Roberttown Road Runners

Training Manual

Foreword from Roberttown Road Runners

On behalf of the committee, our members and the club, welcome to Roberttown Road Runners (RRR).

3 members established Roberttown Road Runners in 1992. The club currently has 40 members and is affiliated to England UK Athletics.

Members participate in road running events throughout the year, which often includes an annual trip to an overseas race for those wishing to participate.

Alongside the running we also like to actively pursue the social side that a club has to offer, we can sometimes be referred to as a ‘Social club, which runs’!

The training manual has been designed and produced specifically for RRR by a third year student from the University of Huddersfield. We aim to inform any new and existing members of helpful training tips.

We hope that membership of the club is enjoyable and should you have any ideas please do not hesitate to pass them onto the committee.

Further club information can be found in the member’s information booklet.

Contents:

Benefits of Running

There are more and more people wanting to keep fit and lots of people choose running as a way to do this. There are times when you can question why you do it? If you're a beginner or have been running for a number of years there is a reason for you putting on your trainers and pounding the pavements. Many reasons could be down to wanting to keep fit, wanting to achieve a goal, enjoyment, or the social side that a running club has to offer.

So we all know that Running is good for you, but why?

- It can help you lose weight
- Can lower blood pressure
- Improve cardiovascular system
- Lower cholesterol
- Can slow down the ageing process

The benefits of keeping active as you age are important.

- After the age of 30 there is a decline in performance and physiological capabilities.
- Aerobic capacity declines approximately 1% each year in adult men and women. So by being physically active you can maintain a higher aerobic capacity.
- Exercise can help with the negative ageing effects on body composition. Those older adults who are active can have at least 20% less body fat than those who are inactive.

The current UK recommendations on how often we should exercise for health benefits are 30 minutes of moderate intensity physical activity at least 5 days a week.

Training Principles

When starting an exercise program, the first thing to work out is how much time you can devote to running and how you can fit it into daily life. One principle to follow is the FITT principle.

Frequency

How many times a week

Intensity

What intensity, low, moderate, high

Time

Duration of the session

Type

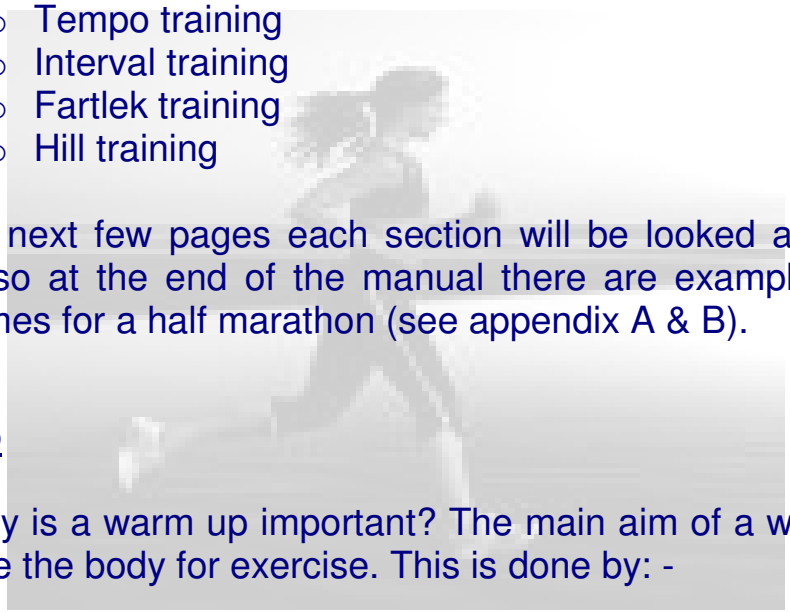
Type of exercise, i.e. running, swimming, resistance training

Running Training Programme

So when starting a new programme you need to decide what you want to achieve. Is there a race you want to complete, do you want to get faster or just to maintain your current fitness? Whatever the reason there are certain things that you need to consider for your training. These include: -

- Warm up
- Cool down
- Stretching
- Type of running sessions
    - Long slow distance
    - Tempo training
    - Interval training
    - Fartlek training
    - Hill training

Over the next few pages each section will be looked at in more detail. Also at the end of the manual there are example-training programmes for a half marathon (see appendix A & B).



Warm up

Ok so why is a warm up important? The main aim of a warm up is to prepare the body for exercise. This is done by: -

- Raising the heart rate (HR)
- Increases muscle and core temperature
- Increases blood flow

These can have a positive effect on performance by: -

- Increasing muscle contraction
- Improve muscle strength
- Blood flow to active muscles can be increased

Structure of a warm up

Things to consider when starting a warm up are the intensity, duration and also specificity of a warm up.

Intensity

- For endurance events the intensity of the warm up should be just enough to raise heart rate and increase temperature. A warm up should be increased gradually without causing fatigue or depleting energy levels.
- Causing the body to have a mild sweat is a good way to tell if you are warming up at the correct intensity.

Duration

- The duration of a warm up should be approximately 5-10 minutes. The time left between the warm-up and the start of the activity should be no longer than 5 minutes, this is so any benefits are not lost.

Specificity

- There are two types of warm-up
    - General – which can consist of any type of movement in order to raise your heart rate (i.e. skipping/cycling)
    - Specific – this mimics movements of the activity (i.e. jogging)
        - Certain drills can be incorporated into a warm-up (see next page)

High Knees

Emphasises knee lift for running and can help maintain stride length whilst running. Also good for core strength & balance.

Technique tips

- Lift knees high whilst walking forward
- Hold your position on toes for a second before moving to opposite leg
- Run tall & make sure you do not lean back

Heel Flicks

Can help increase leg turnover (which in turn helps improve speed).

Technique tips

- Place hands behind your bottom
- Move from foot to foot at a quick pace
- Kick heels back to touch each hand

For more examples of running drills see You-Tube.

Cool Down

A cool down is often over looked by many runners, however a cool down should be incorporated after each training session.

A cool down should be performed for the last few minutes of exercise. For example once you have finished a race or training run, jog before gradually walking slowly for a few minutes. This avoids blood pooling in the legs, which can cause dizziness, nausea or fainting. After cool down and whilst the muscles are still warm, this is the perfect time to stretch.

Stretching

To stretch or not to stretch? That is the question on many people's lips. Research into stretching is very conflicting and there is no concrete evidence, which suggests that stretching can increase performance or reduce the risk of injury.

So why should we bother to stretch?

Stretching can increase flexibility and enables joints to work through their full range of motion (ROM). Flexibility is how far we can bend, reach and turn. Poor flexibility can contribute to muscle and joint pain. Any of these factors can increase the chance of becoming injured!

Ideally stretches should be done every day in order to maximise benefits. However DO NOT stretch cold muscles as this may lead to injury.

Stretching is down to personal preference however having good flexibility or maintaining flexibility into older age is one of the main components of physical health.

The following static stretches are ideal, as all the major muscles relevant to runners are targeted. Hold each stretch for approximately 30 seconds and repeat 2-3 times. Remember to stretch both sides of your body where appropriate.

Gluteals (bottom)

- Position your self on the floor and lie on your back.
- Place left foot on opposite knee, keeping left knee out to the side.
- Hold right leg behind the thigh and draw towards you.
- You should feel a stretch in the left hip and gluteal area.
- Repeat on opposite leg

Adductors (inner thigh)

- Sit on floor
- Put soles of feet together and draw legs in towards the body
- Gently push down on the inside of the knee

Hamstrings (back of thigh)

- Lie on your back with both knees bent and soles of feet flat on the floor
- Raise one leg towards the body, using your hands to hold at the back of your thigh
- Draw in as far as possible making sure that the leg is straight
- Repeat on opposite leg

Alternatively this can be done in a standing position

- Standing up place one foot forward
- Bend opposite knee and push bottom backwards (as if taking a sitting position)
- Keep front leg straight
- Keep back straight & place hands on bent knee
- To increase stretch, lower bottom.
- Repeat on opposite leg

Hip flexors (front of hips)

- From a kneeling position, lunge one leg forward with foot on the floor
- Opposite leg is still kneeling on the floor
- Gently lean forwards, keep stomach muscles tight and body tall
- You should feel a stretch at the front of the hip

Quadriceps (front of thigh)

- In a standing position, bend one knee behind you towards your bottom, holding the foot with the same hand.
- Tip the pelvis forwards
- To increase the stretch, pull the knee backwards
- Repeat on opposite leg

Calf

- In standing position, take one leg backwards, keeping leg straight
- Opposite (front) leg should be bent
- Keep body tall
- If you cannot feel the stretch, step leg back even further
- Repeat on opposite leg

Running Sessions

Long slow distance (LSD)

A long steady paced run is an essential part of any training programme. LSD runs are normally carried out on a weekly basis, distance and duration of runs should be increased gradually. The recommended increase is normally 10% of previous weeks training. A good way to gauge a steady run is the ability to talk without undue distress. LSD runs are essential for improving cardiovascular function, muscle endurance and enhances the use of fat as a fuel.

Tempo Training

Tempo training or also known as threshold training should be carried out at intensity just higher than race pace. The pace of tempo training has you at the brink of what is known as your lactate threshold (this is the point where there isn't enough oxygen to meet demands of the working muscles). Lactic acid builds up in the muscle and can cause pain and the sensation of 'jelly legs'. Training at this intensity on a regular basis will increase lactate threshold so you can run at higher intensity for longer durations. Tempo training should be included into a training programme at least once a week for duration of approximately 20-30 minutes gradually increasing to 35-40 minutes.

Interval Training

Is the ideal way to incorporate high intensity training into your programme. Interval training is a mix of high intensity training combined with active recovery or rest periods. This type of training allows the body to train at higher intensities for longer durations. The ideal way to structure interval training is with a work to rest ratio of 1:1 (e.g. work at high intensity for one minute, rest or active recovery for one minute). Interval training should only be carried out when a good aerobic base has been achieved, so beginners may want to avoid this type of training to start with. The benefits of interval training are improved performance, enhanced aerobic and anaerobic systems.

Fartlek
Fartlek training is a combination of steady paced running and faster bouts of running. The environment plays an important part of fartlek training, for example you may decide to run between lamp-posts or up pace between trees etc.

Hill Training
Another way to increase training intensity is to incorporate hill work. The ideal way to do this is to run up hills fast and jog back down.

PLEASE NOTE THAT BEFORE ANY SESSION, WHICH INCLUDES FASTER PACED TRAINING A WARM UP SHOULD BE CARRIED OUT.

Cross Training

Why cross train?

- Minimizes risk of joint injury or overuse strain
- Strengthens connective tissues (ligaments, tendons and cartilage).
- Maintains three components of total body fitness
    - Efficient cardiovascular system
    - Adequate endurance, strength and power in all major muscle groups as well as joint flexibility
    - Acceptable body composition. Minimal fat and greater lean body mass (muscle)
- Prevent boredom

Middle distance and long distance runners tend to have great strength and endurance in the posterior lower limb muscles (hamstrings, calves and soleus) and lower back muscles. However, other leg muscle's (quadriceps) and upper body and trunk muscle's tend to get neglected. When such imbalances in major muscle groups occur the risk of injury is increased.

Different types of cross training

Swimming – is non-weight bearing so gives the joints a rest. The use of the upper body gives an all over workout and strengthens muscles which running neglects. It is also a good way to prevent or aid in recovery of injuries.

Cycling – is low impact so again gives a rest to the joints. Improves cardiovascular fitness and strength in quadriceps, glutes and calves.

Resistance/weight training – can iron out any muscle in-balances. Muscle burns more calories than fat. Strength training can enhance endurance and increase strength of joint stability, which in turn can reduce the risk of injury.

Core Training – can increase performance and prevent injury. Core muscles provide strength and stability to the spine and pelvis. Core strength can improve posture, which can help promote better running technique. The core is made up of muscles in the lower back, abdominals and gluteals.

For more information on cross training visit www.runnersworld.com

Injuries

One of the main fears for runners (other than dogs) is getting injured. The thought of not been able to pound the pavements as often as desired can fill many runners with dread. However 60% of running injuries are a result of doing too much, too soon, too often.

Common running injuries tend to affect the following parts of the body:

- Knee
- Shin
- Foot
- Achilles/Calf
- Ankle
- Hip/Pelvis
- Lower back
- Hamstring
- Thigh

The most common injured area is the knee.

However prevention is better than cure!
Consideration of the following may help minimise the risk of injury:

- Follow an appropriate graduated training programme.
- Try to incorporate strength and flexibility training into your weekly routine (especially those which target the lower body).
- Seek expert advice for the correct type of running shoes
- And finally listen to your body, if something hurts, don't just ignore it as this could eventually make things worse! You don't want your trainers to be on the shelf any longer than is necessary!

However if you are unlucky enough to get injured, then rest! Consider getting expert advice for the best course of action to enable you to get back running as soon as possible.

Also there is plenty of information available on different types of injuries and how to treat them. A list of resources can be found at the end of the manual.

Nutrition

What you eat and drink is not only important for health and body weight but as a runner it can affect performance and recovery. A healthy balanced diet with the right amount of carbohydrates, protein and fat is important for anyone. Running puts added demands on the body and additional nutritional requirements should be considered.

One reason for keeping active is to lose weight or to maintain an ideal body weight. However by doing this you can often deprive the body of essential calories it needs for running. Just like a car cannot run without petrol, our bodies cannot run without the correct amount of energy intake. Some signs that you have insufficient energy intake can include: -

- Weight loss
- Fatigue
- Poor performance
- Low immune system
- Amenorrhea in women (periods become sporadic or stop)
- Loss of lean muscle

The amount of calories needed varies from each individual and is determined by the basal metabolic rate (BMR) and the amount of physical activity someone does. BMR is the amount of energy needed to maintain bodily functions at rest. This is the energy required to keep breathing, keep blood circulating, keep the heart beating, the brain functioning and maintain body temperature.

You can work out how many calories per day you require by following the calculation below

- 1kg of body weight requires approximately 25kcal per day.
- To find out your BMR, multiply body mass (in kg) by 25

E.g. 60kg x 25 = 1500 kcal/day

Then work out how much energy is needed (i.e. from activity levels)

- Inactive – BMR x 1.3
- Moderate active – BMR x 1.5

- Very active – BMR x 1.7

So a 60kg person (with a BMR of 1500) who is moderately active:

1500 x 1.5 = 2250kcal/day

For the average person the recommended intake of carbohydrates, protein & fats of daily calories are as follows: -

Carbohydrates – 55%
Fats – 30%
Protein – 15%

However for someone who is active the intake of carbohydrate should be nearer 60-65%.

The amount of calories supplied per gram are:-

Fat	9kcal
Protein	4kcal
Carbohydrate	4kcal

Carbohydrates (CHO)
CHO are an important source for energy and is the main source of energy for exercise. CHO is stored in the liver & muscles and is the only fuel that the brain can use. Some sources of CHO include:-

- Cereal
- Bread
- Pasta, rice & noodles
- Potatoes
- Pizza
- Cakes
- Fruit juice
- Sports drinks, gels & bars

Energy stores can almost be depleted after 2 hours of strenuous exercise. Taking on carbohydrates during exercise is beneficial to performance and can also minimize fatigue. Easy ways to do this is with sports drinks, gels & bars.

Fats

Fat is an essential part of our diet and should not be excluded as it is a source of energy, protects our vital organs and is a carrier for fat-soluble vitamins (A, D, E & K). However excessive amounts in the diet can increase risk factors of chronic disease.
Some sources of fat include:-

- Butter, margarine & oils
- Cream
- Cheese
- Meat
- Oily fish

Protein

Protein is essential for growth, repair & rebuilding of vital tissues. Protein cannot be stored in the body so if more is consumed than the body requires, some of the excess is broken down and is released from the body in urine and the rest is either used as energy or stored as fat. Some sources of protein include:-

- Meat
- Poultry
- Fish
- Eggs
- Nuts & seeds
- Beans & lentils

Fluid

Dehydration during exercise can have a negative effect on performance. Keeping properly hydrated before, during and after exercise can reduce negative effects. Specific advice on how much fluid to drink is often seen, however the amount of fluid required varies with each individual. There are several factors that contribute to dehydration:

- Sweat rate
- Environmental conditions (i.e. hot weather)
- Intensity of exercise
- Type of clothing worn

Before
Hydrate with fluid several hours before exercise as this allows fluid to be absorbed, it also prevents what is commonly seen at races of people jumping behind a fence for a toilet stop a couple of miles into the race!

During
This should be developed on an individual basis, however, fluid replacement strategies, which prevent a weight reduction of no more than 2% of pre-exercise body weight should be followed. Fluids that contain electrolytes and carbohydrates can help in performance.

After
Normal consumption of food and drink should restore hydration levels. If rapid recovery is required approximately 1.5l of fluid for each kg of body weight lost is recommended and this should be consumed over a period of time.

Sources of Information

Websites

www.runnersworld.com

www.running4women.com

www.youtube.com

Recommended Reading

Better Training for Distance Runners. 2nd ed. (1997) By David Martin & Peter Coe

Exercise Physiology. Energy, Nutrition & Human Performance. 6th ed. (2007) By William McArdle, Frank Katch & Victor Katch

Lore of Running. (1985) By Tim Noakes

Nutrition for Marathon Running. (2005) By Jane Griffin

Running Injuries. How to prevent and overcome them. (1990) By Tim Noakes & Stephen Granger

Running Well. (2008) By Sam Murphy & Sarah Connors

Appendix A

Half Marathon Training Programme – Beginners

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Rest		3 mile slow		3 mile slow	Rest	4 mile steady
2	Rest		3 mile steady		3 mile slow	Rest	5 mile steady
3	Rest		4 mile gentle fartlek		3 mile easy	Rest	6-7 mile steady
4	Rest		40 minute hill session		3 mile jog	Rest	7-8 mile steady
5	Rest		4 mile gentle fartlek		3 mile steady	Rest	8-9 steady or 10k race
6	Rest		4 mile easy		3 miles steady including few short bursts	Rest	9-10 miles steady
7	Rest		5 mile steady		3-4 mile jog	Rest	10 miles estimated race pace
8	Rest		4 mile inc. several short bursts		4-5 mile steady	Rest	10-11 miles steady
9	Rest		5 mile race pace		3 mile easy	Rest	12-13 miles steady
10	Rest		4 mile gentle fartlek		5 mile steady	Rest	12 miles steady
11	Rest		40 minute light hill session		5 miles easy	Rest	6 miles race pace
12	Rest		3 mile jog		Rest or 20 minute slow	Rest	Race Day

For days left blank, either rest or try incorporate some cross training. If you do wish to add an extra running session, keep mileage and intensity low. A warm up should be included in each session.

Appendix B

Half Marathon Training Programme – Intermediate

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Rest	4 mile easy	5 mile inc 15 mins. of 30 seconds fast, 60 seconds active recovery	Cross train	5 mile tempo run	Rest	7 mile steady
2	Rest	5 mile easy	5 mile inc 16 mins. of 1 x minute fast, 1 x minute active recovery	Cross train	3 mile tempo run	Rest	7-8 mile steady
3	Rest	4 mile easy	4 x 3 mins. with 3 x mins. recovery	Cross train	4 mile steady	Rest	8-9 mile steady
4	Rest	5 mile easy	4 x 3 mins. fast with 2 mins. recovery	Cross train	5 mile fartlek	Rest	10 mile easy
5	Rest	5 mile easy (off road if possible)	3 x 5 mins. fast with 5 min active recovery	Cross train	Hill reps x 5	Rest	10k race or 5 mile timed fast pace run
6	Rest	5 mile easy	2 x 2 mile timed at tempo pace	Cross train	6 mile fartlek	Rest	10 mile steady
7	Rest	4 mile easy	6 mile tempo pace	Cross train	4 mile steady	Rest	11-12 mile steady
8	Rest	5 mile easy	3 x 1 mile timed with 5 minute recovery	Cross train	6-7 mile steady	Rest	12 mile steady
9	Rest	5 mile easy (off road if possible)	6 mile including 10 x 30 secs. Fast 30 secs. active recovery	Cross train	Hill reps x 8	Rest	10k race or timed run

10	Rest	5 mile easy (off road if possible)	4 x 1 mile timed with 5 minute recovery	Cross train	6 mile fartlek	Rest	11-12 mile steady
11	Rest	5 mile easy	5 mile inc 15 x 1 min. fast, 1 x min. active recovery	Cross train	5 mile tempo run	Rest	10 mile easy
12	Rest	5 mile easy	2 x mile race pace & 2 x mile easy	Cross train	3 mile steady	Rest	Race Day

Please note that a warm up should be included in each session, particularly before any faster paced or interval session.