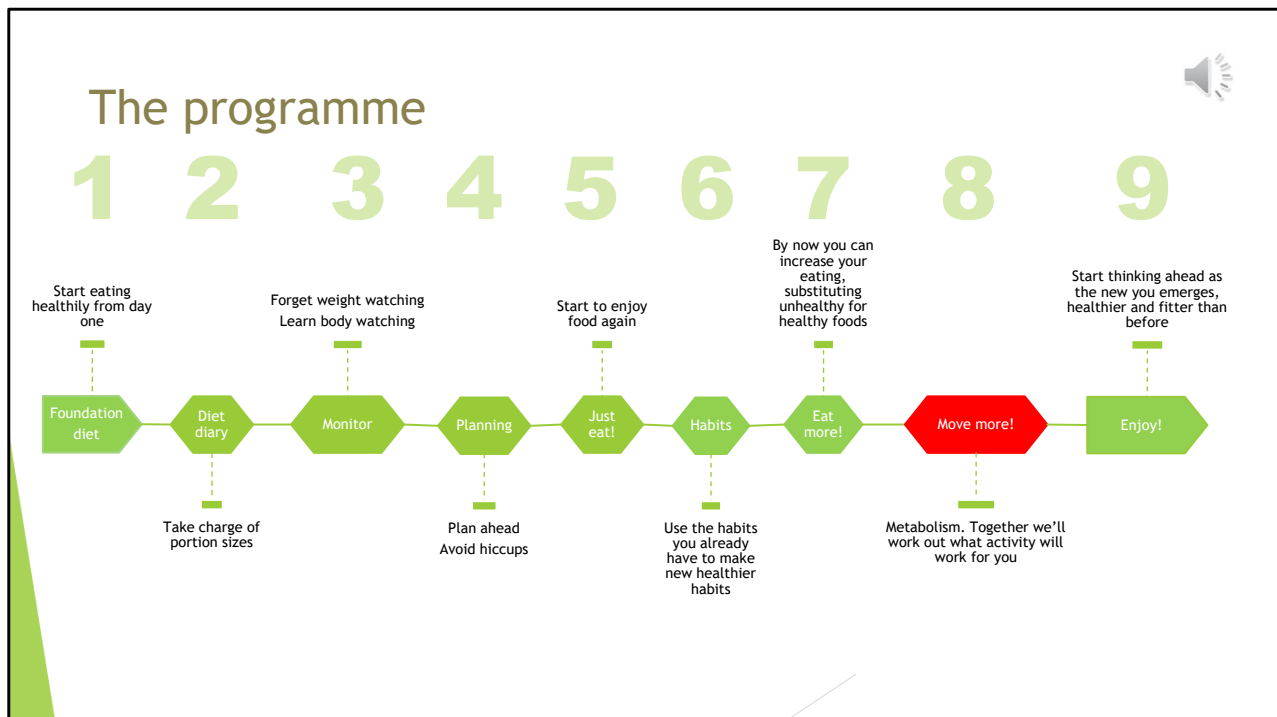


Welcome to session 8 of the healthy diet programme. This session is about movement and how alongside your diet, everyday activities and enjoyable exercise can contribute to a body renaissance.

We'll look under the bonnet the body's engine to understand exactly what metabolism is and how we can maintain a healthy metabolic rate. This will help to ensure that our diets are not only successful in the short term, but in the long term as well.

Next slide



Programme

Last week we looked at eating a little more. This session explains how diet and exercise work hand-in hand and how if you are more active you will need more healthy food to fuel your system.

By now you should be feeling stronger and perhaps a bit lighter on your feet. You should already be gaining the energy to move a little more. In so doing you open the door to increasing quantity and variety in your diet.

Don't worry, you don't have to go to the gym, or walk ten miles a day. This programme is about incremental, comfortable change that should become an enjoyable part of normal life, not a penance.

Next slide



- ▶ Metabolism is the body engine turning nutrition, water and oxygen into flesh and blood, power and consciousness.
- ▶ Body composition changes metabolism
- ▶ Muscle mass increases metabolism
- ▶ Exercise increases metabolism



What is metabolism?

Building strong muscles and bones, a healthy heart and lungs all stem from how efficient the body is at transforming nutrients into tissue. Every cell in the body requires energy to fuel this process. But too much energy and we grow slow and fat!

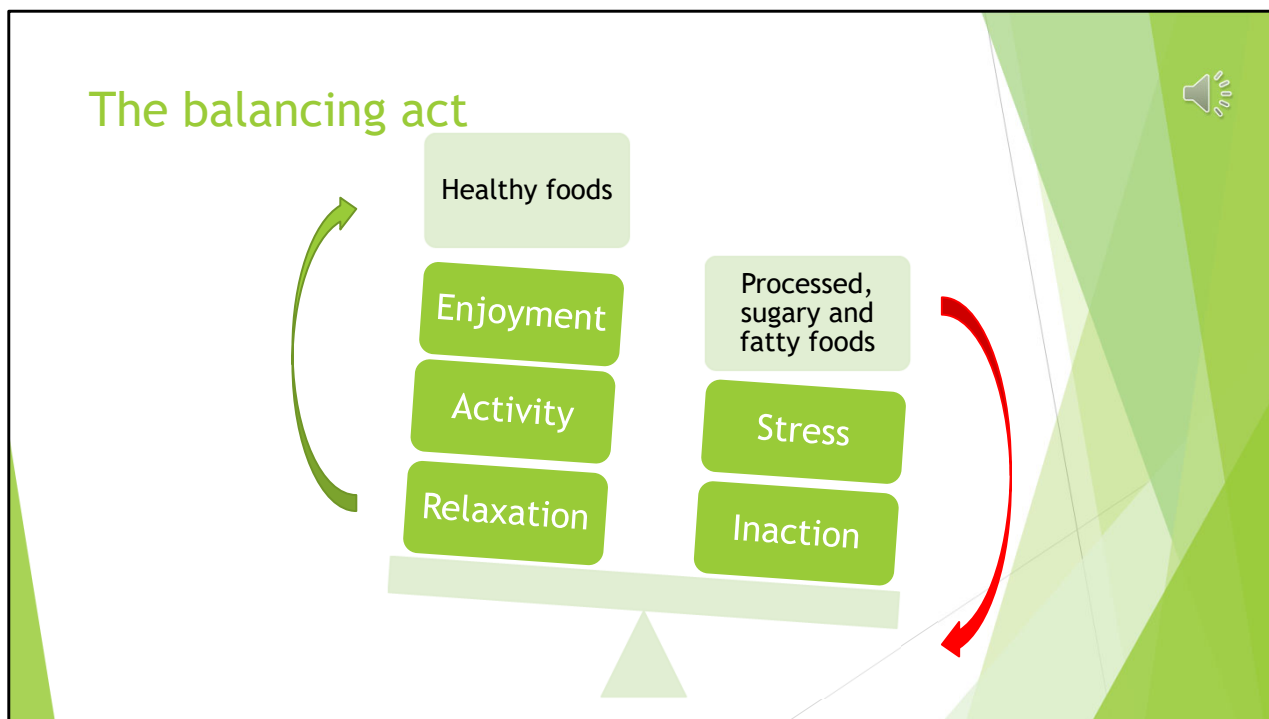
In order to remain fit, we have to use our bodies. Exercise allows the cells to breakdown and re-grow more strongly than before. Metabolism is the word we use to

describe this complex process. A healthy metabolism is one that can switch from rest to action quickly and efficiently. It is our pancreas that is a vital organ in sending out some of the important hormones to get the job done. Metabolic diseases such as diabetes occur when the pancreas stops working properly.

Our cells are constantly breaking down and re-building themselves. It comes as a shock to some people to discover that even the bones we stand up on are continually degrading and re-growing. That makes us rather different, and rather more durable than a mechanical object. A machine will wear out, whereas humans are not programmed to wear out. Natural selection has gradually given the entire animal kingdom the ability to repair damage. For example, if you cut your finger you don't have to drive in to the 'body workshop' for a respray. Skin can heal. Even vital organs such as the heart can be encouraged to strengthen after a heart attack. We know that the lungs start to repair really quickly if we give up smoking. And our pancreas, the organ that manages metabolism, often grows stronger, very quickly, if we lose weight.

It is our metabolism that allows all this hard work to go on without us having to do anything. We eat food and drink water; we exercise and breathe in life-giving oxygen. Normally the body can self-limit eating and exercise, but a damaged metabolism, brought on by overweight, cannot do this. Weight for weight it is the muscles that really use up energy. Muscles are heavier than fat. The more muscles you have, the more you can eat. In an overweight person fat is too much and muscles too few. Metabolism can't get a good balance.

Next slide



The balancing act

Your body is a very diligent homemaker, spring cleaning every day of the week. The blood stream sweeps away damaged cells, sends out reinforcement cells that fight infections and renews worn out tissue. Every cell in the body is always aiming for stronger and better – that is why good food and healthy activity are so important and so effective.

A healthy metabolism requires more than a good diet. It

responds well to activity, stimulation (enjoyment, engagement and fun) as well as relaxation. The relaxation we feel after exercising is particularly revitalising.

When you lose weight the diet you go on tends to reduce your metabolism. That is why strict diets should not be followed for too long. That is why this diet starts low, but soon ratchets up, to encourage a similar ratcheting up of the metabolism.

At the beginning of a diet, if you are overweight or run-down, you won't have the get-up-and-go that is necessary to start increasing your activity. In fact, when you are principally losing weight, resistance or strenuous exercise can be counterproductive.

Up to now I've encouraged you to simply walk a bit more. But as you start to increase your eating, the energy available to you will increase your ability to exercise a bit more.

Abuse your body with poor foods and you'll experience

the unhealthy, counter-productive side of the metabolic balance. You'll feel sluggish and less likely to wish to move about. In addition, you won't be able to withstand stress, neither psychological stress, such as problems at work or at home, nor physiological stress, such as illness or injury.

The unhealthy route is the route to metabolic diseases, such as diabetes, which in turn reduces the body's immune response, increases inflammations and thus increases the risks of things such as heart disease and acquired infections.

Next slide

Body composition

- ▶ Body composition changes throughout life
- ▶ We can all improve our body composition even into our 80's and 90's
- ▶ Recovery from injuries and breaks is as possible at 90 as it is at 40.



Model Yazemeenah Rossi Swimwear The Dreslyn

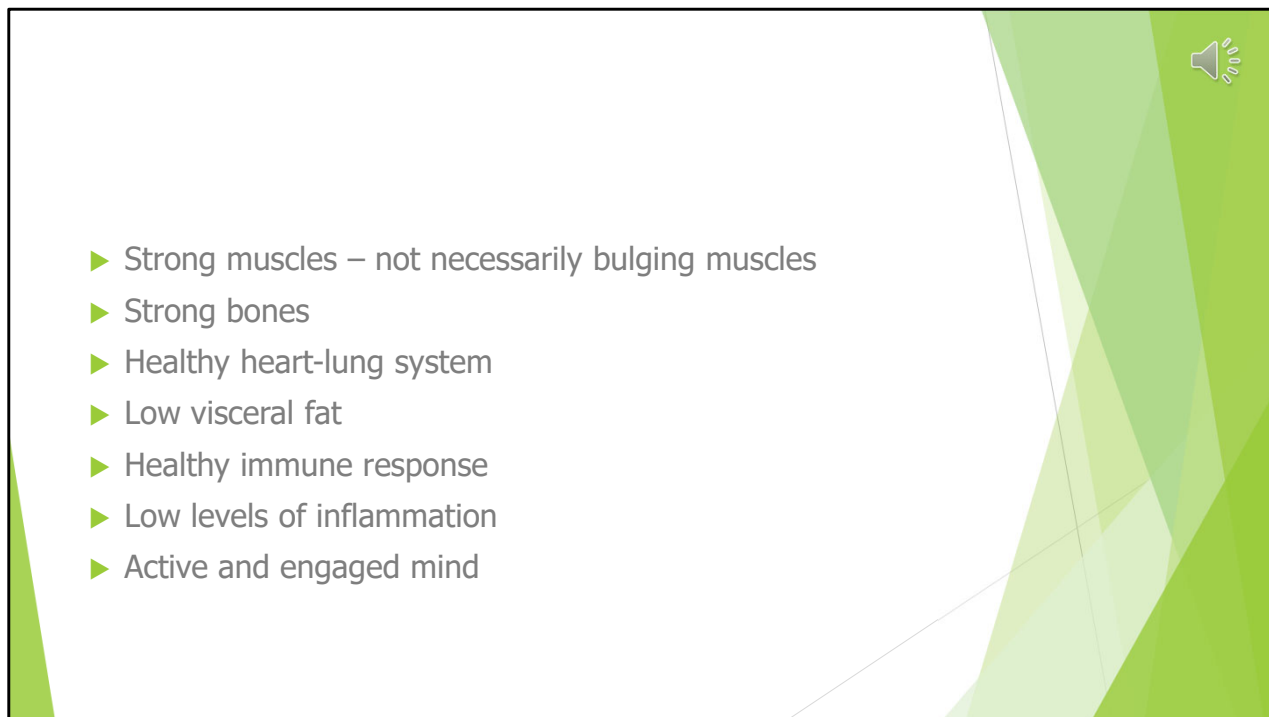
Body composition

Through life our body changes in minute ways every single day. We've all know that worrying moment when the belt has to be fastened on a different rung, or a button moved on a skirt. But far more insidious is the creeping loss of bone mass and muscle strength that can accompany post-menopausal life. You may not notice it until a fall reveals bone weaknesses or when you suddenly find the shopping too much to carry.

The bad news is that all women (and men as well) experience reduced hormonal secretions after middle age and that means that re-growing muscle and bone requires a bit more effort. However, the good news is that studies of even quite elderly people in their 80s and 90s reveal that we all have the potential to improve our bodies through correct diet and enjoyable exercise. That ability continues throughout life. Our bodies are designed to repair wear and tear, to live and thrive, at any age.

By upping your activity levels now, you will build in resilience for your future life. That means that you'll be preparing your body for any knocks or set-backs that might occur in the future. Strong muscles and bones reduce the occurrence and the impact of injuries or illness, as well as reducing the recovery time.

Next slide



Healthy body means

Here is a useful shortlist of the sort of healthy body that we should all be aiming for. Studies show that even serious, and seemingly unrelated disease risks, such as cancer and dementia are moderated by having a healthy metabolism. There are a host of metabolic diseases, the most commonly known is diabetes type 2. These days obesity is often classed as a metabolic disease. We are starting to observe that the severity of COVID-19 is also increased in those who are overweight and thus have less strong metabolisms. The 'cure' is diet and exercise.

It is that simple.

The heart-lung system is the control system of the body. Without oxygen in our lungs and the heart to pump everything around the body, we wouldn't be alive.

We used to think that body fat was inert – 'blubber'. But we now recognise that body fat - adipose tissue – to give it its true name, is an active agent of disease in our bodies. Fat tissue contains inflammatory cells which can play havoc with our immune system. It has long been known that overweight people suffer more serious effects from colds and flu. Obese people are routinely given higher strengths of flu vaccine to counteract that effect of active cells in the adipose tissue doing damage.

The most high-risk area for body fat is within the torso, fat that lodges within and around our vital organs. The good news is that visceral fat is the first to go when we lose weight, eat more healthily and get more active.

The sum total of a healthy metabolism is a healthy immune response, low levels of inflammation (which

cause diseases like arthritis) and an active and engaged mind. What are you waiting for? Start to blow those cobwebs away today.

Next slide

► Aerobic exercise



Image: Globalwomenconnected.com

Types of exercise

We can improve our metabolism by increasing activity, that in turn will increase muscle mass and improve the health of our vital organs. That will mean we can eat a bit more.

The type of movement that will work for you may surprise you. It doesn't involve going to the gym (unless you want to). In fact, I firmly believe that activity that is part of everyday life, rather than apart from life and

separated off from it, is likely to be better for you.

Not all exercise is equal. There are three main types of exercise.

Aerobic exercise provides a work-out to the heart and lungs, principally by making us breathe deeper and increasing our heart rate. Examples include jogging, cycling and swimming.

Next slide



► Aerobic exercise



Image: Angelsandurchins.co.uk

But aerobic exercise doesn't have to be carried out at a frantic pace in order to work. A brisk walk or a hike also counts as extremely effective aerobic exercise. Aerobic simply means increasing the breathing rate. This has the effect of increasing our metabolism.

Walking is the number one exercise to do if you need to lose some weight. Walking the dog is good from all sorts of angles because it is social, in a way that jogging cannot be. Light housework, cooking or simply walking round the supermarket all count as aerobic exercise.

Lots of little movements every day count just as well as one big splurge for half an hour. So don't be put off by exercise targets. Breaking down 30 minutes a day into six five-minute bursts is just as good. In fact, it may even be better. If you can do both – you're really winning!

Next slide



- ▶ Aerobic exercise
- ▶ Resistance exercise



Resistance exercises requires pressure against which the muscles work. The outcome is stronger muscles but not as much weight loss.

This is what resistance exercise looks like in a gym. Expensive machines can help you gain muscles. BUT if you decide to take this route, please ensure that you know how to use the machine and that your exercise is suitably supervised. Exercising the same muscle, week in week out, without other forms of counterbalancing work can be dangerous. These machines are so powerful that

it only takes a few sessions of using the machinery wrongly to cause damage that may take months to repair. In fact, there are many types of exercise that make the muscles work against weights. These types can be enjoyed outside and in the fresh air.

Next slide

- ▶ Aerobic exercise
- ▶ Resistance exercise



Image: Nature4health.co.uk The Countess of Chester Country Park Green Gym

Resistance exercise doesn't have to be taken in a gym. Any exercise where you carry or lift things, or where you work against your own weight, for example by raising your arms and legs, counts as resistance exercise. So gardening is perfect resistance exercise. Vacuuming is excellent resistance exercise. Running up and down stairs a few times is good resistant exercise, you are using your body weight to work with.

Any type of resistance exercise will contribute towards stronger muscles. It is this type of exercise, alongside a

healthy diet that does the most work to build strong muscles. It doesn't have to be exhausting and it doesn't have to be every day. In fact, twice a week for about 45 minutes is fine.

To get the best out of muscle building exercise, make sure you eat a balanced, protein rich, meal before you set off, and make sure you have a protein snack – something like a latte or a slice of wholemeal toast afterwards. Always allow time for your meal to digest before commencing rigorous exercise.

Your muscles may ache after your activity. That should decline after a day or so, and means that the muscles are re-forming themselves.

Next slide

- ▶ Aerobic exercise
- ▶ Resistance exercise
- ▶ Balance exercise



Balance exercise might best be described as foot-brain communication. Through life we gradually become more vulnerable to falling over. That may be due to a loss of confidence or a loss of agility in tired muscles. Our heart can become less adept at adjusting pulse rate between standing and sitting – that can cause dizziness. In addition, if we trip, we simply can't get our legs into the right position quickly enough to save ourselves from falling heavily.

Dancing is one of the best forms of balance practice, and

ballet is particularly good because the extended arm and leg movements help to strengthen muscles while the movement is aerobic.

Dancing requires engagement of the brain, in a way that many exercise-for-exercise-sake activities do not. The act of remembering the steps and their sequence is a useful brain exercise and if your teacher allows you to extemporise the creativity this releases is also said to guard against dementia.

Next slide

- ▶ Aerobic exercise
 - ▶ Resistance exercise
 - ▶ Balance exercise
 - ▶ Enjoyable exercise
- Green
Necessary
Constructive
Social



Whatever type of exercise your day brings, try to make sure it delivers benefits beyond simply being exercise.

For example, being outside in a peaceful environment provides many psychological benefits. This is The Countess of Chester Country Park Green Gym and you'll find many green gyms all over the country. There isn't normally a charge.

You may have fallen into the habit of sitting for too long.

In actual fact, small movements throughout the day are beneficial. Try and adapt to a habit of getting up and moving about the room when you think of something that needs doing. Throw away the remote controls. Become the one who offers first to get a cuppa, or open the window. Performing small tasks that are necessary are also exercise.

But remember that going out, taking a walk with a friend, volunteering, decorating the spare room, playing with children and doing the shopping or housework all count as exercise. Because these activities are part of life, they tend to get overlooked, but I believe that activity as part of normal life is probably the most important and bring their own rewards over and above the exercise.

Next slide



► Enjoyable exercise

- Social
- Fun
- Rewarding
- Free
- Green
- Musical
- Different
- Competitive



Image: The Tennis Player by Percy Shakespeare (English, 1906 - 1943)

What is enjoyable exercise?

I think exercise is best if it is social and preferably taken outdoors – weather permitting.

If it's fun, that is even better. Gardening, going for a cycle ride and shopping are all exercise. Walking the dog, a round of golf, or playing with kids in the park are all exercise.

If the exercise is free or at least cheap, then you are likely to do it more often. If the activity helps others it

brings further rewards.

I often think that the very best exercise happens without our realising that we are exercising. Half an hour's weeding, or ten minutes spring cleaning all counts. A trip to the library with a pile of heavy books combines resistance and aerobic exercise.

Participating in an online dance class is a lot more fun than plugging away at home on a running machine. We are social beings. A game of tennis with a friend can combine the game, a walk to the park and a chat afterwards – and remember because you've been engaging all those muscles, it is perfectly appropriate to give your body a food boost afterwards. Tea and smoked salmon sandwiches anyone?

For some people it helps to do something competitive. But the only real competition can be found by looking at yourself, in the mirror. We should all strive to be better than we were the day before – not better, stronger, or fitter than someone else.

Next slide

- ▶ Three generous lean protein meals each day
- ▶ Some complex carbohydrate, eg porridge or wholemeal bread
- ▶ Protein 1 hr before (ie. Breakfast lunch or dinner) and immediately after physical activity (Can be a cappuccino or yoghurt)



Image: Chickpea and mushroom burger on wholemeal BBC food

Food for muscle building

You won't build an ounce of muscle without eating some protein.

Trainers usually recommend a balanced meal at least one hour before exercise – for example breakfast, lunch or dinner and a small top-up protein snack immediately afterwards. That might be a flat white, a small protein-based sandwich or a handful of nuts.

As we get older, it becomes more important to eat

protein at every meal. That is because the body becomes less good at managing protein peaks and troughs.

Next slide



- ▶ The body requires a balanced diet to maintain all functions that means:
 - ▶ Protein
 - ▶ Healthy carbohydrates including fibre
 - ▶ Water
 - ▶ Healthy fats including fish oils
 - ▶ A rich and varied balance of micronutrients, vitamins and minerals
 - ▶ Both physical *AND* mental stimulation



Image: Chickpea and mushroom burger on wholemeal bbc food

Food for muscle building II

But protein isn't even half the muscle building story. In order to generate new muscles, you will need to ensure that you are getting a good quality wholegrain carbohydrate, cereals or grains, water, a supply of vitamin D (from sunshine as well as from food or supplements) as well as rich mix of all the other vitamins and minerals.

It is no good simply bolting down protein shakes, or stuffing your body with prime steak. The wholemeal bread, yoghurt and fresh salad in the image here are just as important to maintaining a healthy body as the protein – from whatever source.

Next slide

How much exercise?

- ▶ Move more
- ▶ DAILY One 30 minute brisk walk or equivalent every day (aerobic exercise)
- ▶ 2xWEEKLY Two 45-60 min sessions of physical exercise - eg gardening, housework, shopping, dance classes each week
- ▶ At least one of these should include some balancing exercises - for example a ballet class, in which you'll be doing resistance and balance exercises.

How much exercise?

Here's the prescription for all of us.

Rule number one is to move more than you are used to.

If you aren't used to walking, then start with ten-minute strolls and work up from there.

Try to work up to at least 30 minutes brisk walk each day. If you achieve 5 out of seven days – that's probably good enough - though a walk every day is a good target.

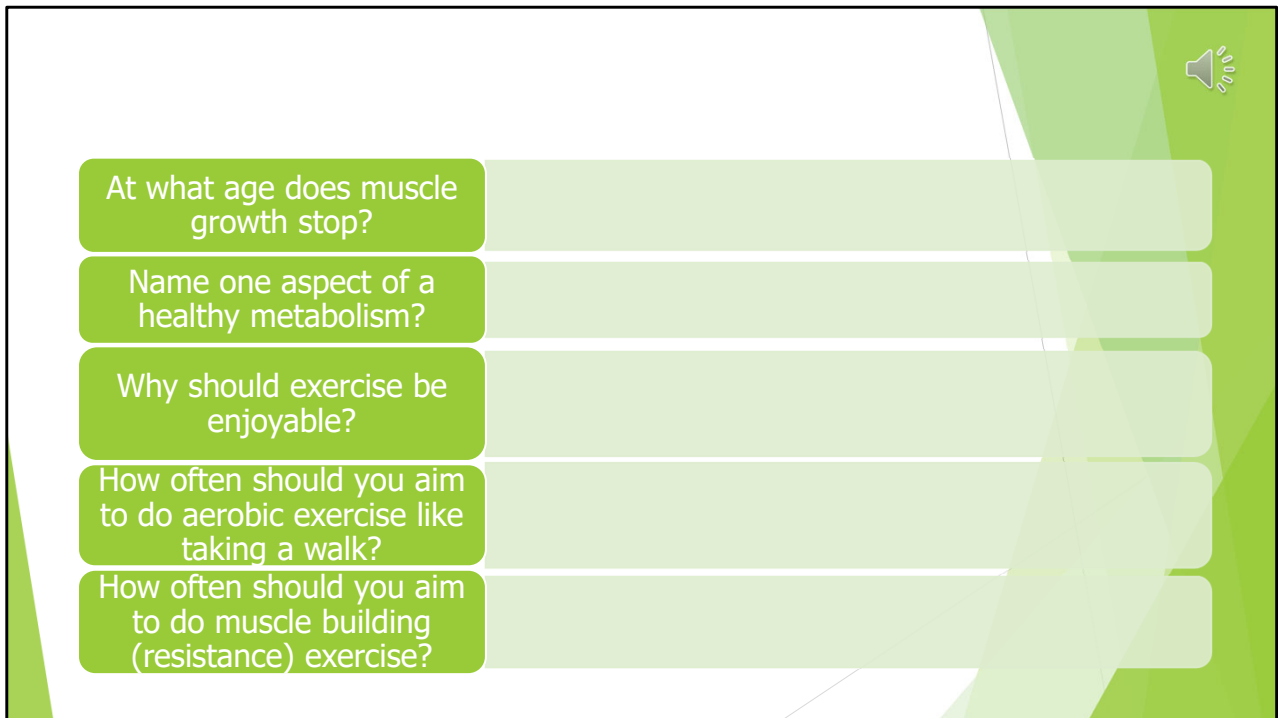
Try also to build up to incorporating two more strenuous physical exercise sessions per week, at least one of which should improve the balance. For example, dancing or tennis.

If you are not used to this level of exercise, work up to it. Find a buddy who might help you keep to your resolve. But above all, make sure you are doing something that you enjoy. Make sure to vary what you do or how you do it.

If you have injuries, or cannot do strenuous exercise at the moment, then gentle walking or swimming would be fine. There are many online classes for seated exercise, over 40s dance groups and all types of 'keep-fit'. But remember that whatever you can do, just try to do a bit more. Sometimes a GP will be able to prescribe enjoyable exercise classes free of charge for their overweight or obese patients.

As you get healthier you can progress to stronger stuff and you will want to progress to stronger stuff.

Next slide



At what age does muscle growth stop?

Name one aspect of a healthy metabolism?

Why should exercise be enjoyable?


How often should you aim to do aerobic exercise like taking a walk?

How often should you aim to do muscle building (resistance) exercise?

Session 8 Recap

See how many of these questions you can do.

Answers on the next slide



At what age does muscle growth stop?	<ul style="list-style-type: none"> • Good news – muscles never stop and can be improved at any age.
Name one sign of a healthy metabolism?	<ul style="list-style-type: none"> • Any of these: Strong muscles, strong bones, healthy heart-lung system, low visceral fat, healthy immune response, low levels of inflammation, active and engaged mind.
Why should exercise be enjoyable?	<ul style="list-style-type: none"> • Because you are likely to repeat something enjoyable more often.
How often should you aim to do aerobic exercise?	<ul style="list-style-type: none"> • DAILY One 30 minute brisk walk or equivalent every day (that deepens the breathing)
How often should you aim to do muscle building (resistance) exercise?	<ul style="list-style-type: none"> • 2xWEEKLY Two 45-60 min sessions of physical exercise - eg gardening, housework, shopping, dance classes, singles tennis.

WENDY SHILLAM CLINICAL NUTRITION

Answers

The more varied the activities you perform, the better for you. The more regularly you move about, the better. It doesn't have to be structured exercise. In fact, I would advise not to waste a lot of money on exercise bikes or gym membership. Instead go for a real bike ride, join a class or arrange to do something with a friend.

Resistance, strenuous exercise shouldn't be done more than two or three times a week, unless you are an athlete in training, because our muscles need 24 hours and good nutrition to relax and strengthen after each

strenuous bout. But gentle exercise such as walking can and should be done in between time.



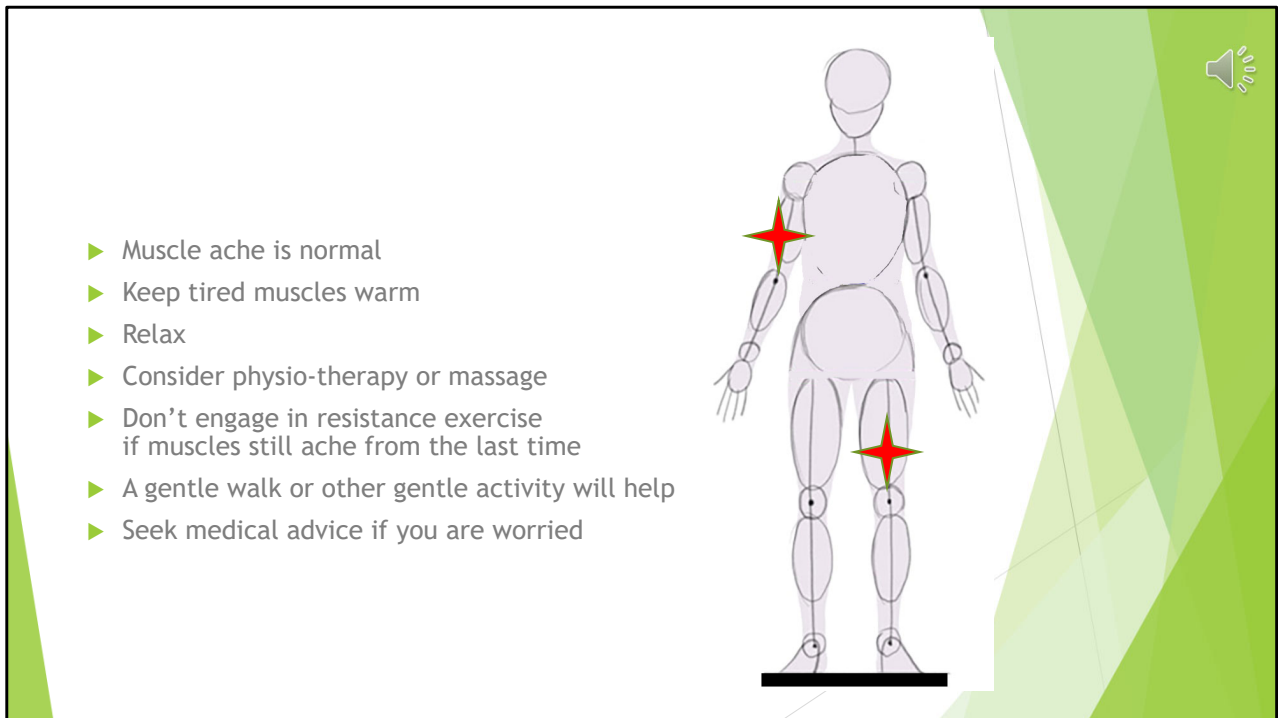
- ▶ Start with walking
- ▶ Work up times - 5mins, 10mins and so on
- ▶ Only go to the next stage when you feel confident
- ▶ Add running up five or six steps when you feel more confident
- ▶ Try gardening or an online class to ramp up your exercise.
- ▶ Stop if you feel pain or unwell
- ▶ Caution with gym equipment and inexperienced instructors.
- ▶ Rest between bouts
- ▶ Never exercise on an empty stomach (the exception can be a brisk walk before breakfast)
- ▶ Pay attention to pre and post exercise food.



Safety Don't overdo it!

If you are currently overweight or circumstances have dictated that you haven't exercised much for a while, then you can start improving simply by walking. As you eat more healthily and lose a bit of fat, your energy will return and you'll feel like being more active. Never rush straight into strenuous exercising. It won't do you any good.

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Don't underestimate your abilities

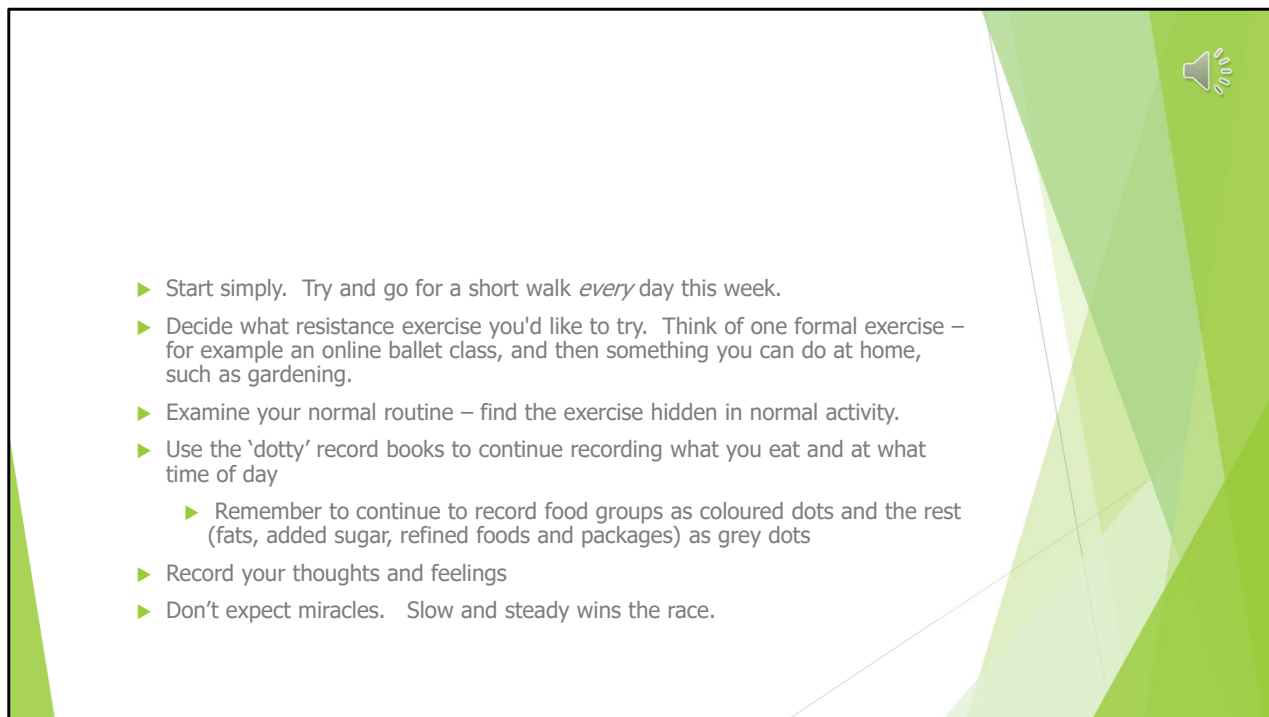
Many people become a bit worried if their muscles start to ache after a bout of exercise. But this is perfectly normal. It is a sign that the exercise is working to restructure your muscles, rebuilding stronger connections. Potassium, for example found in fresh bananas, salt found in many foods, as well as water will help the body cope with more exercise. But go at it gradually. Build up exercise, a bit more each time.

Muscles get stronger by degrading a little bit after you exercise. This is the ache you feel. The ache is a sign that the body is clearing away damaged tissue. Once you are resting (and have adequate nutrition and hydration) your body will naturally start to re-build new fresh and healthy muscle cells. In fact, the whole body works like this, constantly recycling and improving.

Repairs also happen at night, while you sleep. Keep tired muscles warm.

If you think you might have over-done it, then a day or two's rest is the best cure. That is why we recommend strenuous exercise twice a week – that gives the muscles two or three days to recover. But if you are worried always seek medical advice. Strains and sprains can get worse if you try to exercise them away.

Next slide



- ▶ Start simply. Try and go for a short walk *every* day this week.
- ▶ Decide what resistance exercise you'd like to try. Think of one formal exercise – for example an online ballet class, and then something you can do at home, such as gardening.
- ▶ Examine your normal routine – find the exercise hidden in normal activity.
- ▶ Use the 'dotty' record books to continue recording what you eat and at what time of day
 - ▶ Remember to continue to record food groups as coloured dots and the rest (fats, added sugar, refined foods and packages) as grey dots
- ▶ Record your thoughts and feelings
- ▶ Don't expect miracles. Slow and steady wins the race.

Homework

So now alongside your eating records, it would be a good idea to decide on some exercise routines and start to log them as well. Don't try to get hung up on how many calories each exercise will burn. The various apps and systems that are available, are in general wildly inaccurate. They tend to encourage users to justify quick fix poor quality foods.

Exercise isn't a passport to over eat, or to eat badly.

This week resolve to:

- ▶ go for a short walk *every* day this week.
- ▶ decide what resistance exercise you'd like to try. Think of one formal exercise – for example an online ballet class, and then something you can do at home, such as gardening.

In addition, examine your normal routine. Can you increase your movement in the normal course of life? For example, walk to meet a friend in the park, or think of ways to reduce the time you are sitting in chairs, or using your car.

Continue to record your thoughts and feelings. Have a look back to week one. Have your ideas changed?

As you increase your eating, you will find that weight loss will not be so fast and muscle changes may lag exercise days. Don't expect miracles. Slow and steady wins the race.

This is when your new scales really come into their own, muscle and fat changes may be quite small each day, so a more accurate machine is really necessary now.

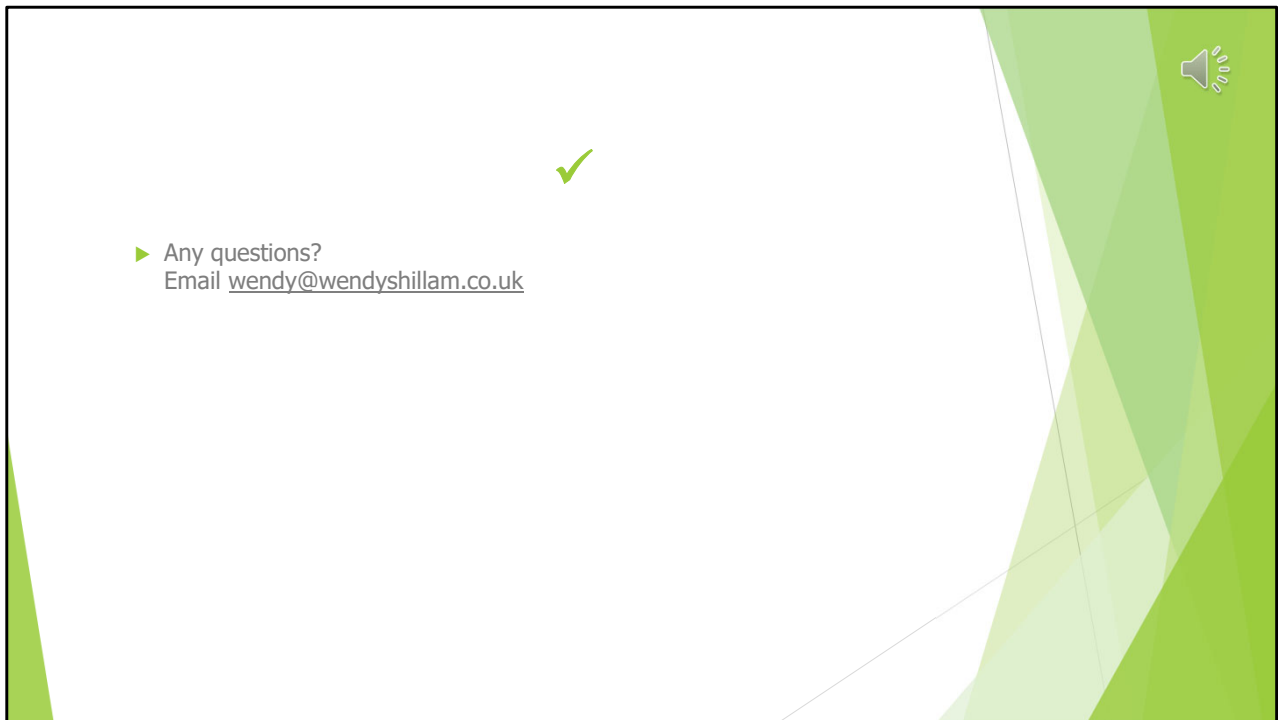
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- ▶ We are almost finished!
- ▶ In the next session we'll discuss putting the whole thing together so that you can take new enjoyment of your healthy new lifestyle.
- ▶ And you'll learn a bit more about how to monitor your wellbeing

Next session

- ▶ We are almost finished!
- ▶ In the next session we'll discuss putting the whole thing together so that you can take new enjoyment of your healthy new lifestyle.
- ▶ And you'll learn a bit more about how to monitor your wellbeing long term.



Congratulations, you have completed part 8 of the course.

This is Wendy Shillam signing off, bye for now.