

FIT FOR LIFE



A GUIDE FOR ADULTS WITH AN AMPUTATION



Exercise



Nutrition



Psychology

This resource can help you get Fit for Life. It starts with the basics and teaches you how to lead a healthy, well-balanced and active lifestyle as an individual with an amputation and allows you to progress at your own pace. If you then choose to take up a sport, you can download the Fit for Sport section which will help you understand how to adjust your training and nutrition, and how to use some psychological skills to improve your performance. No matter what level you are currently at, or even if you are just getting started, this guide can help you to achieve your own personal goals. Most importantly this guide will hopefully give you the confidence to lead a healthy, more active lifestyle and maybe try something new. **Good luck!**

RICHARD WHITEHEAD

ParalympicsGB athlete

London 2012 Paralympic gold medallist (T42 200 m)

Current double leg amputee World Record holder for the marathon and half-marathon

"As an athlete I have travelled the world to compete in various events and have taken part in a number of physical challenges such as John O'Groats to Land's End (40 marathons in 40 days). To achieve these goals I have had to overcome barriers that have been put in front of me due to my impairment. Not everybody wants to be an athlete and everyone has different goals: yours may be to join a sports club, learn to run using your new prosthesis, or simply to get fit and healthy but whatever they are, don't let anything get in your way. I am a strong believer in living life without limits."



IS THIS SECTION FOR ME?

FIT FOR LIFE

- ✓ Do you want to get fitter and healthier?
- ✓ Do you currently do little physical activity and exercise?
- ✓ Do you have limited nutrition knowledge?
- ✓ Do you want to learn and/or recap the basics?

THIS SECTION IS DOWNLOADED

FIT FOR SPORT

- ✓ Do you already regularly (at least three to four times per week) take part in exercise and/or sport?
- ✓ Do you want to improve your performance?
- ✓ Do you want to tailor your nutrition to your sport?
- ✓ Do you want to understand how to use some psychological skills to improve?

CLICK HERE TO VIEW SECTION AND DOWNLOAD SEPARATELY



FIT FOR LIFE

06

 How to Overcome Barriers to Exercise	08
 Physical Activity and Exercise	10
General Guidelines	12
The Main Components of Fitness	13
Stump Care	15
Safety Always Comes First	16
What Type of Exercise Can I Do?	17
 Nutrition	18
Key Features of a Healthy Diet	18
Weight Management	22
Food Safety and Hygiene	25



FIT FOR SPORT

26

 Physical Activity and Exercise	28
Monitoring Training Load	29
Different Sports Require Different Types of Fitness	30
Enhancing Endurance	31
Training for Strength and Power	32
Striving for Success	33
 Nutrition	34
What's Different About Competition?	35
Striving for Success	39
Nutrition for the Travelling Athlete	40
Supplements	42
 Sport Psychology: Core Skills for Performance	44
Goal-Setting	45
The '4 Cs'	46
Striving for Success	50

FIT FOR LIFE



From a health perspective, regular exercise can make everyday living easier and also more enjoyable. Other benefits include:

- Improved well-being and decreased stress
- Improved health (lower cholesterol and blood pressure, reduced risk of obesity, diabetes and heart disease)
- Weight management
- Improved ability to perform activities of daily life
- Increased fitness (better breathing, increased strength and endurance)
- Improved balance and co-ordination
- Improved range of movement and joint mobility
- Injury prevention

It is well-known that if you want to be healthy, then physical activity and/or exercise should form part of your lifestyle.

PHYSICAL ACTIVITY = Any action or movement that requires you to contract your muscles.

EXERCISE = A planned and purposeful action from which we aim to improve our fitness levels and our health.

You may sometimes face potential barriers to exercise but remember that many activities can be adapted to suit your needs; whether your arms and/or legs are affected. Most importantly; it can be fun!



HOW TO OVERCOME BARRIERS TO EXERCISE

Physical activity and exercise can help you become both physically and mentally fit.

Exercise can help improve health and well-being by improving mood, reducing stress and decreasing depression. It can also help boost your self-esteem and give you confidence in other areas of life. To gain these psychological benefits you must maintain a regular exercise routine but this isn't always easy. As a disabled person you may face a number of barriers to physical activity which can make becoming and staying active a real challenge.

Here are a few of the common barriers and how you can try to overcome them:



“I really don't know where to start”

The most important thing is to find an activity that you enjoy doing so that you will keep doing it. Join a friend at the gym, try an exercise class or head to the park with your family; adding a social element can make it much more fun. Don't be afraid of trying new and unfamiliar activities as these can often surprise you and leave you wanting more. Find some like-minded people to exercise with in your area, you will help motivate each other. Also visit www.parasport.org.uk for information on what sports are available for disabled people and to help you find local sports clubs.

“I just don't have the time”

Many people live hectic lifestyles that are busy with both work and family commitments. Not having sufficient time to exercise is a genuine concern. Difficulties with travel can make your trip to an exercise venue annoyingly long or expensive and so it is important to consider where else you might be able to exercise. A long commute to your local gym is no longer needed if you can do a workout at your local park or even in your own home/garden. The amount of exercise you need to do to gain benefits is often overestimated too. As little as 30 minutes of moderate intensity activity a day, five times a week is enough to help you feel physically and mentally fit. Multiple bouts of at least 10 minutes are also just as good; how about before or after work and a short session during your lunch hour?

“My local facility isn't accessible”

Accessibility is a common issue faced by disabled people. However, you do not necessarily need a gym or leisure centre to become more active. You can do lots of exercises with minimal equipment in many different environments such as in your home or at the park. However, if you do fancy the gym, the Inclusive Fitness Initiative (IFI) has an application where you can find a local club that has accessible equipment for disabled people. Visit www.efds.co.uk/inclusive_fitness/ifi_gyms

“I feel too tired to exercise”

If this sounds like you then consider when it is that you are most tired. If it's in the evening after work, then try to exercise in the early morning or during your lunch break. If you feel most fatigued first thing in the morning simply plan to do your exercise later in the day. These simple steps are common sense but will help you get started. It is also worth considering that regular exercise can actually reduce fatigue and help you sleep better. After a few weeks of regular physical activity you should notice your energy levels improve.

“Because I've always been rubbish at exercise and sport”

You may have disliked PE at school because of an emphasis on competitive sport, the group atmosphere, a lack of choice or that age-old classic of being picked last. It may be hard to forget these feelings but remember that as an adult you can choose exactly what type of exercise and/or sport you do, who you do it with, when and also whether you do it for leisure or competitively; you are in control! Finding a type of exercise that you enjoy will hopefully prolong your involvement.



PHYSICAL ACTIVITY AND EXERCISE

Reducing sedentary behaviour and being active can help you avoid the poor health and illness associated with a lack of physical activity. The general guidelines for getting fit do not differ greatly from those for non-disabled people however, this guide discusses specific topics, adaptations and areas of emphasis for individuals with an amputation. The most important thing is to find a type of exercise or sport that you enjoy.

This document is written for individuals with arm and/or leg amputations and 'amputation' will be used to refer to a limb deficiency as a consequence of trauma, illness or it may be congenital.

The main goals of Fit for Life are to improve function for daily living and to stop the onset of a variety of problems associated with inactivity. Your individual goals may be large or small and may include walking to the shops without getting out of breath, the ability to play football with your kids or maybe even to take up a new exercise class. Whatever you wish to achieve, getting to grips with the basics is a great place to start.

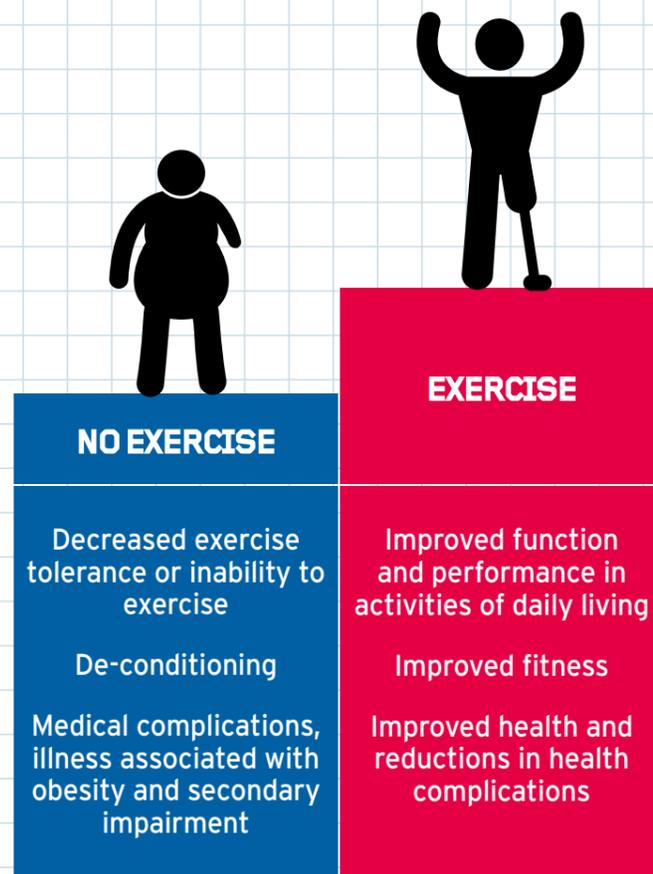
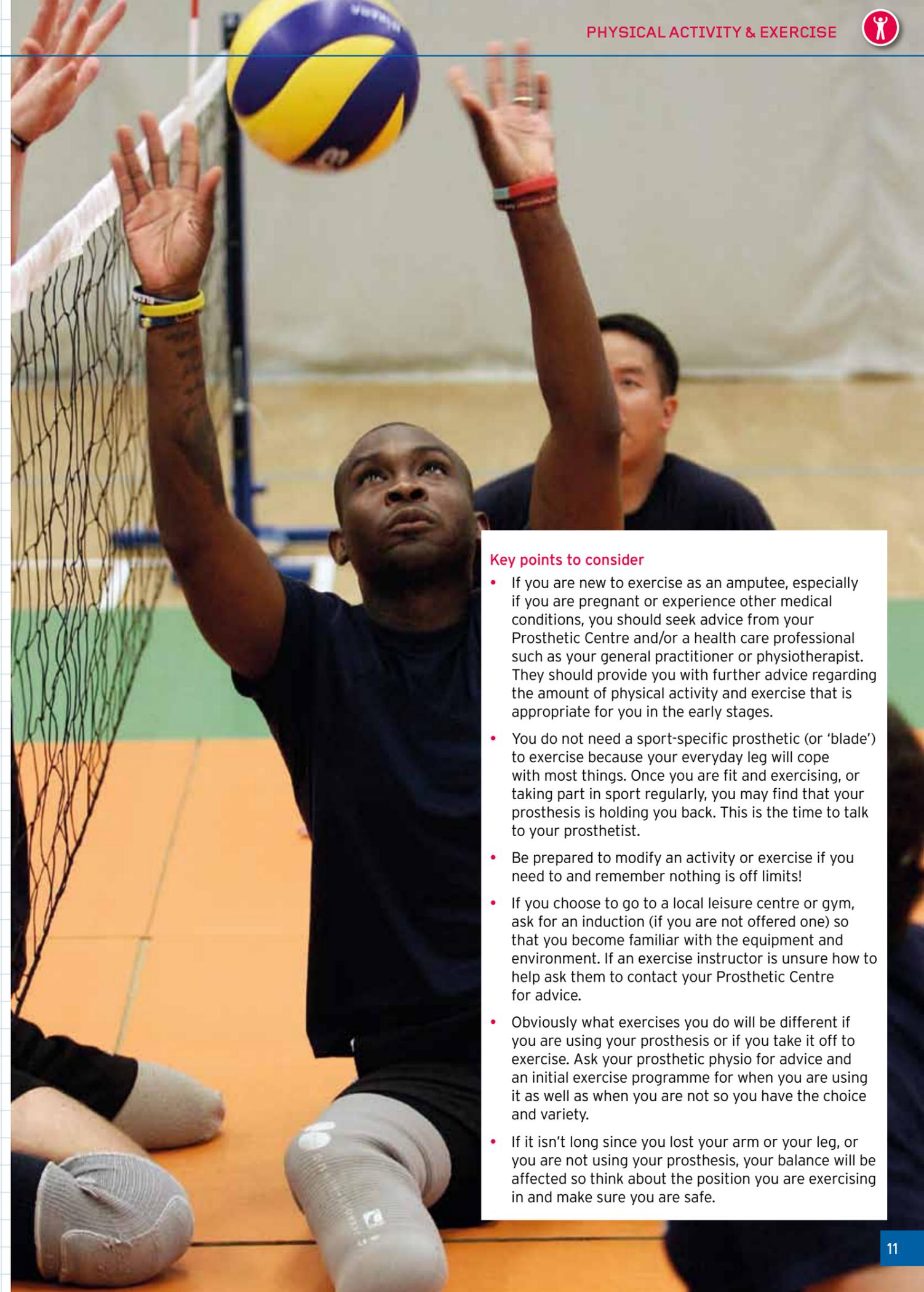


Figure 1. The effects of no exercise vs. the benefits of exercise.



Key points to consider

- If you are new to exercise as an amputee, especially if you are pregnant or experience other medical conditions, you should seek advice from your Prosthetic Centre and/or a health care professional such as your general practitioner or physiotherapist. They should provide you with further advice regarding the amount of physical activity and exercise that is appropriate for you in the early stages.
- You do not need a sport-specific prosthetic (or 'blade') to exercise because your everyday leg will cope with most things. Once you are fit and exercising, or taking part in sport regularly, you may find that your prosthesis is holding you back. This is the time to talk to your prosthetist.
- Be prepared to modify an activity or exercise if you need to and remember nothing is off limits!
- If you choose to go to a local leisure centre or gym, ask for an induction (if you are not offered one) so that you become familiar with the equipment and environment. If an exercise instructor is unsure how to help ask them to contact your Prosthetic Centre for advice.
- Obviously what exercises you do will be different if you are using your prosthesis or if you take it off to exercise. Ask your prosthetic physio for advice and an initial exercise programme for when you are using it as well as when you are not so you have the choice and variety.
- If it isn't long since you lost your arm or your leg, or you are not using your prosthesis, your balance will be affected so think about the position you are exercising in and make sure you are safe.



General Guidelines

If you currently do very little physical activity or exercise you should start by increasing everyday activities. This will help to improve your health, increase your energy output and therefore help weight management. Consider some of the following ideas:

- Gardening
- Cleaning and other household chores
- DIY
- Walk to work or to the shops rather than getting in the car
- Washing the car
- Jogging around a local park or trail
- Playing games with family members
- Dancing
- Consider volunteering for a local organisation, charity or sports club

Do what you can and take breaks when you need to. Once you have built up your basic fitness you can consider progressing to some planned exercise sessions.

An exercise session normally consists of three parts; a warm-up, the main session and a cool-down.



Organised Exercise

Warm-up

An effective warm-up is designed to prepare your body for exercise.

- 5-10 minutes low to moderate intensity exercise will raise your heart rate and increase your muscle temperature.
- You should gradually increase the intensity of exercise to that of which you will be training or competing.
- Try to include the movements that you will use during the activity you are warming-up for.

Main Workout

In the initial stages of your programme it is important that you choose an activity you find enjoyable. Do what you can and build on it to prevent your arm or leg amputation becoming sore.

Work towards achieving the recommended 30 minutes for moderate intensity exercise (you should be able to have a conversation), or 20 minutes for vigorous intensity exercise (you can't say more than a few words without pausing for breath).

The type of exercise you do will vary and may depend on the level of your amputation but the duration and/or intensity should gradually increase as your fitness develops.

Cool-down

A cool-down usually consists of:

- 5-10 minutes gentle exercise/activities which gradually decrease large muscle group activity and help to aid the clearance of waste products.
- Stretching exercises for multiple joints/muscle groups.
- The cool-down is also a good time to reflect on your session.

The Main Components of Fitness

Fitness is comprised of many different elements but here we are going to focus on **Flexibility, Strength and Aerobic** fitness. Evidence suggests that disabled people gain similar health benefits and adaptations to exercise as non-disabled individuals. See page 15 for the recommendations on how long and hard your exercise session should be. If you have any doubts, ask your prosthetic physio.

Flexibility

Flexibility is simply the range of motion you have around a joint. Take a gymnast for example; they are clearly very flexible because they are able to put their bodies into positions that many of us would not even attempt. The American College of Sports Medicine (ACSM, the largest sports medicine and exercise science organisation in the world, www.acsm.org) guidelines state that adults should try to do flexibility exercises at least two to three days per week to improve their range of motion.

- Stretching is most effective when the muscle is warm so always do some light to moderate aerobic activity beforehand.
- You should move into a stretch to the point of tightness or slight discomfort and then hold.
- Hold static stretches (once you are in the stretch position you do not move) for 10-30 seconds during the warm-up, or use dynamic stretches (stretching as you are moving, without bouncing) that mimic the movements of the subsequent activity.
- It is important to stretch your trunk side flexors specifically, whether you have an arm or leg amputation.
- During a cool-down stretch all of the major muscle groups that you used in your workout and any smaller muscles that you may have targeted (20-30 seconds per stretch). Static stretches can be useful for this.
- Regular stretching should also be performed on days you are not exercising to maintain a normal range of motion around your joints.
- To develop flexibility further hold your stretch for at least 60 seconds or alternatively, repeat the stretch to accumulate this time.

An amputation can cause an imbalance between one side of the body and the other, muscle tightness due to compensating for your amputation, or changes in posture. Your goal should therefore be to try and keep the affected joints and muscles as supple as the non-affected joints and to maintain 'normal' ranges of motion. Stretching the muscles of your trunk, whether you have an arm or leg amputation will reduce the chance of back problems, aches and pains.

With leg amputations the muscles around the hip can become quite tight with an increase in the amount of sitting and/or a reduction in walking. These muscles often require more attention, especially your hip flexors (the muscles that move your thigh closer to your trunk).





Strength Training

Strength training in the initial stages of a programme is defined as anything that challenges your body above its norm in terms of lifting or moving weight. Strength training does not have to take place in a gym; lifting a bag of sugar, tins, bottles or simply your own body weight can be classed as strength training and you can make it a good workout depending on the weight, number of repetitions and exercise selection.

Out of the gym, strength training can be done using a number of alternatives:

- You can do some exercises using simply your own body weight such as press-ups, dips, squats or chin-ups.
- Small wrist weights with Velcro straps can also be useful to increase the resistance during any type of exercise.
- Elastic tubing (often called dyna bands, therabands or clini bands) are simply pieces of elastic which offer more resistance the greater you stretch them. Again these give you the freedom to mimic many of the movements that can be done in the gym.
- Partner resisted strength exercises. You can still do the same movements as you would on gym machines but with a partner resisting these movements rather than a weight. These can be done at home, at work, in the park, almost anywhere!

If you choose to go to a gym most machines can be operated whether you have an arm or leg amputation if you adjust the weight accordingly. Alternatively you can use free weights such as dumbbells, medicine balls or kettlebells. Perform exercises without any or with minimal weight when learning new techniques. Once you have mastered the technique (ideally under supervision) choose a weight that will produce a moderate amount of muscular fatigue during the number of repetitions you have planned. Your chosen weight should allow you to complete a full set without stopping and you should be able to maintain good technique throughout.

You should expect some general muscle soreness in your first few weeks of strength training but this will soon subside once you get used to the new type of activity.

Aerobic Training

Aerobic training is any activity that raises your heart rate and gets you out of breath for a sustained period of time. It trains the cardiovascular (heart, blood and blood vessels) and respiratory (lungs) systems to help reduce fatigue and improve endurance. There are various forms of aerobic exercise that you can do and many will require no adaptation at all. See page 17 for some ideas.

> Not got enough time?

Evidence also suggests that you can accumulate the desired amount of cardiovascular exercise in multiple, smaller chunks of time such as 10 minute bouts of walking/running or resistance exercise. This is useful if you are starting to exercise for the first time or if you simply don't have big blocks of time to spare.



TABLE 1. Goals and Recommendations for Flexibility, Strength and Aerobic Training

Type of exercise	Goals	Intensity/frequency/duration
Flexibility <ul style="list-style-type: none"> • Stretching 	<ul style="list-style-type: none"> • Help prevent injury • Improve posture/muscle balance 	<ul style="list-style-type: none"> • Before and after aerobic or strength exercise or as a standalone session • At least two to three days per week
Strength <ul style="list-style-type: none"> • Weight machines/wrist weights/ dumbbells/therabands/medicine balls/ body weight exercises 	<ul style="list-style-type: none"> • Improve strength • Ensure balance of all muscle groups 	<ul style="list-style-type: none"> • Two to four sets of 8-12 repetitions for each exercise • At least two days per week
Aerobic <ul style="list-style-type: none"> • Walk/run/wheel • Cycling • Swimming • Sports e.g. Athletics, Wheelchair Basketball, Sitting Volleyball, Paratriathlon 	<ul style="list-style-type: none"> • Increase endurance by improving your ability to use your available muscle groups • Maximise independence 	<ul style="list-style-type: none"> • Three to five days per week • At least 30 minutes moderate (12-14 RPE*) or 20 minutes vigorous (15+ RPE*) per session

NOTE *RPE = Rating of Perceived Exertion (RPE) (6-20 scale) will be explained further on page 29

Stump Care

If you are working hard it is essential to take extra care to avoid your stump getting sore.

When you exercise your stump can shrink even if it has been stable for years. Make sure you have plenty of socks with you so that you can add more if needed. If your stump does shrink, it can react by swelling up when you remove your prosthesis so use a compression sock after your shower until you are ready to put your prosthesis back on.

Perspiration may build up while you are exercising and can cause skin irritation or blisters. Follow these tips to help prevent this:

- Ensure you wash your stump regularly and dry it well prior to putting your prosthesis on.
- Wear clean stump socks daily. If necessary, change them if damp or add extra ones when exercising.
- Regularly check your stump for soreness, redness or broken skin when exercising.
- Don't use talcum powder (it can form clumps when damp) but other anti-perspirant products may help. Always patch test before you use them. Ask at your limb centre for advice.
- If you have any persistent problems go and see your prosthetist, a slight adjustment may be all you need.



Safety Always Comes First

Please consider these safety points before starting your exercise programme:

1. Consult your Prosthetic Centre or doctor if you are considering starting an exercise programme for the very first time or if you experience any adverse consequences.
2. Take extra care of your back. Work symmetrically and aim to maintain the strength of your back muscles on the amputated side (arm or leg) to avoid long-term back problems.
3. Performing any movement with a prosthesis uses more energy so be prepared to rest and build up gradually.

NOTE:
Quality is more important than quantity! More is not always better so exercise within your own limits and don't push yourself too soon, especially if you are new to exercise with an amputation.

Seek professional advice if you are unsure of the correct technique for any exercise or stretch.

Stop exercising if you experience pain, discomfort, nausea, dizziness, light-headedness, chest pain and/or shortness of breath.

4

5

6

Be aware of rubbing, shearing or abrasions from your prosthesis. Stop before the skin breaks or blisters and see your prosthetist if it recurs regularly.



What Type of Exercise Can I Do?

The most important thing is to find something that suits you and that you enjoy doing. There are always plenty of options and alternatives.

TABLE 2. Types of Exercise; Advantages, Disadvantages and Adaptations/Advice.

Type of Exercise	Advantages	Disadvantages	Adaptations/Advice
Aerobic gym equipment e.g. cross-trainer, arm crank, stepper, treadmill	Found in most gyms. Safe and easy to use.		You may require some help to set-up the machine to suit your arm/leg length or your prosthesis.
Aerobics	Inexpensive. Can be performed at home or as part of an exercise class.		Therabands can be incorporated into the routine. Ask about public classes that can accommodate your needs and discuss any adaptations with an instructor prior to the class. Remember that a Wii Fit can also give you a good workout!
Circuit training	Can be divided into classic circuits and weight training. You only need a small, clear space to perform circuits.	Access only in some fitness gyms.	Use a number of exercise stations and alternate between muscle groups. Use a set number of repetitions or a set time. Rest after each activity or when the circuit is complete.
Cycling	Relatively efficient form of locomotion. You can also use a static bike in your home or gym.		
Running	You can also run almost anywhere; outdoors, on a track or on an indoor treadmill. Can be performed with an everyday prosthesis.	Can be difficult and scary to learn to run on your own.	Look out for 'Learn to Run' workshops.
Sports e.g. Athletics, Paratriathlon, Sitting Volleyball, Wheelchair Sports	Good cross-training or specific training for a given sport. Competitive and social.	You may need to buy some additional equipment.	Use the Parasport website to find a local club to play your chosen sport. www.parasport.org.uk
Swimming	Good cross training as the water supports your body weight.		You may need to think about how you will get from the changing room to poolside. Lower limb amputees. It is often safer to wear your prosthesis to poolside because hopping and crutches can be dangerous.
Tai Chi/yoga	Improves balance, posture, flexibility and breathing patterns. Inexpensive.		There are plenty of DVDs or books that you can buy so you can try some of these exercises in your own home first.

For more information on sports for individuals with an amputation visit www.iwasf.com or www.activeamp.org



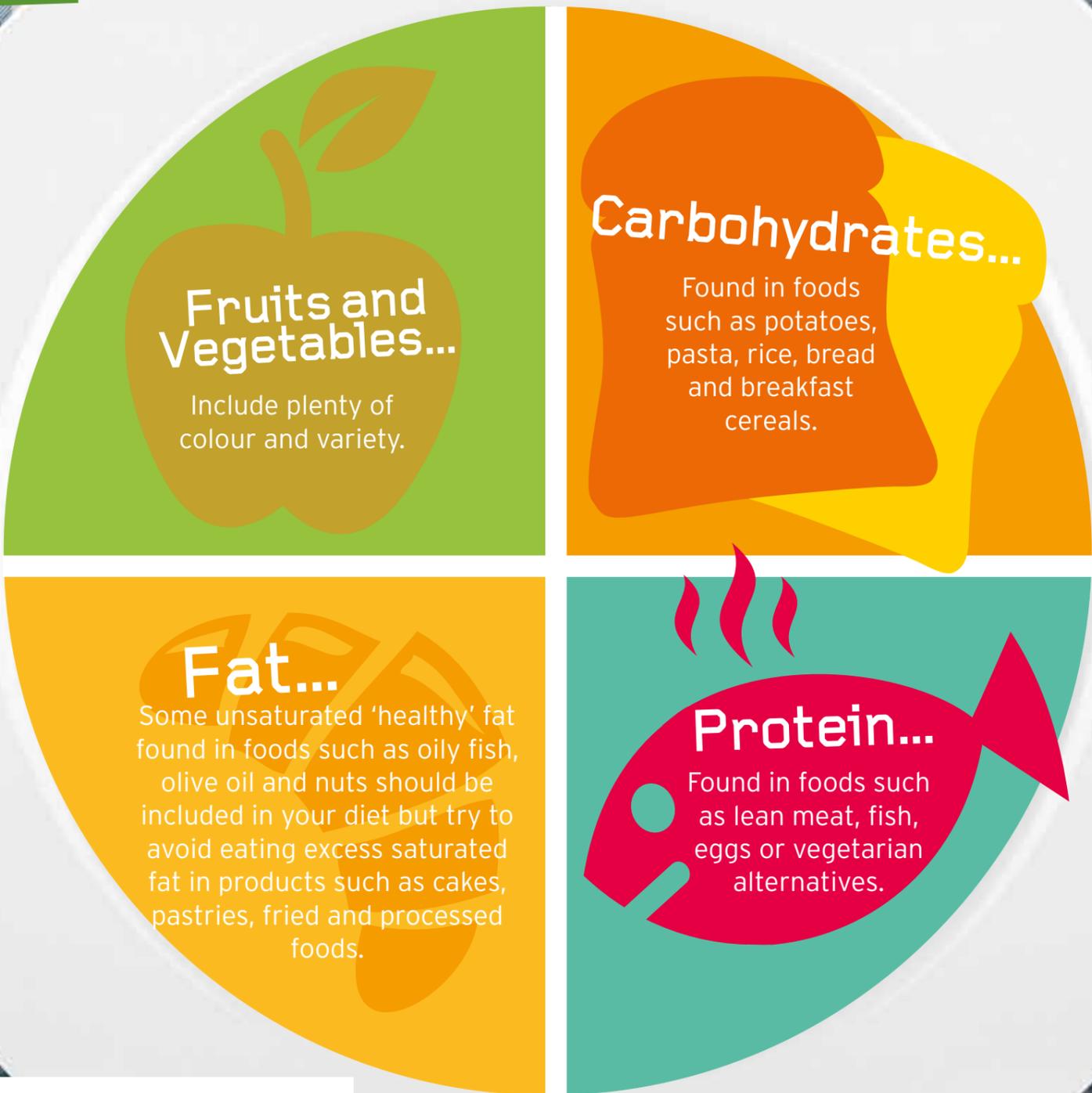
NUTRITION

Key Features of a Healthy Diet



An important component of being Fit for Life is your nutrition. With such a wide variety of food products on the market and the increased availability of convenience foods, it is important to make sure we know how to eat a healthy, well-balanced diet.

Living as an individual with an amputation does not change the guidelines on how to eat a healthy diet. You may simply need to adjust the amount of energy you eat depending on the level of your amputation. There may however be a few issues to consider from a practical point of view.



Fruits and Vegetables...

Include plenty of colour and variety.

Carbohydrates...

Found in foods such as potatoes, pasta, rice, bread and breakfast cereals.

Fat...

Some unsaturated 'healthy' fat found in foods such as oily fish, olive oil and nuts should be included in your diet but try to avoid eating excess saturated fat in products such as cakes, pastries, fried and processed foods.

Protein...

Found in foods such as lean meat, fish, eggs or vegetarian alternatives.

Calcium...

Rich food sources include milk, cheese and yoghurt.

Fluid...

Such as water, tea, squash, juice, milk and fruit will help maintain hydration, which is important for the day-to-day functioning of the body.

The components of a healthy diet provide the body with what it needs to fight infection, help prevent illnesses such as heart disease, and to maintain your day-to-day health so you can get on with leading an active lifestyle. Now let's take a closer look at each component:

Carbohydrate foods are an important source of energy, vitamins and minerals, and should be included in any healthy diet. Quantities should vary according to how active you are, (e.g. more activity requires more energy and therefore more carbohydrate).

Fibre Wholegrain and wholemeal versions of carbohydrate are a great source of fibre. Other sources of fibre include vegetables, fresh (with the skin!) and dried fruit, beans, nuts and oats. You should adjust your own fibre intake to maintain personal bowel movement.



Fruits and Vegetables are good sources of fibre and provide a wide range of vitamins. They also contain 'antioxidants'; chemicals which will help fight infection and prevent disease. The ideal target is 5-a-day; one portion might be one medium fruit, one small plate of salad, one tablespoon of dried fruit, three tablespoons of cooked vegetables or a small glass of fruit juice. Include a wide variety of types and colours. Boil or microwave vegetables in minimal water or try steaming, and keep cooking time to a minimum to prevent vitamins being lost.

Protein is needed for growth and repair in the body. Opt for lean, low fat versions and use cooking methods that keep fat to a minimum such as grilling, poaching, boiling or steaming. Including some protein at each meal will help you meet the recommended two to three portions a day. Meat (red and white), fish, eggs, cheese, milk or vegetarian alternatives such as beans, lentils, tofu and Quorn are all good sources. Red meat can also help ensure an adequate iron intake but if you choose not to eat it, take care to eat other iron-rich foods.

Iron is important because it is used in the formation of haemoglobin, a part of the blood that carries oxygen around the body. Those at risk of low haemoglobin levels, also known as anaemia, include vegetarians, endurance athletes, teenagers and females. Foods containing iron include offal, fish such as pilchards, salmon and sardines, eggs, green leafy vegetables, nuts, pulses and breakfast cereals fortified with iron. The absorption of iron can be aided by eating foods containing vitamin C e.g. tomatoes, green leafy vegetables, peppers and citrus fruits at the same time as iron-rich foods, and can be hindered by drinking caffeinated drinks such as tea and coffee, so drink them after your meal instead.

Calcium is important for strong bones. It is therefore important to ensure that your calcium intake is optimal to aid bone health. Taking enough calcium into the body from food is possible and aiming for three portions of calcium-rich foods a day will help you meet your needs. Table 3 highlights some calcium-rich foods. If you can't tolerate milk or dairy products, or have a family history of osteoporosis, you should take extra care to ensure your intake is sufficient and you may consider using a supplement if you struggle to meet your needs.

Vitamin D aids the absorption of calcium to support bone health. It is also an important vitamin to consider for immunity as it may enhance your ability to fight infection.

The main source of vitamin D is produced due to the action of the sun on your skin but small amounts can also be obtained from the diet from foods such as eggs, offal, oily fish and fortified margarines, juices or cereals. Supplementation is also an option during the winter months or for athletes that spend a lot of their time training indoors.

As a minimum aim to get 20 minutes sun exposure three times a week. Safe exposure to the sun is important so do not stay out long enough to get burnt.

Fluid intake is vital for health. All aspects of a healthy body rely on good hydration, from brain function to good skin. Have a variety of drinks over the day such as fruit juices, squash and tea or coffee, but including some water is always a good idea. Don't forget that you get fluid from your food too. Most people need at least 1.5-2 litres of fluid a day, plus more to cope with exercise and heat.

Good hydration is important when taking part in physical activity and exercise. However, individuals with upper limb amputations may find some sports bottles hard to use. Bottles with a straw type attachment or drinks containers worn as a rucksack with a drinking tube attached (e.g. camel backs) may be useful.

Fat plays an important role in your diet, it provides you with essential fatty acids and the fat-soluble vitamins A, D, E and K. Aim to eat small amounts of unsaturated fat (polyunsaturated and monounsaturated) but reduce the amount of saturated fat in your diet.

- Saturated fat is found in foods of animal origin such as butter, lard, full fat milk, cream and the visible fat in meat. These can cause fatty deposits to build up in your arteries so opt for leaner or unsaturated versions if possible.
- Monounsaturated fat is found in olive and rapeseed oil, nuts, seeds and avocados. Olive oil can be used in cooking or as a salad dressing and is also used to make margarine.
- Polyunsaturated fat is further broken down into omega 6 and omega 3 varieties:
 - i. Omega 6 fats (sunflower, corn and soya oils and margarines made from them) do not cause the arteries to clog up in the way that saturated fats do.
 - ii. Omega 3 fats (oily fish such as sardines, pilchards, mackerel or kippers) do not produce fatty deposits in the arteries and are actually thought to protect the body from heart disease. The recommendation is that men, boys, and women past child bearing age can eat up to four portions per week of oily fish. Women of child bearing age, including pregnant and breastfeeding women, and girls can eat up to two portions per week.
- Don't forget that any high fat food is also high in calories, so over-consumption will likely result in weight gain and potentially obesity, which in itself is a health risk, so keep an eye on your portion sizes.

Wound Healing

Hopefully if you use a prosthesis for exercising it won't cause you any problems. Unfortunately there may be times when things don't go quite to plan straight away and sores can be a problem. Eating a well-balanced diet with plenty of variety during these times is really important. If the sore is more serious you may need to increase your protein intake a little to provide some extra to aid repair. Energy requirements may also increase at such times. Discussion with a sports or clinical dietitian may be useful if you do have problems.

Table 3. Calcium Content of Foods

Food	Quantity (one portion)	Amount of calcium (mg)
Semi skimmed milk	1/3 pt/200 ml	237
Skimmed milk	1/3 pt/200 ml	249
Soya milk	1/3 pt/200 ml	25
Calcium fortified soya milk	1/3 pt/200 ml	230
Yogurt	One pot/125 g	225
Cheddar cheese	30 g/1 oz matchbox sized piece	216
Cheese spread	25 g large triangle	105
Cottage cheese	One pot/110 g	82
Tinned salmon	100 g	95
Tinned sardines/pilchards with bones	100 g	460
Bread white or brown	Two slices/72 g	72
Baked beans	200 g - A small tin	100
Tofu steamed	100 g	500

> **NOTE:** Lower fat dairy foods contain the same amount of calcium as full fat versions.



Weight Management

Maintaining a suitable weight is important for health and weight should be neither too high nor too low. A major concern for any individual who struggles to maintain a suitable weight is the potential effect on health in terms of the risk of future development of diabetes, heart disease, joint problems and immobility. If you are already active in sport then there is also the added issue of the effect this may have on your performance.

There is currently very little data regarding the energy expenditure of individuals with an amputation during physical activity or exercise. Your energy requirements therefore need to be based on an understanding of the amount of physical activity and exercise you do, the level of your amputation and your training status. Hence, every individual is different and will therefore require a different energy intake to achieve weight maintenance.

For example an individual with an underdeveloped arm will generally require more energy than a double above the knee amputee due to a larger active muscle mass, assuming similar activity levels.

Wheelchair users tend to have lower total energy expenditures than those who are able to walk. Higher energy expenditures during ambulation (walking/moving) may also be seen due to the balance required when using a prosthetic leg.

A change in energy expenditure, either due to an amputation in the first instance, or a change in your physical activity/exercise levels should result in an adjustment to the amount of energy you consume as food and drink to prevent the loss or gain of body weight, unless this is your goal. Talk to a registered dietitian or nutritionist if you have any concerns.

DO...
follow a well-balanced diet.
 The first step towards healthy eating is choosing real, fresh and unprocessed foods and snacks but you must also keep an eye on your portion sizes. Be realistic about your energy requirements based on your activity levels.

DON'T...
aim for quick losses
 It may be encouraging to see the weight drop off but this is rarely maintained because it usually results in the body losing muscle rather than fat, and is not helpful to general health or activity.

DON'T...
give up
 If you run into problems, talk to a friend or relative. Check whether there are any local support sessions you can attend or you could try a slimming club, but check that it operates on the basis of healthy eating. Seek help from a registered dietitian or nutritionist if needed.

DO...
be patient. Consider weight loss in a sensible and measured way.

DON'T...
give in to the barriers
 There are potential barriers to eating healthily or exercising but if you want to lose weight these are the two key components to focus on.

DO...
combine your diet with physical activity/exercise
 This will help you to achieve and maintain your weight loss goals whilst also improving your health and reducing your risk of disease.



WEIGHT GAIN - When ENERGY IN is more than ENERGY OUT

WEIGHT BALANCE - When ENERGY OUT is the same as ENERGY IN

WEIGHT LOSS - When ENERGY IN is less than ENERGY OUT



In the Kitchen

It is important to ensure your kitchen is set-up to suit your needs so that cooking is safe and enjoyable, not a chore. This will make cooking homemade meals easier and stop you reaching for more processed meals and snacks which may be convenient but are often high in sugar or fat. For those with a lower limb amputation, ensure your kitchen is set-up so that it is safe and easy to move around, especially if you are a wheelchair user. Alternatively use a stool to sit at the worktop if you find standing for long periods tiring.

For those with an upper limb amputation you may feel more comfortable in the kitchen environment with a few adaptive devices such as:

- Weighted (for more control) or ergonomic lightweight utensils.
- Food processors to reduce knife use.
- Reach extenders.
- Dishes/chopping boards with suction cups to prevent slipping.
- If chopping food is difficult, try ready prepared vegetables (although these do cost more). Frozen vegetables are also a good alternative and freezing preserves the nutrients in the vegetables.
- Online shopping may be useful if you do not enjoy shopping at your local supermarket.

What Else Might Help?

- Eat routinely (two to three meals per day). Try not to skip meals because this usually leads to over-compensation at the next.
- Nibbling between meals can add more calories to a day's food intake than you might think. Keep to low calorie drinks and snacks, with post-exercise snacks used as just that, whilst being realistic about the amount of energy you used during your session.
- Avoid putting too much on your plate. Be realistic about how much you need.
- Write a food diary to monitor your progress and find areas for improvement.
- Set goals and reward yourself when you achieve them. Try rewards such as a massage or a new item of clothing rather than calorie-laden treats like chocolate, cake or crisps.
- Weigh yourself about once a month to monitor progress. More frequent weigh-ins are not recommended due to daily fluctuations in weight.

Food Safety and Hygiene

If you travel or work abroad, or you are simply going on holiday, you can be exposed to a whole range of situations which could result in illness; poor food hygiene, sanitation problems, poor water quality, or inadequate hygiene standards of others in public places. No individual wants to miss their holiday, work or as an athlete, their training or a competition because of illness. It is therefore sensible to be aware of the risks and to take reasonable precautions to avoid problems.

Safety Tips

- Buy bottled water abroad if the tap water is suspect. Use this to clean your teeth and your fresh fruit and vegetables, and avoid ice cubes.
- When taking a shower, washing your face or having a shave do not let water enter your mouth. Take care in swimming pools.
- Keep your drinks bottle clean. Use water or squash bottles that can be thrown away and replaced frequently, or sterilise your drinks bottle regularly (using a strelising solution) to prevent contamination.
- Salads, raw vegetables and fruit can be a source of food poisoning because the food is handled and not cooked. Peel fruit rather than eating it's skin.
- High risk foods include seafood (e.g. prawns, cockle, mussels), rare meat, unpasteurised milk, soft-cooked eggs and barbequed meats, which can be undercooked in the middle.

Food Hygiene

Food hygiene is very important in the home and also when travelling abroad. Always try to follow some basic guidelines:

- Wash your hands before handling food and again after sneezing, coughing or using the toilet.
- Clean surfaces and floors regularly; food waste attracts insects and vermin.
- Cover any cuts with a waterproof plaster before handling food.
- Keep track of any food that you put in the fridge. Furry, mouldy food is unacceptable and it could contaminate other food.
- Keep raw meat at the bottom of the fridge so that it cannot drip blood onto other food.
- Check 'Best Before' or 'Use By' dates. Do not eat food that is past its date. Even if food is within its date do not eat it if it looks, smells or feels off.
- Transfer any left-over canned food into a covered container to be stored.

Diarrhoea and Sickness

This is most likely to happen as a result of food poisoning or an infection that has been picked up by touching communal objects such as door handles or toilet seats. Always wash your hands well after using the toilet. Alcohol-based gels can also be used after washing to reduce the risk of contamination. If you do develop diarrhoea or sickness you must be careful not to become dehydrated.

Wheelchair Users

When propelling a wheelchair, your wheels, and therefore hands, come into contact with any number of things that may have been on the floor. Please be careful to sanitise your hands prior to eating, or touching your eyes, nose or mouth to help prevent the spread of germs. Small bottles of hand sanitiser or wet wipes are easy to carry in your pocket or bag and are useful for this purpose.



This FIT FOR LIFE guide has hopefully taught you the basics about exercise and nutrition, and about how to lead a healthy, well-balanced and active lifestyle. If you have also chosen to take up a sport and you are now taking part in exercise at least three or four times per week, you may want to download our FIT FOR SPORT guide. This will help you tailor your training, nutrition and psychological skills to ultimately improve your performance. Good luck!





Contributors: Anthony Papathomas, Jeanette Crosland, Joy Bringer, Penny Broomhead, Terri Graham, Vicky Tolfrey, Peter Harrison Centre for Disability Sport members and British Paralympic Association Sport Science and Sport Medicine Group members.

Photographers: Bryn Vaile, Clare Green, Clare Pheasey, Getty Images, Jason Bulley, Neil Munns, Phil Searle, Richard Washbrooke, Steve Faulkner and Peter Harrison Centre for Disability Sport members.

Compiled and edited by: Terri Graham.

A big thank you must also go to the Fit and Healthy project advisory board members for their valued contributions and feedback.



About The Coca-Cola Foundation: Funder's of The Fit and Healthy Educational Resource

Since its inception, The Coca-Cola Foundation has awarded more than \$500 million to support global sustainable community initiatives, including water stewardship, community recycling, active healthy living, and education. For more information about The Foundation, please go to www.thecoca-colacompany.com/citizenship/foundation_coke.html

The creators of the Fit and Healthy Educational Toolkit (Toolkit) have taken reasonable measures to ensure the accuracy and validity of the Toolkit but the information therein is provided as a guideline only and may not be suitable for all disabled people as each person is unique. It is therefore important to adapt the recommendations to suit your own individual needs. Adults are encouraged to participate in a range of physical activities and exercises that are safe, enjoyable, and that help to improve both function and fitness.

If you are new to exercise, newly injured/impaired or have any secondary medical conditions, or you are unsure about the content of any of the information within the Toolkit we recommend that you consult a qualified medical professional such as your physician, before engaging in new types or intensities of activity. Remember it is important to start with small amounts of exercise and progress slowly.

All exercises are performed at your own risk. You must not rely on the information in this Toolkit as an alternative to medical advice from your physician or other professional healthcare provider. If you think you may be suffering from any medical condition, you should seek immediate medical attention. You should never disregard medical advice or discontinue medical treatment because of information in this Toolkit. The information in this Toolkit is provided without any representations or warranties, express or implied, or fitness for any purpose.

Loughborough University, the Peter Harrison Centre for Disability Sport (PHC), the British Paralympic Association (BPA) and Coca-Cola are not liable or responsible to any person or entity for problems or injuries that may occur or for any errors contained in this Toolkit, or for any special, incidental, or consequential damage caused or alleged to be caused directly or indirectly by the information contained within the Toolkit.

email: phc@lboro.ac.uk

Find the online resources at: www.lboro.ac.uk/phc-toolkit

Useful links:

www.parasport.org.uk - Discover which sports you can play and where

www.paralympics.org.uk - Find out what's going on in the world of Paralympic sport

www.ukad.org.uk - Information on anti-doping issues for athletes

www.efds.co.uk/inclusive_fitness/ifi_gyms - Find your local accessible fitness facility

www.iwasf.com - The International Wheelchair and Amputee Sports Federation

www.activeamp.org - For information on various sports you can get involved in

