Running for MASTERS

Starting Out

Bruce Tulloh

PEAK PERFORMANCE
The research newsletter on stamina, strength and fitness

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About the Author

Bruce Tulloh is in his seventh decade as a runner. Although he was at the back of his school cross-country team, his running developed during his National Service and he won the Hong Kong 5,000m title in 1955. After three successful years at Southampton University, he won his first AAA Three Mile title in 1959. He went on to represent Great Britain and England every year until he retired from international competition in 1967.

Bruce ran in the 5,000m at the 1960 Olympics, won a gold medal at this distance in the 1962 European Championships and, later that year, placed 4th in the Commonwealth Games at 3 miles. He broke the British and European records for 2-mile, 3-mile and 6-mile and went under four minutes for the mile. His list of personal bests, set in the 1960s, bears comparison with today's internationals: 1 mile in three minutes, 59.3 seconds(3:59.3); 2-mile 8:33.8; 3-mile 13:12; 5-mile (road) 23:12; 6 mile 27:23.8; 20 mile (road) 1:41:44.

His final exploit as a serious athlete was to knock eight days off the record for running across America. In 1969 he ran the 2,900 miles from Los Angeles to New York in just under 65 days - an average of 45 miles a day.

Bruce has missed very few days of running since his first success in Hong Kong in 1955 and he continues to compete occasionally at veteran level. He set a British record for the over-50 5,000m and, at 58, won his age group in the London Marathon, running 2:47. As an over-60 he ran 76:06 for the half marathon.

A biologist by training, Bruce taught science and coached young athletes for 30 years, mainly at Marlborough College in Wiltshire, but also in Kenya and the USA. He wrote his first coaching book, *Tulloh on Running*, in 1967, and since then has been a regular contributor to the literature of the sport, producing more than a dozen books and acting as Coaching Editor to *Running Magazine* and the UK edition of *Runner's World*.

Bruce has coached successful runners at every level, from school to Olympic competition, in track, road and cross-country. His wife Sue placed 7th in the Women's National Cross-country, his twin daughters were first and second in the 1986 English Schools 1,500m, ahead of Kelly Holmes, and two years later his son won the British Universities 10,000m.

Notable athletes coached by Bruce include Mike Boit, Olympic medallist at 800m, Nnenna Lynch, World University Games champion at 5,000m and Richard Nerurkar, World Marathon Cup winner in 1993, with a best marathon time of 2:08.36. At veteran level, he coached Margaret Auerback to two gold medals, at 1,500m and 5,000m, in the 2003 World Championships.

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Introduction

I would not be writing this book if I did not believe passionately in the value of running as part of a full life. In this book I hope to show you not only the right way to train, and the principles behind the training, but also how running can improve your health and enrich your life.

I have included training tips and schedules for all distances, from 100m to the marathon, but with an emphasis on longer-distance (5k-plus) running, because that's where most people's interest lies.

This book is aimed at Masters (or veteran) runners, which technically means women over 35 and men over 40, up to any age in both cases. The general advice and training schedules included in every chapter are primarily focused on the particular needs of men and women in middle and later life.

What running can do for you

Running helps you live longer

In the East African Rift Valley, running through Tanzania and Kenya and up into Uganda, the Masai still live the lives of pastoral nomads. Their diet consists mainly of meat, blood and milk, yet they suffer none of the obesity and heart disease that you might expect to accompany such a diet. Why not? Because they run!

Over the last 50 years, long-term studies carried out in many different countries have built up evidence to prove that

"In my experience, you can burn off a pound of fat with 20 miles of running."

people who lead physically active lives enjoy greater life expectancy. The first set of studies (published by Morris *et al* in1953) involved 31,000 London Transport workers studied over two years. They demonstrated a clear association between physical activity and the risk of coronary heart disease. In simple terms, bus conductors (active) had 50% fewer heart attacks than bus drivers (sedentary). Of course, it could be that the naturally fitter types chose to become conductors, but still… 50% fewer heart attacks?

In another study, published more than 20 years later, Morris and his team followed 17,000 civil servants aged 40-60 over several years, to examine the relationship between leisure-time activity and heart disease. They found that those who engaged in vigorous exercise were less than half as likely to suffer a fatal heart attack than their less active colleagues.

An interesting aspect of Morris' study was that 'vigorous' exercise appeared to be the determining factor. If you walk a mile slowly you will use up about 100 calories in 30 minutes; if you jog that same mile in eight minutes you will use up only a few more calories, but to much greater effect, because you are using your whole cardiovascular system much more intensely. It is this cardiovascular workout that improves the heart's own blood supply, so reducing the risk of a heart attack.

Running keeps your weight down

When you read diet books, they often point out the enormous amount of energy stored in fats. They argue that because a pound of fat contains 3,500 kilocalories (kcal) of stored energy, you would have to run 35 miles to take off a pound, implying that such a massive effort is not worth attempting. What the diet pundits tend to ignore is the effect of running on your daily metabolism – the rate at which you convert food to energy.

When you run, pushing your heart rate up to about three times its resting level, your whole body is stimulated. The liver speeds up its rate of energy production, as do the working muscles. Blood flow to your skin is enhanced and you start to lose heat through sweat. After the run, your metabolism continues to run at a higher-than-normal rate for a while, so

that you break down fat more rapidly. The harder you run, the longer this effect persists – it can last as long as 12 hours. In my experience, you can burn off a pound of fat with 20 miles of running. This may sound a lot, but when you get into the habit of running 20 miles a week, it means you can lose 14 pounds in about three months. Moreover, the thinner you get the more heat you lose and the more food you burn up.

Running keeps your blood pressure low

Running increases the number of the tiny blood vessels called capillaries in your muscle and also makes the large vessels called arteries even larger. Thus, when the heart pumps the blood can flow more easily through an enhanced circulatory system. Chapter 2 deals with this in more detail.

Running helps your cholesterol balance

Running has been shown to increase the amount of protective High Density Lipoprotein (HDL) cholesterol in your blood and reduce the amount of Low Density Lipoprotein (LDL) cholesterol, which tends to increase your risk of heart disease. More of this in Chapter 1.

Running reduces stress and relieves depression

Studies have shown that running can be more effective than therapy for these purposes, but you can find this out for yourself. Racing at the highest level may be stressful (although it is also fun) but just going out for a run is a reliable way of making you feel better. The rhythm of steady running is like a mantra that calms you down and puts your problems in perspective, and the glow of satisfaction that comes after a good run and a hot shower is more relaxing than a shot of whisky (as well as being healthier and cheaper!)

Running improves your quality of life

When I was writing my book *Running is Easy* in 1995, I wrote: 'As I approach 60, I feel that life is still expanding and that I have things to look forward to'. Now I am past 70 and looking back on my seventh decade. In that time, I followed one of my

athletes through to 5th place in the Olympic Marathon, watched others run in the European and Commonwealth Games, coached the British Army team in South Africa and organised the Safari Marathon in Kenya. Because I am fit, I can continue to travel the world, relish new experiences – such as running through Siberia earlier this summer – and enjoy my food and drink as much now as I did when I started running 50 years ago.

Running keeps you young

What are the signs of being old?

- You lack energy;
- You tire more easily;
- You gain weight;
- You get breathless after slight efforts;
- Your muscles lose strength;
- You move more stiffly;
- Your eyesight and hearing deteriorate;
- Your memory goes;
- Your skin gets wrinkly;
- Your hair falls out.

Except for the last two, all of these effects are reversible. Numerous studies carried out on runners over 50 have shown that *exercise can help you to age backwards*.

In physiological terms, runners have high levels of human growth hormone and testosterone, which boosts their potential for growth and repair. Running also strengthens muscles and bones, loosens joints and improves your body's ability to use oxygen and deliver it to working muscles.

The pay-off really comes when you pass 60. At a time when your contemporaries are developing beer bellies, emphysema, diabetes and bad backs – and having to restrict their lives in consequence – the fit runner can still lead exactly the same lifestyle as he or she did at 40.

It would be foolish and arrogant to claim that runners never suffer from poor hearing or memory loss, but in my experience those who take regular exercise keep more of their marbles – and keep them for longer – than sedentary folk.

Think about it: every day you are out in fresh air, maybe working hard, maybe taking it more easily, but either way pushing more oxygenated blood through your brain with every minute of running. The extra hormone you produce must affect growth and repair in your brain as well as in the muscles and the liver. While you are running, your brain is continually picking up signals about balance, temperature and effort level, as well as outside stimuli through the eyes, ears and nose. The brain has to interpret the signals and make decisions that are translated into muscular action. Whether you are playing hockey or tennis or just running, the constant demand for alertness and response keeps all your senses up to the mark. If you don't want to lose it, use it!

Running improves your looks

It may do nothing for your wrinkles, but it gives you good muscle tone and a healthy tan, reduces flab, cuts down your weight and gives you great legs!

Running helps you with other sports

If you are a weekend sports enthusiast, you will find that running during the week makes a huge difference to your performance. For other activities, such as hill walking or board sailing, you will find that the stamina you get from running gives you that extra reserve of energy when it is needed.

Running takes you places

There is nothing like running for taking you all over the country – or, indeed, the world. Whatever your standard, you can now take part in races or join training camps in every continent. Wherever you go you will meet like-minded people, some of whom will become real friends. For many, the lure is with big-city marathons, like London, Paris, New York and Amsterdam. But there are also exciting adventure runs, such as the Safari Marathon in Kenya or the Great Wall event in China. In Britain there are all sorts of interesting – and sometimes fiendish – races, such as the Grizzly in Devon, Race the Train in Wales or the Cape Wrath running week in Scotland.

"There is nothing like running for taking you all over the country – or, indeed, the world."

Chapter 1

HOW FIT ARE YOU?

Do you need a check-up?

Running is a natural activity, so there is normally no need to see a doctor before you start, unless:

- You have a family history of heart or bronchial disease;
- You have had an operation or a serious illness within the last six months;
- You are seriously overweight.

Illness and your family

It is certainly advisable to take your family medical history into account, because cardiovascular diseases are passed on from one generation to another and being aware of a risk is the first step towards reducing it. If someone in your close family (grandparent, parent or sibling) died prematurely of a heart attack, there is a distinct possibility that you might be at risk. This need not stop you running – quite the contrary: you will need to improve your physical condition – but it would be a good idea to see your doctor first.

Would-be runners are sometimes advised to have an electrocardiogram (ECG) test while running on a treadmill, but this has been shown to be an unreliable predictor of heart disease. You could perform quite normally during the ECG test and have a fatal heart attack the very next day. Conversely, a mild irregularity in your heartbeat might lead your doctor to ban you from running even if it is causing no problem at all. Clarence DeMar, one of the legends of the Boston Marathon,

was banned from running by his doctor for several years because of a suspected irregularity in his heartbeat. Eventually, though, he went back to running marathons and competed for nearly 50 years before dying of cancer, aged 70. A post-mortem examination showed he had a normal, healthy heart.

Your DIY check-up

The easiest way to assess your own physical condition is by measuring your weight, your waistline, your pulse rate, your blood pressure and your cholesterol level.

Check your pulse (heart) rate

You can easily measure your heart rate at rest, either lying down or sitting. Place your two middle fingers on the inside of your wrist, in line with the ball of the thumb. The 'normal' range when lying down is 60-80 beats per minute in men and about 8 beats per minute more in women. The normal maximum is around 200 in young adults, but it declines gradually with age. The rule of thumb for working out your maximum heart rate is to subtract your age from 220 (men), or 226 (women).

"Generally speaking, fit people have larger and stronger hearts than unfit people"

The main job of your heart is to pump blood through the lungs, where it picks up oxygen, then around the body to supply the brain, muscles and other organs with the oxygen and fuel they need to keep working. Generally speaking, fit people have larger and stronger hearts than unfit people; and their pulse rates are lower because their hearts can pump more blood at each stroke. Because the normal heart rate range is so wide, it is difficult to tell much from a single measurement at rest. Some fairly lethargic people have heart rates lower than 70 beats per minute, while some world-class athletes have been known to have higher rates. A very rapid heart rate might suggest a heart problem, but the best way to get useful information about your state of fitness is to measure your heart rate at increasing levels of exercise. This is best done by using a heart rate monitor *(see Chapter 3)*, but for beginners

a manual measurement should give you some idea. Here's how to do it:

- **Step 1** Relax in a chair for 1 minute, then take your heart rate (HR) for the next minute;
- **Step 2** Stand up for 1min, then measure your standing HR for 1min;
- **Step 3** Walk at a comfortable pace for 5mins, around the block or garden, then stand still and measure your HR for the next 30 seconds. Double this figure to get your walking HR;
- **Step 4** Repeat Step 3 but at a fast walking pace;
- **Step 5** Jog for 1min, then measure jogging HR, as above. (If you feel shy about jogging, try running up and down stairs for 1min).

A fit person would show this sort of pattern:

Activity	Heart rate (beats per minute)
Sitting	50
Standing	54
Walking	60
Fast walking	70
Jogging	90

For someone less fit, the pattern might be:

Sitting	75
Standing	85
Walking	95
Fast walking	120
Jogging	150

It is clear from this second example that the less fit person who is, let's say, 45 years old, is being considerably stressed by only one minute's jogging. A further couple of minutes would bring him close to his maximum heart rate of around 175. For this reason, I advise beginners to start at the lowest level on my programme and then move up as things start to feel easier.

Watching your weight

"With a few exceptions, the lighter you are the faster you can run"

Body weight is crucially important to a runner. With a few exceptions, the lighter you are the faster you can run; and, of course, the more you run, the lighter you become.

With sedentary people, much of the body is made up of fat. We all need some fat in our bodies to serve both as an energy store and as insulation against the cold. Moreover, the fatty acids of which fat is composed are essential to our metabolic processes, since many of the vitamins we need are soluble only in fat. The body of a fit young man will contain about 10% fat, while a fit young woman's body will contain a little more but still less than 15%. By contrast, inactive people may carry as much as 30-40% of their body weight as fat, most of it totally useless and simply adding to the load their heart and lungs have to bear.

Excess fat also means extra weight, which has to be borne by your joints. Many problems affecting hips, knees and ankles are caused or aggravated by excess weight and get better or even go away completely if you simply lose weight.

Take a look at tables 1 *(opposite)* and 2 *(p18)*, which plot weight against height in imperial and metric units. These give an 'acceptable range' for each height and also an 'acceptable average'. As a runner, you should aim to get your weight down to at least the acceptable average for your height. If it is above this, look at the section on diet in Chapter 2. You can start the beginner's programme set out in Chapter 5, but you should try to lose some weight at the same time.

Whittling your waistline

A lot of the excess fat we carry is stored around our waists, so an increase in fitness is usually accompanied by a reduction in the waistline. As you get fitter, you will lose fat but you will also put on muscle, so your total weight may not show much change, but your waistline will. Measure your waistline once a week in the first eight weeks of your programme, and after that once a month. Along with signs of weight loss, a shrinking waistline should give you an incentive to improve.

Good and bad cholesterol

The concentration of cholesterol in your blood can be easily ascertained by means of a simple blood test. Cholesterol is measured in terms of millimoles per litre of blood (mmols/l) or milligrams per 100mls of blood. Table 3, overleaf, shows the range of measurements and what they say about your health.

Table 1: Body weight and height (metric)

Height (metres)	Weight (kilograms)					
	Men			Women		
	Acceptable average	Acceptable range	Obese	Acceptable average	Acceptable range	Obese
1.45				46.0	42-53	64
1.48				46.5	42-54	65
1.50				47.0	43-55	66
1.52				48.5	44-57	68
1.54				49.5	44-58	70
1.56				50.4	45-58	70
1.58	55.8	51-64	77	51.3	46-59	72
1.60	57.6	52-65	78	52.6	48-61	73
1.62	58.6	53-66	79	54.0	49-62	74
1.64	59.6	54-67	80	55.4	50-64	77
1.66	60.6	55-69	83	56.8	51-65	78
1.68	61.7	56-71	85	58.1	52-66	79
1.70	63.5	58-73	88	60.0	63-67	80
1.72	65.0	59-74	89	61.3	55-69	83
1.74	66.5	60-75	90	62.6	56-70	84
1.76	68.0	62-77	92	64.0	58-72	86
1.78	69.4	64-79	95	65.3	59-74	89
1.80	71.0	65-80	96			
1.82	72.6	66-82	98			
1.84	74.2	67-84	101			
1.86	75.8	69-86	103			
1.88	77.6	71-88	106			
1.90	79.3	73-90	108			
1.92	81.0	75-93	112			

Table 2: Body weight and height (imperial)

Height (ft/ins)	Weight (lbs)					
	Men			Women		
	Acceptable average	Acceptable range	Obese	Acceptable average	Acceptable range	Obese
4'9"				101	92-117	141
4'10"				102	92-119	143
4'11"				103	95-121	145
5'0"				107	97-125	150
5'1"				109	97-128	154
5'2"	123	112-140	169	113	101-130	156
5'3"	127	114-143	172	116	106-136	161
5'4"	129	117-145	174	119	108-136	163
5'5"	131	119-147	176	122	110-141	169
5'6"	136	123-156	187	128	114-145	174
5'7"	140	128-161	194	132	117-147	176
5'8"	143	130-163	196	135	121-152	183
5'9"	146	132-165	198	138	123-154	185
5'10"	153	141-174	209	144	130-163	196
5'11"	156	143-176	211			
6'0"	160	145-180	216			
6'1"	167	152-189	227			
6'2"	171	156-194	233			
6'3"	174	161-198	237			
6'4"	178	165-205	246			

Table 3: Cholesterol and your health

Cholesterol level	Risk rating for heart disease
150 mg/100ml (less than 3.8 mmol/l)	Well below average, no risk
150-169mg (3.8 – 4.3mmols)	Below average, little risk
170-199mg (4.4 – 5.1 mmols)	About average, slight risk
200-219 mg (5.2 – 5.6 mmols)	Above average, appreciable risk
Over 220mg (over 5.6 mmols)	Well above average, serious risk

There is nothing intrinsically 'bad' about cholesterol, which is a natural constituent of the body, manufactured in the liver and involved in the manufacture of certain hormones. It is carried round the body in the form of fat-and-protein combinations known as 'lipoproteins'. These lipoproteins can be 'good' or 'bad' in terms of heart disease. The bad ones are the low density lipoproteins (LDLs): high levels of these in the bloodstream increase the risk of narrowing of the arteries which, in turn, tends to raise blood pressure and the risk of heart disease. High density lipoproteins (HDLs), on the other hand, help to protect the body against heart disease.

The point of this explanation is that a cholesterol test alone will not give you a very clear idea of your risk of heart disease: for that you need to know your ratio of LDLs to HDLs. In crude terms, though, a high cholesterol level would suggest that you might be at risk, and the next step would be to see your doctor and have a more sophisticated test. The good news is that running increases the amount of HDLs in your bloodstream.

"There is nothing intrinsically 'bad' about cholesterol, which is a natural constituent of the body"

Lowdown on blood pressure

Everyone has blood pressure. This is the pressure of blood against the walls of your main arteries as the pumping action of the heart forces it along the arteries and into smaller and smaller blood vessels, ending in the capillaries, the tiny vessels which supply oxygen to the cells. When your blood pressure is measured, in the brachial artery of your arm, the result is expressed as two figures. The higher one (systolic blood pressure) is the pressure when your heart is contracting, while the lower figure (diastolic blood pressure) is the pressure when your heart is relaxing between beats.

Abnormally low blood pressure (*hypo*tension) can make it difficult for blood to circulate to all parts of your body. But it is high blood pressure (*hyper*tension) which is associated with most health risks, particularly heart disease, stroke and kidney disease *(see table 4, opposite)*.

Table 4: Blood pressure and your health

Diastolic blood pressure	Risk rating
up to 90mm Hg*	Normal, no risk
90-95mm Hg	Borderline
95-105mm Hg	Slight hypertension
105-114 mm Hg	Moderate hypertension
115mm Hg or above	Severe hypertension

**The units measured are 'millimetres of mercury', referring to the original method of measuring the pressure, using a sphygmomanometer.*

If your diastolic blood pressure puts you in the 'moderate' or 'severe' risk categories, your doctor should give you advice on ways of reducing the pressure, which you should follow before starting an exercise programme.

High blood pressure has many causes. Genetic factors are important, but diet, particularly salt intake, plays a part, and so do obesity, stress, cigarette smoking and exercise. The good news is that running, as well as reducing stress and obesity, helps to reduce blood pressure in people with hypertension, which includes more than 25% of over-40s! For more on diet, see Chapter 2.

Other factors

The following factors must be taken into account when assessing your physical condition, so that you can work out at which level to start your running programme:

- **Smoking** Apart from the obvious health risks to your heart and lungs, smoking impedes running directly by inflaming the bronchioles and so restricting air movement in and out of the lungs. The good news is that this problem is reversible, so stopping smoking and taking up running will restore your normal lung capacity and may even improve it;
- **Diet** In the short term, your diet will not affect your running, unless you try to run directly after a heavy meal. It is the extra weight caused by eating the wrong diet which is the problem *(see Chapter 2)*;

- **Alcohol** Drinking small amounts of alcohol after running will not impair your performance, but large amounts will. 'Small amounts' means no more than 2 units* in a day or 10 in a week, with at least one day being alcohol-free;
- **Stress** If you are under a lot of stress and getting very little exercise, you obviously need to do some; but unless you can arrange your life so as to find the time to exercise, the extra load may make you *more* rather than less stressed.

"I would not recommend running 20 miles a week to someone who is not currently walking as much as one mile a day"

Exercise: where to start

How much exercise you are able to do is very closely related to how much you are doing already. I would not recommend running 20 miles a week to someone who is not currently walking as much as one mile a day.

To work out the best starting point for you, complete the self-assessment test in table 5, overleaf. This should give you a rough guide to where to start your running programme. It does not include cholesterol and blood pressure levels, partly because not everyone can get them done quickly and also because they tend to mirror other measurements, such as weight and activity levels.

Score yourself, as shown, for each of the factors listed in the table. The total shows you where best to start your running programme.

If you have a minus score you should not even *start* the beginner's running programme described in Chapter 5, but should follow the pre-running programme in Chapter 3 until you have done enough for your score to reach zero. For example, a man of 51 who is moderately overweight, drinks a lot, smokes, has a sedentary job and takes little exercise might have a score of -19. If he stops smoking, improves his diet and

** A unit of alcohol is defined as 10ml of pure alcohol. According to the UK Department of Health, a pub measure of spirits contains 1 unit; an alcopop (*eg *Smirnoff Ice, Bacardi Breezer) around 1.5 units; a 175ml glass of red or white wine around 2 units; a pint of ordinary strength lager, bitter or cider, 2 units; a pint of strong lager or cider or best bitter, 3 units.*

his alcohol intake and starts walking regularly, all of which will reduce his weight, his score will soon drop to, say, -8. When he is up to walking 12 miles a week he will be ready to start the running programme.

Table 5: Self-assessment test

Factor	Score	+ or -
Age	Minus one point for every 5 years over 50	
Weight	10% above acceptable average weight *(see tables on pp17 & p18)*	-5
	20% above acceptable average weight	-10
Alcohol intake	Less than 10 units a week	0
	10-15 units	-1
	15-20 units	-2
	For every additional 5 units	-2
Smoking	Less than 10 cigarettes per week	0
	10-20per week	-1
	For every additional 10 a week	-1
Occupation	Physically very active	+2
	Moderately active	0
	Mainly sedentary	-2
	Highly sedentary	-4
Exercise (hours per week)	Walking, gardening, golf, per hour	+2
	Tennis, football, swimming, per hour	+6
	Running, rowing, squash, per hour	+8
	or, running, per mile	+1

Chapter 2

YOUR LIFE AS A RUNNER

Why do you want to run?

The answer to this question is important because it determines the answer to other questions. If you are running solely to improve your health and fitness, there is no particular need to join a running club, train for a marathon or, indeed, take part in any races at all. Medical experts agree that four 30-minute sessions a week of good exercise is enough to keep your heart and blood vessels in good condition, ward off depression and maintain a healthy immune system. These sessions should be vigorous enough to make you sweat and keep your heart rate above the 50% effort level for most of that time. (To learn more about the various levels of effort, see Chapter 5.) In terms of distance covered, a brisk 30 minutes means about four miles, so 16 miles a week would be enough.

If your goal is to boost your level of fitness, you should aim to move from the beginner's programme described in Chapter 5 to the basic running programme set out in Chapter 7. This will improve both your stamina and your aerobic fitness and take you to another level. Stamina, also called 'endurance', can be defined for our purposes as the length of time you can carry on running, whereas the term 'aerobic fitness' refers to your ability to maintain a fast pace. Scientifically, it is defined as 'maximum oxygen intake' (VO_2max for short), which is measured in millilitres of oxygen per kilogram of body weight per minute.

If your goal is to build up endurance for other sports, you should move on to the basic programme and from there to longer distances, perhaps the half marathon programme, for part of the year.

If you enjoy running as a sport and want to do well, I would certainly recommend joining a running club. I would also advise you to buy a copy of *Runner's World* magazine to see what a range of exciting opportunities are on offer.

If you want to run a marathon, you should move on to the training programme described in Chapter 9.

Running and family life

You are in your forties, married, with children. You have a house, a mortgage on the house and a job to pay the mortgage. In order to fulfil all your commitments and stay healthy, you need to look after yourself, and running is an essential part of that process. Quite apart from its physical benefits, running helps you to stay calm and keep things in perspective.

Unlike a game of golf, a run can be slotted into your daily routine without involving other people. You can run to work or in your lunch hour. You can get up a bit earlier at the weekend and go for a run while the others members of your family have a lie-in. Sometimes it is very useful to have a runner in the house: you can drop the car in for a service and then run home, for example. When my children were small, we used to go for walks on Exmoor. We would walk maybe five miles down a river valley, stopping for a picnic or a swim; then, when we were nearly at the end of the walk, I would run back and get the car.

"Unlike a game of golf, a run can be slotted into your daily routine without involving other people"

Racing on a Sunday morning does disrupt family life to some extent, but you are entitled to do this once in a while. If you handle it the right way, you can get other members of the family to take part in the fun run that often accompanies the main event. The important thing is that you are setting an example of health and fitness, and that's the best way to encourage others to follow in your footsteps.

Running and work

You have a boss, you have obligations, you have career prospects. How does running fit in with that? My view is that good employers value their employees and realise they will be more effective if they are balanced and fulfilled. The person who slips out at the end of a conference for a half-hour run is more likely to make a lasting contribution to the firm than the one who props up the bar for the rest of the evening.

While you should avoid boasting about it, there is no reason why you should not be open about your running habit. Colleagues will say: 'It's an addiction', to which the appropriate rejoinder is: 'It's a healthy addiction, unlike some!' You may well find that other people feel the same way. If you belong to a large firm, you should lobby for showering and changing facilities, so that people can run to and from work, which is cheaper and cleaner (except on wet days) than other forms of transport as well as being infinitely more environment-friendly.

Running and retirement

These days, retirement is no longer a brief respite between work and death, but a life-expanding period of opportunity. One of the veteran runners I interviewed for this book said: 'My life was going nowhere, but since running came along I have had 25 years of joy'.

Healthy people who retire in their late fifties can look forward to at least 20 years of active life, maybe more. The only danger lies in overdoing it in the early stages. If you have been a runner all your life, even at a low level, you already have far more of a runner's body than those who have never run. The physiological changes – the growth of capillary blood vessels, the strengthening of bones and supporting ligaments – all take time. Follow the guidelines and you should be fine.

Although you will not be able to run quite as fast as when you were young, older runners can continue to build up their endurance and cardiovascular fitness so that they can run good times for, say, the 10k at age 60 or more. The British 10k

record for men over 60 stands at 33mins 29secs, which would be near the front of most races, and the women's record is 43:06, which is better than most young men could do.

Running with friends

You probably have at least one friend or acquaintance who already runs a bit. Talk to him or her and start a 'meet and train' group, even if it only has two members to start with. Running with someone else, even once a week, makes a huge difference to your motivation. If you only have to consult your own wishes, it is easy to make an excuse when the weather is bad or you're feeling lazy. But having one or two regular commitments involving other people gives a stimulus to your whole training week. When you start running with other people, you realise how everybody has the same problems with motivation, and it helps you to sharpen yours.

Running with a club

Most running clubs welcome runners of all standards, but a good club should have a strong bias towards competitive success at all levels – country, regional and national – because this keeps the standard high. Successful clubs achieve more publicity, get more funding and provide better facilities than less successful ones. They should have strong junior and veterans sections, but they should also nurture the social and recreational aspects of running.

Sports clubs play an important role in every community, bringing people of different backgrounds and ages together and enabling all of them to develop their abilities. Running clubs can cater for a wider age range than most sports clubs and can offer many opportunities: not just putting on races but raising funds for charities, integrating with local schools, organising courses or taking groups to overseas events.

If you are a gregarious kind of person, joining a club can open up a whole new world. But even if you are the solitary, retiring type, who enjoys running because it is a solo effort, joining a club can help you to get to more races and possibly increase your chances of success through being part of a good

team. Fewer things in sport have given me greater pleasure than being a member of the Portsmouth team when we won the English Cross-country title for the first time

Running races

For some of us, races are the most important aspect of running, but for others they totally irrelevant. It is entirely up to you whether you want to run 52 races a year, just one or even none at all.

The best thing about racing is that it is exciting. You are challenging yourself and putting yourself on the line against others of your own age. The adrenaline flows, you see life more clearly, you make your effort and run your race. Afterwards you feel tired, but calmer. You can assess your run and make plans for the future. There is always another race to look forward to.

The next best thing about racing is that it gives a focus to your training. It is good to run with the hope of living to be 100, but it is much more exciting to be training for the New York Marathon in two months' time.

The third good thing about racing is that it helps you find out about yourself. Most people find that they can push themselves harder and so achieve more in a race than on a training run.

"Most people find that they can push themselves harder and so achieve more in a race than on a training run"

Some people find the thought of racing quite terrifying and worry that they will be 'shown up'. My view is that however slow you are there is always someone slower and, in any case, runners near the back of the race are tremendously supportive and encouraging. Friends who finish ahead of you will be very nice to you, in a patronising sort of way, so what's to be terrified about?

The runner's diet

'You are what you eat' may be a great slogan for selling diet books, but it is very misleading. In fact, what you are depends mainly on your genes, then on what you do and lastly on

"You can train a carthorse to become a very fit carthorse, but it still won't beat a well-trained racehorse"

what you eat. You can heap all sorts of things on your roses – horse manure, kitchen waste, artificial fertilizer – but they still come out as roses. Every living thing is programmed by its genes and the best we can hope for is to reach our full genetic potential. To change the metaphor, you can train a carthorse to become a very fit carthorse, but it still won't beat a well-trained racehorse.

We all need our daily quota of carbohydrates, proteins and fats and the full range of vitamins and minerals. All of these nutrients are best obtained from a good diet rather than from supplements. I am a healthy 70-year-old, who has competed successfully as a runner for nearly 60 years without ever taking any kind of dietary supplement. Would I have performed better with supplements? Who knows – but I'm still running well so there can't be much wrong.

Basic rules of a good diet

Eat regularly

We have reserves of energy in the form of glycogen, which is stored in the liver and in muscle. These stores are broken down as soon as our blood sugar level starts to drop. Even when we are not moving, we continue burning up fuel to keep ourselves warm and our bodies functioning. The average daily requirement is somewhere between 2,000 kilocalories (kcals) a day for a small woman and 3,000kcals for a large man. (Note that the term Calorie used in diet tables has the same meaning as kilocalorie.) A lot depends, of course, on how active you are during your day. And the running you do increases your daily fuel consumption by about 100kcals per mile.

It is better to take your food calories in the form of three or four meals a day. If you don't eat for a long time, your blood sugar will get low and your metabolism will slow down. Then if you eat a huge amount in one meal it is more likely that some will be stored as fat. Each meal should therefore provide between a quarter and a third of your total calorie intake. It is essential to start the day with a substantial breakfast, because

you will have taken little in the previous 12 hours and your reserves will be running down. Food which provides a slow release of energy, such as porridge or muesli, is a good choice for breakfast, accompanied by fruit juice and/or fresh fruit that will provide your vitamins in a natural way.

The glycaemic index

This is a jargon phrase, much loved by writers of diet books. It is an indication of the proportion of sugars in a carbohydrate food. A glucose tablet, for example, has a GI of 100 and will give you a very quick burst of energy – a 'sugar rush'. This is useful when you are very tired, such as after a marathon. However, eating large amounts of sugar can cause a kind of rebound tiredness because your body responds by producing more insulin, which removes sugar from your bloodstream at a rapid rate. Low GI foods, such as oatmeal or lentils which are mainly starchy, release energy more slowly and are therefore useful in the morning or before a very prolonged effort.

Balance your daily meals

If your diet is sufficiently varied, you shouldn't need to worry about your vitamin and mineral intake. Ideally, each meal should contain something from the following food groups:

- meat, fish, eggs, cheese, beans – protein sources
- vegetable oil, olive oil, margarine – fat sources
- milk or milk products – calcium and vitamin sources
- potatoes, bananas, oatmeal, pasta, rice, wholemeal bread – carbohydrate sources
- raw green vegetables (salads) – vitamin sources
- fresh fruit, including tomatoes – vitamin sources.

Although you may not cover all these bases in one meal, you should get everything you need over the course of the day. Foods like meat, fish, milk, eggs and fruit will give you all the vitamins and minerals you need without resorting to supplements.

Go easy on animal fats

Fats and oils are essential to our diet. Also many of the vitamins we need are fat-soluble and cannot be obtained from any other dietary source. However, animal fats contain a high proportion of 'saturated fatty acids', which help to raise blood cholesterol levels. Moreover, all fats have a very high energy content (9kcals per gram, compared with 3.75 per gram for carbohydrates and 4 for proteins). The best solution is to use vegetable oils and restrict fry-ups to occasional treats.

Cut out empty calories

Unless you are running vast distances every day, you should control your calorie intake, and this is best achieved by avoiding or limiting foods that give you calories without nutrients. This means sugar, foods that contain a lot of sugar, and alcohol, which contains 7kcals per gram.

Calories are mentioned quite a lot in this section, but that doesn't mean you need to count them. In my opinion it is better just to check your weight regularly. If you are running regularly, you should burn off any excess, but if your weight starts to go up, control it by limiting your consumption of fat, sugar and alcohol.

Replace lost fluid

A little knowledge is a dangerous thing. Someone somewhere observed that we lose water continually through sweat, so they came up with the idea that we should drink two or three litres of water a day, and this advice continues to be promulgated.

It is true that water is absolutely essential to our diet, but it is also true that everything we eat is largely made up of water; salads, for example, are 90% water. If you live in a temperate climate you need to take in two or three litres of fluid from all sources every day; but about half of this will come from your food while the rest can come from your regular beverages – tea, coffee, beer, orange juice or whatever.

The more you run, the more you sweat, and this fluid has to be replaced. You can lose two litres of sweat in an hour's

hard running, which will leave you pretty dehydrated. If you are doing a long run it is a good idea to have plenty to drink in the two hours beforehand, but you should stop drinking in the last half hour to give your bladder a chance to empty. During a long run – which means anything over 10 miles in temperate conditions or five miles in hot weather – you should aim to drink 50-100mls every 15 minutes.

Be aware, though, that if you drink nothing but pure water, you will not be replacing the salts lost in sweat. Thus you need either to add some extra salt to your diet – in the form of olives or feta cheese, for example – or take drinks with added salts, such as the many specialised sports drinks on the market.

The best way to check whether you are adequately hydrated is to look at your urine. If it is the colour of pale straw, you are taking in enough fluid; if it is any darker, you need to drink more.

Be careful with alcohol

Alcohol, as mentioned above, gives us 'empty' calories. On the other hand, your body can also use it as a fuel, so if you run enough you can go on drinking. And the more you run, the more you can drink. I knew a Finnish international athlete who claimed to have drunk two bottles of wine a day while training for the European Championships, which he won; however, he was running 25 miles a day at the time.

Because alcohol is used up, it causes little harm in small amounts, although high intakes over long periods of time will damage your liver. Self-denial for its own sake is a pointless exercise, so if you enjoy a drink, have a drink. The Department of Health advises that men should not regularly drink more than 3-4 units of alcohol per day and women no more than 2-3 per day. The distinction between the sexes is related to body weight. A unit of alcohol is equal to half a pint of beer or a small glass of 12% wine *(see footnote on page 21 for more on units)*. I have found that this level of intake is quite compatible with regular training. My personal advice is never to drink alcohol until after the daily run and to have one alcohol-free day per week.

"If you drink nothing but pure water, you will not be replacing the salts lost in sweat"

Don't smoke

Smoking of any kind compromises the efficiency of your lungs. Your bronchioles, tiny tubes that connecting the air sacs in the lungs to the main air channels, become irritated by the hot smoke, swelling up and impeding the air flow. If you smoke regularly, your vital capacity (the amount you can breathe in and out) is permanently reduced. Occasional smoking will not have the same effect, but because the other health risks of smoking are well established, it would be wiser not to smoke at all.

Chapter 3

YOUR PRE-RUNNING PROGRAMME

The guiding principle of a pre-running programme must be: do no harm. If you are following this programme, you will not have had much experience of exercise in the last few years. You will also probably be carrying too much weight, which makes it difficult to start taking exercise and puts more strain on your knees and ankles.

But fear not: there are plenty of examples of men and women who have started out 50, 60 or even 70 pounds overweight but have managed to become fully fit, active and slim once again.

For most people the easiest way to prepare for a running programme is to walk regularly. This will strengthen your legs and get your muscles and joints used to carrying your weight. If you are carrying extra pounds, a little dieting will bring your weight down gradually and make the walking easier. Regularity is the aim, and little and often is the way. Start with 15-20 minutes a day, three or four days a week, and try to work up to half an hour on most days, with the occasional walk lasting more than an hour. You don't need any special clothing or equipment, and you can walk anywhere, on any surface, as long as it is safe.

Once you are used to walking for three or four hours a week, you should have no problem with running because it takes less time.

The weight factor

"Dieting without exercise brings no gain in muscle strength; in fact, you may well become weaker"

What you need to do is reduce the amount of fat and increase the amount of muscle in your body. If you are more than 10% over the 'acceptable average' figure shown for your height *(see tables 1 & 2, pp 17 & 18)*, you need to embark on a long-term weight-loss programme. It is best to lose weight slowly – no more than1-2lbs a week – so if you are, say, a stone heavier than you would like to be, give yourself three months to lose those extra pounds.

Losing weight involves arithmetic and willpower. It is quite simple: if you expend more energy than you consume, you will lose weight; so all you have to do is eat less and exercise more.

A sensible idea is to aim for a daily deficit of 500kcals. This is best obtained through a combination of diet and exercise. Dieting without exercise brings no gain in muscle strength; in fact, you may well become weaker as starvation starts to break down muscle tissue. But if you reduce your daily dietary intake by 200kcals and increase your energy expenditure by 300kcals – the equivalent of an hour's walk, half an hour on an exercise bike or an hour of gentle tennis – you will achieve your goal. Do this every day for a week and you will have used up at least a pound of fat. And the more intensively you exercise, the greater the 'afterburner' effect, whereby your metabolism is stimulated to burn up energy more quickly, even when you are not exercising.

Setting targets

Body weight

Say you have decided to lose 10lbs over three months. First construct a graph or table in which you plot a target weight for every week of that three-month period. (Be sure to weigh yourself at exactly the same time every week, ideally before breakfast.) If you fail to meet the target one week, you will need to work a little harder the following week, but as long as you are on target, do not try to increase your rate of weight loss.

Waist measurement
As with weight, measure yourself at the same time every week and record the results. Even when your weight changes little you may find that your waistline continues to shrink.

Skinfold testing
Take a pinch of skin just above your belly-button. In sedentary people it is often over an inch (25mm) thick. If it is more than half an inch (12mm) thick, you still have some weight to lose.

The flexibility factor

'If you don't want to lose it, use it.' This aphorism applies particularly to flexibility. In order to retain full mobility in all our joints, we have to loosen them up and keep moving them, in according to the rules below.

Rule 1 Never stay in one fixed position for more than an hour. If you are in a car or 'plane, make a conscious effort to move around and change position every hour.

Rule 2 Once a day, even if you are not running, go through the following 1-minute mobility routine.
1. Shoulder rolling with arm swinging – x 3 in each direction;
2. Neck rolling x 3 each way. Do this by lowering your chin and then rotating your head;
3. Trunk twisting x 3 each way. Place hands on hips, lean forwards from the waist, then rotate your whole trunk, keeping back and knees straight;
4. Feet apart – hands to floor x 3;
5. Deep knee bend x 3;
6. Pull your heel up to your bottom x 2 each side;
7. Pull your knee up to your chest x 2 each side.

Rule 3 On your running days, go through your mobility routine after 5-10 minutes of jogging, when your muscles are warm. Also include a calf-stretching exercise. This can be done by

standing on the edge of a step, with your heels lower than your forefoot. Rock forwards on to your toes and then drop your heels, so that the calf muscle is elongated. Hold each stretch for 10 seconds or more.

The strength factor

As well as putting on weight during your years of inactivity, you will probably have suffered an all-round decline in muscular strength. When you are running, it is not just your heart, chest and leg muscles that are working; there are many supporting muscles in your back, in your abdomen and around your joints, which have to work to keep your body upright. Strength in the lower back region is important because all the mechanical forces of running are passed through the sacro-iliac region, where the spine is attached to the hip girdle. For this reason I recommend doing a simple set of six exercises at least twice a week, along the lines set out in Appendix 1, p117.

The value of cross-training

When you take up exercise after a lapse of years, it is not a good thing to repeat the same movements over and over again. You need variety, so that one set of muscles can be recovering while the other set is working. Cross-training means focusing some of your training on another sport. For runners, the most effective kinds of cross-training are cycling, weight training, gym machines, circuit training and swimming. Other useful activities are yoga, aerobics, plyometrics and walking.

If you are taking part in other competitive sports, such as football or squash, they must be factored into your overall exercise programme for the week.

Cross-training elements will be included in Chapter 7 and will also be considered in Chapter 8 in relation to injury avoidance.

The age factor

We cannot ignore age, and it would be foolish to assume that a 55-year-old can do exactly the same training as a 40-year-old. Nevertheless, there is so much variation between individuals that your training level is better controlled by ability than by age. If you can run, say, seven minutes per mile with no problem at age 60, you should not hold back; conversely, the 40-year-old beginner should not make the mistake of trying to keep up with older but fitter runners. Everyone should work at his or her own pace.

Where age *does* come in, though, is in the time it takes you to recover from exercise. Other things being equal, the older you are, the longer you need to recover from hard efforts during a session, and the more days you need to recover after a race or a particularly hard day's training. I normally advise a maximum of three hard days a week plus a race for the under-45s, two hard days and a race for the under-60s and one hard day and a race for anyone older.

"As you get fitter and run faster your body produces more human growth hormone, enabling you to make faster recoveries"

The good news is that as you get fitter and run faster your body produces more human growth hormone, enabling you to make faster recoveries.

Is it good to push yourself hard as you get older? It depends on your reasons for running. If your sole aim is health and longevity, a weekly routine of four steady-paced runs over varying terrains and distances will be quite sufficient. If you are looking for fun from your running, though, you will probably want to run the occasional race – or even lots of races. To do this you will need to boost your level of fitness and run a bit faster. That is why the schedules below include some faster running.

Your six-week pre-running programme

You should aim to walk on four days a week for the first three weeks. In the subsequent three weeks you can put in extra walks if you feel like it – but always err on the side of caution. It is best to walk on alternate days, with rest days in between

where possible. Your weekly pattern might be to walk on Tuesday, Thursday, Saturday, Sunday. The longest walk should always be scheduled for day 4, which will be at the weekend, and I recommend that you do this walk off-road, preferably over slightly hilly terrain.

When to walk

Walking can be fitted into your daily routine with only minor adjust-ments. You could leave home or work earlier than usual and do part of your journey on foot, or walk for 30 minutes before eating your lunch.

Do I need special clothes?

Comfortable shoes and clothes that are not too tight are all you need. You will not be walking fast enough to sweat – that comes later.

Weeks 1 & 2

Day 1 Stroll gently for 10mins, then walk back more briskly
Day 2 As day 1
Day 3 Walk for 15mins, then walk back
Day 4 Walk slowly for 50-60mins, pausing when necessary

Week 3

Day 1 30mins easy walk
Day 2 20mins brisk walk. Go further than in week 1
Day 3 30mins easy walk
Day 4 80mins walking as you please, pausing when necessary

Week 4

Day 1 15mins easy walk, 15mins fast walk
Day 2 25mins brisk walk
Day 3 40mins easy walk
Day 4 90mins walking, as week 3

Week 5

Day 1 15mins easy, 15mins brisk walk
Day 2 10mins easy, 20mins brisk walk, 10mins easy

Day 3 45mins easy walk
Day 4 90-100mins walking, with fewer stops

Week 6

Day 1 15mins easy, 15mins brisk, 10mins easy
Day 2 10mins easy, 20mins brisk, 10mins easy
Day 3 40mins easy walk
Day 4 Aim for a 2-hour walk

Pace guide: At a 'brisk' pace you are still able to talk normally, but when walking 'fast' you are working quite hard and talking becomes uncomfortable.

Moving on

If you don't feel confident about moving on to the running programme, repeat weeks 5 and 6, but try introducing short stretches of jogging for 30-60 seconds at a time. As with all these programmes, if circumstances force you to miss most of the week's training, you should repeat that week and make sure you can handle it before moving on to the next week.

Chapter 4

KIT AND EQUIPMENT

All you need for the pre-running programme are shoes that are comfortable to walk in – *ie* not high heels – and clothes that are loose enough to allow you to walk briskly. However, as soon as you start running or go to a gym you are going to start sweating, and so it is important to have the right clothing. Buying some new sportswear, although not absolutely essential, will reinforce your commitment to your new regime. If you are going to do it, you might as well look the part!

When you exercise, two-thirds of the energy you expend is lost as heat. The hotter you get, the more you sweat. There is no particular virtue in sweating, although it is an indication that you are working hard. In general, you should wear as little clothing as possible when training, but what you *do* wear should be functional. Air is a very poor conductor of heat, but water conducts heat away very rapidly. As a result, damp clothing loses its insulating properties, making you feel uncomfortable.

In order to stop yourself getting cold and maybe pulling muscles as a result, your clothing should allow sweat to be wicked away from the body. Your inner layers should be light and breathable, so that the sweat is carried away and your skin stays dry. This means that as long as you are exercising you remain cool and when you stop you don't get cold.

When exercising indoors you will needs shorts, singlets, T-shirts and leotards which have these properties. All sports shops sell clothing made of these modern 'technical' fabrics, such as polypropylene. In addition, you should have either a

track suit or tights and sweat tops to keep you warm before and after your training sessions.

When exercising outdoors, certainly in British or North American climates, you will also need outer layers – and possibly mid-layers as well – to protect you from rain, wind and cold.

The wind chill factor

Wind speeds make a big difference to how cold you feel. Running in a temperature of 6°C on a calm day, you would soon get hot enough to discard your outer layers of clothing, but as the wind get up it strips away the layer of warm air that surrounds your skin, so that at a wind speed of 25mph/40kph the wind chill reduces the temperature to -7°C. Even at 12°C, a comfortable temperature for running on a calm day, a 25mph wind reduces it to a mere 2°C, which can make you very cold indeed. Runners and mountain walkers have been known to die of hypothermia simply for want of the right clothing.

"Runners and mountain walkers have been known to die of hypothermia simply for want of the right clothing"

As a general rule, several thin layers are much better than one thick one. They allow you more freedom of movement and more versatility. The outermost layer should be waterproof and windproof, yet breathable, using materials such as Colibri, Windstopper and Gore-Ultra-Lite. The mid-layers are there to trap air and keep your body warm, so they should be woolly or fleecy.

Your kit list

For exercising in a gym or outdoors in summer, all you will need are T-shirts, singlets and shorts (or leotards), shoes and socks, and possibly a track suit. If you are going to be a serious runner and run outdoors in the winter, you will also need the following:

- rain suit (top and trousers)
- long-sleeved T-shirt
- fleecy sweat top
- tights and/or track suit
- wool or fleece hat
- gloves
- reflective bib.

Choosing training shoes

There are very few bad running shoes on the market nowadays, but not every brand of shoe suits everybody. There are differing widths, shapes and degrees of flexibility and cushioning. Your best bet is to buy from a specialist sports shop, preferably one which is equipped to carry out gait analysis. Here are a few guidelines to bear in mind:

- It is best to buy shoes in the afternoon, as your feet tend to swell during the day;
- There should be a small gap between your big toe and the front of the shoe;
- The wear on your old running shoes will tell you a lot about your running action and hence about your particular needs;
- One of your feet may be larger than the other, so go for a size that is right for the larger foot;
- A pair of shoes should last you at least 1,000 miles, depending on your weight and the surfaces you run on;
- . Badly worn shoes are a common cause of injury;
- Ideally you should have more than one pair of shoes at any one time, so that new ones can be gradually broken in before the old ones become dangerously worn;
- If you have to wear orthotics, take out the insole and put in the orthotic sole when trying the new shoes.

Racing shoes for speed

You will run much faster in lightweight shoes. The lightest and cheapest footwear of all is bare feet. I have used these for running on grass and on sand for 70 years without having to buy a new pair! Unfortunately, though, bare feet are not designed for running on roads.

In the '60s, we used to wear Woolworths' plimsolls for road racing. They had very thin soles and gave no support, which meant sore legs the next day, but they weighed only 4oz (112g) each. A good racing shoe should weigh 250-300g, while having enough cushioning to absorb the shock of impact and prevent injury. The average training shoe, by comparison,

weighs around 350-400g. Some people compromise by buying lightweight trainers, but this can be a mistake since running a lot of miles without enough shock absorption can lead to trouble. For beginners, I advise buying a properly cushioned pair of trainers. In a few months or so, when you turn to racing, the feel of lightweight racing shoes will provide a real stimulus.

Spend more on socks

Shoes tend to stretch over a period of time, so you will need to wear slightly thicker socks. You should kit yourself out with socks of varying thicknesses so that you can always get a comfortable fit. It is worth spending a little more on good quality running socks because the cheap ones don't last long, and getting a blister at the wrong time – in the middle of a marathon, for example – can ruin the whole experience.

Training aids and equipment

Heart monitors

A heart monitor can give you a continuous flow of information about your condition. It is particularly valuable for beginners because it can save you making a lot of mistakes. Monitors come in a very wide range of prices. The cheapest ones just give you a read-out of your heart rate as you run, with possibly an average heart rate for the whole run at the end of it. This kind of machine is of limited use: you need one with a memory, so that you can play it back after a training run or a race and get a record of how your heart responded to the different stresses. Those who are technically minded can buy a more expensive version with a computer interface, so that you can download the information from your run straight onto your computer. This makes it much easier to make direct comparisons between the session you have just done and one you did last month.

If you run too slowly you will not be getting the best training effect from the run. If you run too fast, on the other hand, you will soon get tired and will have to keep easing off

or stopping to recover. Either way, you will not be making the best use of your time. But if you use your heart rate as a guide, you can control the training load. Most heart rate monitors allow you to set an optimum training zone so that you can tell if you are running too fast or too slow. This is explained in the next chapter.

Gym machines

Most gyms have special weight training areas where each machine works on just one or two muscle groups. These are excellent for beginners because there is no technique involved. You can choose to work on whichever muscles are under-trained, starting with a very low load and increasing it week by week.

Obviously runners need to strengthen their legs; this is particularly true of sprinters, since speed depends mainly on leg power. But as well as doing leg flexor and extensor exercises, runners should also try to condition their abdomen, trunk, arms and shoulders. Long distance runners need less upper body strength than sprinters and middle distance runners, but everybody needs some.

"Long distance runners need less upper body strength than sprinters and middle distance runners, but everybody needs some"

Free weights

Free weights provide better all-round training than gym machines, but you must first learn how to use them properly, since using heavy weights in the wrong way can be damaging. A simple weight training programme is set out in Appendix 2, page 118.

Static bikes

Cycling provides excellent cardiovascular conditioning. Using a fixed bike in a gym can be a bit boring, but it is very good exercise and it can be controlled precisely. Moreover it is safe and you don't have a traffic problem. It is therefore a very useful form of cross-training, particularly for beginners, because there is no risk of the impact stress which comes from running on roads.

Steps and ski machines

These fall into the same category as static bikes, because they provide good cardiovascular training which can be controlled and measured. Because they involve no impact stress, they make suitable alternatives to running training.

Treadmills

Treadmill running is very boring in my view, but it is safe, warm and dry, so quite a lot of runners, particularly women, use treadmills in the winter. As with cycling, treadmill running is precisely measurable, so progress can be seen. Some people train on nothing else. I don't really recommend this, because if and when you do venture out on the road, the sudden change of surface may lead to an injury. As with all forms of training, it is best to move gradually from one surface to another. Thus, you might run on a treadmill once a week in September, twice a week in October and three times a week from November to February.

The training diary

This, in my view, is an even more useful training aid than a heart monitor; moreover, it is much cheaper, needs no batteries and has never been known to crash! Any notebook will do. The information you should record includes the following:

- date
- weather conditions
- running surface, *eg* road, track, grass, cross-country
- length of session in time or distance
- type of session, *eg* steady run, interval session, gym work, bike
- details of the session, *eg* duration of the hard work, recovery time and pulse rate afterwards
- how you felt, *eg* 'hard work', 'good', 'OK', 'v tired'
- total training volume for the week and month.

The reason you need to include information about running surface and type of session with the other details is that it enables you to glance through the diary and see whether you

have the right balance. Very often an injury comes as a result of lack of variety in training. The diary tells you whether you have been running too much on the road, or whether you are getting over-tired. An occasional entry of 'tired' or 'exhausted' after a hard run is alright, but if the diary shows this happening day after day, then the next thing to happen will be a breakdown of some kind.

Chapter 5

RUNNING FOR BEGINNERS

Making the commitment

For many people the hardest thing is not the running itself but finding time to do it. Walking is more easily fitted into the working day and you don't have to allow time for showering and changing. If the rest of your activities have already expanded to fill the time available you will need to make a conscious decision to free up time at certain fixed points during the week.

The best time to run is before meals – never on a full stomach. Many people find that the early morning is the only time they can be sure of having to themselves, but running first thing takes some getting used to, and most of us perform better later in the day. If you have somewhere to shower and change, a half-hour session before lunch is worth trying, but for most people running just before supper is best.

When not to run

You should not run if you have a temperature more than 1°C above normal; (do you know what your normal temperature is? Not everyone's is the standard 37°C). You should not run after any significant illness, until given clearance by your doctor. You should not run if you are feeling sick, although if you are just feeling very tired, headachey or a bit stiff, you could put your kit on and go for a walk. Then if you start to feel better, you could start jogging gently. Often running itself will clear up your symptoms. A slight cold in the head need not

stop you, as long as you have proper clothing, but do not run if you have a chest cold, cough or sore throat.

Where to run

The best places are parks, playing fields, footpaths and beaches, but any quiet stretch of road will do. If you want to find out how fast you are running, go to a public running track. All of these tracks are 400 metres in circumference, which means four laps to the mile. Run with your mobile for security and make sure someone knows where you are.

The physiology of running

Everyone should have some idea about how their body works and how it is affected by training. Just like cars, human beings have engines (which require fuel and an air intake), a transmission system and a suspension system.

Muscle contraction

In order for you to push yourself forwards, a muscle has to contract. This muscle pulls on a tendon which, in turn, pulls on a bone. As the leg straightens it pushes against the ground; if the ground doesn't move, the body has to, so it is moved upwards and forwards. Each of your muscles is motored by thousands of small muscle fibres, whose action has to be co-ordinated by the brain.

Each muscle fibre has a store of energy, which provides for only a few seconds of muscle contraction. However, this store is constantly being renewed because the capillary blood vessels supply the fibres with glucose, which is, of course, a source of energy. The glucose can be broken down to release energy without the involvement of oxygen – a process known as *anaerobic respiration*.

The lactic acid problem

The problem is that lactic acid is a by-product of this process and very soon, after about 30 seconds of hard effort, it

accumulates to a level where it interferes with the working of the muscle. Someone who has sprinted off at the start of a race will feel a lot of pain in the muscles and be forced to slow down. When you are running at a slower speed, however, your blood supplies oxygen to your muscles at such a rate that the lactic acid is 'oxidised' away, allowing for the release of lots more energy. The lactic acid, far from being a poison, is used as a fuel in this oxygen-dependent process, which we call *aerobic respiration*. The end products of aerobic respiration are carbon dioxide and water, which are excreted by the body, and energy, some of which is used in the muscles and the rest released as heat.

When you are jogging you can get as much oxygen as you need to keep your muscles fuelled, so we call this level of activity aerobic. When you run faster, you soon reach a point where you cannot get oxygen in fast enough, so you start to accumulate lactic acid. If you have run half a mile flat out, you will go on breathing hard for a long time after you have stopped. This is because you are in a state of 'oxygen debt' on account of the extra oxygen you used up in getting rid of the lactic acid.

"Long distance runners depend almost entirely on their aerobic fitness, except at the end of races"

You will understand, therefore, how important it is to get oxygen into your muscles if you are running any further than 200 metres.

How oxygen is used

Sprinters can get away without oxygen because in the first few seconds they are just using stored energy. A sprinter's speed comes from anaerobic respiration and he depends on his muscle power and his efficiency in using it. His training consists mostly of building strength and improving technique.

Middle distance runners, who compete over distances from 800 to 2,000 metres, depend partly on aerobic and partly on anaerobic sources. But long distance runners, covering distances over 2,000m, depend almost entirely on their aerobic fitness, except at the end of races when muscle power and sprinting technique are vital to a good sprint finish.

"It takes at least three years, and maybe as long as five, for a runner to reach his or her peak, at whatever age he starts"

The cardiovascular system

How do we get oxygen to our muscles? It depends mostly on the heart and blood vessels – what we call the cardiovascular system. The heart must pump blood through the lungs, where it picks up oxygen, and then all round the body. Clearly you must have a well developed chest and lungs to make the oxygen available, but this is not the most important factor.

For a distance runner, it is most important to have:

- a large, strong, elastic heart, which can pump out a large volume of blood over 180 times a minute
- blood vessels that are not clogged with fatty deposits
- plenty of blood capillaries to supply the working muscles.

All these aspects of cardiovascular (aerobic) fitness are improved by hard training. Another factor that is less obvious but very important is the ability of the muscles themselves to pick up and utilise oxygen from the blood. As you get fitter, your muscles become more efficient at extracting oxygen from the blood. This is one reason why your resting pulse falls with increasing fitness.

However, all these processes take time. In my experience, it takes at least three years, and maybe as long as five, for a runner to reach his or her peak, at whatever age he starts.

Before you start

Is there a correct running style?

Because everyone is different – in terms of height, weight, leg length and body proportions – you will see successful athletes with widely differing styles. The following guidelines should help you to find the most efficient style for you:

1. Your body should be upright, with your head tilted slightly forwards;
2. Your stride should not be so long that it checks your forward movement when you hit the ground;
3. The longer the distance, the shorter your stride should be; your running action should be smooth and rhythmical, like riding a bicycle;

4. As each foot lands, the body's centre of gravity should swing over it, maintaining the forward movement;
5. Use your whole leg, not just the thighs. Your feet, ankles and calves should also play their part in propelling your body forwards;
6. The faster you go, the longer your stride needs to be;.
7. At marathon pace, the heel of your foot will hit the ground first, and your foot will roll from the heel to the ball;
8. When you are running 800m or less, all your running will be on your toes;
9. Your arms are needed only to counteract the rolling action which comes from the thrust of your legs: thus, sprinters need a lot of arm drive and marathon runners virtually none;
10. When you are running fast, you can reduce tension by dropping your arms and relaxing your shoulders.

How old is too old ?

You are never too old to improve. There are lots of well-documented cases of people who have taken up running in their 60s and become good runners at all distances. In Masters competition, there are now races for every age category, up to and including the over-100s! (The field in that category is not very large, but it is growing.) To take the most extreme example, the remarkable Sikh runner Fauja Singh took up running again in his 80s, after a break of nearly 60 years, and is still setting over-90 records for the half marathon and marathon. The question you should really be asking is: 'how good can I get?'

The ceiling for world-class level of performance is around age 40, with one or two notable exceptions, but most of us do not aspire to that level. If you look at the records, you will see that male runners over 40 have done 100 metres in 10.8 seconds, 800m in 1min 50secs, and 10,000m in 28mins 30secs. The women's records for 800 and 10,000m stand at 1:59 and 32:12 respectively. The male record for an over-70 marathon has now come down to well under three hours – so anything is possible.

The great thing about running is that there is a very wide spectrum of abilities, and it is up to you to choose where you would like to get to.

How fast should I go?

The best way to control your pace is by using a heart monitor, of which more below. In the early stages – the first four weeks of running – you shouldn't run faster than 'talking pace'. If you start to feel very breathless, drop to a walk for 30 seconds or slow your pace until it feels comfortable again. It takes time for your body to get used to continuous running, but it will adjust, believe me, as long as you give it time.

What about missed days?

As long as you complete the four weekly training days set out in the programme below, it doesn't matter what order you do them in. If you miss just one training day in any one week, carry on as normal, but if you miss two days, repeat that week before moving up to the next.

Set your pace with a heart monitor

"It takes time for your body to get used to continuous running, but it will adjust"

When you move from a walk to a jog, as explained in Chapter 1, your heart rate goes up, and the faster you run the higher it gets. Because we are all different, the first thing you need to do is to establish your resting heart rate (HR) and how it changes at different speeds. However, I would not advise a beginner to go for a maximum HR on the very first day! You can start by assuming that your maximum is equal to 220 beats per minute minus your age for a man and 226 bpm minus age for a woman. Thus a 40-year-old man should expect to have a max HR of 180bpm. If his resting HR were, say 60, there would be a difference of 120bpm between his minimum (resting) and maximum rates.

When we talk about a 50% effort, we mean *half* of the difference between maximum and resting HR *plus* resting HR. For our hypothetical 40-year-old man, this would equate to (180-60) x50% +60 = 120bpm. A 75% effort would be 120 x 75% + 60 = 150bpm.

The different training zones

Jogging pace is equal to 50-60% effort. Even when you are getting very fit, there will still be times when you should just jog, because your body needs time to recover from a race or a hard session. Sessions like this will feel very easy and you may be tempted to go a little faster, but the heart monitor comes in handy here by letting your know when you go over the 60% effort level.

Running at this pace is also good for building endurance in the early stages as well as for fat-burning, which tends to happen at lower intensities of exercise.The strength of your muscles and ligaments will improve gradually, along with your bone density. As you jog for longer distances, your muscles will enhance their ability to store energy, so you will tire less quickly.

Aerobic conditioning pace is equal to 60-70% effort and a lot of runs are done at this speed. I would call 60% 'easy pace' and 70% 'steady pace'. Apart from helping you to build up endurance, running at this speed has a huge effect on your body's ability to transport and handle oxygen. There will be a gradual increase in the number of small blood vessels (capillaries) around the muscle fibres and also in the amount of enzymes involved in respiration. As you get fitter, you will be able to run at a faster pace with the same heart rate.

Threshold pace is equal to 70-80% effort, and this is the fastest pace that we can maintain for a long period of time. A fully fit person will run at this pace for most of a 10-mile or half marathon race. It is the pace at which the production of lactic acid (also known as blood lactate) in the working muscles is equivalent to the amount of oxygen being supplied to the muscles. Both the oxygen and the lactic acid are used up in the respiration process, so the lactic acid does not build up and you don't get pain in your muscles. If you are running faster than threshold pace, you will be forced to slow down. It is a very useful training pace, because you can get a good training effect without completely exhausting yourself.

Hard effort is equal to 81-95% effort. You would use this pace to run a 5 or 10k race. Returning to our 40-year-old man, 90% effort would be (180- 60) x 90% + 60 = 168bpm. This kind of training is tough but very effective, and you would use it in interval training.

Using cross-training

The eight-week programme set out below is quite gentle, involving only 2-3 miles a day at most, and combining walking with jogging. The time to use cross-training is further down the line, when your total amount of exercise increases. However, if you want some variety, or just want to give your legs a rest, you can ride a bicycle, static or otherwise, on one day a week. Spend as long on the bike as you would on your running/walking session. If the weather is bad, a treadmill is a perfectly good substitute for running outside.

Flexibility exercises

These should be done in addition to the running. With relatively short sessions like these, I suggest that you do the stretching after your running. See Chapter 7 for warm-up suggestions and Appendix 1, p117, for sprint drills.

Your beginner's running programme

Week 1 Aim to get out 4 times

Day 1 10mins walking, 10mins walk-jog, 10mins walk
Day 2 5mins walk, 15mins walk-jog, 5mins walk
Day 3 As day 1
Day 4 A 3-mile (3M) circuit, jogging and walking according to how you feel

Week 2 Aim to run 4 times

Day 1 5mins walk, then 6 x 1min jog, 1min walk
Day 2 5mins walk, 20mins walk-jog
Day 3 5mins walk, 10mins continuous run, 5mins walk
Day 4 As week 1, but with less walking

Week 3 Aim to run 6 miles in the week

Day 1 5mins warm-up, then 8 x 1min jog, 30secs walk
Day 2 5mins walk, 15mins jog-walk or 30mins cycling
Day 3 5mins walk, 5mins jog, 2mins walk, 5mins jog
Day 4 5mins warm-up, 2M jog with short walking breaks

Week 4 Aim to run a mile non-stop

Day 1 As week 3, but increase to 10 x 1min jog
Day 2 15mins jog-walk or 30mins cycling
Day 3 4M brisk walking with occasional jogging
Day 4 5mins walk, 2mins stretch, then a timed jog of 1M

Week 5 Aim to run 8 miles in the week

Day 1 5mins warm-up, then 4 x 2mins jog, 1min walk
Day 2 2M approx, jogging most of the way
Day 3 5mins walk, 6mins jog, 2mins walk, 6mins jog
Day 4 3M circuit, jogging most of the time

Week 6 Aim to run 8 miles in the week

Day 1 5mins warm-up, then 4 x 2mins and 4 x 1min jog, lmin walk
Day 2 15mins jog, walking when necessary
Day 3 5mins walk, 2mins stretch, 1M steady pace, untimed
Day 4 4M circuit, running most of the time

Week 7 Aim to run a timed mile

Day 1 5mins warm-up, then 4 x 3mins jog, lmin walk
Day 2 5mins easy pace (60% effort), 2mins stretching, 15mins steady pace (70% effort)
Day 3 15mins jog
Day 4 5mins walk, 5mins jog, 2mins stretching, then run a timed mile as week 4, then jog-walk for 5mins

Week 8 Aim to run 10 miles in the week

Day 1 10mins out slowly, then run back faster
Day 2 5mins easy, then 8-10 x 1min fast, 1min slow
Day 3 20mins jog
Day 4 Warm-up for 1M, then repeat 4M circuit, as week 6.

Continuing the programme

If you repeat weeks 7 and 8 you will build up your fitness and give yourself a better platform for moving on. If you can get used to four 3-4M runs a week, you will have established an excellent basic fitness.

Chapter 6

RUNNING FASTER

Basic principles

The simplest way to understand training is to relate it to the distance you hope to run. If you want to race over 10k, you must first build up your endurance to the point where you can cover at least 10k non-stop (walking allowed), and then you have to work on your running speed. If you want to run the 10k in under 50 minutes, you have to start by running 1k in under five minutes. If you want to compete over short distances, you have to work particularly hard on strength and mobility, but you will also need some endurance and aerobic fitness. Getting the right mixture of endurance and speed training is dealt with in later chapters.

Remember that the training process consists of stimulus-and-response. When you make an effort, your body will try to adjust to cope with that effort, and when it has adjusted you can increase the load a little bit more, by boosting either distance or speed. The human body is amazingly adaptable, but it needs time. The art of coaching lies in choosing the kind of training that provides enough stimulus to have an effect but not enough to cause breakdown. If you simply carry on with the same routine week after week you will not only get bored but will cease to improve.

The most efficient approach is to vary your training so that you can work on different aspects of fitness. The first principle, credited to Arthur Newton, one of the pioneers of distance running, is: 'train first for distance, then for speed'.

By walking and jogging at first, and later by continuous slow running, you will strengthen the supporting muscles and ligaments that hold your skeleton in position. At the same time, your muscles will increase their fuel storage capacity and there will be an increase in the tiny capillary blood vessels surrounding the muscle fibres, greatly enhancing the ability of your blood to deliver oxygen to working muscles.

Heavy weight training may increase the size and strength of your muscles, but it will have no effect on developing this important capillary bed; so all distance runners – even middle distance runners – need a foundation of long slow running.

Building up the total distance you run each week will also have other benefits. It will burn up excess fat, so reducing your body weight, and encourage your legs to lay down extra bone material, making your bones stronger and reducing your risk of osteoporosis. However, this increase in distance must be gradual, because the shock of the repeated impact of foot on tarmac may cause damage to unprepared bones and joints. The human feet and legs are designed to run, but not on tarmac, so you should try to get off the road as much as possible. If you have no option but to run on roads a lot, make sure you have good shoes.

Warm-up and mobility

So far, the running has been fairly slow, so your range of movement has not been great. As soon as you think of running faster, you must start to warm up properly.

During a warm-up, several changes take place:

- Your body's core temperature rises. This is good because warm muscles can stretch and relax more easily than cold muscles. You may start to sweat;
- Blood flow changes, with less blood going to your gut, liver and kidneys so that more can be pumped to your working muscles. If you get too hot, more blood will also flow to your skin to help dissipate the heat;

- You produce more adrenaline, which raises your blood sugar levels and prepares your body for 'fight or flight';
- Your heart and respiration rates increase and more of your lung surface comes into use;
- Neuromuscular pathways – the connections between nerves and muscles – are enhanced in the muscle groups which are needed.

When you run fast, your knees are lifted high. This stretches the relevant muscles (the hamstrings and the gluteals), but if they are not properly warmed up they will at best slow down your running action and at worst could tear. When you stride out and are up on your toes, the Achilles tendon of your back leg is under maximum stress. If it is cold and inflexible it could suddenly snap – an event that is far from uncommon among middle-aged squash players! When you are sprinting, your leg muscles contract and relax four times a second; every time one muscle is flexed the opposing muscle is stretched, so if any one of these muscles or tendons is too tight or inflexible, it will slow down the movement.

During the warm-up we are not trying to boost flexibility in general but range of motion in the areas where it is needed. Thus your warm-up routine needs to be related to your sport. It is also worth pointing out that too much flexibility can be a bad thing for a runner. To run at speed you need to drive forwards as straight as possible; and if you have very flexible joints, with a lot of movement, and ligaments that allow a lot of play you will find it difficult to stay in a dead straight line.

The old-fashioned approach to warming up was simply to jog for 10 minutes or so, then spend another 5-10 minutes doing static stretching for the torso, the leg muscles and the Achilles tendon. The modern approach is faster, more dynamic and more specific to the sport. Research on footballers has shown that those who warm up properly have far fewer cases of muscle strain than those who don't.

"Research on footballers has shown that those who warm up properly have far fewer cases of muscle strain than those who don't"

Your pre-training routine

Endurance runners do not need a great deal of mobility work, since their knees do not rise very high, but they should do *some* because otherwise their stride length will become shorter and shorter. Sprinters and middle distance runners should get into the habit of doing a 20-minute warm-up before starting any fast running, along these lines:

Step 1 6-8mins (about one mile) of gentle exercise, gradually getting faster. You should be wearing enough clothing to keep you warm when standing still, but as the warm-up proceeds you can shed a few layers. Too much clothing gets in the way of running fast;

Step 2 5mins of 'funny walks', as below, each done for 20 metres-or-so and repeated 5 times. Between each 'funny walk', jog slowly for 20-30m before moving on to the next one. You will therefore cover 4 x 5 x 40m in the full set, as follows:

- **High knee lift** – for hips and ankles. Come up onto your toes at each step and raise your knees until your thighs are parallel with the ground;
- **Lunge walk** – for strengthening gluteals and hamstrings and for hip flexibility. Keeping your body upright and your head up, lunge forwards with your right leg like a fencer, dropping your hips. Bring the left leg up and lunge forwards with that, and so on;
- **Calf walk** – for stretching your Achilles tendon and lower leg. Walk slowly, with long strides, coming up onto your toes before stepping out;
- **Lunge walk with dipping** – for stretching the lower back. As with the lunge walk, but dipping your trunk forwards over the leading leg and dropping the arm on that side down towards the ankle.

Step 3: 2mins of skipping and bounding. Start with forward skipping, changing every 25m to sideways skipping, backwards running, forward skipping, bounding and hopping.

Additional warm-up activities *(See appendix 4, p122)*
These can be done when you have more time for a warm-up or when you are only planning to do a light training session:

- arm swinging
- hip Rotation
- half-squats (without weights)
- 20m hopping on alternate legs
- bench-stepping
- running on the spot
- two-footed bouncing on the spot
- sit-ups
- slalom run (zigzag run of 30m around a series of flags or cones)
- fast-arm action (stand still and pump arms at maximum speed).

You can add to this list with skill practices, drills or simulations that are specific to your sport. Perform each activity fast for 20-30 seconds before moving on to the next. Working 2-3 times through a set of eight exercise will get you breathing hard, so it also works as a mild cardiovascular session.

Static stretching

This is useful for all runners; it can be fitted in before your main training but is best reserved for after training is over and before you shower. The idea is to stretch out the muscles while they are still warm and elastic: cold muscles stretch much less easily. For each stretch, you follow the same routine:

1. Move into the required position, to the point of slight discomfort;
2. Tense the muscle you want to stretch, and keep it tensed for 6 seconds;
3. Relax the muscle and stretch it slowly, holding the stretch for 10-15 seconds.

The basic set of stretches is performed as follows *(see Appendix 4, p123)*:

- **Side stretching** Standing, feet astride, slide your right hand down your side towards your right knee and hold. Repeat on the left;
- **Adductor stretch** Feet astride, bend from the hip, keeping the knees locked;
- **Quads and ankles stretch** Standing on your right leg, raise the left leg and use your left hand to pull the ankle up towards your bottom;
- **Hamstring and gluteals stretch** As for quads stretch, but pull your knee up towards your chest with both hands, keeping the trunk rigid;
- **Groin stretch** Put one knee out in front of you and the other leg straight back behind you. Drop your hips, trying to keep your trunk upright;
- **Achilles stretch** Stand with feet together, facing a wall or tree about 4ft away. Put one foot back behind you and lean forwards onto the wall;
- **Leg extensors stretch** Standing with feet slightly apart, put one foot forwards with the heel on the ground, toe up and knee straight. Bend from your hips over the front leg.

Core Stability work

It is essential to develop a strong muscle framework which holds the hip, abdominal and lower back regions steady while running. When the big muscles contract they apply their forces at both ends. One end is attached to a tendon, which moves the bone, but the attachment at the other end should be rigid. If this rigidity is compromised – as sometimes happens when a runner tires during a race – you can't keep your body straight and upright; instead, you lurch from side to side, your head goes back, your arms thrash about and your stride shortens. This loss of form is partly due to lack of core stability, and can be corrected by doing a few specific exercises two or three times a week *(see Appendix 3, p121)*.

Speed for sprinters

To run faster you must increase both your stride length and the rate at which your feet strike the ground. This means you have to drive more strongly and lift your knees higher.

But the problem we have to face as we get older is the loss of both strength and flexibility. There is a steady decline in the number of muscle fibres from age 30 onwards – a loss of about 0.5% per year – and the rate of decline increases after age 60. As we age we also produce less of the growth hormone that controls our rate of recovery and our bodies become less able to store creatine phosphate, which is the energy source first used in sprinting. Our muscles and ligaments lose elasticity as well as power, leading to a reduction in stride length. And, unfortunately, the fast twitch muscle fibres, on which sprinters, jumpers and throwers rely, decline more rapidly than the slow twitch fibres employed in long-distance running.

The good news is that, although the number of muscle fibres cannot be increased, the strength of the muscles can be enhanced greatly – mainly by using weights or other forms of resistance training. Hard training also increases both the production of growth hormone and the storage of creatine phosphate.

What this means is that runners who are careful and thorough about their training can actually 'age backwards' and run as fast as they could when they were young. The world best 100m time for a man over 50 is 10.95secs, which would win a lot of races at open level; even for a man over 60 it is 11.7secs, which is a more than respectable time.

"Runners who are careful and thorough about their training can actually 'age backwards' and run as fast as they could when they were young"

Novice sprinters should follow these steps:

1. Start regular running, using the programme set out in Chapter 5;
2. Warm down and stretch gently after each run;
3. Start weight training – preferably under instruction at a gym;
4. Work your way on to the basic running programmes set out below.

Training techniques for sprinters

Sprinting speed does not rely on oxygen intake. The energy comes from stored fuel in the muscle which releases energy without needing oxygen – *ie* anaerobically. Oxygen is needed later on to remove the lactic acid. The fitter runner, with a better oxygen intake, may be able to recover more quickly from a short fast run but will not necessarily be any faster. The best training for speed is anything that increases the strength of the muscles used in propulsion – the calves, the quads (front of the thigh), the hamstrings (back of the thigh) and the gluteals (in the backside). This kind of training also boosts hormone production.

Effective forms of speed training include:

- repeated short sprints (20-40m) with long recoveries
- uphill sprints
- short resistance runs (*eg* on sand or wearing a weighted jacket)
- resistance work on a static cycle
- specific weight training for the sprinting muscles *(see Appendix 2, p118)*
- sprint drills *(see Appendix 1, p117)*
- plyometrics (hopping and bounding).

The last three types of training should be performed under the supervision of a coach to start with to make sure you understand their purpose and use correct technique

Speed for middle and long distance runners

To maintain extra speed for more than a minute calls for increased energy production, which depends on increased oxygen intake. You have to breathe harder and more deeply, and your heart has to pump harder to pick up more oxygen per minute. With training, all these capacities will improve. Most of us have enough lung capacity to take in the extra volume of air, but it is the effect of training on our

cardiovascular systems – the heart and the arteries – that governs our ability to run well.

The good runner has a large strong heart. This is partly down to his genetic inheritance, but it is also influenced by training. One thing you can be sure of is that we can all improve our cardiovascular systems by training. You can see this easily for yourself if you run round a particular course in a particular time – ideally 5-10 minutes – and check your pulse rate before and after the run.

Let's say, for example, that you decide to run four times around the track – a mile – in seven minutes. For an unfit person this would represent a hard effort, and his pulse rate would probably go close to its maximum. However, for a fit person who can easily run a mile in under six minutes this pace will be quite easy and his pulse rate will remain lower.

Over the years, a number of changes have taken place in this runner's body, which have made the seven-minute mile easy:

- A huge increase in the number of enzyme molecules in his muscles, which pick up oxygen from the blood;
- Development of the muscle capillary bed so that the blood flows more easily through the muscles;
- An increase in the strength and capacity of the heart, which is itself a muscle, leading to more rapid pick-up and delivery of oxygen.

As a result of all these changes, a seven-minute mile that leaves you puffing and gasping with a pulse rate of 180 beats per minutes can soon be handled comfortably, with the pulse rate rising to less than 150bpm.

The secret of success in running (as in most other things) is 'know thyself'. If you know what your limits are you can set yourself the right targets both for racing and training, and try to improve in a programmed way.

Many people just run according to how they feel, and you can plan your training entirely along those lines, categorising your various paces as 'easy', 'steady', 'brisk', 'fast' and 'very fast'. In terms of racing speed, 'steady' is probably your marathon pace, 'brisk' is your threshold (10-mile) pace, 'fast'

is your 5k or 10k race pace and 'very fast', when you are accumulating lactic acid very quickly, is somewhere around your one-mile race pace.

The trouble with this kind of unstructured method is that you never find out whether you are getting fitter or not because you have no accurate record of either your speed or effort level, with races being your only guide.

However, if you use a heart monitor you can easily measure your heart rate. If you run round your fixed course (1-2 miles), timing yourself at the various paces, you will then know your heart rates for different levels of performance.

"Over-55s should go for one hard session and one long run per week"

To get an accurate measure of your maximum heart rate, you should first do a thorough warm-up and then complete two flat-out runs of about three minutes, with only two minutes rest between them. You will reach your maximum heart rate by the last minute of the second run. If you have a track handy, do it as a 2 x 800m time trial, trying to run as fast as possible on the first run and trying to equal the speed on the second attempt.

You now have a more accurate estimate of your maximum heart rate, so you can work out the correct rate for your various training paces, as described in Chapter 4.

Effective training paces

For building endurance (and during recovery runs) you should be running at no more than 50% effort. But to boost your running speed you will need to train at between 75% and 95% effort. To relate these efforts to your performance in races:

- 75% effort is equal to threshold (10-mile) pace;
- 90% effort is equal to 10k race pace;
- 95% effort is equal to 5k race pace.

A hard-training athlete will probably put in three hard sessions a week, one at each of these paces, working on a 'hard-easy-hard-easy' pattern, with a long slow run on the seventh day. For those aged 45-55, two hard sessions a week are probably enough; over-55s should go for one hard session and one long run per week.

Your runs at threshold pace may be done without a break, following a warm-up, or in sections of 10 minutes-or-so at a time, interspersed with very short breaks. You can do without longer recoveries because at this pace oxygen is being taken into the muscles as fast as it is being used up. You can do this type of training via three main methods:

- **Fartlek** This a Swedish word, meaning 'speed play'. You run fast for as long as you want, then slow down to a jog until you are ready for another fast burst. In a 30-minute fartlek session, you might put in 12-15 bursts lasting 30-60 seconds, with recovery jogs of 60-90 seconds;
- **Interval training** This is the most effective type of training, used by most of the world's best runners. The distance you run is fixed – usually a multiple of 400m – as is the recovery time. A typical session for a distance runner might be 15 x 400m, with 60 seconds' jogging recovery between each fast 400. When you do it on a track, this kind of session tells you exactly how fit you are.

  A novice runner might start by doing, say, 8 x 400m with a 2-minute recovery jog, and averaging 90 seconds for his fast laps. Week by week, though, he will run those fast laps a bit faster until he is averaging 80secs a lap. He can then boost his endurance by increasing the number of laps and cutting down on the recovery (say 12 x 400m with a 90secs recovery), starting by running the laps more slowly (say 86 seconds), then building up average speed. Someone training for a 5k race would do 4-6k of fast work, whereas a 10k runner might start with 8 x 800m and work up to 10 x 1,000m at 10k speed or a bit faster. For typical track sessions, see Chapter 9.

  Of course, interval training doesn't have to be done on a track. A good session you can do on the road is 'one minute fast, one minute slow', repeated 10-12 times. One of my favourites is 'pyramids', where I do 30secs fast, 30secs slow, 1min fast, 1min slow, 2mins fast, 2mins slow, 1min fast, 1min slow, 30secs fast, 30secs slow. If I complete three of these pyramids during my run I have done 15 minutes of fast work;

- **Repetition training** This term is normally applied to training over distances that take three minutes or longer. You can do repetition miles, five-minute repetitions or even 10min reps, with a fixed recovery time. One of marathoner Richard Nerurkar's favourite sessions when training for the marathon was 4 x 3k, with 4mins' rest after each run. At the other end of the competitive spectrum, I once saw Phyllis Smith, the 400m runner, do a repetition session before the Olympic Games which consisted of 4 x 200m on grass, with a 20-minute recovery after each run.

Chapter 7

BASIC RUNNING PROGRAMMES

The perennial question is: how much training is enough? I would reply: it depends on your reasons for running.

- If your main goals are fitness, health and longevity, 20 miles a week, plus a couple of strength and mobility sessions, is ample;
- If you want to run well in road or cross-country races of up to 10 miles, then 30 miles a week is probably enough and could include some cross-training;
- If your main interest is track racing in the summer, you will need to follow a maintenance programme from October to January, plus some specific strength training, then follow a track preparation programme from February to the end of April;
- If you want to run a half marathon, you will need to up your mileage for a few weeks;
- If the marathon is your goal, you need to think of running 50 miles a week for some of the time during your build-up.

For more about these various events, see Chapter 8.

Starting the programme

The basic running programme follows on from the beginner's schedules set out in Chapter 5. You might also follow this programme in spring if you have been following a maintenance programme through the winter. The idea is to make you fit

enough to run in a 10k road race or a cross-country event as well as providing a high level of all-round fitness.

This programme will:

- keep your weight down
- strengthen your cardiovascular system
- maintain your flexibility
- maintain a good level of all-round muscular strength.

These are quite different from the benefits you get from a fitness programme based around a gym or pool. You won't be as strong in the arm as someone who weight trains, and you won't be as flexible as someone who does yoga four times a week – but you will be able to run a lot faster than either of them.

The programme can be followed perfectly safely up to age 50 and maybe even beyond that age. Those with the desire and talent to go further may wish to progress to the more strenuous programmes described in the later chapters – the marathon schedules, for example. But this one will make you fit enough to run a respectable road or cross-country race up to 10k. For readers over 50, I have suggested adjustments for age after each section.

Week 1

Day 1 3M easy pace
Day 2 1M jog, then 5 x 1min brisk, 1min jog, 5mins easy jog
Day 3 3M steady pace
Day 4 4-5M easy, walking when necessary
Total: 13-14 miles

Week 2

Day 1 3-4M easy pace
Day 2 Warm-up, 6 x 30secs uphill fast, walk back, 1M jog
Day 3 Warm-up lM, then timed run of 2M approx, 5mins jog
Day 4 5M easy, off-road
Total: 15-16 miles

Week 3
Day 1 4M easy pace
Day 2 1M easy, 8 x 30secs fast, 1min jog, warm down
Day 3 Warm up, 3M brisk pace
Day 4 5M easy, off-road
Total: 16-17 miles

Week 4
Day 1 4M steady pace
Day 2 1M warm-up, 4M steady, inc 6 x 1min fast bursts
Day 3 Timed run, as week 2
Day 4 5-6M endurance run, off-road
Total: 18-19 miles

Week 5
Day 1 5M easy pace
Day 2 2M easy, 6 x 1min fast, 2mins slow, 1M easy
Day 3 4M steady pace
Day 4 6M endurance run, starting slowly
Total: 20 miles

Week 6
Day 1 5M easy
Day 2 6M steady, inc 8 x 30secs fast
Day 3 5M steady
Day 4 10mins warm-up, 10mins brisk pace, 5mins jog, 10mins brisk, 10mins jog
Total: 22 miles (approx)

Week 7
Day 1 6M easy, off road
Day 2 1M jog, 10 x 1min fast, 2mins slow, 1M easy
Day 3 Warm-up, 3 x 5mins fast, 4mins recovery,1M jog
Day 4 8M endurance run
Total: 25 miles

Week 8
Day 1 6M easy, with 6 x 100m stride at the end

Day 2 6M fartlek, as week 6, with 10 x 30secs bursts
Day 3 5M easy
Day 4 Warm-up, race 4-7M or 5M fast, timed
Total: 25 miles

Week 9

Day 1 7M easy
Day 2 Warm-up, 8 x 400m timed, 2mins recovery
Day 3 4M steady pace
Day 4 6M fartlek, alternating 1min and 2mins bursts
Total: 23 miles

Week 10

Day 1 Warm-up, 12 x (200m fast stride, 1min rest), 1M jog
Day 2 5M easy
Day 3 20mins jogging, inc 6 x 150m fast stride
Day 4 RACE (5-10k)
Total: unimportant

Remember that:

- Easy pace means you can talk easily while running;
- Steady pace is marathon speed – you should still able to talk;
- Brisk pace is threshold pace or 10-mile race pace – you will have little breath to spare;
- Fartlek means fast bursts at 5k race speed, with periods of easy running in between.

Age adjustment At this level it is your state of fitness that counts rather than your age. The final weekly workload is 25 miles – about three hours – which is not excessive for a 60- or even 70-year-old runner. The key is to move up to the next week only when you are confident that you can handle it. If other pressures get in the way, stay at, say, week 4 for three weeks before breaking the 20-miles-a-week barrier.

Training through the year

Autumn

Since there is little track competition in August, apart from international championships, it is usual for runners to ease off towards the end of the summer. September, which usually affords good weather, is a time for running easily then gradually building up endurance. Serious road runners who are planning a half or full marathon in the autumn need to build up their mileage in August and use September and October for hard training *(see Chapter 9)*. There are inter-club road relays for all age groups in September and October, which provide incentives to boost your training. I would advise all distance runners to make a serious attempt at running a range of distances on the track. It is good fun, the races are quite short and you will learn a lot about yourself. For Masters runners, the summer concludes with national and international championships.

"September, which usually affords good weather, is a time for running easily then gradually building up endurance"

Middle distance runners

Aim to run 3-5 times a week, depending on your ambitions. If your aim is to compete in cross-country or road relays, you will need to combine endurance training with aerobic fitness training.

A typical week might look something like this:

Day 1 4-6M fartlek
Day 2 4-7M steady run
Day 3 2M warm-up, 2 x 10mins at threshold pace, 1M warm-down
Day 4 3-4M easy
Day 5 7-10M endurance run

This schedule will keep you fit enough to take on road or cross-country races up to the 10k distance and will also give you extra endurance on which you can base next year's track training.

Sprinters

Since there is practically no outdoor track running in the Northern hemisphere between mid-September and the end of April, you can choose between participating in a different sport, while keeping yourself fit in the gym, and doing two or three runs a week to maintain endurance and leg strength. If you are thinking of competing indoors, you might be better advised to use the autumn period for weight training, to build up muscular strength, before entering another track training phase.

"Autumn is the best time of year for distance runners: The weather is good, the evenings are still long and there are no obstacles to running through fields"

Long distance runners

Autumn is the best time of year for distance runners: The weather is good, the evenings are still long and, with the crops harvested, there are no obstacles to running through fields. This is the time to build an endurance base. If you are used to running 25 miles a week, try building up to 40; if you are used to 40, try 60! Endurance is one aspect of fitness at which older runners can excel. This is obviously a good time of year to work towards a half marathon or even a full marathon, so you would need to follow one of the schedules set out in Chapter 9. Alternatively you can move on to the cross-country training described opposite.

Winter

Maintenance programme – all events

If you just want to keep your basic fitness over the winter, you should still think of covering all the bases – endurance, aerobic fitness, muscular strength and flexibility. You can achieve all of this in the gym, if you want to, using the treadmill or the static bike instead of running outdoors; but it will be pretty boring. I suggest a compromise of two days' running plus two sessions in the gym.

For endurance do a slow run of 45-60 minutes. Remember the Russian saying: 'There is no such thing as bad weather, merely unsuitable clothing'! With hat and gloves and a good weatherproof outer shell, winter running can be very

enjoyable. The only time I would *not* recommend going out is in icy weather, when the risk of injury outweighs the benefits of the run.

For aerobic fitness run in the middle of the day if possible, when it is warmest. After a thorough warm-up, do 20 minutes of fartlek, either 10 x 1min fast, then 1min slow, or two fast 'pyramids' of 30secs, 1min, 2min, 1min, 30secs, with a short recovery jog after each, then 5mins jogging to warm down.

Cross-country and road running

Cross-country running is an excellent sport in its own right. It offers enjoyable low-key competition over distances of 3-7 miles, using a great variety of running surfaces – grass, plough, cart-track, parkland, stretches of road, plenty of mud and hills, even bits of beach. It caters for slow runners as well as fast ones. It is also very good conditioning work for any runner competing at any distance. The length of cross-country races ensures good aerobic conditioning, while the hills and soft surfaces make it excellent for building leg strength. Because the going is soft, there is much less chance of impact injuries than with road running. In Britain the cross-country season runs throughout the winter, from October to March.

Training for cross-country should include:

- hill training, *eg* 6-10 x 1min
- cross-country repetition runs, *eg* 4-6 x 800m
- fast runs at threshold pace, 2-4 miles
- long slow endurance runs.

A typical week for a Masters runner might look like this:

Monday	Warm-up, 4-6 x 3mins fast, 2mins recovery
Tuesday	5M steady run
Wednesday	Warm-up, 8 x 300m uphill, jogging back, 1-2M warm-down
Thursday	6M, starting slowly, with 2M at threshold pace in the middle
Friday	Rest
Saturday	Race
Sunday	Long slow run, 6-8M.

You can start this programme after reaching week 6 of the basic plan set out on page 72. Over-50s, unless very fit, would be advised not to do two hard sessions and a race in one week. They would do better to have a rest day on the Monday and do either the hill runs or the 3-minute reps on the Wednesday.

Weather permitting, you should aim to follow the same programme for cross-country competition in December, January and February, with the overall aims of maintaining endurance and enhancing aerobic fitness. If the weather is mild, you can make an early start on the faster training that precedes the track season; if it is severe, you can spend more time in the gym, working on all-round strength. If you are working towards a spring marathon, you should try to pack in more miles in the mild weeks so that you can do less in severe weather.

Gym work

Aim for two 30-minute sessions per week. At least one of these should be mainly for muscular strength, using free weights or machines. Alternatively, you could do two mixed sessions, including some cardiovascular work, alternating fast bursts and recovery periods on a bike, a treadmill or a ski machine, and some strength training. Whichever type of session you choose, be sure to include 5-10 minutes of mobility and flexibility exercises.

Cross-training

This is the best time of year to look for alternative ways of keeping fit indoors. Static bikes, ski machines and treadmills are obvious choices for runners because they work on the crucial area of aerobic fitness. But there are plenty of other sports – squash, badminton, swimming, hockey and five-a-side football, for example – which offer fun and fitness in the same package.

Spring Training

Cross-country and road running

If you have cut down to the two-runs-a-weeks programme in the winter, you could well start the 10-week programme set out

on page 72 on January 1, which would get you fit enough to start running in races. Alternatively, you could stay on the maintenance programme until the middle or end of February and use the 10-week basic programme to take you through March and April.

Track running

The outdoor track season starts at the beginning of May in Britain, so serious training takes place in March and April. Thus February is the time for a gradual transition from winter training. Running on the roads and strength training in the gym will have maintained most of the elements of your fitness, but running fast on the track makes different demands on your body. Weather permitting, you might run once a week in the first two weeks, then twice a week, gradually increasing the volume of track work.

"Running on the roads and strength training in the gym will have maintained most of the elements of your fitness, but running fast on the track makes different demands on your body"

The best shoes

The lighter the shoe, the faster you can run. You should buy a pair of lightweight shoes, either spikes or racing flats, for track running. Use these sparingly at first, because lightweight shoes give much less support. To start with, just try them out at the end of a run, doing some jogging and striding. Next time, do the warm-up and half the session in normal trainers, then switch to the light shoes.

Sprint training programme (100-400m)

If you are aiming to compete in Masters' competition over 100-400m, your serious training will be over short distances. The power you need for sprinting will be developed by weight training, and this will continue throughout the spring, but you will still need some steady running to strengthen all your supporting muscles. The programme set out below is designed to start in mid-February, leading up to the start of the track season in May.

Weeks 1 and 2

- 2 days' weight training and gym work
- 1 or 2 days: 20mins run, then 10mins mobility and flexibility work
- 1 day track: thorough warm-up of 4-6 laps jogging, then: 5mins mobility work; 4 x 50m easy stride; 1 set sprint drills *(see Appendix 1, p117)*. Replace warm clothing and do 2 laps warm-down

Weeks 3 and 4

- 2 days' weight training/gym work
- 1 day hill work: 10mins run to the hill, then 10 x 80m hill run, with plenty of knee lift, walking back slowly, then 5-10mins jog home
- 1 day track as for weeks 1 & 2, adding 4 x 40m acceleration runs, with 3-4mins rest after each run
- 1 day track: thorough warm-up, plus sprint drills, then 1 x 400m @ 50% effort, 1 x 200m @ 75% effort, 1 x 100m @ 80% effort, 1 x 50m @ 90% effort *(Note that percentage effort here means perceived effort rather than heart rate, since the heart monitor will not have time to give a reliable reading.)*

Week 5 onwards

(2-week schedule, from mid-March to early May)

Day 1 weights/gym
Day 2 short track work
Day 3 hill training
Day 4 speed endurance session
Day 5 weights/gym
Day 6 hill training
Day 7 weights/gym
Day 8 speed endurance session
Day 9 short fast track work
Day 10 30mins slow recovery jog

Days 1-5 can be spread over the first week as you like, but in the second week days 9 and 10 should fall on Saturday and Sunday.

Age adjustment Runners over 60 should do four days a week only; choose hill training or speed endurance, but not both.

Middle distance training programmes (800-1,500m)

Training must be specific to the event because you need to become efficient at running at your race pace. The trick is to put all your effort into the two or four minutes of the race, so that as the season looms you will be doing sessions that simulate the stresses of the race.

Aerobic training must form the bulk of your work, even at these distances. Even in the 800m, more energy comes from aerobic rather than anaerobic sources. The great 800m runners, such as Wilson Kipketer, Peter Snell and Sebastian Coe, always included a lot of aerobic sessions in their training. You will need to continue working on aerobic fitness right up to the start of the main competition period.

You also have to be able to run fast. Most races are won and lost over the last 200m, so you will need to hone your sprinting technique. It is also important to note that it is only when you are running at your fastest that you fully stimulate your body to produce the necessary hormones.

"It is only when you are running at your fastest that you fully stimulate your body to produce the necessary hormones"

Introductory phase

Weeks 1 and 2

Day 1 Warm-up, then 2-3M good pace, 5mins jog
Day 2 Track: run 4 laps slowly, then 5mins mobility and stretching, then run 2 laps, with 2 x 50 strides in each lap. Put on light shoes and do 4 x 200m strides, with 200m jog recovery
Day 3 3-4M easy run
Day 4 Endurance run, 5-6M.

Weeks 3 and 4

Day 1 Steady run, 3-4M
Day 2 Track: 20mins warm-up plus 5mins sprint drills, then 8 x 400m

Day 3 Easy run, 3-4M
Day 4 Track session, *eg* 4 x 800m
Day 5 Endurance run, 5-6M

Age adjustment Over-60s should do only four sessions a week, omitting one of the track sessions.

The basic track session (March and April)
This part of the programme is proper interval training, the backbone of training for all serious track runners. You fix the distance to be run, the number of repetitions and recovery time, then you run the intervals in as fast a time, on average, as possible.

To start with, having completed the introductory phase above, I recommend 8 x 400m, with a recovery jog of 200m, for which you should allow yourself 2 minutes. The pace to start with should be your 5k speed; if you haven't run a 5k race, divide your 10k time by two and then deduct about 45 seconds. A 40-minute 10k runner might expect to run 5k in 19mins, 15secs, but a 30-minute 10k runner would expect 14:30 for 5k and a 50-minute runner would expect 24m. The appropriate 400m pace is shown in table 5, below.

Table 5: The 400m pace for you

5k speed (mins)	pace per 400m lap (secs)
15:00	72
15:50	76
16:40	80
17:30	84
18:20	88
19:10	92
20:00	96
20:50	100
21:40	104
22:30	108
23:20	112
24:10	116
25:00	120

Progression

You can progress in three different ways – by running the intervals at a faster pace, by cutting down the recovery time, or by doing more laps. I suggest that once you have established what you can do for 8 x 400m, you move up to doing 10 laps at the same pace, with the same recovery. As you get fitter you can cut down the recovery jog to 90 seconds. Week by week your average time should come down. When you feel you have reached a plateau, go back to doing 8 intervals with 2mins recovery, trying to run a couple of seconds per lap faster.

This 10 x 400m session, with a shortish recovery, is a very good guide to fitness. It is also good training for anyone running races of 1,500m or more. Where you go from here depends on your goals. Variations on this theme are infinite. I favour doing 4 x800m early on, then coming down to 6 x 600m. Alternatively, you can group the fast runs in pairs, with a short recovery between the two and a longer recovery between each set; for example, 3 x (700m + 300m), where the 700m is run like the first part of a 1,500m race, followed by 60secs recovery, and the 300m is run faster, followed by 2mins recovery.

Summer

Sprinter's weekly programme

Pre-competition phase

You should do a thorough warm-up before all track sessions, plus a set of sprint drills.

Day 1 Speed endurance day. Each distance is run flat out, with a slow walk back. Run 300m, then 250-200-150-120-100-80m60m40m

Day 2 Weight training plus 2M easy run

Day 3 Hill training or resistance running, *eg* 6 x 60m uphill, walk back recovery, then 5 x 60m sprint @ 90% effort, with long recovery

Day 4 Long session of sprint drills plus technique practice with a coach, *eg* sprint starts over 10m, accelerating from the start to 40m, running on the bend

Day 5 Starting practice, plus relay practice

Competition phase

Day 1 Speed endurance, *eg* 1 x 300m(5mins recovery) 3 x200m (3mins recovery), 4 x 30m; starting practice
Day 2 6 x 60m, working on technique @ 90-100% effort, with long recoveries (4mins)
Day 3 Sprint drills, 4 x 50m @ 80% effort, long warm-down
Day 4 RACE DAY. Long warm-up plus indiviual event(s), plus relay
Day 5 Recovery day: 20mins jogging plus light weight training

Age adjustment runners over 50 and over 60 can follow the same programme, but need to do very thorough warm-ups.

Basic middle distance schedule

This weekly schedule would suit a runner over 40 who has already had eight weeks of training on the track, as above. All track sessions should start with 15-20 minutes of warm-up and end with at least five minutes of jogging and five minutes of stretching.

Monday 30mins steady run
Tuesday Track session @ 1,500m pace *(see below)*
Wednesday Rest or easy running
Thursday Track session @ 800m pace *(see below)*
Friday Rest
Saturday Race or time trial
Sunday 40-50mins slow running, off road

For the 1,500m session you can either:

- Do 2 x (4 x 400m) at race pace or faster, with 90secs or 2mins recovery between each 400m effort and an extra 2mins between sets, **or**
- 'Pyramid' of 200m-400m-600m-800m-600m-400m-200m at race pace, with 60secs recovery for each 200m of fast work – *ie* 4mins after the 800m.

Another particularly enjoyable option is to run the 1,500m distance twice, but in bits, with short recoveries: *eg* 600m, 400m, 300m, 200m, with 1min recoveries, then repeat after 3-4mins rest.

For the 800m session, you can do 8 x 200m or 5 x 300m or 3 x 400m at race speed, with 2-3mins' recovery for every 200m of fast work – *ie* 4-6mins after a fast 400.

Age adjustment Over-50s should do only two of the three sessions recommended for Tuesday, Thursday and Saturday, substituting an easy jog, gym work or cycling for the session omitted. Over-60s should do only one of these sessions and allow a two or three-day gap between the endurance session and the 1,500 or 800m session.

Training for 5,000 and 10,000m

The principles of middle distance training described above also apply here, but because there is only a small anaerobic element involved in running these distances, most of the training is aerobic. However, speed and speed endurance work must not be ignored because these sessions are the most stimulating for your body. The basic track training session will comprise a total of 5,000-6,000m of fast work for the 5,000m runner, and 8,000-10,000m-plus of fast work for the serious 10k runner, but in the early stages you can start with smaller volumes.

"Speed and speed endurance work must not be ignored because these sessions are the most stimulating for your body"

Basic 5,000m sessions

Interval 400m runs should start at 12 x 400m and work up to 15 x 400m. A good way of doing them is to run 800m, followed by a recovery jog, then 400m. Five sets of (800m + 400m) is less wearing mentally than a full 15 x 400m.

Basic 10,000m sessions

The standard distance here is usually 800 or 1,000m, so you would do 8-10 reps of these for a full session, but occasionally 6-8 x 1,200m or 4-6 x 1,600m.

Age adjustment Over-50s need go up to only 12 x 400m or 6 x 1,000m; over-60s should stick to 10 x 400m or 5 x 1,000m.

A suitable fortnightly schedule for a good veteran distance runner, aiming for times like sub-9:30 for 3,000m (sub-11:00 for women) or sub-16:00 for 5,000m (sub-18:00 for women) is as follows:

Monday	6M easy plus 6 x 150m stride-outs
Tuesday	4 x 1200m or 5 x 1,000m @ 5,000m pace, 3-4mins rest between
Wednesday	6M brisk run
Thursday	4 x (800m + 400m) at 3,000m pace, 200m jog recovery
Friday	Rest
Saturday	3 x (4 x 400m) at 1,500m pace, 60secs recovery, with extra 3mins recovery after each set
Sunday	8-10M easy
Monday	3 x 2,400m off the track @ 10k pace, 5mins recovery
Tuesday	6-7M steady
Wednesday	2 x (8 x 200m) at 1,500m pace, 60secs recovery
Thursday	4M easy run
Friday	Rest or 20mins jog
Saturday	Race or: l0mins hard, 5mins recovery, 2mins hard, 5mins recovery, 60 secs hard, 5mins jog – all on grass
Sunday	8-10M easy

Age adjustment Over-50s should train only five days a week, with a maximum of two hard interval sessions; over-60s should train only four days a week, with just one hard interval session.

Chapter 8

WHEN INJURY STRIKES

A person's greatest strength is often his or her greatest weakness, and this is particularly true of athletes. The compulsive streak in their character which drives them to train hour after hour, day after day, is their worst enemy when it comes to coping with injury. Runners are all-too-eager to go out running 'just to try it out' well before an injury has healed, which all-too-often leads to further injury. Some veteran runners seem to have learned from such mistakes, while others don't. The most frequent complaint I get from Masters runners is: 'It takes me longer to recover from a hard session or a race'.

The best thing is to avoid injury in the first place! When we are devising our training plans, we always start by listing objectives like improving aerobic fitness, building endurance and maintaining flexibility. Adding 'avoidance of injury' to this list should keep it at the forefront of your mind when planning the week's training.

These are the key guidelines:

1. Allow plenty of time for warming up before hard training or racing and for cooling down afterwards

This is particularly necessary in the British climate. Warm muscles stretch much more easily than cold ones, while ligaments and tendons are more likely to tear when the muscles are cold and inflexible, particularly with older athletes, whose tissues have lost some of their early elasticity. The

warm-up helps to divert blood flow from non-essential areas to working muscles; it also helps you mentally by focusing your mind on the job to be done. Very often, particularly in winter, runners go out reluctantly, not feeling like training hard. But after 10 minutes of easy running to warm up most people start to feel more enthusiastic.

I would recommend warming up for for 15-20 minutes before starting hard training. Start with 5-10 minutes of gentle movement, gradually increasing the pace, followed by 5-10 minutes of stretching, still in warm clothing. After that, you should move on to fast work, along the lines set out in Chapter 6, followed by sprint drills, then stay warm and loose until the start. A sprinter might well take as long as 45 minutes to warm up for a 10-second burst of energy.

"A sprinter might well take as long as 45 minutes to warm up for a 10-second burst of energy"

During the cool-down period, which should last 10-15 minutes after a competition or hard training session, your body temperature returns to normal and the products of fatigue are flushed out of your muscles, reducing the risk of stiffness the next day. This is also the right time to do your stretching exercises.

2. Never train hard when stiff from a previous effort

This advice may seem obvious but is all too often ignored at the beginning of a season. Stiffness is caused by leakage of tissue fluid, causing tightness in the compartments which enclose the muscle fibres. If muscles cannot contract without pain, running becomes awkward, movements are not co-ordinated and injuries are more likely. Some people turn up for a group run and set a fast pace, for which others suffer the next day; but instead of waiting for the stiffness to ease off, they try to go on training as hard as the day before.

3. Introduce new activities gradually

Ideally one would never introduce anything new at all, but there are bound to be changes of emphasis, such as the switch from indoor to outdoor training or from grass to a synthetic surface. The best approach is to start switching well before it is necessary. In switching from cross-country running to the

synthetic track, for example, it might be a good idea to do a bit of running on the track whenever the opportunity arises, even if it is only three or four laps and a few strides after a steady run. The first track session of the year should last only half the time of a normal session and be done mostly in trainers. The next week, you might do most of a session on the track, but only part of it in spikes; then for the next two weeks you could increase the proportion of the session done in spikes. After a month you might be running two or three times a week on the track, with other sessions being done mostly on grass.

4. Check out training and competition courses beforehand

In cross-country and road running there may be unexpected traps for the unwary, such as potholes in the road and sudden ups or downs, all of which could cause trouble if you are not prepared for them. This is closely linked to the next rule.

5. Train on different surfaces during the week, using the correct footwear for each

Perhaps the commonest cause of all injuries is training too much on hard surfaces. In the spring of 2001, when the foot and mouth epidemic closed UK fields and footpaths, many more runners than usual suffered Achilles tendon problems because they were running entirely on roads. Running fast on roads and tartan tracks causes a lot of impact shock; it is vital to protect your feet and legs by choosing trainers which give support, and I also recommend getting off the road onto a softer surface at least one day in every three.

Other common causes of injury are wearing shoes that are too light and flimsy or unevenly worn. If you turn up expecting a soft course and find it frozen hard, you could be in a lot of trouble. Liz McColgan threw away her chance of winning the World Cross-country title in Boston in 1992, because she had not checked out the length of spikes needed on the snow-covered course. Paula Radcliffe, by contrast, checked the course, put in the right length of spikes and won the under-20 title.

6. Shower and change immediately after cooling down
This makes you less likely to stiffen up and also reduces your risk of catching a cold.

7. Aim for maximum comfort when travelling
Sitting in a cramped position for hours before a race is not a good thing. Give yourself space to stretch out, if possible, and ideally get up and walk around once an hour. For journeys lasting several hours, take water with you and a bit of fruit and chocolate to keep up your energy levels. If you are running a marathon, make sure there is someone to drive you home afterwards!

8. Don't expose yourself to infection when training or competing very hard
When you are feeling tired and run-down, your immune system is depressed and you are more liable to pick up a 'bug'.

9. Be extremely fussy about hygiene in hot weather
Again, this matters most when you are training really hard. Precautions like washing your hands regularly, cleaning pans, plates and cutlery thoroughly and avoiding food that is past its best are all a part of taking good care of yourself.

10. Maintain your all-round muscular development
Joints often get injured because the surrounding muscles are not strong enough to keep the joint firm when stress is placed on it. Muscle strength declines with age, so the older you are the more important it is to do regular strengthening exercises *(see Appendix 1, p117)*.

11. Give yourself at least one day off running per week
Running injuries are often repetitive strain injuries, and taking one day off running each week helps you avoid such injuries by giving your body almost 48 hours of recovery. If you have to take exercise on that day off, make it something quite different, such as cycling, yoga, swimming or weight training.

12. Monitor yourself daily for signs of fatigue

Another important adage is: if in doubt, ease off. If you are feeling tired in training day after day for a whole week, if you feel dizzy or feverish, or if your resting pulse rate is five beats or more above normal, give yourself a break from running for a day. Listen to your body and don't allow your dedication to override commonsense.

13. Try the cold water treatment

After a hard run, your feet and legs are often hot and inflamed. Cooling them down will drive the blood deeper into your muscle and aid the recovery process. If you are running on a beach, go and wade in the sea afterwards. Alternatively, put your feet in a basin of really cold water and sponge down your calves before going for a shower.

> *"Cooling tour feet and legs down will drive the blood deeper into your muscle and aid the recovery process"*

Different types of running injury

Bone injuries

The most common of these are stress fractures, caused by repeated impact shocks, usually in the shin and the foot. Hairline cracks appear in the bone, causing pain. The only solution is to stop running and to use other methods to stay fit *(see p94)*. Sometimes it is a good idea to boost your calcium intake, since a deficiency of your calcium may be affecting the normal repair process in the bone.

Stress fractures usually heal within six weeks and tend to occur less often as your feet and legs get used to running; meanwhile, steering clear of hard surfaces is the best way to protect yourself.

Stress fractures sometimes happen when a runner's foot strikes the ground at the wrong angle because of wearing unsuitable or badly worn shoes; but they can also be caused by upping the mileage too quickly. The rule of thumb is not to increase your running distance by more than 10% or 5 miles a week, whichever is the greater.

Muscle injuries

The muscle 'pull' or strain is caused by tears in a small number of muscle fibres. This is most likely to happen if you are trying to run fast on muscles which have not been properly warmed and stretched. Once torn the fibres are broken down by the body and replaced by others. Where muscles are bruised or badly torn there may be discolouration and swelling; but if only a few are damaged, you may be aware only of a slight strain or a 'tight' muscle. Quite often, though, the damaged fibres stick together, forming a small lump, which has to be dispersed before hard training can be resumed.

Cartilage injuries

At each joint your bones are covered with a layer of cartilage. These cartilage 'pads' act as shock-absorbers and also as lubricant, allowing the bones to slide over one another. Sometimes cartilage is damaged, such as when a knee is twisted, and sometimes it becomes worn away by overuse. Usually, surgery is the only solution to such problems.

Ligament injuries

Ligaments hold bones together – around the knee joint, for example – and are not very elastic. When a joint is 'sprained', the ligament is often torn, and the muscle is damaged at the same time. Healing takes several weeks.

Tendon injuries

Tendons attach muscles to bones and, like ligaments, are not very elastic. They can become inflamed and pull away from the muscle or the bone. Sometimes, as with the Achilles tendon, they can weaken with age and then snap, but usually there is some warning pain first. Stiff, cold inelastic muscles exacerbate this problem. Pain around the knee ('runner's knee') is often caused by stress on the tendons around the knee and can usually be cured by wearing the right shoes or adjusting your running action.

Other common problems

Blisters If you have taken care over your choice of shoes, you won't get blisters. The simplest solution is to adjust the thickness of your socks, such as by wearing a thin inner sock and a woollier outer sock. It is also a good idea to use plenty of foot powder before putting your socks on. If you do get a blister, don't remove the skin but simply pierce it in two places with a sterilised needle, allowing the fluid to drain away.

Chafing This is usually caused by over-tight clothing rubbing against your skin. Wear loose clothes and apply vaseline to sensitive areas.

"As a rule of thumb, as long as you can feel a strain while walking, you are not ready to run"

Treatment of injuries

The most common cause of a running injury is running, so the first treatment is to stop, the second is to alleviate the pain and the third is to diagnose the cause of the trouble.

With soft tissue injuries (including pulled muscles, sprains and inflamed tendons) the standard treatment is RICE: **R**est, **I**ce, **C**ompression, **E**levation. The combined effect of ice and compression is to bring down swelling, so reducing the pain. Complete rest is not usually recommended, and some walking, cycling or swimming is a good idea, as long as it does not stress the injured area.

If you feel pain after a run, the first treatment should be to ice the painful spot – and a bag of frozen peas should always be available for this purpose. If you follow this treatment with anti-inflammatory tablets, *eg* ibuprofen, you should be fit to run next day. If in doubt, ice the area before you start and do a very long warm-up. If the pain is still there, go home and ice again, but do not run. As a rule of thumb, as long as you can feel a strain while walking, you are not ready to run.

It is vital to establish the cause of the injury. It could be just running too fast too soon, particularly on hard ground, but it could also be due to wearing worn-down shoes, or the wrong shoes, leading to an imbalance in your running action.

Regular massage is a great help, but the masseur should be

experienced in treating sports injuries. Self-massage for thighs and calves will help to loosen up cold or stiff muscles.

How to stay fit when injured

An injured sportsman is like a sick gorilla – no use and a lot of trouble! A good coach has to deal with an athlete's mind as well as his body when attempting to maintain his equilibrium. I heard a story about one of our leading middle distance runners who went out to a training camp and injured himself on the first day. 'Right', he said, 'I'm on my holidays now'; and off he went to the snooker hall for the next week. This approach scores high marks for relaxation but very few for intelligence. The first thing to do, obviously, is to get treatment, but the very next thing is to redesign your training programme and make a start on rehabilitation.

A few days away from the regular training routine can have a beneficial effect, particularly if an athlete has been training very hard. The injury may force him to take the rest his body needs, and he will be much better for it. However, total inactivity is a bad thing, particularly since most sportsmen and women are accustomed to having an organised programme and may lose their motivation if deprived of it.

The first step is to determine which movements the injury will and will not allow. Take a lower leg injury, such as shin splints or a stress fracture, for example: running itself is ruled out, as are sports which involve running on hard surfaces. However, it should be possible to construct a programme which continues to train most aspects of running, so that you can go straight back to running when the injury has healed. It may even be possible to *improve* your capabilities by working on things which you have not had time for.

Maintaining fitness and motivation

The attributes that make a good runner are:

- an efficient cardiovascular system
- a good power-to-weight ratio

- strong leg muscles
- good local muscular endurance
- good general endurance
- above-average flexibility
- strong motivation to succeed.

There are several good ways of maintaining **cardiovascular fitness**, so choose the ones which put no strain on your injury. Gym work is probably the safest option, using static bicycles, rowing machines or Nordic ski machines. Mountain biking is an excellent alternative, if your injury allows it. If you can only perform non-weight-bearing exercises, you will need to turn to swimming. The most effective way to stay fit in the pool is by wearing a 'wet-vest' and doing interval training – alternating minutes of running on the spot with minutes of slow paddling. Whichever method you use, a heart rate monitor would be very helpful for making sure you push yourself up into the right training zone. If you don't use a monitor, measure your resting pulse rate every day to reassure yourself that you are not losing fitness.

"If you can only perform non-weight-bearing exercises, you will need to turn to swimming"

To maintain a good **power-to-weight ratio**, you need to weigh yourself regularly, watch your food intake and burn off enough calories to keep your weight down to its normal level.

Weight training using fixed resistance is the best way to maintain **strong leg muscles**, although other activities can also help. The benefit of weight training is that it is measurable so that you can tell whether you are actually improving both strength and endurance.

It can be difficult to maintain good **muscular endurance** as you will be unable to replicate the running action exactly. Cycling on an ergometer is probably the best alternative, as it works the leg muscles hard. You can increase the resistance on these machines and make progress by following an incremental programme.

For **general endurance**, I would recommend walking, wearing boots and sticking to soft ground to avoid exacerbating the injury. The advantage of prolonged low intensity exercise of this type is that it allows an injured athlete

time to think, calms him down and gives him the assurance that he is doing something positive.

Flexibility is an attribute many athletes lack. Ideally an injured runner should work on a series of flexibility exercises for 15-20 minutes a day, normally after warming up with some other type of exercise. It should be possible for an athlete to be more flexible at the end of a rehabilitation programme than before an injury. A typical weekly programme might look something like this:

Monday-Friday am	15mins on static bike or rowing machine, then 10-15mins flexibility exercises
Monday lunch	15mins weight training in gym
Monday eve	Walk or cycle to pool, then 20mins swim
Tuesday eve	60mins cycling, with several hard bursts up hills
Wednesday	As Monday, but in the pool include 6-8 'runs' in wet vest, 1min fast, 1min slow
Thursday	60mins fast walk in boots, plus light jogging
Friday	Rest
Saturday	2-3 hours walking, with 5mins flexibility exercises each hour
Sunday	60mins hard cycling, 20mins steady swim, 30mins walk/jog

As far as **motivation to succeed** is concerned, the most important ingredient is determination to stick with the programme. As with other forms of training, the best way to make a long rehabilitation period tolerable is to divide it into periods, spending, say, six weeks on weight and ergometer training, moving on, as mobility improves, to pool and bicycle training, and setting specific targets for these over a period of three or four weeks. Specific flexibility exercises, as recommended by your doctor and physio, will be part of your programme almost every day. Walking should begin as soon as it is safe, and from here you can progress to slow jogging on soft surfaces, then running slowly up a gentle slope.

But however thorough your rehab programme, it will still

take time to return to your best performance level because you cannot duplicate the hardest running sessions. Once you are back to normal training, allow at least a week of training for every week that you have been in rehab before you start to compete.

The older you are, the more likely you are to get injured and the more careful you have to be in returning to competition. There may well come a time when it is best not to compete, in the sense of pushing yourself to the limit, but to run at the pace which suits you, regardless of what others in the race are doing.

Chapter 9

MOVING UP AND MOVING ON

One of the nicest things about running is that, although you lose speed as you get older, you can actually increase your powers of endurance, both mental and physical. This means that, with training, you can run longer distances and do as well or better than younger runners who are less well trained. One of my most satisfying runs was in the London Marathon when, for once, I followed my own advice, ran level pace and produced a 2:47 performance at the age of 58.

The next best thing about running is that the variety is infinite in terms of both terrain and distance. Road running events range from 1 mile to 100k (62.5 miles) and cross-country from 2-9 miles, and occasionally further. Then there are fell races, orienteering races, trail races and adventure runs – even ultra-marathons like the Comrades Marathon in South Africa or the 250k Athens to Sparta run; there is no end to what you can try.

The programmes we have looked at so far will take you through races up to 10-12k, but to perform well over 10 miles or the half marathon you will need to put in more endurance training.

Predicting distance times

When you are moving up to a longer distance for the first time, providing you have done the necessary training you can make a fairly accurate prediction of how you might perform, based on your times over 5k and 10k. Predicted times are shown in table 6, overleaf.

Table 6: Predicting marathon performances from 5k and 10k times

5k time	10k time	Predicted half marathon time	Predicted marathon time
15:00	31:00	68:30	2:27
16:00	33:15	73:30	2:37
17:00	35:20	78:00	2:48
18:00	37:25	83:00	2:58
19:00	39:30	87:3	3:07
20:00	41:35	92:00	3:18
21:00	43:40	96:30	3:27
22:00	45:45	1:41	3:37
23:00	47:50	1:46	3:48
24:00	49:55	1:50	3:58
25:00	52:00	1:55	4:08
30:00	63:00	2:18	4:58

Training for the half marathon

To run this distance efficiently you have to work on aerobic fitness as well as endurance. Whereas most people run the marathon at jogging pace – 8-10 minutes per mile – half marathon speed is directly related to your aerobic intake. You can save a bit of time by pushing yourself hard in the last mile and building up an oxygen debt, but this would make a difference of less than a minute in an event which takes 80-100 minutes for a fit person.

In the early stages simply doing more running will boost your oxygen intake, but you will improve more quickly if you raise the quality of the training at the same time.

The programme set out opposite is for beginners and also for those who have run the distance once or twice before in a time of around two hours. It is also the right starting point for over-50s. The programme is based on regular running with a gradual increase in distance. The most important run is the long one at weekends, but it will make a lot of difference to your performance if you run faster, where indicated, during the week, rather than just plodding.

Your basic 10-week half marathon programme

Week 1
Day 1 25mins easy
Day 2 25mins easy
Day 3 35mins easy
Day 4 25mins brisk timed run

Week 2
Day 1 25mins easy
Day 2 30mins easy, with a few 50m bursts
Day 3 30mins easy
Day 4 45-50mins steady run

Week 3
Day 1 35mins easy
Day 2 35mins easy, with a few 100m bursts
Day 3 10mins warm-up, 20mins timed run, 5mins jog
Day 4 50-60mins steady run

Week 4
Day 1 35mins easy
Day 2 35mins easy, including several 30secs bursts
Day 3 35mins steady run
Day 4 60mins steady run

Making progress

After this first month you should be feeling much fitter. The runner who manages to follow the schedule to the letter is very rare, but as long as you have done most of the training you will be ready for the next step forward. You will not be running greater distances, but rather running faster in the hard sessions. The more you train, the more you learn about your body and the more able you are to push yourself. Sometimes it is psychologically easier to run a five or six-mile circuit fast than it is to run slowly, because when you run fast you are concentrating hard on the running rather than worrying about how far you have to go.

Having now reached a 'plateau' of fitness, you should be able to cope with one 'quality ' day when you push yourself harder. The term ' fast' means the fastest speed that you can keep up for the specified length of time. As the recovery time is quite short, you will soon discover how fast you can afford to run, and with time you will find that this increased pace translates itself into improved times.

Week 5

Day 1 35mins easy
Day 2 40-45mins of fast-and-slow running, with some uphill bursts
Day 3 35mins easy
Day 4 Warm-up, l0k race, warm-down or 65-70mins steady run

Week 6

Day 1 30mins easy, off road if possible
Day 2 10mins warm-up, then 2 x 5mins fast, 5mins jog
Day 3 35mins easy
Day 4 65-70mins steady run

Week 7

Day 1 30-35mins easy, off-road
Day 2 30mins run, including 10 fast bursts of about 200m
Day 3 30mins easy
Day 4 Warm-up, 10k race,10mins walking and jogging

Week 8

Day 1 35-40mins easy, off road
Day 2 35mins jog, 20mins brisk pace, 5mins jog
Day 3 30mins easy
Day 4 80-90mins slow run (this is your longest!)

Week 9

Day 1 30mins easy, off road
Day 2 10mins jog, 2 x 5mins fast (as week 6)
Day 3 30mins easy
Day 4 60-70mins easy

Week 10

Day 1 20mins jog
Day 2 10mins jog, 1 mile at race pace, in racing shoes, 10mins jog
Day 3 20mins jog, in racing kit
Day 4 THE RACE

Age adjustment None needed. There are plenty of over-60s training harder than this. You can add spice to your daily runs in the following ways:

- **Make a date** Training with a friend at least once a week makes the hard work much easier;
- **Head for the hills** You can't beat hill training for making every part of your body work. In races you should run economically, but in training get into the habit of pushing hard on hills;
- **Use the landmarks** Instead of simply plodding along, you can give your run some elements of fartlek by striding out to the next corner, or for the next three lampposts;
- **Run backwards** Not literally! Run your regular courses in the opposite direction and see if it makes any difference;
- **Use fartlek** You can do this with the help of your watch, running bursts for a set time, or with your heart monitor, running above threshold for a certain time or distance, counting paces, or just running fast for as long as you feel like it, then jogging until you are ready for another burst;
- **Use pyramids** These are my favourites: I do fast bursts of 30secs-60 secs-2mins-60 secs-30secs, followed by a jog of equal length (total 10mins), then jog for another minute and start again. Two or three pyramids make a 45min run into much more effective training;
- **Do some sessions indoors** Get into the habit of using a treadmill or a fitness centre for a regular workout. It gives you something to do when the weather's really bad, and if injury forces you to train indoors it won't seem totally strange;

"In races you should run economically, but in training get into the habit of pushing hard on hills"

- **Do some cross-training** If you think cycling is easy, try doing it uphill on rough grass. A one-hour workout on a mountain bike makes for excellent training;
- **Try cross-country** Make an effort to get off the roads; running in your local cross-country league is a lot more fun than training on your own
- **Use time trials** You don't need to do these every day: about once every two weeks is enough. Plot a short course (8-15mins) and a long course (20-30mins) and use these to monitor your progress.

Moving up a level

Runners who have been training seriously for six months or more, with no injury problems, will probably find the half marathon programme set out above too easy and will want to aim higher. If you have followed one of the programmes in earlier chapters and got yourself to the point of running 25 miles a week, with regular quality sessions, you will be able to go straight into week 1. This 10-week programme is a good deal harder than the one above, and the longer weekend runs make the total mileage consideably greater, so take from it only as much as you feel you can handle. It should be feasible for anyone up to age 60.

Your level 2 half marathon programme

Week 1	
Monday	35-40mins easy
Tuesday	35mins, faster than Monday
Wednesday	40mins, including 10 x 30secs fast, 60secs slow
Thursday	35mins easy
Friday	Rest
Saturday	40mins steady, with several 100m strides
Sunday	50-60mins easy

Week 2	
Monday	35mins easy
Tuesday	40-45mins steady, going faster up hills

Wednesday	40mins steady, including 8 x lmin fast, lmin slow
Thursday	40mins easy
Friday	Rest
Saturday	Warm-up, 3M (approx) timed run, warm-down
Sunday	60mins steady run

Week 3

Monday	35mins easy
Tuesday	40-45mins, starting slow, finishing fast
Wednesday	35mins easy
Thursday	10mins easy, 8 x 90secs fast, 90secs slow, 5mins easy
Friday	Rest
Saturday	10-15mins warm-up, 4 x 800m(or 3mins) fast, with 3mins slow recovery jog
Sunday	65mins steady run

Week 4

Monday	35mins easy
Tuesday	40mins brisk pace
Wednesday	Warm-up, 3 x 1M fast (or 3 x 6mins), 3mins recovery jog, 5mins warm-down
Thursday	35mins easy
Friday	Rest
Saturday	Warm-up, l0k race or time trial over 5 miles
Sunday	65-70mins steady run

Week 5

Monday	35mins easy
Tuesday	40mins, starting steady, finishing fast
Wednesday	As week 4 but with 4 repetitions rather than 3
Thursday	35mins easy, with 6 x 150m fast stride
Friday	Rest or 20mins jog
Saturday	10mins easy, 10mins brisk pace, 10mins easy
Sunday	Warm-up, l0k race or 6M at half marathon pace

Week 6

Monday	35mins easy, off-road
Tuesday	5mins easy, 15 x lmin fast, 1min slow, 5mins jog
Wednesday	10mins steady, 2 x 10mins at threshold pace (5mins recovery jog)
Thursday	40mins steady
Friday	Rest or 20mins jog
Saturday	10mins warm-up, 20mins hard run, 10mins jog
Sunday	70mins steady run, off road

Week 7

Monday	35mins easy
Tuesday	Rest
Wednesday	50-55mins run at a good pace
Thursday	35-40mins easy, with 10 x 100m strides
Friday	Rest
Saturday	30mins off-road, with 6 x 30secs strides
Sunday	Warm-up, race 6- 10 miles,10mins walk-jog

Week 8

Monday	35-40mins easy
Tuesday	40mins fartlek on hilly course, with bursts up hills
Wednesday	Warm-up, 4 x lM, as week 5 but faster
Thursday	35mins steady
Friday	Rest or 20mins jog
Saturday	10mins steady, then 15 x 40secs fast, 50secs jog, 5-10mins steady at the end
Sunday	75- 85mins steady endurance run

Week 9

Monday	35mins easy,off road
Tuesday	40mins, including 8x 2mins fast, lmin slow
Wednesday	Warm-up, 2 x 2M threshold, as week 6 but faster
Thursday	35-40mins steady
Friday	Rest
Saturday	Warm-up, 3M fast, timed,10mins jog
Sunday	60mins steady

Week 10

Monday	20mins easy, off-road
Tuesday	Warm-up, 2 x 1M at race pace, 5mins jog recovery, warm-down
Wednesday	Rest or 20mins easy jog
Thursday	10mins jog, 6 x 30secs fast, 60secs slow, 10mins jog
Friday	Rest
Saturday	20mins jog
Sunday	THE RACE

Age adjustment Some of these weeks have seven days of training in them. Over-50s should have two days a week of either rest or cross-training, and all but the fittest over-60s should make this three days.

"Should you attempt to run a marathon in your first year of training? Anyone with any sense would say no"

Training for the marathon

Should you attempt to run a marathon in your first year of training? Anyone with any sense would say no. It takes a long time to change a sedentary older body into a runner's body. If your joints and supporting muscles have not had time to adjust to the extra load, they are likely to take a real bashing when running 26 miles on the road, particularly if you are carrying excess weight.

My advice would be to take three months to work your way into regular running, another three months to get used to running 5k and 10k races and then, after consolidating your progress for a while at the 20-mile a week level, another three months working up to a half marathon with one of the programmes set out in the previous pages. A few weeks of 'ticking over' would then bring you to the end of your first year.

At the highest level of running, very few people turn to the marathon until they have put in at least five years of serious running at shorter distances, so the same should apply to those who start later in life. Having made that point, there are plenty of people who have good reasons to want to move straight up to the full marathon. And it can be done, as long

as you are both sensible and lucky. You can't expect a very fast time, but you can get around.

In your first marathon you are just learning about the event, so it is best to err on the side of caution, taking it easy and enjoying it as much as you can.

Your basic marathon programme

This 14-week programme is for runners who just want to get round; it will also work for those aiming at 4hrs 30mins. It is designed as a lead-up to a spring marathon, starting on January 1.

Pre-marathon training

What you should be doing in the weeks before you start the marathon training programme depends on what state you are in. If you 'let yourself go' in the summer and haven't done much about it since, then you need to plan a gradual increase in mileage over the autumn, building up to marathon training. At the same time, your vital long weekend run should get gradually longer. It is much better to start with a six or seven-mile run and extend it by two miles a week than to go straight out and try to run for two hours just to prove that you can. If you follow the former method, you will be up to 14 miles by the fifth weekend and you can combine this with regular running during the week; if you adopt the latter, you will be fit for nothing for days afterwards.

"If you are making a fresh start, don't try to increase your pace and mileage at the same time"

If you haven't been running for weeks, run every other day in the first week and walk on the intervening days. Three 3M jogs and a slow 6M gives you a total of 15 miles. The next week you can move up to four 3M runs and a slow 8M – 20 miles in total. If by the end of the fifth week you are running five or six days a week and you are up to twelve miles in the long run, you will be ready to tackle the sub-four hours schedule.

If you are making a fresh start, don't try to increase your pace and mileage at the same time. As you get fitter, you will find that you are getting round the same courses in less time, with fewer stops. Once you are feeling like running a bit faster,

try out some of the suggestions given in the half marathon section on page 103.

The speed-up programme

Those who like running and those who take it seriously will have been running regularly through the autumn because it is the nicest time of the year to run. You may not have been on a very organised programme, but you have kept it going and run in the odd 10k race. The question is whether you should start increasing the mileage now, to give yourself the background for the later marathon training, or work on your speed.

In my view, you should go for speed. The endurance will come over the next few months, but most people shy away from pushing the envelope and doing real quality work. The fact is that all the best marathon runners are also good 10k runners. If you can run comfortably at sub-6-minute mile pace, you will find 7-minute pace very easy, but if you are never training faster than 6.30 pace, 7-minute miling will be close to your limit.

The most effective sessions are hill training, interval training and threshold running.

- With hill training, you can alternate between 'short hills' – say 45-60secs in duration, done 8-15 times – and 'long hills' – 2-3mins, run 6-10 times;
- For interval training you do either a 5k session (*eg* 15 x 400m) or a 10k session (5 x 1M), gradually increasing either volume or intensity over a period of up to 8 weeks;
- With threshold running, you start by running in 5-10mins bursts, just on threshold pace, and move up to doing 2 x 15mins then 25-30mins non-stop.

During this period there should be no conscious effort to increase your mileage. If you are training more regularly and more purposefully, doing proper warm-ups and warm-downs with your quality training, you will probably find you are doing more anyway.

The get-you-round/sub-4:30 schedule

Training does not come easily to everyone. Those with plenty of natural ability might get away with running three times a week, including the long weekend run and at least one of the mid-week 'quality' sessions. Those who are carrying extra pounds or are just not built for running may want to do a little more to make sure that they make it round. For them, I advise adding one or two extra runs of 30 minutes per week, maybe early in the morning or during a lunch break. In the second and third months they can increase this to two or three extra runs per week. If you are hoping for a time of sub-4:30, aim for the high end of the training range each week.

Week 1 Aim for 20-25 miles

Monday	2-3M, easy pace
Tuesday	4-5M easy
Wednesday	Rest
Thursday	5-10mins jog, then 6 x (1min brisk, 2mins jog), 10mins jog
Friday	Rest
Saturday	10mins jog, timed run of 2 miles approx, 1M jog
Sunday	6M easy, off-road, walking when necessary

Week 2 (20-25 miles)

Monday	Rest or 2-3M easy
Tuesday	4-5M easy
Wednesday	Rest
Thursday	1M easy, 2 x (5mins brisk, 5mins jog)
Friday	Rest
Saturday	4M steady pace
Sunday	6-7M easy, off-road

Week 3 (25-30 miles)

Monday	Rest or 2-3M easy
Tuesday	5-6M steady
Wednesday	Rest
Thursday	Warm-up, 4-5 x (3mins fast, 3mins slow), 1M jog

Friday	Rest
Saturday	2M easy, 2-3M timed run, 2M easy
Sunday	7-8M easy, off-road

Week 4 (25-30 miles)

Monday	Rest or 2-3M jog
Tuesday	5-6M, starting slow, finishing faster
Wednesday	Rest
Thursday	Warm-up, 8-10 x 45secs uphill, warm-down
Friday	Rest
Saturday	Warm-up, 2 timed runs over lM, with 5mins rest, warm-down
Sunday	8-9M endurance run, off-road

Week 5 Aim for a good race

Monday	25-30mins easy
Tuesday	Warm-up, 6 x 400m (or 10 x 60secs), 2mins recovery jog
Wednesday	3-5M easy
Thursday	Rest
Friday	Rest
Saturday	20mins jog
Sunday	Warm-up, 5k or 10k race, warm-down

Week 6 (30-35 miles)

Monday	Rest or 30mins easy
Tuesday	4-6M steady
Wednesday	Warm-up, 8 x 400m fast (2mins recovery) or 10 x 1min fast, 2mins slow
Thursday	30mins easy
Friday	Rest
Saturday	Warm-up, 2 x 1M, timed, at marathon pace
Sunday	10-12M slow run, off-road

Week 7 Aim for a long weekend run

Monday	Rest or 30mins easy
Tuesday	Warm-up, 10 x hill climbs, as week 4, or 5M fartlek run

Wednesday	Rest
Thursday	2M easy, 2M brisk, 2M easy
Friday	Rest
Saturday	Warm-up, 2-3M brisk pace, IM jog
Sunday	Endurance run, 13M approx

Week 8 Aim for a good race

Monday	Rest
Tuesday	5-6M, starting slow, finishing faster
Wednesday	Warm-up, 3 x (1min fast,1min slow, 2mins fast, 2mins slow)
Thursday	4-6M steady
Friday	Rest
Saturday	Rest
Sunday	Warm-up, race (10k – half marathon)

The final phase

With eight weeks behind you and six still to go, you are well on your way, so the best advice is: don't overcook it. The most important things to focus on are boosting your endurance and getting used to running efficiently at your marathon pace. It is important to remember that the weight of your shoes makes a considerable difference to your speed: if you don't believe me, try running in boots! The effort which produces, say, a six-minute mile in heavy trainers might well translate to a 5:50-mile in racing shoes.

In most marathon training schedule, weeks 10-12 offer the highest mileage because they contain the longest single runs. There is also a shift away from interval training and towards running at either marathon or half marathon pace. The closer you get to the event, the more race-specific your training should be.

If you find the increase in volume too great in this final phase, try not to sacrifice the long weekend runs that are key to your marathon performance. If you have to reduce the overall mileage, cut down on the midweek running so that you are fresh for the big weekend effort.

Racing is also key to this final phase. One of the differences

between a runner and a jogger is that the runner pushes himself harder.

Racing technique

The worst thing you can do is to make your first marathon your first race. One of the things marathon virgins always say is: 'I hadn't realised what it was going to be like'. Running a big-city marathon is, in itself, quite different from running your average 10k road race, but the stress can be compounded and magnified by your state of mind.

A certain amount of stress is good: it makes life exciting and raises your game; but too much stress just wears you down. The more you can rehearse for the event, the less stressed you will be on the day. The first and most obvious challenge is getting used to racing as opposed to training. That's why races are included in the schedule.

You need to get used to having other people jostling around you at the start – some tearing past and others going so slowly that they get in your way. You need to get into the habit of settling into your own rhythm, regardless of what others are doing. Later in the race, when you are running in a group and maybe catching up with those who went off too fast, you can use your fellow-runners to help you along. It is quite legitimate, when running into a head wind, to tuck in behind someone bigger, but it is also a good thing for runners to share the pace-making and help each other along.

"It is absolutely vital to rehearse the early-morning timetable which most marathons impose, and this should not be left until the last week"

It is absolutely vital to rehearse the early-morning timetable which most marathons impose, and this should not be left until the last week. If you are starting your long Sunday run at 10am, practise getting up before 7am and eating a light breakfast. Practise your warm-up, practise drinking on the run and, best of all, practise by running in one of the big half marathons.

Week 9 (40-45 miles)

Monday	Rest
Tuesday	6M steady
Wednesday	Warm-up, 3-4 x 1M brisk (3mins recovery)

Thursday	6-8M, starting slow
Friday	Rest
Saturday	2M easy, 3-4M at threshold pace, 1M jog
Sunday	16M endurance run, taking drinks

Week 10 Aim for a good weekend race

Monday	Rest
Tuesday	4-6M steady
Wednesday	Warm-up, 6 x 800m fast (2mins) or 6 x 3mins
Thursday	20-30mins slow, then 6 x 150m fast strides, long recoveries
Friday	Rest
Saturday	Rest or jogging and striding, as Thursday
Sunday	Warm-up, race (10M or half marathon)

Week 11 (40-45 miles)

Monday	Rest
Tuesday	6-7M steady
Wednesday	2M easy, 5M @ marathon pace, 1M jog
Thursday	5-7M steady
Friday	Rest
Saturday	Rest or 30mins easy
Sunday	18-20M endurance run – your longest. Start slow, take drinks

Week 12 (35-40 miles)

Monday	Rest
Tuesday	5-7M steady
Wednesday	Warm-up, 3-4 x (1min fast, 1 slow, 2mins fast, 2 slow)
Thursday	5-7M steady
Friday	Rest
Saturday	Jogging and striding, as week 10
Sunday	Warm-up, 10k race + 3-4 miles easy or 2 x 5M @ marathon pace

The last two weeks

The penultimate week should contain only about two-thirds of a normal week's work because you need to rest up to reap the benefits of all the work you have put in so far. In the final week you should be doing very little – running maybe three times in the six days leading up to the race.

Week 13

Monday	Rest
Tuesday	20mins easy
Wednesday	Warm-up, 2M brisk, warm-down
Thursday	30mins easy
Friday	Rest
Saturday	20mins jog with a few stride-outs
Sunday	10M, with middle 6M @ marathon pace

Week 14

Monday	Rest
Tuesday	20mins jog
Wednesday	Rest
Thursday	10mins warm-up, 2 x 1M @ race pace, in racing gear
Friday	Rest
Saturday	20mins jog with a few stride-outs
Sunday	THE RACE

Age adjustments There is no reason why over-60s should not be able to cope with this sort of workload, but they may need to take more time over it. The solution is to start the schedule 18 weeks ahead of the race, allowing time to repeat the odd week before moving on.

Estimating your time

Work out as many as you can of the following:

- 6 x your 5M (8k) time
- 5 x your 6M time (10k is 6.25 miles)
- 3 x your 10M time
- 2 x your half marathon time + 10%

Whatever you do, try to run the first two or three miles right on your target pace

This will give you a range of times. If you feel you have done enough endurance work, aim for the fastest of these. If you are worried about your endurance, aim for the slowest. Whatever you do, try to run the first two or three miles right on your target pace. We all know the disastrous effects of starting a marathon too fast. Even if you feel good, try to stick to level pace until you reach 15 miles.

If you are feeling good, there will be plenty of opportunity to make up time in the later stages, when other people are slowing down.

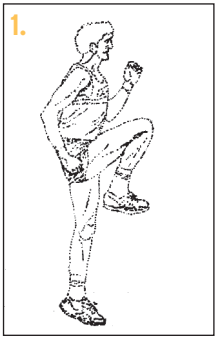
The run/walk method

If you jog the first mile in 10 minutes, then walk for a minute, then jog on at the same pace to the next mile marker, you will cover the first two miles in just over 21 minutes. Walking allows your body to break down some of its fat stores, so the leg muscles never run out of fuel. You should reach 20 miles in around 3:40 at this pace, and at 11 minutes per mile you will finish in under 4:48. If you can manage to reach each mile marker by jogging for nine minutes and walking for one, you will cover the full distance in 4:22 and, in so doing, will have passed a lot of people who tried to run the whole way without the proper training. This method works well every year and I can thoroughly recommend it for those who want to get round in a respectable time.

Appendix 1

SPRINT DRILLS

These should be done as part of the track training, always preceded by a thorough warm-up *(see Chapter 6, pre-training routine)*. Each routine should be carried out over 30-40m and repeated 3-4 times, with a slow jog back after each. It is best to work with a coach, or at least an observer, to make sure you get the actions right.



1. High knee skipping

Keeping your trunk upright and the head still, skip slowly down the track, raising one knee high on every other skip, first the right and then the left. You need a vigorous arm drive to keep your body from twisting as the knee is raised.

2. Bottom kicking

Jog down the track with very short strides, pulling the trailing leg up sharply so that your heel touches the back of your thigh.

3. Bounding

Use ultra-long strides, so that your whole body comes high off the ground and you spend longer in the air. Again, a strong arm drive is needed.

4. Clawing

This is a run, but not a sprint. When the front leg meets the ground, you exert a strong downwards pressure, pulling your body forwards.

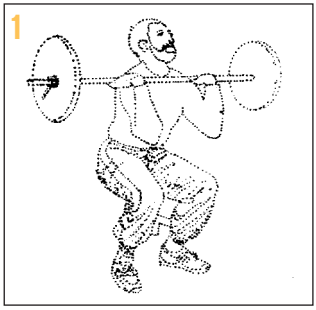
Appendix 2

WEIGHT TRAINING

Ideally these exercises should be done in a gym, using free weights, under the supervision of a coach. To avoid injury, it is best to learn the correct way to lift weights.

If you are working for power, it is best to use a small number of lifts, close to your maximum. If you are working more for endurance and all-round development, the convention is to use about two-thirds of your maximum and do 8-10 of each exercise in the set, with two or three sets in total.

It is always best to work conservatively to start with, then work up gradually.

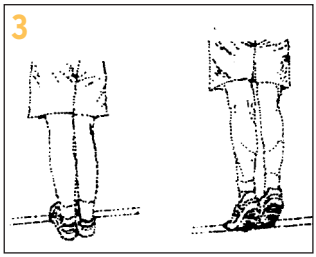


1. Half squats

With the bar across your shoulders, sink down until your knees are bent at an angle of 90°, keeping your back straight and head up.

2. Leg extension

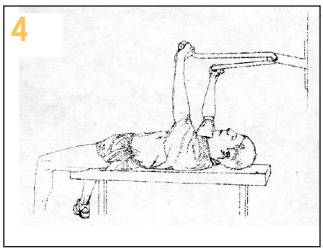
This is done in a seated position on a machine. Start with knees at 90°, then straighten them.



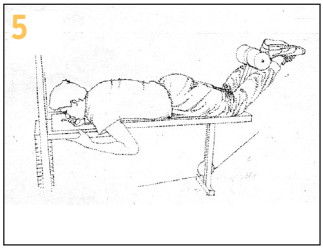
3. Calf raises

With a bar across your shoulders, raise your heels off the ground, then lower them again.

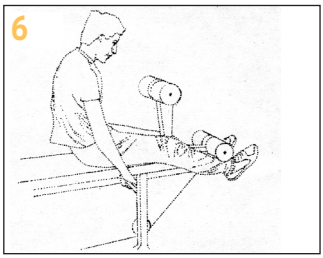
4. Bench press
This is done lying on a bench, with the bar on a support above your chest. Straighten your arms to raise the bar, then lower again.



5. Hamstring curls
These are done lying on a bench on your stomach, with legs straight and a bar across your heels. Flex your legs to raise the bar, then lower again.



6. Knee lifts
These are done sitting on a bench or table, with your legs hanging down and the weight in front of your ankles. Straighten your legs to raise the weight, then lower again.



7. Step-ups
With a bar across your shoulders, step up onto a low bench and back again, keeping your back straight and head up.

Other weights exercises should be done only under the supervision of a qualified instructor.

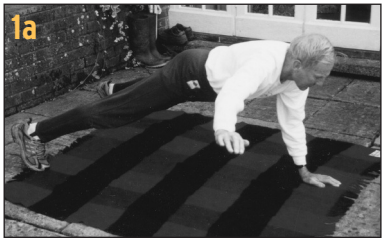
Appendix 3

CORE STABILITY EXERCISES

These can be done at any time. The idea is to strengthen the transversus abdominalis (TVA) sheet of muscle which stabilises the lower abdominal region.

1. Three-point balance

Assume the press-up position with arms and body straight and torso raised off the ground. Raise your right hand (a) and stay balanced for 10 seconds, then replace it. Repeat for each hand and foot (b) in turn until one minute has passed; rest, then try another minute.

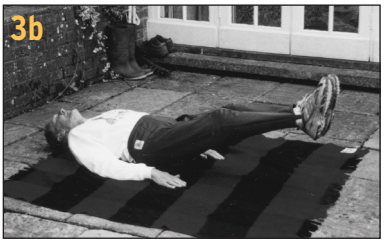


2. Side leg raises

Lying on one side with legs straight and in line with the torso, raise the upper leg, hold it for 10 seconds then replace. Do three of these exercises on each side.

3. Leg raises

Lying on your back, knees bent, lift your feet just off the ground; extend the right foot (a), then bring it back; do the same with the left, then both feet together (b). Continue for one minute, without heels touching the ground.



4. Trunk curls

Lying on your back, knees bent, arms by your sides, raise your head off the ground and curl your shoulders towards your knees, contracting the lower abdominal muscles. Repeat 10 times.

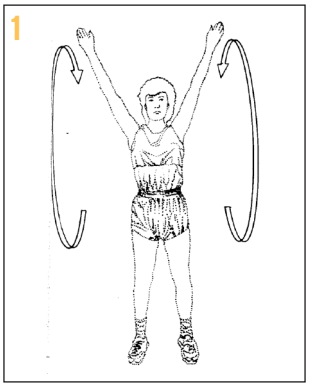
Appendix 4

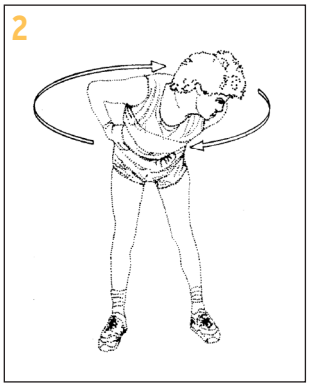
LOOSENING AND STRETCHING

These shold be done when the muscles are warm, *ie* after a warm-up and at the end of a run. Hold each stretch for ten seconds, without making it painful.

1. Arm swinging
Standing, feet astride, swing both arms together in a circular movement, five times forwards and five times backwards; repeat with both arms separately then with both arms together again.

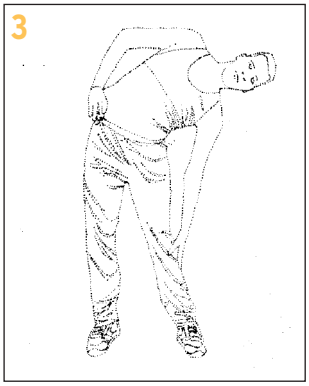
2. Hip rotation
Standing, feet astride, hands on hips and trunk upright, rotate hips slowly five times in one direction then five times the other way. Repeat while swinging the upper body forwards and backwards at the same time.

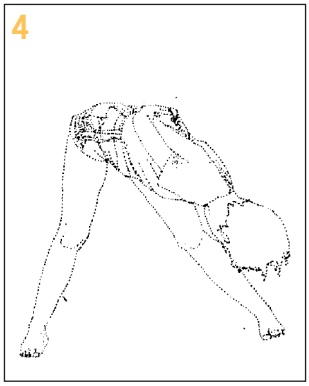




3. Side stretching
Standing, feet astride, slide your right hand down your side towards your right knee and hold. Repeat on the left.

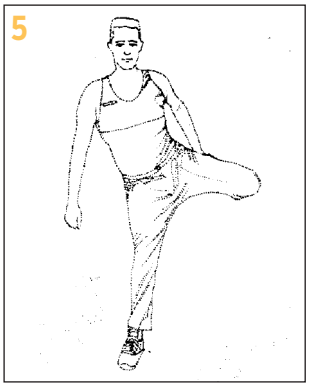
4. Adductor stretch
Feet astride, bend from the hip, keeping the knees locked.

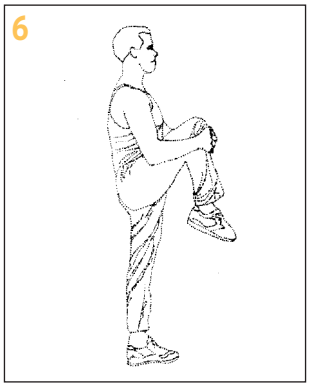




5. Quads and ankles stretch
Standing on your right leg, raise the left leg and use your left hand to pull the ankle up towards your bottom.

6. Hamstring and gluteals stretch
As for quads stretch, but pull your knee up towards your chest with both hands, keeping the trunk rigid.



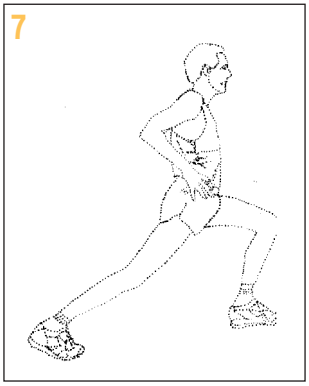


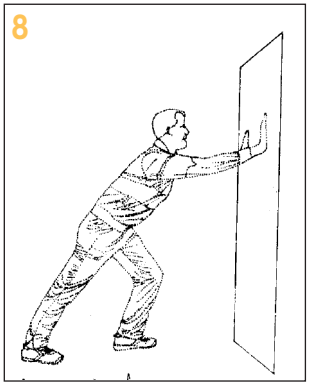
7. Groin stretch

Put one knee out in front of you and the other leg straight back behind you. Drop your hips, trying to keep your trunk upright.

8. Achilles stretch

Stand with feet together, facing a wall or tree about 4ft away. Put one foot back behind you and lean forwards onto the wall.





9. Leg extensors stretch

Standing with feet slightly apart, put one foot forwards, with the heel on the ground, toe up and knee straight. Bend from your hips over the front leg.