

Section 5 :

Preset Programmes

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Programme Guidelines

The basic conditioning, 20 minute fitness and 40 minute fitness programmes are for those who achieving general health and fitness is their priority, whilst the 2,000m race training, marathon training and cross-training programmes are designed with a specific competition focus in mind. Each programme indicates a target group, but you must use your best judgement with regard to how you are coping and progressing. If you find that the work is hard, and you are having difficulties maintaining the programme, ease off and consider working at a gentler pace, perhaps on another programme. Equally, if you find that it's too easy, look at moving on to the next level.

Beginning Your Programme

Before embarking on any exercise programme remember the following:

- Ensure you are medically able to start exercising. Have a fitness assessment first.
- Always listen to your body and be prepared to take a rest if you are tired. Rest is a very important part of the training process as this is when your body adapts to training loads.
- Take care not to overdo it in the early stages and never train when you are ill.
- Work within the limits of your MHR (see Training Intensity in Section 3 : Physiology).
- Don't become a slave to the programme.
- Exercise safely (see Exercise Guidelines in Section 1 : Before and After Exercise).
- If you suffer from a bad back or experience back pain when using the rowing machine you should ensure that you are using the correct technique and limit yourself to doing 20 minutes continuous rowing at a time before taking a break to stretch. Make sure you include extension stretches like the Rectus Abdominus stretch shown in Stretching in Section 1 : Before and After Exercise. If your back pain persists consult your doctor or physiotherapist. If the session is longer than 20 minutes break it into 20 minute parts. This is not affecting your training as the effect is cumulative.
- All of the training set out in the guide refers to use of the Concept 2 Indoor Rower. This does not mean that all of the sessions should be completed on the rowing machine. In order to maintain some variety in your training programme we recommend replacing some of the UT2 and UT1 sessions with the same intensity work done either running, cycling, cross-training or swimming.

Basic Conditioning

by Celia and Keith Atkinson

Target Group: Age 40+, or younger people who are unfit and have done little or no exercise.

Dr Fritz Hagerman, Professor of Physiology at Ohio University, USA and Chairman of FISA's* Rowing Sports Medicine Commission has written the following exercise programme for the Indoor Rower following research into the effects of exercise on adults who had led a largely sedentary lifestyle and had not exercised in years. The results were amazing. Starting with five one minute rows, with rests in between, the group worked on a step-by-step basis, gradually building up to a level of fitness which enabled them to row continuously for 30 minutes.

The basic conditioning programme is designed to be a gentle introductory training programme, setting an upper training intensity limit of 75% maximum heart rate (MHR) or a level at which conversation can be maintained, whichever is lower.

The programme can be adapted to your needs. For example; you can double the rest time or vary the steps (i.e. go from one minute to one and half minutes and from two minutes to two and half minutes) if you wish. What is necessary though is regularity - establish a routine of one day's work followed by one day's rest in the early stages.

* Fédération Internationale des Sociétés d'Aviron (FISA) - the world governing body for the sport of rowing.

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Table 5.1

Basic Conditioning Programme Framework					
Step	Band	Row	Rest	Workload	Work Time
1	UT1	1' @ 75% MHR	30 secs	5 reps, adding another rep each workout until you can do 8, then go to next step.	5-8'
2	UT1	2' @ 75% MHR	30 secs	Same as step 1	10-16'
3	UT1	3' @ 75% MHR	30 secs	Same as step 1	15-24'
4	UT1	4' @75% MHR	30-60 secs	4 reps, adding another rep each workout until you can do 7, then go to next step	16-28'
5	UT1	5' @ 75% MHR	30-60 secs	Same as step 4	20-35'
6	UT1	Progressing to continuous rowing	-	Once you are comfortable with step 5 increase the time period for rowing more rapidly. For example, to 7.5 mins x 4, then 10 mins x 3, then 15 mins x 2, until you are rowing continuously for 20 mins, then add 2 mins each day until you reach 30 mins.	20-30'

Notes

Step 1 means row for one minute at up to 75% of your maximum heart rate (MHR), then rest for 30 seconds. Repeat so that you complete five repetitions altogether. When you feel capable add another repetition until you can comfortably complete eight repetitions then move to Step 2, and so on. Step 1 represents between five and eight minutes of exercise.

Table 5.2

Basic Conditioning Programme				
Step	Stage 1	Stage 2	Stage 3	Stage 4
1	5 x 1' UT1 20-24spm	6 x 1' UT1 20-24spm	7 x 1' UT1 20-24spm	8 x 1' UT1 20-24spm
2	5 x 2' UT1 20-24spm	6 x 2' UT1 20-24spm	7 x 2' UT1 20-24spm	8 x 2' UT1 20-24spm
3	5 x 3' UT1 20-24spm	6 x 3' UT1 20-24spm	7 x 3' UT1 20-24spm	8 x 3' UT1 20-24spm
4	4 x 4' UT1 20-24spm	5 x 4' UT1 20-24spm	6 x 4' UT1 20-24spm	7 x 4' UT1 20-24spm
5	4 x 5' UT1 20-24spm	5 x 5' UT1 20-24spm	6 x 5' UT1 20-24spm	7 x 5' UT1 20-24spm
6	4 x 7.5' UT1 20-24spm	3 x 10' UT1 20-24spm	2 x 15' UT1 20-24spm	20' UT1 20-24spm Keep adding 2' up to required total time

Notes

- i. Move from one stage to the next only when you feel ready - there are no time restrictions.
- ii. 5 x 1' UT1 20-24spm means row one minute at UT1 heart rate, at 20 to 24 strokes per minute, take 30 seconds rest then repeat till you have done it five times.

20 Minute and 40 Minute Fitness

by Celia and Keith Atkinson

In the 20 minute fitness and 40 minute fitness programmes the training periods have been defined as preparation, development and consolidation. The preparation period is the start up period, when you are getting used to a regular training regime; the development period should be started when you are happy that you've mastered technique and have established a regular exercise routine. You can then begin to work a little harder during each session. Provided progress is good you may wish to push on further into the consolidation period. The main changes are that the stroke ratings (strokes per minute or spm) will rise and the quality and intensity of the work will increase. In short, you will work harder and rate higher.

For those of you who become interested in competition, the preparation, development and consolidation periods can relate to the preparation, pre-competition and competition periods for 2,000m race training.

20 Minute Fitness

Target Group: People who have a limited amount of time for training.

The 20 minute fitness programme is based on the periodisation of training (see Periodisation of Training in Section 1 : Before and After Exercise), training heart rate (see Training Intensity in Section 3 : Physiology) and the training bands (see Training Bands in Section 3 : Physiology).

The session length, in terms of work, is up to 20 minutes but this does not include time for warm-up, cool down or stretching. Depending on the amount of rest you require, some sessions may overrun the allotted 20 minutes slightly.

This programme (Table 5.3) has been written for anybody who wishes to train from three to five times per week. If you train three times a week, follow the programme for sessions 1, 2 and 3. For four sessions add on Session 4, and for five sessions complete all sessions.

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Notes for Table 5.3

- i. 1 x 20' UT1 20spm means row for 20 minutes in your UT1 heart rate range at 20 strokes per minute.
- ii. 2 x 8' UT1 20spm means row for eight minutes in your UT1 heart rate range at 20 strokes per minute, with a short rest of three to four minutes, then repeat.
- iii. 6 x 1' AN 32spm means row one minute intervals in your AN heart rate range, with at least one to two minutes rest between each piece of work, repeat six times.
- iv. 4 x 2'TR 30spm means row for two minutes in your TR heart rate at 30 strokes per minute with 30 to 90 seconds rest, repeat four times.
- v. Sessions 1 to 3 are fairly hard workouts as they are designed for people only completing three training sessions each week. The less training you do each week the harder the individual sessions need to be so that cumulatively you are doing enough work for it to be beneficial. As you complete more sessions per week the training load of the extra sessions can be reduced. Therefore sessions 4 & 5 are lighter workouts. When completing more than three sessions a week we recommend you adjust the sequence of the sessions to give a more balanced mix of light and hard sessions throughout the week.

Table 5.3

20 Minute Fitness Programme, 3-5 Sessions per Week			
Session	Light Week	Medium Week	Hard Week
PREPARATION PERIOD			
1	1 x 20' UT1 20spm	1 x 20' UT1 22spm	1 x 20' UT1 24spm
2	2 x 8' UT1 22spm	2 x 8' UT1 23spm	2 x 8' UT1 24spm
3	1 x 20' UT1 20spm	1 x 20' UT1 22spm	1 x 20' UT1 24spm
4	2 x 8' UT1 22spm	2 x 8' UT1 23spm	1 x 20' UT1 24spm
5	1 x 20' UT2 18-20spm	1 x 20' UT2 18-20spm	1 x 20' UT2 18-20spm
DEVELOPMENT PERIOD			
1	2 x 8' AT 24spm	2 x 8' AT 25spm	2 x 8' AT 26spm
2	1 x 20' UT1 20spm	1 x 20' UT1 22spm	1 x 20' UT1 24spm
3	3 x 5' AT 26spm	3 x 5' AT 27spm	3 x 5' AT 28spm
4	1 x 20' UT1 22spm	1 x 20' UT1 23spm	1 x 20' UT1 24spm
5	1 x 20' UT2 18-20spm	1 x 20' UT2 18-20spm	1 x 20' UT2 18-20spm
CONSOLIDATION PERIOD			
1	3 x 4' TR 28spm	3 x 4' TR 28spm	3 x 4' TR 30spm
2	6 x 1' AN 32spm	6 x 1' AN 34spm	8 x 1' AN 36spm
3	4 x 2' TR 30spm	5 x 2' TR 32spm	6 x 2' TR 32spm
4	2 x 8' AT 24spm	2 x 8' AT 26spm	2 x 8' AT 28spm
5	1 x 20' UT1 20spm	1 x 20' UT1 22spm	1 x 20' UT1 24spm

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40 Minute Fitness

Target Group: People who can devote up to an hour to a training session.

The 40 minute fitness programme is based on the periodisation of training (see Periodisation of Training in Section 1 : Before and After Exercise), training heart rate (see Training Intensity in Section 3 : Physiology) and the training bands (see Training Bands in Section 3 : Physiology).

The session length, in terms of work, is up to 40 minutes but this does not include time for warm-up, cool down or stretching. Depending on the amount of rest you require, some sessions may overrun the allotted 40 minutes slightly.

This programme (Table 5.4) has been written for anybody who wishes to train from three to five times per week. If you train three times a week, follow the programme for sessions 1, 2 and 3. For four sessions add on Session 4, and for five sessions complete all sessions.

Notes for Table 5.4

- i. 1 x 20' UT1 20spm means row for 20 minutes in your UT1 heart rate range at 20 strokes per minute.
- ii. 2 x 8' UT1 20spm means row for eight minutes in your UT1 heart rate range at 20 strokes per minute, with a short rest of three to four minutes, then repeat.
- iii. 6 x 1' AN 32spm means row one minute intervals in your AN heart rate range, with at least one to two minutes rest between each piece of work, repeat six times.
- iv. 4 x 2'TR 30spm means row for two minutes in your TR heart rate at 30 strokes per minute with 30 to 90 seconds rest, repeat four times.
- v. Sessions 1 to 3 are fairly hard workouts as they are designed for people only completing three training sessions each week. The less training you do each week the harder the individual sessions need to be so that cumulatively you are doing enough work for it to be beneficial. As you complete more sessions per week the training load of the extra sessions can be reduced. Therefore sessions 4 & 5 are lighter workouts. When completing more than three sessions a week we recommend you adjust the sequence of the sessions to give a more balanced mix of light and hard sessions throughout the week.

Table 5.4

40 Minute Fitness Programme, 3-5 Sessions per Week			
Session	Light Week	Medium Week	Hard Week
PREPARATION PERIOD			
1	1 x 30' UT1 18spm	1 x 30' UT1 20spm	1 x 30' UT1 22spm
2	3 x 10' UT1 20spm	3 x 10' UT1 22spm	3 x 10' UT1 24spm
3	2 x 15' UT1 20spm	2 x 15' UT1 22spm	2 x 15' UT1 24spm
4	3 x 10' UT1 22spm	3 x 10' UT1 23spm	3 x 10' UT1 24spm
5	1 x 30' UT2 18spm	1 x 40' UT2 18spm	1 x 40' UT2 20spm
DEVELOPMENT PERIOD			
1	3 x 7' AT 26spm	4 x 7' AT 26spm	4 x 7' AT 28spm
2	2 x 15' UT1 20spm	2 x 15' UT1 22spm	2 x 15' UT1 24spm
3	4 x 6' AT 26spm	4 x 6' AT 28spm	5 x 6' AT 28spm
4	3 x 10' UT1 22spm	3 x 10' UT1 23spm	3 x 10' UT1 24spm
5	1 x 40' UT2 18spm	1 x 40' UT2 20spm	1 x 40' UT2 20spm
CONSOLIDATION PERIOD			
1	5 x 3' TR 28spm	6 x 3' TR 28spm	6 x 3' TR 30spm
2	2 x (6 x 1') AN 32spm	3 x (6 x 45 sec) AN 34spm	3 x (6 x 45 sec) AN 36spm
3	6 x 2' TR 30spm	2 x (4 x 2') TR 30spm	2 x (4 x 2') TR 32spm
4	4 x 6' AT 26spm	4 x 6' AT 28spm	5 x 6' AT 28spm
5	3 x 10' UT1 20spm	3 x 10' UT1 22spm	3 x 10' UT1 24spm

2,000m Race Training

Since its introduction, the Indoor Rower has played an important role as an indoor training and testing tool for rowers and indoor rowing is now an international sport in it's own right. The 2,000m test is used worldwide and provides coaches and athletes with a tool to monitor fitness and improvement.

Rowers, like most people, do not like being tested/examined and for this reason the 2,000m test is regarded by many as an unnecessary interruption to on-water training, and not an accurate reflection of on-water performance.

In the last 20 years the volume and intensity of rowing training has increased rapidly; top level club oarsmen and women expect to train more than 15 hours a week and international athletes well over 20. In most cases, the training cycle is building towards an annual event, or series of events. Given the level of commitment made, it makes sense to regularly check that the desired training effect is being achieved. Placing regular tests within the yearly cycle allows both the coach and athlete to monitor the athlete's performance gains and, where necessary, adjust the training programme to suit the individual's needs. If the athlete sees that they are making regular performance gains, their confidence improves and they gain a belief that the training they are doing is effective and return to it with renewed vigour. If there is no performance gain, it acts as a warning signal of either ill health, over-training or that the training programme is not suited to the individual. Whatever the answer, this can be addressed immediately rather than continuing to train, only to be disappointed when performance falls below expectations in competition.

For these reasons a testing procedure should be included in the training programme to fit into the end of each meso cycle, allowing performance gains to be monitored. This way, the testing does not need to interrupt on-water training, but will certainly benefit it. Whilst performance on the Indoor Rower does not directly reflect on-water performance between two people of different technical skill levels, where the skill level is the same, the athlete with the better 2,000m time on the Indoor Rower will inevitably win.

In this section we offer two different training programmes; the original and the interactive. The original programme offers a series of pre-set programmes for four, five or six sessions per week. The interactive offers a bespoke programme taking into account different fitness levels.

The original programme and the interactive programme vary in two ways:

1. The original programme does not take into account current fitness,
2. The interactive programme offers a suggested split for each training zone that can be used for either of the two programmes and is the best split expected for each training zone based on 2,000m time.

The Original 2,000m Training Programme

Target Group: Anyone training for a 2,000m race.

It doesn't matter whether you are an Olympic champion or a "first-timer" to the machine, if you commit yourself fully to a 2,000m race you will find yourself pushed right to your limit. That said, you will be far better equipped to cope with the physiological demands you are placing on your body if you prepare for the race in a systematic way. With this in mind we advise that if you've got less than six weeks to go to your race, and you've not been training, you should probably not go ahead. Tables 5.5 to 5.7 outline a series of pre-set programmes based on training four, five or six sessions per week.

To structure your own programme refer to Section 4 : Creating a Bespoke Training Programme.

Table 5.5

The Original 2,000m Training Programme: 4 Sessions per Week			
Session	Light Week	Medium Week	Hard Week
PREPARATION			
1	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
2	1 x 30' UT1 22spm	1 x 40' UT1 22spm	4 x 10' UT1 24spm
3	3 x 10' UT1 22spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
4	1 x 30' UT1 20spm	1 x 30' UT1 22spm	1 x 30' UT1 24spm
PRE-COMPETITION			
1	2 x 10' AT 24spm	2 x 10' AT 26spm	2 x 10' AT 28spm
2	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
3	3 x 6' AT 24spm	3 x 6' AT 26spm	3 x 6' AT 28spm
4	3 x 10' UT1 22spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
COMPETITION			
1	3 x 4' TR 28spm	3 x 4' TR 30spm	3 x 4' TR 32spm
2	9 x 1' AN 32spm	9 x 1' AN 33spm	9 x 1' AN 34spm
3	4 x 6' AT 24spm	4 x 6' AT 26spm	4 x 6' AT 28spm
4	6 x 2' TR 28spm	6 x 2' TR 30spm	6 x 2' TR 32spm

Notes

- i. Always err on the side of caution in any training regime. These training examples are a guide only and are not appropriate to everyone. You need to use caution and know your own limits when assessing your ability to cope with training doses. Beginners on a training regime of three or four sessions a week may not be able to cope with the above.
- ii. To determine which training period you should be working in refer to Section 4.2, Tables 4.1 and 4.2.

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Table 5.6

The Original 2,000m Training Programme: 5 Sessions per Week			
Session	Light Week	Medium Week	Hard Week
PREPARATION			
1	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
2	1 x 30' UT1 22spm	1 x 40' UT1 22spm	4 x 10' UT1 24spm
3	1 x 60' UT2 18spm	1 x 60' UT2 18spm	1 x 60' UT2 18spm
4	3 x 10' UT1 22spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
5	1 x 30' UT1 20spm	1 x 30' UT1 22spm	1 x 30' UT1 24spm
PRE-COMPETITION			
1	2 x 10' AT 24spm	2 x 10' AT 26spm	2 x 10' AT 28spm
2	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
3	1 x 60' UT2 18spm	1 x 60' UT2 18spm	1 x 60' UT2 18spm
4	3 x 6' AT 24spm	3 x 6' AT 26spm	3 x 6' AT 28spm
5	3 x 10' UT1 22spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
COMPETITION			
1	3 x 4' TR 28spm	3 x 4' TR 30spm	3 x 4' TR 32spm
2	9 x 1' AN 32spm	9 x 1' AN 33spm	9 x 1' AN 34spm
3	3 x 10' UT1 20spm	3 x 10' UT1 22spm	3 x 10' UT1 24spm
4	4 x 6' AT 24spm	4 x 6' AT 26spm	4 x 6' AT 28spm
5	6 x 2' TR 28spm	6 x 2' TR 30spm	6 x 2' TR 32spm

Notes

- i. Always err on the side of caution in any training regime. These training examples are a guide only and are not appropriate to everyone. You need to use caution and know your own limits when assessing your ability to cope with training doses. Beginners on a training regime of three or four sessions a week may not be able to cope with the above.
- ii. To determine which training period you should be working in refer to Section 4.2, Tables 4.1 and 4.2.

Table 5.7

The Original 2,000m Training Programme: 6 Sessions per Week			
Session	Light Week	Medium Week	Hard Week
PREPARATION			
1	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
2	1 x 30' UT1 22spm	1 x 40' UT1 22spm	4 x 10' UT1 24spm
3	1 x 60' UT2 18spm	1 x 60' UT2 18spm	1 x 60' UT2 18spm
4	3 x 10' UT1 22spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
5	1 x 60' UT2 20spm	1 x 60' UT2 20spm	1 x 60' UT2 20spm
6	1 x 30' UT1 20spm	1 x 30' UT1 22spm	1 x 30' UT1 24spm
PRE-COMPETITION			
1	2 x 10' AT 24spm	2 x 10' AT 26spm	2 x 10' AT 28spm
2	2 x 20' UT1 20spm	2 x 20' UT1 22spm	2 x 20' UT1 24spm
3	4 x 6' AT 24spm	4 x 6' AT 26spm	4 x 6' AT 28spm
4	1 x 60' UT2 18spm	1 x 60' UT2 18spm	1 x 60' UT2 18spm
5	3 x 6' AT 24spm	3 x 6' AT 26spm	3 x 6' AT 28spm
6	3 x 10' UT1 20spm	3 x 15' UT1 22spm	3 x 20' UT1 22spm
COMPETITION			
1	3 x 4' TR 28spm	3 x 4' TR 30spm	3 x 4' TR 32spm
2	9 x 1' AN 32spm	9 x 1' AN 33spm	9 x 1' AN 34spm
3	3 x 10' UT1 20spm	3 x 10' UT1 22spm	3 x 10' UT1 24spm
4	6 x 1.5' AN 32spm	6 x 1.5' AN 33spm	6 x 1.5' AN 34spm
5	4 x 6' AT 24spm	4 x 6' AT 26spm	4 x 6' AT 28spm
6	6 x 2' TR 28spm	6 x 2' TR 30spm	6 x 2' TR 32spm

Notes

- i. Always err on the side of caution in any training regime. These training examples are a guide only and are not appropriate to everyone. You need to use caution and know your own limits when assessing your ability to cope with training doses. Beginners on a training regime of three or four sessions a week may not be able to cope with the above.
- ii. To determine which training period you should be working in refer to Section 4.2, Tables 4.1 and 4.2.

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Additional Notes for Tables 5.5 - 5.7

- i. 1 x 60' UT2 18spm means row for 60 minutes in your UT2 heart rate at 18 strokes per minute.
- ii. 2 x 20' UT1 20spm means row for 20 minutes in your UT1 heart rate at 20 strokes per minute with enough rest to return to twice your normal resting heart rate before repeating.
- iii. 3 x 6' AT 24spm means row for six minutes in your AT heart rate at 24 strokes per minutes with enough rest to return to twice your normal resting heart rate before repeating, until you have done it three times.
- iv. 6 x 2' TR 28spm means row for two minutes in your TR heart rate at 28 strokes per minutes with enough rest to return to twice your normal resting heart rate before repeating, until you have done it six times.
- v. 9 x 1' AN 34spm means row for one minute in your AN heart rate at 34 strokes per minutes with enough rest to return to twice your normal resting heart rate before repeating, until you have done it nine times.

The Interactive 2,000m Training Programme

Target Group: Anyone training for a 2,000m race.

To help you create your own training programme we have included the building blocks that are used to create the interactive 2,000m training programme that is available on the Concept 2 website. This can be used either as an alternative to the original 2,000m race training programme set out in the previous section or simply to help you create your own programme. By starting with the programme that designates the nearest number of sessions a week to the number that you require you can also use this to give your training programme some flexibility. If you plan to do eight sessions per week but for some reason you know you will only be able to do six then you can look at the sessions that would be removed to create a six session per week programme and only complete those.

The programme below sets out 26 weeks of training. If you have less time to your competition then you will need to remove some of the weeks. The weeks are removed as follows; 13, 14, 15, 12, 11, 10, 16, 17, 18, 9, 8, 7. For example, to create a 22 week programme you remove the first four weeks from the list, these are weeks 13, 14, 15 and 12.

How to Use the Training Pace Guide

In order to get the best from the training programme follow the pace guide for the different training bands. Look at your current 2,000m time in the left hand column then follow across to the right for the target pace in each band. After six weeks retest your 2,000m time and reassess your pace.

Working at the recommended stroke rate will develop your technique and if you can combine stroke rate, heart rate and pace then you will develop both technical and physical efficiency.

Note: Rest between intervals can be calculated by using the information in Periodisation of Training in Section 4 : Creating a Bespoke Training Programme.

The training intensities in each band are based on your current 2,000m time. The figures indicated are at the top end of each band. UT1, AT, and TR training bands, can be identified as lying between the figure in the training band column and the figure in the column to the left.

At max pace, 2,000m is carried out at around 95% of maximum heart rate which is indicated here as the top end of the TR band (85% to 95% of MHR). Training in this band should be equal to or slower than the pace given in the TR column. The pace figure indicated in the AN band is 110% of 2,000m pace. Training in this band should be carried out at the pace shown in the AN column of the table or faster.

Table 5.8

2,000m Training Pace Guide							
Current 2,000m Time	Pace		Stroke Rate				
	Seconds	Watts	20-22	22-24	26-28	30-34	36-46
			UT2	UT1	AT	TR	AN
5:40	85	570	1:38.0	1:34.0	1:35.0	≤1:25.0	≥1:22.0
5:44	86	550	1:39.5	1:35.0	1:35.0	≤1:26.0	≥1:23.0
5:48	87	532	1:40.5	1:36.0	1:35.0	≤1:27.0	≥1:24.0
5:52	88	514	1:41.5	1:37.0	1:35.0	≤1:28.0	≥1:25.0
5:56	89	496	1:43.0	1:38.0	1:35.0	≤1:29.0	≥1:26.0
6:00	90	480	1:44.0	1:39.0	1:35.0	≤1:30.0	≥1:27.0
6:04	91	464	1:45.0	1:40.0	1:36.0	≤1:31.0	≥1:28.0
6:08	92	449	1:46.0	1:41.0	1:37.0	≤1:32.0	≥1:29.0
6:12	93	435	1:47.0	1:42.5	1:37.5	≤1:33.0	≥1:30.0
6:16	94	421	1:48.5	1:43.5	1:38.0	≤1:34.0	≥1:31.0
6:20	95	408	1:50.0	1:45.0	1:39.0	≤1:35.0	≥1:32.0
6:24	96	395	1:51.0	1:46.0	1:40.0	≤1:36.0	≥1:33.5
6:28	97	383	1:52.0	1:47.0	1:41.0	≤1:37.0	≥1:35.0
6:32	98	372	1:53.5	1:47.5	1:42.5	≤1:38.0	≥1:36.0
6:36	99	358	1:54.0	1:48.0	1:43.5	≤1:39.0	≥1:37.0
6:40	100	350	1:55.0	1:49.0	1:45.0	≤1:40.0	≥1:38.0
6:44	101	340	1:56.0	1:50.0	1:46.0	≤1:41.0	≥1:38.5
6:48	102	330	1:57.0	1:51.5	1:47.5	≤1:42.0	≥1:39.0
6:52	103	320	1:58.5	1:53.0	1:48.5	≤1:43.0	≥1:40.0
6:56	104	311	2:00.0	1:54.5	1:50.0	≤1:44.0	≥1:41.0
7:00	105	302	2:01.0	1:56.0	1:51.0	≤1:45.0	≥1:42.0
7:04	106	294	2:02.0	1:57.0	1:52.0	≤1:46.0	≥1:43.5
7:08	107	286	2:03.5	1:58.5	1:53.0	≤1:47.0	≥1:44.0
7:12	108	278	2:04.5	2:00.0	1:54.0	≤1:48.0	≥1:45.0
7:16	109	270	2:06.0	2:02.0	1:55.0	≤1:49.0	≥1:46.0
7:20	110	263	2:07.0	2:03.0	1:56.0	≤1:50.0	≥1:47.0
7:24	111	256	2:08.0	2:04.5	1:57.0	≤1:51.0	≥1:48.5
7:28	112	249	2:09.0	2:05.0	1:58.0	≤1:52.0	≥1:49.0
7:32	113	243	2:10.5	2:06.0	1:59.0	≤1:53.0	≥1:49.5
7:36	114	236	2:12.0	2:07.5	2:00.0	≤1:54.0	≥1:50.0
7:40	115	230	2:13.0	2:09.0	2:01.0	≤1:55.0	≥1:51.0
7:44	116	224	2:14.0	2:10.0	2:02.0	≤1:56.0	≥1:52.5
7:48	117	219	2:15.0	2:11.0	2:03.0	≤1:57.0	≥1:54.0
7:52	118	213	2:16.0	2:12.0	2:04.0	≤1:58.0	≥1:55.0
7:56	119	208	2:17.0	2:13.0	2:05.0	≤1:59.0	≥1:56.0
8:00	120	203	2:18.0	2:14.0	2:07.0	≤2:00.0	≥1:57.0
8:04	121	198	2:19.0	2:15.0	2:08.0	≤2:01.0	≥1:58.0
8:08	122	193	2:20.0	2:16.0	2:09.0	≤2:02.0	≥1:59.0
8:12	123	188	2:21.5	2:17.0	2:10.0	≤2:03.0	≥1:59.5
8:16	124	184	2:23.0	2:18.0	2:11.0	≤2:04.0	≥2:00.0
8:20	125	179	2:24.0	2:19.0	2:12.0	≤2:05.0	≥2:01.0
8:24	126	175	2:25.0	2:20.0	2:13.0	≤2:06.0	≥2:02.0
8:28	127	171	2:26.0	2:21.0	2:14.0	≤2:07.0	≥2:03.0
8:32	128	167	2:27.5	2:22.0	2:15.0	≤2:08.0	≥2:04.0
8:36	129	163	2:29.0	2:23.0	2:16.0	≤2:09.0	≥2:05.0
8:40	130	159	2:30.0	2:24.0	2:17.0	≤2:10.0	≥2:06.0
8:44	131	156	2:31.0	2:25.0	2:18.5	≤2:11.0	≥2:07.0
8:48	132	152	2:32.0	2:26.5	2:20.0	≤2:12.0	≥2:08.0
8:52	133	149	2:33.5	2:28.0	2:21.5	≤2:13.0	≥2:10.0
8:56	134	145	2:35.0	2:29.5	2:23.0	≤2:14.0	≥2:11.5
9:00	135	142	2:36.0	2:31.0	2:25.0	≤2:15.0	≥2:13.0
9:04	136	139	2:37.0	2:31.5	2:25.5	≤2:16.0	≥2:13.5
9:08	137	137	2:38.0	2:32.0	2:27.5	≤2:17.0	≥2:14.0
9:12	138	134	2:39.0	2:32.5	2:28.0	≤2:18.0	≥2:14.5
9:16	139	131	2:40.0	2:33.0	2:28.5	≤2:19.0	≥2:15.0
9:20	140	128	2:41.0	2:33.5	2:29.0	≤2:20.0	≥2:15.5

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Table 5.9

The Interactive 2,000,m Training Programme								
Level 5 - Athlete. Trained regularly six to eight sessions per week for at least three years								
6-8 Sessions Per Week								
Week	1	2	3	4	5	6	7	8
1 L	45'UT2	2x15'UT1	55'UT2	2x18'UT1	68'UT2	3x15'UT1	55'UT2	2x15'UT1
2 M	65'UT2	2x21'UT1	72'UT2	3x16'UT1	80'UT2	4x13'UT1	72'UT2	3x12'UT1
3 H	76'UT2	3x17'UT1	85'UT2	3x19'UT1	90'UT2	3x20'UT1	85'UT2	2x25'UT1
4 L	45'UT2	2x15'UT1	2x6'AT	3x12'UT1	2x7'AT	3x15'UT1	2x10'AT	3x12'UT2
5 M	65'UT2	2x24'UT1	4x5'AT	3x16'UT1	3x8'AT	3x18'UT1	2x12'AT	3x16'UT1
6 H	76'UT2	2x25'UT1	3x7'AT	3x19'UT1	3x10'AT	5x12'UT1	3x8'AT	3x18'UT1
7 L	45'UT2	2x15'UT1	2x8'AT	3x12'UT1	2x10'AT	3x15'UT1	2x9'AT	2x3'TR
8 M	65'UT2	3x14'UT1	2x9'AT	75'UT2	2x8'AT	4x14'UT1	2x7'AT	3x4'TR
9 H	76'UT2	3x17'UT1	3x7'AT	90'UT2	4x5'TR	4x15'UT1	3x8'AT	4x4'TR
10 L	45'UT2	2x15'UT1	2x8'AT	60'UT2	4x2'TR	3x12'UT1	2x9'AT	3x3'TR
11 M	65'UT2	3x15'UT1	2x10'AT	75'UT2	4x3'TR	3x15'UT1	2x10'AT	4x3'TR
12 H	75'UT2	4x15'UT1	3x8'AT	90'UT2	4x4'TR	4x12'UT1	3x10'AT	5x4'TR
13 L	45'UT2	2x15'UT1	2x8'AT	60'UT2	3x1'AN	3x15'UT1	2x8'AT	4x2'TR
14 M	65'UT2	3x15'UT1	2x10'AT	75'UT2	4x1.5'AN	4x12'UT1	3x7'AT	6x2'TR
15 H	75'UT2	5x12'UT1	3x10'AT	90'UT2	6x1'AN	5x12'UT1	3x10'AT	6x4'TR
16 L	45'UT2	2x15'UT1	2x9'AT	60'UT2	8x45sAN	4x14'UT1	2x10'AT	5x2'TR
17 M	65'UT2	3x15'UT1	3x10'AT	75'UT2	6x1.5'AN	3x12'UT1	3x8'AT	6x3'TR
18 H	75'UT2	4x15'UT1	4x8'AT	90'UT2	8x1'AN	2x15'UT1	4x9'AT	7x4'TR
19 L	45'UT2	2x15'UT1	2x10'AT	60'UT2	4x1.5'AN	3x12'UT1	3x8'AT	6x2'TR
20 M	65'UT2	3x15'UT1	3x12'AT	75'UT2	6x1'AN	3x15'UT1	3x10'AT	7x3'TR
21 H	75'UT2	5x12'UT1	5x8'AT	90'UT2	8x45sAN	5x12'UT1	4x10'AT	8x4'TR
22 L	45'UT2	2x15'UT1	2x10'AT	60'UT2	8x1.5'AN	3x12'UT1	2x7'AT	4x2'TR
23 M	65'UT2	3x15'UT1	3x8'AT	75'UT2	10x45sAN	3x15'UT1	3x7'AT	4x3'TR
24 H	76'UT2	4x15'UT1	4x8'AT	90'UT2	2(6x1')AN	4x15'UT1	2x10'AT	4x4'TR
25 T	50'UT2	2x12'UT1	6'AT	40'UT2	2x1.5'AN	2x15'UT1	4'TR	2x12'UT1
26 T	OFF	1x15'UT1	5'AT	1x3'TR	20'UT2	2x2'TR	3x45sAN	RACE

Notes:

- i. The sessions in bold can be replaced by a 2,000m test to measure progress.
- ii. Remove the light grey column to give seven sessions per week and move the tests to column 2.
- iii. Remove the dark grey column to give six sessions per week.

Table 5.10

The Interactive 2,000,m Training Programme						
Level 4 - Trained. Followed a formal training programme of five sessions per week for at least two years.						
4-6 Sessions Per Week						
Week	1	2	3	4	5	6
1 L	30'UT2	2x12.5'UT1	36'UT2	2x15'UT1	45'UT2	3x12'UT1
2 M	42'UT2	3x11'UT1	48'UT2	2x20'UT1	54'UT2	3x15'UT1
3 H	51'UT2	3x14'UT1	57'UT2	4x12'UT1	60'UT2	5x10'UT1
4 L	2x12'UT1	10'AT	2x12'UT1	12'AT	2x15'UT1	2x8'AT
5 M	3x11'UT1	2x9'AT	3x13'UT1	2x8'AT	4x11'UT1	2x10'AT
6 H	3x14'UT1	2x10'AT	4x12'UT1	2x10'AT	5x10'UT1	3x7'AT
7 L	50'UT2	12'AT	3x10'UT1	12'AT	3x12'UT1	2x8'AT
8 M	2x15'UT1	2x8'AT	3x15'UT1	3x3'TR	3x13'UT1	2x10'AT
9 H	3x15'UT1	2x9'AT	5x10'UT1	5x2'TR	3x14'UT1	3x7'AT
10 L	57'UT2	2x12'UT1	2x13'UT1	2x4'TR	3x10'UT1	2x8'AT
11 M	3x11'UT1	2x10'AT	4x11'UT1	2x6'TR	4x10'UT1	2x9'AT
12 H	4x11'UT1	4x4'TR	3x17'UT1	3x6'TR	5x10'UT1	2x10'AT
13 L	60'UT2	3x3'TR	3x12'UT1	2x5'TR	3x13'UT1	2x8'AT
14 M	3x12'UT1	4x1.5'AN	3x15'UT1	4x3'TR	3x14'UT1	2x9'AT
15 H	4x12'UT1	6x1'AN	4x12'UT1	5x3'TR	3x15'UT1	2x10'AT
16 L	60'UT2	8x45s AN	2x15'UT1	5x2'TR	3x14'UT1	2x15'AT
17 M	2x18'UT1	6x1.5'AN	3x15'UT1	6x2'TR	3x15'UT1	3x8'AT
18 H	3x17'UT1	8x1'AN	3x17'UT1	8x2'TR	3x16'UT1	3x10'AT
19 L	60'UT2	8x1.5'AN	2x12'UT1	4x3'TR	3x15'UT1	2x9'AT
20 M	3x15'UT1	10x45sAN	2x15'UT1	5x3'TR	3x16'UT1	3x8'AT
21 H	3x17'UT1	2(6x1')AN	2x18'UT1	4x5'TR	3x17'UT1	3x10'AT
22 L	60'UT2	4x1.5'AN	2x13'UT1	3x3'TR	3x10UT1	4x8'AT
23 M	2x20'UT1	6x1'AN	3x13'UT1	4x3'TR	2x16'UT1	2x12'AT
24 H	3x15'UT1	8x45s AN	4x13'UT1	4x4'TR	2x18'UT1	3x12'AT
25 T	50'UT2	3x1'AN	2x10'UT1	2x3'TR	2x9'UT1	1x10'AT
26 T	30'UT2	1x3'TR	2x8'UT1	3x1.5'AN	3x45sAN	RACE

Notes:

- i. The sessions in bold can be replaced by a 2,000m test to measure progress.
- ii. Remove the light grey column to give five sessions per week and move the tests to column 2.
- iii. Remove the dark grey column to give four sessions per week.

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Table 5.11

The Interactive 2,000,m Training Programme					
Level 3 - Fit. Taken part in exercise at least three sessions per week for the past 12 months.					
4-5 Sessions Per Week					
Week	1	2	3	4	5
1 L	38'UT2	1x20'UT1	2x12'UT1	2x15'UT1	2x10'UT1
2 M	40'UT2	2x14'UT1	2x16'UT1	2x18'UT1	2x15'UT1
3 H	45'UT2	2x17'UT1	2x19'UT1	4x10'UT1	2x18'UT1
4 L	30'UT2	2x7' AT	2x10'UT1	2x7' AT	2x12'UT1
5 M	45'UT2	2x8' AT	2x14'UT1	2x8' AT	2x16'UT1
6 H	50'UT2	2x9' AT	3x13'UT1	3x7' AT	3x15'UT1
7 L	30'UT2	2x7' AT	2x12'UT1	2x7' AT	3x12'UT1
8 M	2x14'UT1	2x8' AT	4x2'TR	2x7' AT	2x4'TR
9 H	3x13'UT1	2x9' AT	2x3'TR	2x9' AT	6x2'TR
10 L	20'UT1	2x8' AT	2x2'TR	2x7' AT	3x2'TR
11M	2x12'UT1	2x10'AT	4x2'TR	2x7' AT	2x4'TR
12 H	3x12'UT1	3x7' AT	5x2'TR	2x9' AT	3x3'TR
13 L	40'UT2	2x9' AT	2x2'TR	2x8' AT	3x2'TR
14 M	2x16'UT1	3x7' AT	4x2'TR	2x8' AT	2x4'TR
15 H	2x18'UT1	4x6' AT	5x2'TR	2x10' AT	3x3'TR
16 L	50'UT2	2x10' AT	2x3'TR	2x12' AT	2x4'TR
17M	3x12'UT1	3x8' AT	3x3'TR	3x8' AT	3x4'TR
18 H	2x20'UT1	4x1.5'AN	4x3'TR	3x10' AT	4x4'TR
19 L	50'UT2	10x1' AN	2x4'TR	2x12' AT	2x3'TR
20 M	3x13'UT1	5x1' AN	3x4'TR	2x15' AT	3x3'TR
21 H	3x14'UT1	8x45s' AN	4x4'TR	3x13' AT	4x3'TR
22 L	50'UT2	6x1.5' AN	4x2'TR	3x8' AT	2x5'TR
23 M	2x16'UT1	6x1' AN	3x3'TR	3x10' AT	3x5'TR
24 H	2x18'UT1	8x45sAN	4x3'TR	3x12' AT	3x6'TR
25 L	2x15UT1	6x1.5' AN	2x5'TR	2x8' AT	4x2'TR
26	25'UT2	1x3'TR	3x1.5' AN	3x45s AN	RACE

Notes:

- i. The sessions in bold can be replaced by a 2,000m test to measure progress.
- ii. Remove the grey column to give four sessions per week.

Table 5.12

The Interactive 2,000,m Training Programme				
Level 2 - Moderately Fit. Informal regular exercise throughout the past 12 months.				
3-4 Sessions Per Week				
WEEK	1	2	3	4
1 L	30'UT2	1x18'UT1	2x11'UT1	1x18'UT1
2 M	2x10'UT1	2x12'UT1	13+14'UT1	20'UT1
3 H	2x13'UT1	2x14'UT1	3x10'UT1	2x15'UT1
4 L	40'UT2	2x7'AT	1x18'UT1	1x8'AT
5 M	20'UT1	2x8'AT	2x10'UT1	10'AT
6 H	2x15'UT1	2x7'AT	2x14'UT1	2x8'AT
7 L	30'UT2	10'AT	1x18'UT1	10'AT
8 M	2x13'UT1	4x2'TR	25'UT1	2x8'AT
9 H	3x8'AT	2x15'UT1	6x2'TR	30'UT1
10 L	40'UT2	2x2'TR	2x12'UT1	2x8'AT
11 M	4x2'TR	4x20'UT1	2x10'AT	2x14'UT1
12 H	3x8'AT	5x2'TR	2x15UT1	3x3'TR
13 L	40'UT2	15'AT	2x12'UT1	3x2'TR
14 M	3x7'AT	20'UT1	2x4'TR	2x12'UT1
15 H	3x10'AT	2x15'UT1	3x3'TR	2x15'UT1
16 L	30'UT2	4x2'TR	2x12'UT1	2x8'AT
17 M	4x2'TR	20'UT1	4x1.5'AN	2x10'AT
18 H	2x15'UT1	3x8'AT	10x1'AN	2x15'UT1
19 L	40'UT2	5x1'AN	2x12'UT1	2x8'AT
20 M	20'UT1	2x10'AT	8x45s'AN	3x3'TR
21 H	2x15'UT1	4x4'TR	6x1.5'AN	3x8'AT
22 L	40'UT2	2x10'AT	6x1'AN	2x12'UT2
23 M	6x2' TR	2x15' UT1	8x45sAN	3x7'AT
24 H	30'UT1	6x2'TR	6x1.5'AN	3x8'AT
25 R	30'UT2	2x3'TR	2x12'UT2	2x8'AT
26 R	1x3'TR	2x1.5'AN	3x45s AN	RACE

Notes:

- i. The sessions in bold can be replaced by a 2,000m test to measure progress.
- ii. Remove the grey column to give three sessions per week.

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Table 5.13

The Interactive 2,000,m Training Programme			
Level 1 - Sedentary. Not exercised regularly during the past 12 months.			
3 Sessions Per Week			
Week	1	2	3
1 L	10'UT2	12'UT2	15'UT2
2 M	14'UT2	16'UT2	18'UT2
3 H	17'UT2	19'UT2	20'UT2
4 L	10'UT1	25'UT2	30'UT2
5 M	12'UT1	18'UT1	8'AT
6 H	30'UT2	2x10'UT1	2x7'AT
7 L	15'UT1	20'UT2	7'AT
8 M	18'UT1	25UT2	9'AT
9 H	4x2'TR	30'UT2	2X12'UT1
10 L	2x2'TR	15'UT1	20'UT2
11 M	4x2'TR	18'UT1	25'UT2
12 H	6x2'TR	2X12'UT1	30'UT2
13 L	2x3'TR	2x10'UT1	2x7'AT
14 M	4x2'TR	16'UT1	25'UT2
15 H	2x4'TR	2x12'UT1	3x7'AT
16 L	6x2'TR	2x8'UT1	20'UT2
17 M	2x9'AT	18'UT1	30'UT2
18 H	2x10'AT	3x2'TR	20'UT1
19 L	4x1.5'AN	2x12UT1	2x8'AT
20 M	3x2'TR	25'UT1	2x9'AT
21 H	2x4'TR	30'UT2	2x10'AT
22 L	2x4'TR	15'UT1	2x7'AT
23 M	30'UT2	18'UT1	2x9'AT
24 H	3x2'TR	30'UT2	2x12'UT1
25 T	5x2'TR	6x1.5'AN	3x3'TR
26 T	2x1.5'AN	3x45s AN	RACE

Note:

The sessions in bold can be replaced by a 2,000m test to measure progress.

Marathon Training

Introduction

The full marathon distance is 42,195m and the half marathon 21,097m. Indoor rowing marathons are becoming increasingly popular and as such Concept 2 now promote an annual Indoor Rowing Marathon Day which coincides with the London Marathon each year.

Structuring a Marathon Programme

Indoor rowing marathons are very demanding and require careful preparation to ensure the best result. Rather than structuring your training programme on the Training Bands model, we recommend you base it around your predicted marathon pace. If you have already completed a marathon, then you know what your pace will be. If you are going for a personal best then base your training around the pace of your new target.

Training Pace

The following marathon training plans make use of these training paces:

- Expected pace for 5,000m.
- Expected pace for 10,000m.
- Expected pace for half marathon.
- Expected pace for marathon.

If you have not established a time for all of these distances then the following is suggested. Take your 500m pace for 5,000m and your 500m pace for 10,000m and calculate the difference. (If you don't have a best time for these distances then row a set piece for both distances at some stage during the first meso-cycle to give you some meaningful figures to work from).

Add the difference between your 500m paces at 5,000m and 10,000m to your 500m pace for 10,000m to give you an approximation of your likely 500m pace for the half marathon. Add twice this difference to your likely 500m pace for the half marathon pace to give you your likely per 500m pace for the full marathon.

For example, if your 500m pace for 5,000m and 10,000m are 1:51 and 1:53 respectively, then the difference is two seconds. Your predicted half marathon 500m pace will be 1:55 and your predicted marathon 500m pace will be 1:59.

You will notice that these predictions vary significantly from those predicted in Table 5.14. The truth is that the times in the training plans err on the side of caution and are based on data from marathons completed on foot rather than the Indoor Rower, as it was compiled at a time when very little Indoor Rower based data was available. It's now becoming increasingly clear that the percentage drop off in pace as you move through the distances on the Indoor Rower is significantly less than the drop off when running due to the less stressful nature of indoor rowing. However, it should be noted that the above formula is for guidance only and, for example, a power based athletes' performance is likely to drop off more rapidly than implied as the distance increases, whereas an endurance based athlete might be able to beat the above drop offs.

As you work through the programme, the times that you find yourself completing the long weekly row in will give you a feel for how accurate your original estimate is and you can adjust accordingly.

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Common sense needs to be applied when using these 'expected paces'. For example, if the above implies that you should be able to maintain 2:00, 2:03 and 2:09 pace for 10,000m, half marathon and full marathon respectively but, when you try to hold these paces for a lactate threshold session, you find you simply can't hold the pace towards the end of the session, then try 2:01, 2:04 and 2:10. Likewise, if after a few weeks 2:00, 2:03 and 2:09 start feeling significantly easier, then try 1:59, 2:02 and 2:08, and so on.

The long weekly row should be conducted at a steady pace. As a guideline, you should be able to hold a conversation with someone throughout. Over time expect your steady pace at a given distance to improve. If you feel "too" comfortable at the end of a long row, next time you row that distance try a slightly faster pace.

Table 5.14

Estimated Marathon Pace Based on 5,000m Pace							
5,000m		Predicted 10,000m		Predicted Half Marathon		Predicted Marathon	
500m Pace	Time	500m Pace	Time	500m Pace	Time	500m Pace	Time
1:30.0	15:00.0	1:34.0	31:20.0	1:40.0	1:10:19.4	1:46.0	2:29:05.3
1:32.0	15:20.0	1:36.0	32:00.0	1:42.0	1:11:43.8	1:48.0	2:31:54.1
1:34.0	15:40.0	1:38.0	32:40.0	1:45.0	1:13:50.4	1:51.0	2:36:07.3
1:36.0	16:00.0	1:40.0	33:20.0	1:47.0	1:15:14.8	1:53.0	2:38:56.1
1:38.0	16:20.0	1:42.0	34:00.0	1:49.0	1:16:39.1	1:56.0	2:43:09.2
1:40.0	16:40.0	1:44.0	34:40.0	1:51.0	1:18:03.5	1:58.0	2:45:58.0
1:42.0	17:00.0	1:46.0	35:20.0	1:54.0	1:20:10.1	2:00.0	2:48:46.8
1:44.0	17:20.0	1:49.0	36:20.0	1:56.0	1:21:34.5	2:03.0	2:53:00.0
1:46.0	17:40.0	1:51.0	37:00.0	1:58.0	1:22:58.9	2:05.0	2:55:48.8
1:48.0	18:00.0	1:53.0	37:40.0	2:00.0	1:24:23.3	2:07.0	2:58:37.5
1:50.0	18:20.0	1:55.0	38:20.0	2:02.0	1:25:47.7	2:10.0	3:02:50.7
1:52.0	18:40.0	1:57.0	39:00.0	2:05.0	1:27:54.2	2:12.0	3:05:39.5
1:54.0	19:00.0	1:59.0	39:40.0	2:07.0	1:29:18.6	2:14.0	3:08:28.3
1:56.0	19:20.0	2:01.0	40:20.0	2:09.0	1:30:43.0	2:17.0	3:12:41.4
1:58.0	19:40.0	2:03.0	41:00.0	2:11.0	1:32:07.4	2:19.0	3:15:30.2
2:00.0	20:00.0	2:05.0	41:40.0	2:14.0	1:34:14.0	2:21.0	3:18:19.0
2:02.0	20:20.0	2:07.0	42:20.0	2:16.0	1:35:38.4	2:24.0	3:22:32.2
2:04.0	20:40.0	2:09.0	43:00.0	2:18.0	1:37:02.8	2:26.0	3:25:20.9
2:06.0	21:00.0	2:11.0	43:40.0	2:20.0	1:38:27.2	2:28.0	3:28:09.7
2:08.0	21:20.0	2:14.0	44:40.0	2:22.0	1:39:51.5	2:31.0	3:32:22.9
2:10.0	21:40.0	2:16.0	45:20.0	2:25.0	1:41:58.1	2:33.0	3:35:11.7
2:12.0	22:00.0	2:18.0	46:00.0	2:27.0	1:43:22.5	2:36.0	3:39:24.8
2:14.0	22:20.0	2:20.0	46:40.0	2:29.0	1:44:46.9	2:38.0	3:42:13.6
2:16.0	22:40.0	2:22.0	47:20.0	2:31.0	1:46:11.3	2:40.0	3:45:02.4
2:18.0	23:00.0	2:24.0	48:00.0	2:34.0	1:48:17.9	2:43.0	3:49:15.6
2:20.0	23:20.0	2:26.0	48:40.0	2:36.0	1:49:42.3	2:45.0	3:52:04.3
2:22.0	23:40.0	2:28.0	49:20.0	2:38.0	1:51:06.7	2:47.0	3:54:53.1
2:24.0	24:00.0	2:30.0	50:00.0	2:40.0	1:52:31.0	2:50.0	3:59:06.3
2:26.0	24:20.0	2:32.0	50:40.0	2:42.0	1:53:55.4	2:52.0	4:01:55.1
2:28.0	24:40.0	2:34.0	51:20.0	2:45.0	1:56:02.0	2:54.0	4:04:43.9
2:30.0	25:00.0	2:36.0	52:00.0	2:47.0	1:57:26.4	2:57.0	4:08:57.0
2:32.0	25:20.0	2:39.0	53:00.0	2:49.0	1:58:50.8	2:59.0	4:11:45.8
2:34.0	25:40.0	2:41.0	53:40.0	2:51.0	2:00:15.2	3:01.0	4:14:34.6
2:36.0	26:00.0	2:43.0	54:20.0	2:54.0	2:02:21.8	3:04.0	4:18:47.8
2:38.0	26:20.0	2:45.0	55:00.0	2:56.0	2:03:46.1	3:06.0	4:21:36.5
2:40.0	26:40.0	2:47.0	55:40.0	2:58.0	2:05:10.5	3:08.0	4:24:25.3
2:42.0	27:00.0	2:49.0	56:20.0	3:00.0	2:06:34.9	3:11.0	4:28:38.5
2:44.0	27:20.0	2:51.0	57:00.0	3:02.0	2:07:59.3	3:13.0	4:31:27.3
2:46.0	27:40.0	2:53.0	57:40.0	3:05.0	2:10:05.9	3:16.0	4:35:40.4
2:48.0	28:00.0	2:55.0	58:20.0	3:07.0	2:11:30.3	3:18.0	4:38:29.2
2:50.0	28:20.0	2:57.0	59:00.0	3:09.0	2:12:54.7	3:20.0	4:41:18.0
2:52.0	28:40.0	2:59.0	59:40.0	3:11.0	2:14:19.1	3:23.0	4:45:31.2
2:54.0	29:00.0	3:01.0	00:20.0	3:14.0	2:16:25.6	3:25.0	4:48:19.9
2:56.0	29:20.0	3:04.0	01:20.0	3:16.0	2:17:50.0	3:27.0	4:51:08.7
2:58.0	29:40.0	3:06.0	02:00.0	3:18.0	2:19:14.4	3:30.0	4:55:21.9
3:00.0	30:00.0	3:08.0	02:40.0	3:20.0	2:20:38.8	3:32.0	4:58:10.7

Section 5 : Preset Programmes

Marathon Training Plans

by Frank Birch

These training plans cover a period of six months, terminating on the day of the London Marathon and National Indoor Rowing Marathon Day. Two plans are shown, referred to below as the 110,000m plan and the 80,000m plan. The number of metres being the maximum number of metres you intended to row during the peak week of either plan. The 110,000m and 80,000m plans assume a training baseline of at least four weeks at 40,000m and 30,000m per week respectively.

Training Principles Underlying the Plans

An indoor rowing marathon is a fairly new event so it is sensible to look at longer established endurance events and draw on their experience whilst being mindful of the differences between indoor rowing and other endurance disciplines. For example, training for and running a marathon is a high impact activity which introduces constraints into training schedules that are imposed to minimise the risk of injury. It is reasonable to expect that these constraints can, to an extent, be relaxed when participating in a lower impact activity such as indoor rowing. These training plans are built so as to:

- Exercise and improve the different energy systems utilised when rowing long distances (see Your Body in Section 3 : Physiology).
- Progressively increase the training load (overall kilometres being rowed) over a period of time.
- Prepare your body (and mind) for rowing long distances.

With these points in mind the training plans build progressively to a weekly total of 110,000m and 80,000m respectively.

Weekly Distances Rowed in the 110,000m and 80,000m Plans

The build up is based on the principle used in distance running of not increasing distance on successive weeks by more than a set percentage. The rule generally used in running is a maximum of 10% for experienced runners and less for others (typically 5% for a novice). As rowing is not as stressful as running this rule, although applied in principle, is not always adhered to rigidly.

The maximum weekly distance is planned to take place four to five weeks before undertaking the marathon as is typically the case when preparing to run the distance.

Additionally, within each week a long set piece is scheduled. This progressively gets closer to the full marathon distance, helping to prepare both physically and psychologically for the demands of the event.

The training plans are structured using meso- and micro-cycles that alternate placing a training load on the body whilst providing recovery time to allow adaptation to take place. The meso-cycle length chosen is four weeks, consisting of three hard weeks, followed by a recovery week. The micro-cycle is seven days consisting of a mix of hard and recovery sessions (including rest days). The 110,000m plan is based on training for six days in most weeks. There are five training days during a typical week for the 80,000m plan.

The plans are based on six (four week) meso-cycles followed by a two week taper immediately prior to performing the marathon. For the first four week cycle, emphasis is on general endurance. This provides a platform for moving onto other forms of training in subsequent cycles. During cycles two to five VO_2 max, strength and lactate threshold training are introduced as indicated in the following table.

Table 5.15

Weekly Totals								
	110,000m				80,000m			
	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4
Cycle 1	40,000m	45,000m	50,000m	35,000m	30,000m	33,000m	36,000m	25,000m
Cycle 2	50,000m	55,000m	60,000m	45,000m	36,000m	40,000m	36,000m	30,000m
Cycle 3	60,000m	67,500m	75,000m	55,000m	45,000m	50,000m	45,000m	40,000m
Cycle 4	75,000m	82,500m	95,000m	70,000m	55,000m	60,000m	55,000m	50,000m
Cycle 5	95,000m	100,000m	105,000m	85,000m	65,000m	70,000m	65,000m	60,000m
Cycle 6	105,000m	110,000m	95,000m	80,000m	75,000m	80,000m	75,000m	60,000m
TAPER	65,000m	40,000m			50,000m	30,000m	70,000m	

Training Plan Structure

During the final cycle, some power based training is added to improve underlying speed and help make marathon pace seem easier. Information about the effects of different intensities of training are included in Your Body in Section 3 : Physiology.

Table 5.16

Marathon Training Programme Structure							
	Weeks 1-4	Weeks 5-8	Weeks 9-12	Weeks 13-16	Weeks 17-20	Weeks 21-24	Weeks 25/26
General Endurance (Preparation)							
VO₂ Max							
Strength							
Lactate Threshold							
Power							

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The Long Weekly Row

The single most important ingredient to marathon success is the long session. You are preparing for a long row and the best way to prepare for a long row is to do long rows. The benefits of doing progressively longer rows, approaching the marathon distance include:

- Teaching your body to utilise both fat and glycogen to produce muscular energy. Exhaust your glycogen supplies and you've run into that infamous wall. Long rows will train your body to utilise fat more efficiently and reduce the rate at which glycogen is consumed.
- Allowing you to test your body's reaction to water and various sports drinks taken whilst rowing and to eating different food in the hours preceding the row. They also provide an opportunity to find the best way of taking on liquid during a row. During a marathon taking on liquid is essential, and the food you take on in the hours before and during the row (sports drinks) can make a significant difference to your final performance.
- Preparing your mind for the event. The further you know that you can row, the stronger and more confident you will feel.

How to Use the Plans

These plans can either be used as is, or as a model for constructing your own plan based on your specific needs and aspirations. When using these plans you will, as a minimum, need to decide when to have rest days. These don't need to be the same day(s) each week and can be used to best fit your training plan into a week around other commitments. Beyond this, many variations are possible.

The "long row" in each week's schedule is intended to be aligned with the weekend (say Sunday) because this is frequently the day when there is most free time. But for some people this will not be the case. You may want to reschedule the daily sessions within a week so that the long sessions can be tackled on the days that you have most time available. In general, when shuffling sessions try to alternate long sessions with short sessions, and try to alternate types of training.

There is nothing sacred about the four week meso-cycle. Three week and five week cycles are also often used. Which works best depends on a number of factors, for example, how hard the "hard weeks" are. One of the reasons for choosing a four week cycle is that this is the unit of time chosen for focusing training at different energy systems. However, it may be convenient if certain weeks aligned with the easy weeks in the plan. For example, if you are going away on holiday for a week it may be sensible to schedule this as an easy week. Christmas week falls on week 11 of the plans as shown Table 5.17. By making weeks nine to 11 a three week cycle, and weeks 12 to 16 a five week cycle you can force Christmas week to be an easy week.

Training Plan Calendar

The fourth week in each meso-cycle is intended to be an easy week. Its main purpose is to allow your body the chance to adapt to the load you placed on it during the previous three weeks. When you start the next meso-cycle you should feel ready for the challenge. The kilometre target for these weeks is just for guidance and it is better to do less than to start the next cycle exhausted.

Although the two plans are based on five and six days per week this can, to an extent, be varied to fit your plan with other commitments. In fact, in the early weeks of both plans an extra rest day is sometimes inserted in a recovery week or immediately following a particularly challenging session (or sessions).

Calculating the Distance Rowed in Each Session

The kilometre distance shown in the training schedules is an estimate based on the following assumptions.

When doing strength training, rowing ten strokes flat out carries you 150m approximately, rowing lightly until you reach 300m gives sufficient recovery. Therefore 1 x (10 x 10) will carry you 3,000m.

To give recovery between sets round up as follows:-

(6 x 10) = 1,800m, row another 1,200m totalling 3,000m and then start the second set.

(8 x 10) = 2,400m, row another 1,600m totalling 4,000m and then start the second set.

(10 x 10) = 3,000m, row another 2,000m totalling 5,000m and then start the second set.

The final figure is obtained by adding a 1,000m warm-up row before starting the first set of flat out strokes.

When doing the VO₂ max training, the total distance is calculated by adding all of the intervals rowed along with a warm-up of 1,000 to 2,000m.

When doing power training, the distance shown in the training schedules is an estimate of the likely distance travelled whilst undertaking these sessions.

With all of the sessions the actual distance travelled will vary from person to person and will need to be worked into an individual's training plan if they want to hit the distance targets exactly for that week by increasing/decreasing as appropriate one of the subsequent training sessions.

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Table 5.17

Training Plan Calendar			
Week	Monday	Sunday	
1	Oct 15th	Oct 21st	cycle 1
2	Oct 22nd	Oct 28th	cycle 1
3	Oct 29th	Nov 4th	cycle 1
4	Nov 5th	Nov 11th	easy
5	Nov 12th	Nov 18th	cycle 2
6	Nov 19th	Nov 25th	cycle 2
7	Nov 26th	Dec 2nd	cycle 2
8	Dec 3rd	Dec 9th	easy
9	Dec 10th	Dec 18th	cycle 3
10	Dec 17th	Dec 23rd	cycle 3
11*	Dec 24th	Dec 30th	cycle 3
12	Dec 31st	Jan 6th	easy
13	Jan 7th	Jan 13th	cycle 4
14	Jan 14th	Jan 20th	cycle 4
15	Jan 21st	Jan 27th	cycle 4
16	Jan 28th	Feb 3rd	easy
17	Feb 4th	Feb 10th	cycle 5
18	Feb 11th	Feb 17th	cycle 5
19	Feb 18th	Feb 24th	cycle 5
20	Feb 25th	Mar 3rd	easy
21	Mar 4th	Mar 10th	cycle 6
22	Mar 11th	Mar 17th	cycle 6
23	Mar 18th	Mar 24th	cycle 6
24	Mar 25th	Mar 31st	easy
25	Apr 1st	Apr 7th	taper
26	Apr 8th	Apr 14th	taper

Note

These dates are taken from a six month marathon training plan terminating on the day of the London Marathon and the National Indoor Rowing Marathon Day.

* Christmas week.

Notes for Marathon Training Plans

General Notes

- i. Damper refers to damper setting and is an indicator of drag factor.
- ii. SS means your standard, or preferred, damper setting or drag factor. For more information see The Damper Lever and Drag Factor in Appendix.
- iii. +2 means set the damper at two levels higher than your standard setting. So, if you usually row at damper setting three, increase it by two levels to damper setting five. If you are using the drag factor you should increase the drag factor by 20.
- iv. 5kP means your predicted 5,000m pace.
- v. 10kP means your predicted 10,000m pace.
- vi. HMP means your predicted half marathon pace.
- vii. MP means your predicted marathon pace.

General Endurance (GE)

- i. 30' @ MP means row for 30 minutes at your predicted marathon pace.
- ii. 10,000m @ MP means row 10,000m at your predicted marathon pace.

Strength

- i. 1 x (10 x 10) means row ten strokes 'flat out', recover by rowing lightly until heart rate is below 75% of MHR, and repeat ten times.
- ii. 2 x (6 x 10) means row ten strokes 'flat out', recover by rowing lightly until heart rate is below 75% of MHR and repeat six times. Then row lightly for five to ten minutes and repeat the whole set.
- iii. To give the recovery between sessions round up as follows:
(6 x 10) = 1,800m, row another 1,200m totalling 3,000m and then start the second set.
(8 x 10) = 2,400m, row another 1,600m totalling 4,000m and then start the second set.
(10 x 10) = 3,000m, row another 2,000m totalling 5,000m and then start the second set.

VO₂ Max

- i. 3 x Alternate (5' @ 5kP/8' @ MP) means row for 5 minutes at 5,000m pace followed by eight minutes at your predicted marathon pace and repeat three times.
- ii. 3 x Alternate (1,500m @ 5kP/2,000m @ MP) means row 1,500m at 5,000m pace followed by 2,000m at your predicted marathon pace and repeat three times.

Power

- i. 2 x (6 x 1'2') @ 30spm means row hard for one minute at 30 strokes per minute, then row lightly for two minutes and repeat this six times. Take a break (five to ten minutes of light rowing) and repeat the whole set.
- ii. 8 x 90 sec/3' @ 34spm means row hard for 90 seconds at 34 strokes per minute, then row lightly for three minutes and repeat this eight times.
- iii. 4 x 3'5' @ 30spm means row hard for three minutes at 30 strokes per minute, then row lightly for five minutes and repeat this four times.

Lactate Threshold (LT)

- i. 15' @ MP/15' @ 10kP/15' @ HMP means row continuously for 45 minutes. The first 15 minutes at your predicted marathon pace, the next 15 minutes at 10,000m pace and the last 15 minutes at half marathon pace.
- ii. 60' Alternate (10' @ 10kP/10' @ MP) means row for ten minutes at 10,000m pace, then row ten minutes at your predicted marathon pace. Repeat until you have completed 60 minutes of continuous rowing.
- iii. 4,000m @ MP/4,000m @ 10kP/4,000m @ HMP means row continuously for 12,000m, the first 4,000m are rowed at marathon pace, the second 4,000m are rowed at 10,000m pace and the final 4,000m are rowed at half marathon pace.
- iv. 2 x (2,000m @ MP/2,000m @ 10kP/2,000m @ HMP) means row continuously for 6,000m, the first 2,000m are rowed at marathon pace, the second 2,000m are rowed at 10,000m pace and the final 2,000m are rowed at half marathon pace and repeat the whole set.

Taper

- i. 20' @ MP & (2 x 3'5') @ 32spm means row 20 minutes at your predicted marathon pace. Then complete your session with two hard three minute rows at 32 strokes per minute with five minutes light rowing in between.
- ii. (5 x 5'5') @ 10kP means row five minutes at 10,000m pace followed by five minutes light rowing. Keep alternating until you have completed five sets.
- iii. 30' @ HMP & (6 x 1'2') @ 36spm means row for 30 minutes at half marathon pace. Then complete your session with six hard one minute rows at 36 strokes per minute with two minutes light rowing between each one minute row.

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Table 5.18

110,000m Marathon Training Plan				
Cycle 1				
Week 1	Distance	Type	Work	Damper
Day 1	7,500m	GE	7,500m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	7,500m	GE	7,500m @ MP	SS
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5	5,000m	GE	5,000m @ MP	SS
Day 6	10,000m	GE	10,000m @ MP	SS
Totals	40,000m			
Targets	40,000m			
Week 2	Distance	Type	Work	Damper
Day 1	7,500m	GE	7,500m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	7,500m	GE	7,500m @ MP	SS
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5	7,500m	GE	7,500m @ MP	SS
Day 6	12,500m	GE	12,500m @ MP	SS
Totals	45,000m			
Targets	45,000m			
Week 3	Distance	Type	Work	Damper
Day 1	10,000m	GE	10,000m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	10,000m	GE	10,000m @ MP	SS
Day 4	7,500m	GE	7,500m @ MP	SS
Day 5	5,000m	GE	5,000m @ MP	SS
Day 6	12,500m	GE	12,500m @ MP	SS
Totals	50,000m			
Targets	50,000m			
Week 4	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	10,000m	GE	10,000m @ MP	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4		Rest		
Day 5	5,000m	GE	5,000m @ MP	SS
Day 6	10,000m	GE	10,000m @ MP	SS
Totals	35,000m			
Targets	35,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.19

110,000m Marathon Training Plan				
Cycle 2				
Week 5	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	8,000m	GE	8,000m @ MP	SS
Day 4	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 5		Rest		
Day 6	15,000m	GE	15,000m @ MP	SS
Totals	50,000m			
Targets	50,000m			
Week 6	Distance	Type	Work	Damper
Day 1	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 2	8,000m	GE	8,000m @ MP	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 5	7,500m	GE	7,500m @ MP	SS
Day 6	12,500m	GE	12,500m @ MP	SS
Totals	55,000m			
Targets	55,000m			
Week 7	Distance	Type	Work	Damper
Day 1	7,500m	GE	7,500m @ MP	SS
Day 2	13,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	7,500m	GE	7,500m @ MP	SS
Day 4	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 5	6,000m	GE	6,000m @ MP	SS
Day 6	15,000m	GE	15,000m @ MP	SS
Totals	60,000m			
Targets	60,000m			
Week 8	Distance	Type	Work	Damper
Day 1	10,000m	GE	10,000m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 4				
Day 5	5,000m	GE	5,000m @ MP	SS
Day 6	15,000m	GE	10,000m @ MP	SS
Totals	45,000m			
Targets	45,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.20

110,000m Marathon Training Plan				
Cycle 3				
Week 9	Distance	Type	Work	Damper
Day 1	5,000m	Strength	1 x (10 x 10)	+2
Day 2	13,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	7,000m	GE	7,000m @ MP	SS
Day 4	5,000m	Strength	1 x (10 x 10)	+2
Day 5	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 6	20,000m	Rest	20,000m @ MP	SS
Totals	60,000m	GE		
Targets	60,000m			
Week 10	Distance	Type	Work	Damper
Day 1	7,000m	Strength	2 x (6 x 10)	+3
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	9,000m	Strength	2 x (8 x 10)	+2
Day 4	13,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	11,000m	Strength	2 x (10 x 10)	+3
Day 6	17,500m	GE	17,500m @ MP	SS
Totals	67,500m			
Targets	67,500m			
Week 11	Distance	Type	Work	Damper
Day 1	10,000m	Strength	3 x (6 x 10)	+4
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	13,000m	Strength	3 x (8 x 10)	+3
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5	16,000m	Strength	3 x (10 x 10)	+4
Day 6	20,000m	GE	20,000m @ MP	SS
Totals	75,000m			
Targets	75,000m			
Week 12	Distance	Type	Work	Damper
Day 1	11,000m	Strength	2 x (10 x 10)	+2
Day 2	4,000m	GE	4,000m @ MP	SS
Day 3	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 4	10,000m	Strength	3 x (6 x 10)	+2
Day 5	5,000m	GE	5,000m @ MP	SS
Day 6	15,000m	GE	15,000m @ MP	SS
Totals	55,000m			
Targets	55,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.21

110,000m Marathon Training Plan				
Cycle 4				
Week 13	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4	12,000m	Strength	2 x (2,000m @ MP/2,000m @ 10kP/2,000m @ HMP)	SS
Day 5	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP / 2,000m @ MP)	SS
Day 6	25,000m	GE	25,000m @ MP	SS
Totals	75,000m			
Targets	75,000m			
Week 14	Distance	Type	Work	Damper
Day 1	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 4	12,000m	VO ₂ Max	3 x (1,500m/2,000m)	SS
Day 5	12,000m	LT	2 x (2,000m @ MP/2,000m @ 10kP/2,000m @ HMP)	SS
Day 6	20,000m	GE	20,000m @ MP	SS
Totals	82,000m			
Targets	82,500m			
Week 15	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 3	18,000m	LT	6,000m @ MP/6,000m @ 10kP/6,000m @ HMP	SS
Day 4	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 5	12,000m	LT	2 x (2,000m @ MP/2,000m @ 10kP 2,000m @ HMP)	SS
Day 6	25,000m	GE	25,000m @ MP	SS
Totals	90,000m			
Targets	90,000m			
Week 16	Distance	Type	Work	Damper
Day 1	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 3	6,000m	GE	6,000m @ MP	SS
Day 4	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 5	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 6	20,000m	GE	20,000m @ MP	SS
Totals	70,000m			
Targets	70,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.22

110,000m Marathon Training Plan				
Cycle 5				
Week 17	Distance	Type	Work	Damper
Day 1	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	13,000m	GE	13,000m @ MP	SS
Day 4	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 5	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 6	30,000m	GE	30,000m @ MP	SS
Totals	90,000m			
Targets	90,000m			
Week 18	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	18,000m	LT	6,000m @ MP/6,000m @ 10kP/6,000m @ HMP	SS
Day 4	13,500m	GE	13,500m @ MP	SS
Day 5	14,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 6	25,000m	GE	25,000m @ MP	SS
Totals	97,500m			
Targets	97,500m			
Week 19	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	21,000m	VO ₂ Max	4 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	10,000m	GE	10,000m @ MP	SS
Day 4	17,000m	VO ₂ Max	4 x Alternate (2,000m @ 5kP/2,000m @ MP)	SS
Day 5	15,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 6	30,000m	GE	30,000m @ MP	SS
Totals	105,000m			
Targets	105,000m			
Week 20	Distance	Type	Work	Damper
Day 1	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	10,000m	GE	10,000m @ MP	SS
Day 4	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 5	14,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 6	25,000m	GE	25,000m @ MP	SS
Totals	85,000m			
Targets	85,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.23

110,000m Marathon Training Plan				
Cycle 6				
Week 21	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	14,000m	Power	3 x (6 x 1' / 2') @ 30spm	-2
Day 3	19,000m	GE	19,000m @ MP	SS
Day 4	21,000m	VO ₂ Max	4 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 5	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 6	30,000m	GE	30,000m @ MP	SS
Totals	105,000m			
Targets	105,000m			
Week 22	Distance	Type	Work	Damper
Day 1	11,000m	Power	2 x (5 x 90secs/3') @ 32spm	-2
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	20,000m	GE	20,000m @ MP	SS
Day 4	14,000m	Power	3 x (6 x 1' / 2') @ 32spm	-2
Day 5	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 6	35,000m	GE	35,000m @ MP	SS
Totals	110,000m			
Targets	110,000m			
Week 23	Distance	Type	Work	Damper
Day 1	14,000m	Power	3 x (6 x 1' / 2') @ 34spm	-2
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	10,000m	GE	10,000m @ MP	SS
Day 4	15,000m	LT	5,000m @ MP/5,000m @ 5kP/5,000m @ HMP	SS
Day 5	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 6	30,000m	GE	30,000m @ MP	SS
Totals	95,000m			
Targets	95,000m			
Week 24	Distance	Type	Work	Damper
Day 1	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 2	15,000m	GE	15,000m @ MP	SS
Day 3	8,000m	Power	1 x (4 x 3' / 5') @ 32spm	-2
Day 4	6,000m	GE	6,000m @ MP	SS
Day 5	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 6	25,000m	GE	25,000m @ MP	SS
Totals	80,000m			
Targets	80,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.24

110,000m Marathon Training Plan				
TAPER				
Week 25	Distance	Type	Work	Damper
Day 1	9,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/1,500m @ MP)	SS
Day 2	119,000m	Power	2x (5 x 90secs/3') @ 32spm	-2
Day 3	129,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 4	109,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	89,000m	Power	2 x (5 x 1'1/2') @ 32spm	-1
Day 6	159,000m	GE	15,000m @ MP	SS
Totals	65,000m			
Targets	65,000m			
Week 26	Distance	Type	Work	Damper
Day 1	9,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/1,500m @ MP)	SS
Day 2	8,500m	GE	8,500m @ MP	SS
Day 3	9,500m	GE + Power	5,000m @ HMP & (6 x 1'1/2') @ 32spm	SS
Day 4	8,000m	GE	2,000m @ 5kP/6,000m @ HMP	SS
Day 5	5,000m	GE	5,000m @ HMP	SS
Day 6		MARATHON		SS
Totals	40,000m			
Targets	40,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.25

80,000m Marathon Training Plan				
Cycle 1				
Week 1	Distance	Type	Work	Damper
Day 1	7,500m	GE	7,500m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	7,500m	GE	7,500m @ MP	SS
Day 4		Rest		
Day 5	10,000m	GE	10,000m @ MP	SS
Totals	30,000m			
Targets	30,000m			
Week 2	Distance	Type	Work	Damper
Day 1	7,500m	GE	7,500m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	7,500m	GE	7,500m @ MP	SS
Day 4		Rest		
Day 5	13,000m	GE	13,000m @ MP	SS
Totals	33,000m			
Targets	33,000m			
Week 3	Distance	Type	Work	Damper
Day 1	7,000m	GE	7,000m @ MP	SS
Day 2	5,000m	GE	5,000m @ MP	SS
Day 3	7,000m	GE	7,000m @ MP	SS
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5	12,000m	GE	12,000m @ MP	SS
Totals	36,000m			
Targets	36,000m			
Week 4	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	7,500m	GE	7,500m @ MP	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4		Rest		
Day 5	7,500m	GE	7,500m @ MP	SS
Totals	25,000m			
Targets	25,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.26

80,000m Marathon Training Plan				
Cycle 2				
Week 5	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	7,000m	VO ₂ Max	2 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4	7,000m	GE	7,000m @ MP	SS
Day 5	12,000m	VO ₂ Max	3 x (1,500m/2,000m)	SS
Totals	36,000m			
Targets	36,000m			
Week 6	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 3	5,000m	GE	5km @ MP	SS
Day 4	7,000m	VO ₂ Max	2 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	12,000m	GE	12,000m @ MP	SS
Totals	40,000m			
Targets	40,000m			
Week 7	Distance	Type	Work	Damper
Day 1	5,000m	GE	5,000m @ MP	SS
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	6,000m	GE	6km @ MP	SS
Day 4	8,000m	VO ₂ Max	2 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 5	15,000m	GE	15,000m @ MP	SS
Totals	45,000m			
Targets	45,000m			
Week 8	Distance	Type	Work	Damper
Day 1	7,000m	GE	7,000m @ MP	SS
Day 2		Rest		
Day 3	8,000m	VO ₂ Max	2 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5	10,000m	GE	10,000m @ MP	SS
Totals	30,000m			
Targets	30,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.27

80,000m Marathon Training Plan				
Cycle 3				
Week 9	Distance	Type	Work	Damper
Day 1	5,000m	Strength	1 x (10 x 10)	+2
Day 2	13,000m	VO ₂ Max	4 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	7,000m	GE	7,000m @ MP	SS
Day 4	5,000m	Strength	1 x (10 x 10)	+2
Day 5	15,000m	GE	15,000m @ MP	SS
Totals	45,000m			
Targets	45,000m			
Week 10	Distance	Type	Work	Damper
Day 1	7,000m	Strength	2 x (6 x 10)	+3
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	7,000m	Strength	2 x (8 x 10)	+3
Day 4	8,000m	VO ₂ Max	2 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 5	10,000m	GE	18,000m @ MP	SS
Totals	50,000m			
Targets	50,000m			
Week 11	Distance	Type	Work	Damper
Day 1	13,000m	Strength	3 x (8 x 10)	+4
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	6,000m	GE	6,000m @ MP	SS
Day 4	10,000m	Strength	3 x (6 x 10)	+4
Day 5	15,000m	GE	15,000m @ MP	SS
Totals	55,000m			
Targets	55,000m			
Week 12	Distance	Type	Work	Damper
Day 1	8,000m	Strength	2 x (10 x 10)	+2
Day 2		Rest		
Day 3	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 4	10,000m	Strength	3 x (6 x 10)	+2
Day 5	12,000m	GE	12,000m @ MP	SS
Totals	40,000m			
Targets	40,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.28

80,000m Marathon Training Plan				
Cycle 4				
Week 13	Distance	Type	Work	Damper
Day 1	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	5,000m	GE	5,000m @ MP	SS
Day 4	12,000m	LT	2 x (2,000m @ MP/2,000m @ 10kP/2,000m @ HMP)	SS
Day 5	18,000m	GE	18,000m @ MP	SS
Totals	55,000m			
Targets	55,000m			
Week 14	Distance	Type	Work	Damper
Day 1	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	3 x Alternate (1,250m @ 5kP/2,000m @ MP)	SS
Day 3	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 4	8,000m	VO ₂ Max	2 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 5	20,000m	GE	20,000m @ MP	SS
Totals	60,000m			
Targets	60,000m			
Week 15	Distance	Type	Work	Damper
Day 1	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	3 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 4	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 5	18,000m	GE	18,000m @ MP	SS
Totals	65,000m			
Targets	65,000m			
Week 16	Distance	Type	Work	Damper
Day 1	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	4,000m	GE	4,000m @ MP	SS
Day 4	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 5	15,000m	GE	15,000m @ MP	SS
Totals	50,000m			
Targets	50,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.29

80,000m Marathon Training Plan				
Cycle 5				
Week 17	Distance	Type	Work	Damper
Day 1	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 2	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 3	8,000m	GE	8,000m @ MP	SS
Day 4	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 5	20,000m	GE	20,000m @ MP	SS
Totals	65,000m			
Targets	65,000m			
Week 18	Distance	Type	Work	Damper
Day 1	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 2	11,000m	VO ₂ Max	2 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 3	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 4	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	25,000m	GE	25,000m @ MP	SS
Totals	70,000m			
Targets	70,000m			
Week 19	Distance	Type	Work	Damper
Day 1	12,000m	LT	4km @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	18,000m	LT	2 x (3,000m @ MP/3,000m @ 10kP/3,000m @ HMP)	SS
Day 4	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	20,000m	GE	20,000m @ MP	SS
Totals	75,000m			
Targets	75,000m			
Week 20	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	6,000m	GE	6,000m @ MP	SS
Day 4	9,000m	LT	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 5	18,000m	GE	18,000m @ MP	SS
Totals	60,000m			
Targets	60,000m			

Please refer to page 5.29 for full notes on this table.

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Table 5.30

80,000m Marathon Training Plan				
Cycle 6				
Week 21	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	14,000m	Power	3 x (6 x 1' / 2') @ 30spm	-2
Day 3	8,000m	GE	8,000m @ MP	SS
Day 4	16,000m	VO ₂ Max	3 x Alternate (2,000m @ 5kP/3,000m @ MP)	SS
Day 5	25,000m	GE	25,000m @ MP	SS
Totals	75,000m			
Targets	75,000m			
Week 22	Distance	Type	Work	Damper
Day 1	11,000m	Power	2 x (5 x 90secs/3') @ 32spm	-2
Day 2	15,000m	VO ₂ Max	4 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	9,000m	GE	9,000m @ MP	SS
Day 4	15,000m	LT	5,000m @ MP/5,000m @ 10kP/5,000m @ HMP	SS
Day 5	30,000m	GE	30,000m @ MP	SS
Totals	80,000m			
Targets	80,000m			
Week 23	Distance	Type	Work	Damper
Day 1	11,000m	Power	2 x (5 x 90secs/3') @ 32spm	-2
Day 2	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 3	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 4	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	25,000m	GE	25,000m @ MP	SS
Totals	70,000m			
Targets	70,000m			
Week 24	Distance	Type	Work	Damper
Day 1	12,000m	LT	4,000m @ MP/4,000m @ 10kP/4,000m @ HMP	SS
Day 2	9,000m	Power	2 x (6 x 1' / 2') @ 30spm	-2
Day 3	7,000m	GE	7,000m @ MP	SS
Day 4	12,000m	VO ₂ Max	3 x Alternate (1,500m @ 5kP/2,000m @ MP)	SS
Day 5	20,000m	GE	20,000m @ MP	SS
Totals	60,000m			
Targets	60,000m			

Please refer to page 5.29 for full notes on this table.

Table 5.31

80,000m Marathon Training Plan				
TAPER				
Week 25	Distance	Type	Work	Damper
Day 1	9,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/1,500m @ MP)	SS
Day 2	7,000m	GE	7,000m @ MP	SS
Day 3	9,000m	Power	2 x (6 x 1' / 2') @ 32spm	-2
Day 4	10,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/2,000m @ MP)	SS
Day 5	15,000m	GE	15,000m @ MP	SS
Totals	50,000m			
Targets	50,000m			
Week 26	Distance	Type	Work	Damper
Day 1	9,000m	VO ₂ Max	3 x Alternate (1,000m @ 5kP/1,500m @ MP)	SS
Day 2	8,500m	GE	8,500m @ MP	SS
Day 3	7,500m	GE + Power	3,000m @ MP/3,000m @ 10kP/3,000m @ HMP	SS
Day 4	5,000m	GE	5,000m @ MP	SS
Day 5		MARATHON		SS
Totals	30,000m			
Targets				

Please refer to page 5.29 for full notes on this table.

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Frequently Asked Questions

answered by Terry O'Neill

As well as using the Concept 2 my wife and I ride bicycles as part of cross-training, and do so wearing heart rate monitors. When going up a decent sized hill, my wife frequently has a heart rate of more than 100% of maximum rate as defined by the usual 220 minus age equation. This also happens to us both when doing a 2,000m test. What recommendations could you make regarding sustaining very high output levels for non-professional sportspeople?

220 minus your age is a very rough guide of maximum heart rate and errs on the side of caution when used to recommend training intensities. The heart rate rises in response to the demand for oxygen and different activities will bring about a different heart rate maximum. Factors that will affect the maximum heart rate include how many major muscle groups are involved in the activity and the body position; whether seated, standing or lying down.

A measure of your physical condition is your ability to do prolonged work close to your maximum heart rate. As a result of training, anaerobic threshold is pushed up to around 85% of heart rate maximum. The heart also benefits and increases the amount of blood it is able to pump around each beat. This means that for a given task, as you get fitter your heart rate will come down or alternatively you will be able to do more work at a given heart rate. Unless you have some heart or circulatory problems there is no danger in going flat out. Training at the higher heart rate will have the most impact on your cardio-vascular system with low heart rate exercise improving muscular efficiency.

At what stage during a session should you reach the desired beats per minute? If, for example, I'm rowing for 45 minutes at 75% of my maximum heart rate, should I aim to reach 75% as quickly as possible then maintain it by gradually easing off, or should I aim to reach 75% by the end of the row?

Training is a combination of quality and quantity. Quality is reflected in the pace while quantity is measured in the duration of the session. Training at different intensities is designed to challenge the whole spectrum of the energy producing system. In the lower training bands UT1 and UT2 (Utilisation) it is better to get into the band reasonably quickly and hold it throughout the session.

With AT (anaerobic threshold) and TR (oxygen transportation) you are looking to finish the session just in the band. This is because the rate of increase in the heart rate is very steep and it is easy to shoot through a band and end up in the band above. The consequence of this is that the benefits of training in the band are missed and the programme becomes unbalanced. With AN (anaerobic) and AL (lactate), depending on the duration of the intervals, you may find that the heart rate will continue to rise even though you have finished the piece.

The World Rowing Federation have a table giving boat speeds as a percentage of 2,000m speed, for the different training zones, e.g. UT1 65 to 75%, AT 75 to 85% etc. I presume that these are lower than for a rowing machine as there is not the same increased resistance on one compared with on the water. Is this the case?

An oarsman could row 2,000m in February, return in August without doing any training in between, and row the same 2,000m at least ten seconds faster. This would be purely as a result of the increase in water temperature which would lead to a corresponding reduction to the drag on the hull. There is no parallel to

this with indoor rowing where to achieve an increase of ten seconds will require hours of training. Training on the rowing machine is far more efficient than on the water where, to get the same training benefits, you would need an increase in training time of around 25%.

Of course an oarsman also needs to practice the skills required to move a boat and boat speed ultimately determines the success of oarsmen. Boat speed alone is not a good general measure of training intensity. Any measuring system has to be reliable so that you are only measuring the difference brought about by improved performance. Differences in wind speed and direction, water and ambient temperature plus the movement of the water will each have a considerable effect on boat speed.

On the other hand using pace as a measure of intensity on the rowing machine is totally reliable and makes a lot of sense. One of the alternatives is measuring heart rate, but pace will continue to increase beyond heart rate maximum. Stroke rate can also be used as a measure but as athletes fatigue, stroke length shortens in order to maintain rate. For this reason we recommend a combination of heart rate, stroke rate and pace as the best way to measure training intensity.

I am a blood donor and I want to continue to donate blood at the recommended frequency - once every three months or so. Does this present any risk to my health or to my performance? Does a temporary loss in red cells reduce my capacity to get oxygen to and carbon dioxide/lactate from my muscles? When moving into more intense training phases, should blood donation be avoided?

For a normal healthy person donating blood is not a problem and your normal blood volume would be restored certainly by the next day; red cell volume, however, could be down for around ten days.

Avoid doing any flat out tests until your red cell count is back to normal. The only other thing you need to watch is to make sure that the actual point where they take the blood from has healed as if you start rowing, even at a low intensity you could cause the exit point to start bleeding again.

What contribution does a 10,000m session make towards maximising performance over 2,000m?

The longer session improves muscular efficiency by increasing the number of capillaries around the muscle fibre and the density of mitochondria (the site of energy production) in the cells. This has the effect of increasing the contact time for oxygen to pass from the blood to the muscle. As a result there is an increase in the maximum oxygen uptake, which is a vital parameter for an endurance athlete.

The higher intensity sessions identified by the elevated heart rate have a greater effect on the oxygen delivery system, heart/lung function and stroke volume. However, they will also increase capillarisation and at a faster rate than at low intensity. The problem is that high intensity training causes high lactate accumulation and glycogen depletion which need time between sessions to recover. The number of sessions a week you train will determine how many of them should lead to a lactate build up. Five to six sessions a week should allow enough recovery to train at high intensity. However, you will need to factor in the energy costs of your job and whether it is heavy manual or stressful.

In 2,000m racing what are the pros and cons of level-pacing as opposed to rowing the first and last 500m segments faster than the middle two?

Level pacing is covering the distance at the highest sustainable pace. There are two other alternatives; going off as hard as possible or going off steady and building up to a big finish. If you go off too hard then you have to cope with high lactate levels caused by oxygen debt. This will result in a slowing down in the

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latter stages of the race that will cost twice as much as early gains. If you go off steady and build to the finish you may not get it right and finish with energy to spare.

Even with level pacing the first 500 metres are normally the fastest. To start with you have instantly available energy in the muscles that will last for about ten seconds. Replacing this fuel takes time and therefore work cannot continue at the same intensity but you can still blast off for the first ten to 15 seconds and it is this that reduces the overall time of the first 500 metres.

The last 500 metres is normally the second fastest because you empty your tanks on this one to finish exhausted.

I've been rowing 30,000m pieces in preparation for a marathon attempt. The only problem is I seem to hit acute hunger pains after about 25,000m, pains which take about three days to go away. The first time I did 30,000m was with no lunch or evening meal and with no drink throughout. The next time I tried using Isostar throughout the row. It was better but I still got the hunger pains. Next time I will have a decent lunch. Any ideas?

When you are rowing for two and a half hours it is quite normal to get hungry. The way to combat this is to load up on carbohydrates before these long sessions. The problem is that the body can only store a limited amount of carbohydrates so you need to ensure that your stores are full. This can be done by eating a high carbohydrate diet for the days leading up to a marathon or long training piece. The type of meals that you would expect to eat would be high in complex carbohydrate (potatoes, rice and pasta) in the days leading up to the event then, on the day, supplement this with simple carbohydrates (sugars, sweets, energy drinks). The way that the body responds to this is individual and you should test different combinations of food to see which is the most effective for you.

With the fluids, there is an arrangement that triathletes use by which they can take fluid constantly without stopping. The liquid is carried in a pouch on the back with a feeder tube to the mouth. If you make a weak carbohydrate drink (5%) this will also help. If the solution is higher than 5%, which you would get in energy drinks, you could become dehydrated.

I am planning to take part in a marathon and have been trying to follow the training programme published on the Concept 2 website but am finding that when I row for more than one hour I get a seriously painful backside. Do you have any suggestions?

This is a fairly common problem and there is a range of possible solutions. Firstly, ensure that you are sitting towards the back of the seat on the ergonomically designed section. If that does not help then there are a range of seat pads available, two (standard and deluxe) from Concept 2. An alternative is to use bubble wrap, the type with the small bubbles is best, to create your own padding. The final recommendation is to have a custom designed seat pad made. For more information see the website www.eelpie-rowing.co.uk.