
A General Guide to Training on the Concept II Indoor Rower



These are the training questions that are most frequently asked of us here at Concept II:

- How do I set up a training program?
- What workouts should I do to train for the 2000 meter race?
- How should I use rowing for cross-training?
- What stretches should be done before rowing?

This Training Guide is designed to answer these questions, and a few more.

Some of this material has appeared in past issues of the Indoor Rower Update. Other sections are entirely new. In any case, we hope you find this guide useful. If there is additional information that you think we should include in future editions, please let us know.

Best of luck with your training!



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Why Row?

- Rowing exercises all of your major muscle groups: legs, arms, back, abdomen, and buttocks.
- Rowing exercises muscles through a wider range of motion than most other exercises. This means that your muscles stretch and your joints move to a greater extent, thereby promoting flexibility and mobility.
- Rowing provides aerobic and anaerobic conditioning as well as strength conditioning.
- Rowing is a great calorie burner. Recent research shows that rowing burns calories faster than biking at the same perceived level of exertion.
- Rowing is a lifelong sport that can be performed and enjoyed by all ages.
- Rowing is a smooth motion, rhythmic, and impact free.
- Rowing offers diverse opportunities: inside, outside, on water, on land, competitively, or for self-satisfaction.
- Rowing is a time-efficient workout. It doesn't take long to get a great workout.
- Rowing is a complete exercise.
- Rowing does not discriminate against age or gender.

On an individual level, rowing may offer these additional benefits.

These all came direct from our customers.

- to reduce stress and anxiety
- to keep in shape for surfing, mountain climbing, swimming, running, cycling
- "makes me feel great!" — promotes well-being and self-esteem
- weight loss, blood pressure reduction
- for relaxation and meditation, to clear one's mind, to help one sleep
- for exercise when injured, rehabilitation
- to warm up for running or weight lifting
- a chance to watch TV without guilt
- the movement is inherently satisfying
- for the challenge of improving, competing against oneself
- for camaraderie, to meet nice people
- for the FUN of it!



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Program for People Just Getting Started

Learning to Row:

Rowing is really a very natural motion and most people pick it up quickly. Review the technique information provided in the literature with the Concept II Indoor Rower or request a free technique video or poster by calling us toll-free. We recommend that you have someone watch you row and compare your body positions to those shown in our materials. Don't pull too hard until you are comfortable with the technique.

General Notes:

Use a damper setting of 1-3 for starters. This may feel light at first, but once you get used to the motion and get the wheel spinning faster, the resistance will rise. **Start a training log.** Use a calendar, scrap paper, your computer or a log page supplied by Concept II - it will be rewarding to monitor your progress. Be sure to record every meter so you can join the Concept II Million Meter Club when you get that far!

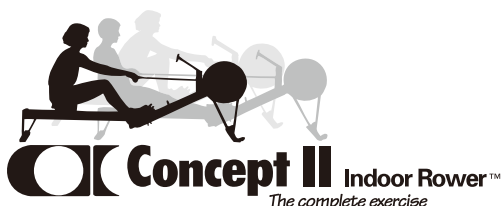
Look for a workout partner. It will probably make your workouts more fun and will help you stick to your new routine. Stretch before and after your workouts. Warm up for 5 minutes by rowing easily, with a few 10-15 stroke spurts of harder rowing.

Your First Few Workouts:

Resist the temptation to row for 30 minutes the first time on the machine. We recommend starting with no more than 3-5 minutes at a time. Then take a break to stretch and walk around. If you feel good, do up to four of these short intervals of rowing. Next row: Begin experimenting with stroke rate and power. Stroke rate is your cadence in strokes per minute(spm). It is displayed in the upper right corner of the Performance Monitor. You should not exceed 20-22 strokes per minute for the first few workouts, then gradually try to row 22-24 spm, then 24-26 spm, then 26-28 spm. Power is how hard you are pulling. It is displayed in a choice of units in the central display area: watts, calories, pace. Try some 3 minute intervals, varying stroke rate and pace, with one minute of very easy rowing in between for rest.

Workout 2: 3 minutes at 20 spm, comfortable effort; 1 minute rest; 3 minutes at 22 spm, harder effort; 1 minute rest; 3 minutes at 24 spm comfortable; 1 minute rest; 3 minutes at 24 spm, harder, 3 minutes rest. End with 10 minutes of steady state rowing at whatever spm and power are comfortable. Be sure to note the power and spm you settle on - you will use it next workout.

Continued on next page



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Introduce longer rowing with stroke rate variation.

Workout 3: Do four 5 minutes pieces, varying the stroke rate as follows:

20 spm for first 2 minutes; 22 spm for next 2 minutes; and 24 spm for last minute. Then rest by rowing very easily for 2 minutes, before starting the next 5 minute piece. Your work pace should be faster than your 10 minute pace from the last workout.

Longer steady rowing:

Workout 4: Two 10-minute pieces with 3 minutes rest in between. Try to go a little faster than you did for the 10-minute piece in Workout 2. Stroke rate 20-24.

Workout 5: Row 1 minute hard, 1 minute easy for a total of 20 minutes. Watch the central display for your pace.

Benchmark Piece: 30 minutes, non-stop. Definitely record your total meters rowed for this piece. You should repeat this workout periodically to see how you are progressing. You can also send it in to the Concept II Annual World Ranking.

Record your paces after the workout using the RECALL function on the PM2

The Rest of Your Workouts

These first few workouts have introduced you to a variety of workout types. The possibilities are endless. You can repeat these same workouts, or develop new ones of your own. Or, you may develop favorites that you like to do over and over. Workout choice should be made based on your goals.

You should now move on to page 11, "Setting Up a Training Program."



Recommended Stretches for Before and After Rowing

These stretches can be done both before and after your workouts. We suggest that you start by trying all of these stretches, and work toward developing a routine using the stretches that work best for you.

Before Stretching: It is important that your body be adequately warmed up before you attempt to stretch. We suggest that you row lightly for 3-5 minutes to increase blood flow and prepare the musculo-skeletal system for the stretching sequence to follow.

Pre-Workout Stretches can be held for approximately 10 seconds.

Post-Workout Stretches can be held for up to 30 seconds.

Primary muscle groups used are listed below each stretch.

All Stretches:

- should be done in a static, relaxed and patient fashion. NO bouncing or abrupt movements.
- should include full deep breaths, expanding the diaphragm on inhalation, for maximum results.
- should be repeated on both sides if a unilateral stretch.
- can be repeated for 3-5 repetitions.



1. Posterior Deltoids, Latissimus Dorsi, Trapezius, Scapulae Musculature

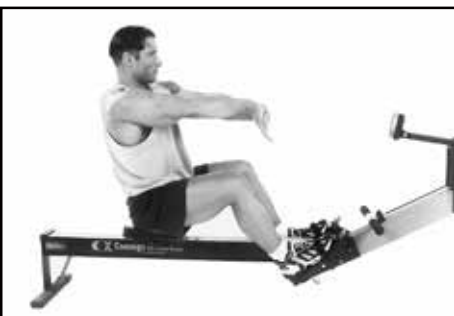
Stretches with the Indoor Rower:



2. Obliques, Latissimus Dorsi



3. Anterior Deltoids, Rectus Abdominis



4. Biceps



5. Triceps



6. Anterior Deltoids, Pectoralis Major and Minor



7. Hamstrings



8. Gluteals



9. Lumbar Region, Erector Spinae



10. Quadriceps, Hip Flexors



11. Soleus



12. Gastrocnemius, Achilles Region



13. Tibialis Anterior

Stretches - Without the Indoor Rower



14. Lumbar and Thoracic Regions



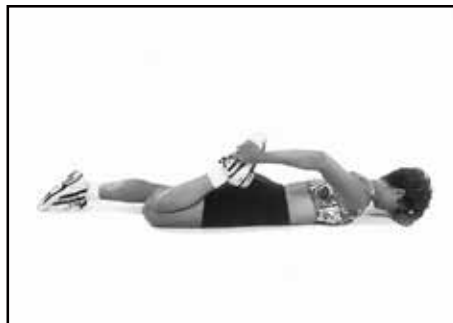
15. Lumbar and Thoracic Regions



16. Hamstrings



17. Gluteals



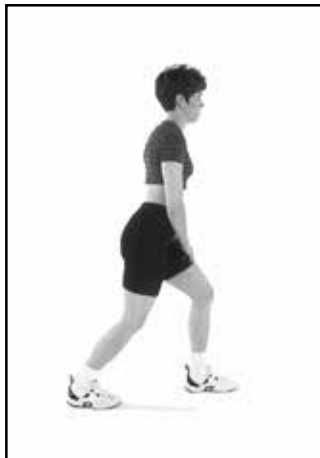
18. Quadriceps, Hip Flexors



19. Rectus Abdominus



20. Gastrocnemius,
Achilles Region



21. Soleus



22. Tibialis Anterior



Setting Up a Training Program

Determine your goals

They may be one or more of the following:

- to lose some weight
- to maintain general health and fitness
- to aid in rehabilitation
- to cross-train for another sport
- to train for competitive rowing

Choose an Training Program to Meet Your Goals

Here are some basic guidelines for setting up a training program to achieve your goals. If you are just starting rowing for the first time (or the first time in a long time) please see page 5, "Getting Started."

A. WEIGHT LOSS

If weight loss is your goal, then consistency and duration of your workouts will be very important.

Consistency: If possible, set up a regular time to row so that you won't have to make a daily decision about whether and when to row. This will help prevent excuses from interfering with your program. The support of friends and family can be very helpful, too.

Duration: The longer you row at any given intensity level, the more calories you will burn. Rowing at a higher intensity level will also burn calories faster, but you don't want to row so intensely that you can only last for 5 minutes. Therefore, the best guideline for weight loss is to aim for rows that are at least 30 minutes long, at a "comfortably intense" pace.

Connection to diet: Weight loss should result when your caloric output (exercise) increases while your caloric input (food) decreases or stays the same.

RECOMMENDED WORKOUT FREQUENCY: 5-6 times per week

DURATION: 30-50 minutes

WORK TYPE & INTENSITY: Moderate steady work, able to carry on a conversation; add interval workouts for variety.

SAMPLE WORKOUTS:

- 5,000-7,000 meter row
- 10,000 meter row
- 30 minute row
- 1 minute harder, 1 minute easier for at least 20 minutes total.
- 2-3 moderate 10-minute pieces with 2 minutes easy in between.
- a 30-40 minute piece with 20-30 hard strokes every 5 minutes.



B. GENERAL HEALTH AND FITNESS

The guidelines for general health and fitness are that one should exercise at least 3 times per week for 30 minutes

FREQUENCY: 3-5 times per week; alternate with other types of exercise if desired.
DURATION: At least 20 minutes total.
WORK TYPE & INTENSITY: Moderate steady work, moderate interval workouts for variety. Use a target heart rate if you have a heart rate monitor.
SAMPLE WORKOUTS:

- 20 minute row
- 4,000 meter row
- 40 seconds harder, 20 seconds easier for 15-25 minutes

C. REHABILITATION

Cardiac rehabilitation: You should work with a doctor or rehab specialist to develop an exercise plan that will meet your needs.

Injury rehabilitation: If you are working with a professional, ask them how to incorporate rowing into your rehab program. If you have a minor injury and are treating yourself, rowing may be a very good tool for you, depending on the nature of the injury. For example, if you are a runner with an overuse injury of the foot or leg, you may find that rowing gives you a great cardiovascular workout without stressing the injured part. See “Cross-Training with Rowing” for more information.

D. CROSS-TRAINING FOR ANOTHER SPORT

For a more in-depth discussion of this training goal, see “Cross-Training with Rowing.” Your program will vary depending on the nature and yearly cycle of your major sport.

FREQUENCY: 2-4 times per week in your “off-season,” 1-2 times per week in active season.
DURATION: 30-60 minutes; shorter for intense, speed workouts; longer for steady state, aerobic workouts.
WORK TYPE & INTENSITY: Include steady state, anaerobic threshold work, as well as more intense intervals and racing pieces.
SAMPLE WORKOUTS:

- 40 minute row (or 10,000 meters)
- 1 minute hard, 1 minute easy for 40 minutes
- 1-2-3-4-3-2-1 minute pyramid, 30 seconds off between pieces
- 3 minutes @ 18SPM, 2 minutes @ 24SPM 1 minute @ 28SPM; for 30-60 minutes



E. TRAINING FOR COMPETITIVE ROWING

The current racing distance for indoor rowing regattas is 2000 meters. The training suggestions given below are geared to this race distance. If you have never participated in an indoor regatta, see “An Introduction to Indoor Racing” on page 27.

FREQUENCY: 4-6 times per week (less when you are rowing on-the-water.)
DURATION: 30-80 minutes depending on the intensity of the workout.
WORK TYPE & INTENSITY: the whole range, from racing to easy steady state.
Different types of work should be done at different times in your training year.

For specific workout suggestions, please see page 29, “Training for the 2000 Meter Race.”

Monitor Your Progress

No matter what your training goal, you can help yourself reach it by recording your progress in a log. Record your daily workouts as well as occasional “benchmark” workouts. Included in this training packet is our “Daily Rowing Log.” You can use this book to record every workout you do.

This habit accomplishes several things:

1. you can look back to find a great workout that you did several weeks ago
2. you can compare your score today to the last time you rowed the same workout to see if you are improving
3. you can record other data like weight, heart rate, how you felt
4. you can keep a cumulative total of all the meters you have ever rowed so that you can join our Million Meter Club (and receive your free patch, certificate, and T-shirt.)

Benchmark workouts: Test yourself at regular intervals by repeating the same workout and recording your score. Highlight these benchmark results in your logbook so you can find them easily. We suggest using the 2000 meter distance and the 30 minute row for your benchmarks so that you can compare your performance with others in your age and weight class in our Annual Concept II World Ranking.



Evaluate and Adjust Your Program If Necessary

If you are making good progress toward your goals: Great! Keep it up!

If you are not making progress toward your goals, you may need to modify your program. Here are some possible scenarios and steps you can take.

- You may be training too hard: If you are tired and your performance improved for a while, then stagnated or got worse, you may actually be training too hard. Be sure that you are taking at least one rest day per week, and another day or two that are fairly easy.
- You may not be rowing hard enough when you row: If you always row by yourself and have not done much or any hard rowing in the past, it may take you a while to learn how to push yourself. Workouts consisting of short intervals can be a good way to push up the intensity. It can also help to row with someone else.
- Your program may not be right for you: Every body is different and it is sometimes difficult to set up a training program entirely through the mail. It may be helpful to discuss your training with a coach or fellow athlete if you have access to someone like this. Try a local health club or rowing club.
- Your technique may not be good: If you have access to a rowing club or school, you may be able to get some coaching there. If not, you can use our Video Coach Program. This program provides a way for the uncoached rower to have his/her rowing technique checked by an experienced rowing coach. In fact, a former Olympic rowing coach! To take advantage of this program, get a friend or family member to run the video camera while you row. Take several minutes from the front and several from the side. Be sure to include some hard rowing if that is something that you do as part of your exercise routine. Larry Gluckman will review your tape and add his coaching comments to the voice-over. When we return your tape, we will also include a copy of our Technique video (unless you already have one.) Price of this service is \$10.00. (It's fine to get together with friends on the same tape and share the postage.)



General Training Tips

- Do some light stretching before you row. Include the lower back, back of leg, and shoulders.
- At the beginning of every workout, warm up by rowing easily for about 5 minutes, gradually introducing bursts of higher intensity.
- Plan your workout in advance so you can just get on the rower and start rowing.
- Variety in workouts helps both physiologically and psychologically.
- Be sure to cool down at the end of your workout by rowing easily for 5 minutes or so.
- Train with a friend at least some of the time.
- Don't forget to take rest days.



Using the Performance Monitor 2 (PM2)

Level I: Getting Started

All you need to do is get on and row. The PM2 will come on automatically and begin to display information about your performance. Here's what the displays are showing:

Your **ELAPSED TIME:** how long you have been rowing.

Your **TOTAL OR CUMULATIVE OUTPUT** since you started rowing. This is displayed in a choice of 4 units:

AVERAGE PACE: What your average pace per 500 meters has been since you started.

METERS: How many meters you have rowed since you started.

CALORIES: How many calories you have burned since you started.

WATTS: Your average power output in watts since you started.



Your **STROKE RATE** or cadence in Strokes per Minute (**SPM**) updated every stroke. (Aim for somewhere between 20 and 30 spm.)

Your **OUTPUT FOR EACH STROKE:** How hard you pulled on the last stroke. This is displayed in a choice of 3 units: **PACE/500 METERS:** How long it would take you to row 500 meters if you kept rowing at that same pace. The smaller the number, the faster you are.

CALORIES/HOUR: The rate at which you are burning calories during the last stroke. It displays the number of calories you would burn in an hour if you kept rowing at that pace. The larger the number, the faster you are going.

WATTS: The power you exerted during the last stroke in watts. The larger the number, the faster you are going.

Now try pressing the DISPLAY button: You can choose any of these displays to watch while you row. Each time you press it, the display changes, cycling through the choices described. You can change the display anytime during your workout.

The HEART RATE display will be blank unless you have the **optional Heart Rate interface*** attached. If you do have the heart rate interface attached and are wearing a chest belt, this display will show your heart rate in beats per minute.

**For more information call Concept II toll free at 1-800-245-5676*

Level II: Preset Workouts and Recall

A. Setting Up Workouts

It is easy to set up a variety of workouts on your PM2. Specifically, you can set up:

- a single work session of preset time duration
- a timed interval workout (alternating work time and rest time)
- a single work session of preset distance
- a distance interval workout (alternating work distance and rest time)

All of these types of workouts can be set up using these buttons:

ON/OFF: Press this button to turn the PM2 on or off. The PM2 will come on automatically when you start to row and will turn itself off after 4 minutes of inactivity.

RECALL: After you have finished a workout, you can use RECALL to view your performance.

TIME: Press this button to set the time duration of a work piece or work intervals.

METERS: Press this button to set the distance duration of a work piece or distance intervals.

REST: Press this button to set the rest time for an interval workout.

DISPLAY: You can press this button at any time before, during or after your workout to change your choice of display units.

SET DIGITS: Press this button ► to move right to the next digit when setting time or distance for workouts. Press this button ▲ to increase the value of the blinking digit when setting time or distance for workouts.

READY: Press this button when you have finished setting up your workout and are ready to row.

These choices include:

- average pace
- projected meters or time
- elapsed meters or time
- watts & calories

B. Using Recall

After you have finished a workout, you can use RECALL to view your performance during each split or interval of your workout.

The first press of the RECALL button displays the end of workout information for your workout. Each successive press of the RECALL button shows the next earlier split or interval until either the last split has been displayed or there is no more memory available (maximum storage is 20 splits or intervals). The word "SPLIT" will appear on the screen to indicate that you are viewing split information as opposed to end of workout information. Default splits are: 2 minutes for timed workouts and 500 meters for distance workouts. See next section to set custom splits.

NOTE: Your workout results will remain in the PM2 memory until another workout is started, even if the PM2 is turned off.

- Tips:**
- The ► button works the same as RECALL. It shows the next earlier split or interval.
 - The ▲ button shows the next later split or interval.
 - The DISPLAY button can be used during split recall to view splits in various units.
 - Pressing REST during split recall shows splits in cumulative mode. This is indicated to the user by "CU" in the center display field. Press REST again to exit CU mode.
 - HEART RATE box shows your heart rate at the end of that interval or split.
 - SPM box shows your average strokes per minute for the interval or split.



Level III: Extra Functions

All of the PM2 buttons except the ON/OFF button have extra functions which are activated when you press and hold down the READY button. These special functions include:

- **Two Odometers:** one is resettable (trip odometer) and one is not resettable
- **Split Intervals:** you can set the PM2 to measure splits at intervals which you set. Each split will be saved for recall after you finish and can be displayed for six seconds while you row.
- **Drag Factor:** you can set the PM2 to display the drag factor which it calculates during the rundown of the flywheel.
- **PM2 display test**

BUTTON SEQUENCES AND DESCRIPTIONS OF EXTRA FUNCTIONS:

SPLITS

Custom Splits (time)

Hold down **READY** (OK) then press **TIME** (clock icon)

to set a time interval for split measurement. Use the SET DIGITS buttons to set the split time. Then press READY when done. Note: your custom split interval will not be retained through a power down. Default value is 2 minutes.

Custom Splits (distance)

Hold down **READY** (OK) then press **METERS** (M icon)

to set a distance interval for split measurement. Use the SET DIGITS buttons to set the split distance. Then press READY when done. Note: your custom split interval will not be retained through a power down. Default value is 500 m.

DRAG FACTOR

Hold down **READY** (OK) then press **REST** (bed icon)

to have a drag factor displayed in the lower right display window. Repeating this button sequence will turn off the drag factor display. The drag factor is most helpful if you row on Indoor Rowers in different locations and want to be sure the resistance setting is the same. Check the drag factor on your "home" machine, and then adjust the damper on the "away" machine until you get the same drag factor. Typical range for drag factor on the Indoor Rower is: 103 (damper setting 1)-223 (damper setting 10). When PM2 powers up or resets, the drag factor display default. Note: When a heart rate monitor is being worn, HR will override the drag factor and will always be displayed.

Splits On/Off

Hold down **READY** (OK) then press **RECALL** (M icon)

to have splits displayed during your workout. Repeating this button sequence will turn off the split display during your workout. When the PM2 powers up, splits are off by default.

TWO ODOMETERS

Not Resettable

Hold down **READY** (OK) then press **SET DIGITS** (right arrow icon)

to display cumulative distance rowed. This odometer is not resettable. Distance is in kilometers and is only displayed when READY and ► are being pressed.

Resettable

Hold down **READY** (OK) then press **SET DIGITS** (up arrow icon)

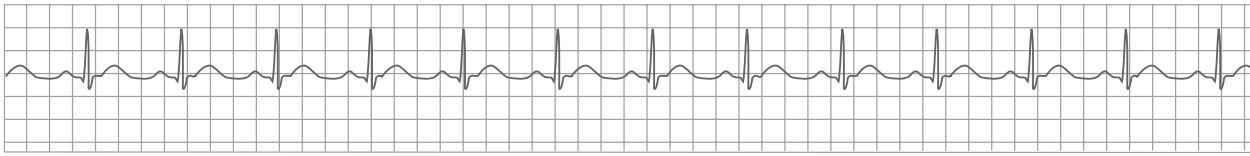
to display a resettable record of distance rowed. At 99,999 it rolls over to 00,000. Press RECALL to reset to 0. Press READY or ON/OFF to get out of this function.

PM2 DISPLAY TEST

Hold down **READY** (OK) then press **DISPLAY** (down arrow icon)

to perform a self-test including all segments test. Press ON/OFF to end the test.





Plotting Performance - Beat By Beat

Monitoring your heart rate allows you to maximize the effectiveness of your training time. It helps you to adjust your effort so that you can achieve the goals of each workout.

The first step is to determine your **Maximum Heart Rate (MHR)** and **Resting Heart Rate (RHR)** so that you can use them to establish your **Training Heart Rate Range (THRR)**. One way to do this is to have a stress test done. Your physician can then tell you what your maximum and resting heart rates are and what training range would be best for you. The other way is to use the mathematical formulas explained below, which will give you a pretty good approximation.

To estimate your maximum heart rate, you can use the rule of thumb that your maximum heart rate (MHR) is 220 minus your age. You can find your resting heart rate (RHR) by lying down or sitting still for a while and then taking your pulse (do this several times and take the average for greater accuracy). By subtracting RHR from MHR, you will determine your heart rate reserve (HRR). You can then calculate your training heart rate range by taking prescribed percentages of this HRR and adding them back to your RHR. Specifically, for aerobic training you will take 50-75% of your HRR and add it to your RHR to get your training heart rate range. For anaerobic threshold training you will take 80-85% of the HRR and add it back to your RHR to get your training range. The following examples will show you how to do this. Then you can use the worksheet provided to calculate your own values.

Aerobic Training Heart Rate Range

Let's say you are 50 years old, with a resting heart rate of 60. Using 220 minus your age, $220 - 50$, you calculate a MHR of 170. Subtracting RHR from MHR, you get $170 - 60 = 110$ for your HRR. Your aerobic training heart rate range will lie between 50% and 75% of your HRR: 50% of 110 = 55; 75% of 110 = 83. Adding these figures back on to your resting heart rate gives: $60 + 55 = 115$ and $83 + 60 = 143$. Thus your aerobic THRR is 115 to 143 beats per minute. If you exercise below 115, you will decrease the efficiency of your workout. If you exercise above 143 for any length of time, you will feel some stress.

Anaerobic Threshold Heart Rate Range

The anaerobic threshold is the zone in between aerobic and anaerobic training. On a strong 5000 meter piece, or a best effort for 30 minutes, you are probably working at your anaerobic threshold. To calculate this range, take 80 to 85% of your HRR. Using the HRR of the first example we get: 80% of 110 = 88 and 85% of 110 = 94. Adding these figures back on to your RHR gives: $88 + 60 = 148$ and $94 + 60 = 154$. Thus your anaerobic threshold THRR is 148 to 154 beats per minute.



Beyond Anaerobic Threshold

Going beyond your anaerobic threshold range is asking your body to work purely anaerobically. Anaerobic workouts are usually interval workouts, simply because your body can't work anaerobically for very long at a time without rest. You may do all-out intervals ("putting the pedal to the metal") or repeated intervals. All-out intervals, where you may reach your MHR, call for a longer rest interval to reach a lower heart rate before the next interval. Repeats, where your heart rate should be just under MHR, call for a higher heart rate at restart.

For Best Results

For best results on the Indoor Rower, we recommend a diet of all three types of workouts. The variety will provide your body with a range of productive stresses, while avoiding boredom and the overuse of any one system. Your largest serving of the three should be of aerobic work, where duration takes priority over high intensity.

Monitor Your Progress

Monitoring your Training Heart Rate and your Indoor Rower scores enables you to track your fitness progress. In addition, periodic test pieces will be very informative to you. As your fitness improves, you will find that you can achieve more meters, watts or calories for a given heart rate. Or, at the same pace, your heart rate will be lower. You may also find a reduction in your resting heart rate. On the other hand, if you find increases in your heart rate for a given work level, or increases in your resting heart rate, it may mean that you need some time off. You may be overly fatigued or showing the beginnings of an illness.

Knowing how your cardiovascular system is responding to training will enhance your interest in your health and well-being. Monitoring your heart rate is a good start.

Use This Worksheet to Calculate Your Own Aerobic & Anaerobic Training Ranges

Estimated Maximum Heart Rate (MHR):

$$220 - \boxed{\text{your age}} = \boxed{\text{MHR}}$$

Estimated Resting Heart Rate (RHR):

$$\boxed{\text{RHR}}$$

Estimated Heart Rate Reserve (HRR):

$$\boxed{\text{MHR}} - \boxed{\text{RHR}} = \boxed{\text{HRR}}$$

Aerobic Range:

$$\boxed{\text{HRR (from above)}} \times .50 = \boxed{\text{X1}} \quad \dots \rightarrow \quad \boxed{\text{X1}} + \boxed{\text{RHR (from above)}} = \boxed{\text{low end Aerobic THRR}}$$

$$\boxed{\text{HRR (from above)}} \times .75 = \boxed{\text{X2}} \quad \dots \rightarrow \quad \boxed{\text{X2}} + \boxed{\text{RHR (from above)}} = \boxed{\text{high end Aerobic THRR}}$$

For aerobic work, work between these two HRs ↑

Anaerobic Range:

$$\boxed{\text{HRR (from above)}} \times .8 = \boxed{\text{X1}} \quad \dots \rightarrow \quad \boxed{\text{X1}} + \boxed{\text{RHR (from above)}} = \boxed{\text{low end Aerobic THRR}}$$

$$\boxed{\text{HRR (from above)}} \times .85 = \boxed{\text{X2}} \quad \dots \rightarrow \quad \boxed{\text{X2}} + \boxed{\text{RHR (from above)}} = \boxed{\text{high end Aerobic THRR}}$$

For anaerobic work, work between these two HRs ↑

Why Cross-Train with Rowing?

We have heard from our customers that rowing has improved their performance in a wide range of other sports, including running, biking, canoeing, tennis, lifeboat racing, and others. What is it about rowing that makes it such a good cross-training tool for such a variety of sports?



- Rowing exercises many muscle groups - providing an alternate way to exercise and strengthen the muscles used in other sports, as well as strengthening the muscles which complement those used in other sports. This is important because it maintains balance - so the specific sport muscles don't become relatively too much stronger than the opposing muscles, which can sometimes lead to injury.
- Rowing exercises both upper and lower body. For sports like running and cycling that primarily involve just the lower body, rowing offers upper body conditioning as well.
- Rowing is non-impact exercise, thus imposing less impact-related wear and tear on the body. This is especially important for high impact sports like running, but is a nice feature no matter what your primary sport.
- Rowing puts many of your major muscles through a wide range of motion, quite possibly wider than your primary sport. This can improve your flexibility.
- Rowing can be done indoors anytime - which is especially nice for sports that may be affected by weather conditions, i.e. skiers in the summer, paddlers and cyclists in the winter.
- Rowing is a superb conditioning tool for any level athlete - the cardiovascular workout offered on the Indoor Rower has been a training tool of Olympic rowers since the Rower was invented in 1981, so it should be enough for anyone. At the same time, because the work is self-paced, athletes of all abilities can also find just the work level that they need.
- Rowing on the Concept II Indoor Rower provides a means for accurately monitoring your level of conditioning, as well as constant feedback during your rowing workouts. (Let us know of any other reasons you would add to this list.)



Cross-Training with Rowing

Despite the inspirational words of the 10 Million Meter Club members profiled in last spring's Update, many of us don't want to row indoors every day all year long. We like to take part in other sports for variety. We like to get outdoors when possible. Our exercise of choice changes with the seasons. We cross-train for competition in another sport. In reality, almost all of us cross-train at one time or another.

What is the best way to use rowing as cross-training for other sports and activities? What is the best way to handle variety in one's athletic menu and training schedule while still getting the most out of the Indoor Rower? What minimum amount of rowing will keep one in rowing shape during peak season in another sport?

Whether you are a casual athlete or a serious competitor, this article will try to answer some of these questions for you. The less serious athlete can ignore the charts but take the general guidelines to heart. For the serious athlete, the following guidelines offer a framework upon which to build an annual training program.

General Guidelines for Cross-training

The number and nature of cross-training workouts you add to your training program will depend on a number of factors. These include:

- Your training history: If you are just getting back into running after being out of shape for a while, you may find that your legs and feet aren't ready to run every day. At the same time, you know that your aerobic capacity needs all the help it can get. Cross-training is the perfect solution.
- Your tendency toward injury: If you are injured, or have recently been injured, cross-training can be extremely helpful to you. The right activity will allow you to maintain your cardiovascular capacity while easing or removing the load on the injured parts.
- Your need for variety: This depends on your personal preference. If your primary sport ever starts feeling old, a little cross-training can bring back the fire.
- Your relative strengths/weaknesses: If your weakness is cardiovascular conditioning, cross-training can be a great way to strengthen your system without overdoing it on the specific muscles used in your sport.
- Time in your training year relative to racing season. Some athletes find cross-training most valuable when they are furthest from their competitive season; others use it right up to competition.



Developing a Cross-Training Plan for Yourself

The sections below describe some steps you can take toward developing a cross-training plan for yourself.

- A. Establish your annual training calendar
- B. Determine what kind of training to do in each phase
- C. Choose your workouts

Establishing Your Annual Training Calendar

1. Think about your sports year. Make a list of the sports in which you compete or participate and define the “Active” or competitive season(s) for each one. You may have one or more sports, and one or more competitive seasons for each one.
2. Now define your “Training” season. You can do this by backing up three months from the active season to determine when your major training should be taking place. If you know from experience that you need a longer or shorter training season, adjust accordingly. Do this for each sport.
3. Next, define what we’ll call “Groundwork.” This is the general conditioning and prep work that gives you a solid base on which to build your focused training. Back up another five months or so for this.
4. The rest of the year for each sport will be called “Recovery.”
5. Make yourself a training calendar like the ones shown on these pages. Transfer the “Active,” “Training,” “Groundwork,” and “Recovery” seasons for all your sports to this calendar. Don’t worry about overlaps.



Example 1: Single Sport - Single Season - Here’s an example of an annual training calendar for a single competitive sport with a single racing season which extends from April through June.

Activity: Running

| | | | | | | | | | | | |
|----------|-----|-----|--------|-----|-----|----------|------------|------|-----|-----|-----|
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| training | | | active | | | recovery | groundwork | | | | |



Example 2: Single Sport - Multiple Season - Perhaps you have just one sport, but several distinct competitive periods spread throughout the year. For example, you might run the Boston Marathon in April, then another major race in the fall. The annual training calendar would look like this:

Activity: Running

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|----------|-----|-----|--------|----------|----------|-----|-----|--------|----------|------------|-----|
| training | | | active | recovery | training | | | active | recovery | groundwork | |

Example 3: Multiple Sports & Seasons - Here's an example of a multi-sport annual training calendar. This one includes an on-water rowing season in the fall; x-c ski races through the winter, and a marathon and various shorter runs from May to July. The active seasons are fairly well spread out, but there's a lot of overlap between the training, groundwork and recovery phases for the different sports. In effect, they all become cross-training for each other, with rowing being the thread that continues throughout the year and ties them all together.

| SPORT | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|----------------|--------|------------|-----|----------|------------|----------|-----|----------|------------|----------|-----|-----|
| Outdoor Rowing | | groundwork | | | | training | | | active | recovery | | |
| Running | | training | | | active | | | recovery | groundwork | | | |
| X-C Skiing | active | | | recovery | groundwork | | | | | training | | |

What Kind of Training To Do in Each Phase

Groundwork Phase: Emphasize longer, steadier work, adjusting muscles to the exercise. The goal is to develop a good base of general cardiovascular conditioning, as well as to adjust your muscles to the specific motions of your sport. Cross-training can help a lot with the former, but not as much with the latter. Include plenty of stretching and flexibility work as well as strengthening exercises.

Training: Here, your workouts should be tailored to best prepare you for the distance and intensity of your upcoming events. In general, you will need to train some at your race pace to develop a sense of pace for your competition. You will also want to include shorter harder work to push your intensity level up, as well as longer, easier work to maintain and improve your endurance. All of this will depend on your specific sport and events. Cross-training can be used for some of this training, but certainly not all of it.

Active/Racing: During your active season, you will want to keep sharp and rested. Between events, it is important to give your body a chance to recover. Your work load can be greater if your events are fewer and further apart; less if they are close together. Cross-training can be a very welcome way to get a workout while still allowing your racing muscles to recover.

Recovery: Variety, fun, whatever pace feels right. Lots of stretching. Keep in contact with the sport by doing a few steady state workouts at a comfortable pace. Do as much cross-training as you like - this is a great time for variety and trying new activities.



Choose Your Workouts

First, here are some general guidelines to help you pick appropriate workouts.

- When your primary sport training involves volume, use rowing for quick, power intervals. When your primary training involves quick intense work, use rowing for slower paced volume work.
- When weightlifting is your priority, use rowing as a good total body warm-up and cool-down.
- Generally, as the intensity of your workout increases, the length should decrease, and vice versa.
- Because the Indoor Rower provides a great Performance Monitoring system, use rowing time trials as benchmarks. A 5000 meter time trial tests endurance; a 2000 meter time trial tests your aerobic system (roughly 70% aerobic/30% anaerobic); a 500 meter time trial tests your anaerobic system (30% aerobic/70% anaerobic).
- If you are rowing infrequently, it will be especially important to use good technique.
- If you have trouble building up the intensity on your own, get together with a fellow athlete or try some group rowing workouts.



Suggested Cross-Training Workouts

Rowing Workouts for Endurance and Aerobic Development:

- 30 minute piece
- 10K row
- one hour row

Rowing Workouts for Strength and Power Development:

- 20 seconds hard/40 seconds easy, repeated 10-20 times
- 30 seconds hard/1 minute easy, repeated 10-20 times

Rowing Workouts for Intensity, Speed and Quickness:

- 500 meters repeated 4-6 times, with 2 minutes rest between pieces
- 1 minute hard/ 1 minute easy, repeated 10-20 times

Rowing Workouts for Race Intensity and Pace:

- 2000 meter time trial
- 1000 meters with 2-3 minutes rest, repeated 4-6 times
- 3 minutes hard with 2 minutes rest, repeated 4-6 times

Rowing Workouts for Recovery:

- 20-40 minute rows at an easy pace, perhaps 30-40 seconds slower than your training pace
- a rowing circuit workout that alternates easy rowing with several minutes of stretching and light weights
- other workouts listed above, but at a pace comfortably slower than your training pace





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An Introduction to Indoor Racing for the Non-Competitor

Never raced before? Intrigued with idea of participating in an Indoor Rowing event, but not sure you'd know what to do? Here's a guide to Indoor Rowing competition for anyone who's never done it before.

1. Choose a race from our Indoor Race calendar (call our toll-free number for race information). We suggest that you pick one close to home or in some wonderful place that you've always wanted an excuse to visit.
2. Write or call for an entry form. Fill it out completely and send it back in promptly.
3. Put the race on your calendar. Be sure your family or friends know about it so they don't come up with any last minute conflicts that prevent you from going.
4. Start training. If you have been rowing regularly anyway, this will simply mean adding a little more focus to your workouts. If you haven't been rowing regularly over the summer, it's time to get going again, gradually at first. If you never row hard, start rowing hard some of the time. If you always row steady state, add in some interval workouts. See box [page 30] for the 5 key workouts to help get you ready for a 2000 meter race.
5. Measure your progress. Row a 2000 meter time trial every 3-4 weeks. This is great practice for the race, gets you familiar with your pace, and shows you how your training is going. Don't worry if the improvement is not constant - it is normal to hit plateaus and have bad days.
6. Know your pace. Pace is displayed in the central window of the Performance Monitor when you are in pace mode. The PM also shows your average at the end of any timed or distance piece. As the race approaches, be sure you know what pace you should be rowing. You can use your 30 minute pace as a guide. Subtract 7-9 seconds from your average pace for 30 minutes and try using that pace for a 2000 meter piece. For example, if you can row a 30 minute piece at an average pace of 2:15/500 meters, try using 2:08-2:06 for your 2000 meter pace. This pace will guide you when you get into the real race, where excitement and adrenaline will make it feel very easy to start out at a pace much faster than what you're actually capable of rowing. Don't be carried away. Hold yourself to the pace you know you can row. If you have extra energy in the last 500 meters, fine. Use it then and finish strong.



7. Be rested for the race. In training lingo, this is called “tapering.” Do your last really hard workout about a week before the race so your body has time to recover. From then on, get plenty of sleep, and do just enough hard rowing to keep yourself feeling sharp. A good pre-race workout is to split the 2000 meters into 4 pieces: a 1000 meter piece, a 500 meter piece, and two 250 meter pieces. Do each one at your race pace and allow plenty of rest in between. Do this workout 3-5 days before the race. Besides that, do some relaxed 30-40 minute rows. You should be itching to pull hard by the time race day arrives.
8. Race Day: get to the race location at least an hour before your race time. Note that some races have both “preliminary heats” and “finals.” Be sure you know when your race is being held, and whether there will be finals in your event. (If you make the finals, you will have to row a second 2000 m race later in the day!) The time of your race will affect the timing and size of your pre-race meal.
9. Check your attitude. It’s OK to be a little nervous - the adrenaline gives you energy. Think positively. Keep calm. Most of all, be sure to have fun.
10. Warm Up: There are usually a number of Indoor Rowers available for warming up on before the races. Be sure to find these and row for 10-15 minutes (or your customary warm-up) before your event. Don’t be afraid of using up all your energy on the warm-up. It is important to be properly warmed up.
11. The Race! Row your own race. There will be lots of noise and activity, but it is important for you to focus on your own 2000 m piece. Remember your pace and settle into it as soon as you are given the command to start. Resist the temptation to go out too fast in the first 500 meters. Better to finish strong than “fly’n’die.” You may wish to write out your planned pace, or cumulative time, for each 500 of the race to remind you of where you want to be.
12. Congratulations. You did it. Set some goals for next year - you might even want to write them down while it’s all fresh in your mind - but don’t start training right away. Next year is a long way off, and you’ve earned a little time off.



Training for the 2000 Meter Race

The Coach's Favorite Five:

The Coach is Larry Gluckman, Chief Concept II Coach-in-residence.

Your preparation for the 2000 meter race should fall predominately into the aerobic area and should continue to be focused on distance, measured both in time and in meters. With this in mind, I would like to offer my five favorite types of workouts as a guide for your race preparation. Good luck and good racing.

- 1. Endurance:** Rows of 30-45 minutes or 7,500-10,000 meters. This workout category includes:
 - 30 minute time trials for the World Ranking
 - a continuous 10,000 meter piece with increasing intensity (decreasing splits in terms of pace) each 2500 meters.
 - “swing” rows at 20-30 seconds easier than race pace—a swing row is a steady moderately paced row; not so fast that you can’t keep up a conversation the whole time.
 - and the old favorite: a continuous piece which consists of 5 to 8 repetitions of (3 minutes, 2 minutes, and 1 minute, as follows. Row 3 minutes @ a low stroke rate of 22 spm(strokes per minute); then 2 minutes at a moderate stroke rate of 27 spm; then 1 minute at a high stroke rate of 32 spm. Then repeat. There is no rest between these pieces.
- 2. Overdistance:** Rows of longer than the race distance; such as: 2 x 6000 meters with 5 minutes rest between, keeping the pace steady but trying to improve your overall time for both pieces in the course of your training.
- 3. Repetitions:** Moderate intensity work intervals alternated with short rests; such as: 15 x 1:40 work/ :20 rest. For the 1:40, work at 4-6 seconds slower than race pace.
- 4. Long Intervals:** 3 to 5 repetitions of 1500 meters at 3-5 seconds slower than race pace, with 3-5 minutes rest between pieces.
- 5. Intervals:** high intensity work intervals with rest for 1-3 times the work duration, such as: 2 to 3 sets of 3 x 500 meters at 3-6 seconds faster than race pace, with 3 minutes rest between 500 meter pieces and 6-8 minutes between sets.

Tips for a successful training program.

1. Plan your workouts in advance but be willing to adjust depending on how you are feeling. Feeling great? Go for it in time or intensity. Feeling stressed out and tired? Make the workout relief. Cover the monitor, turn on the radio or TV and just row for the release of it.
2. Include a period of warm up and cool down in each workout. This time can also be spent working on proper rowing technique.
3. Experiment periodically with both your wind damper setting and your race stroke rate. You may find that a change in damper setting may make you slightly more efficient and compliment your improving cardiovascular conditioning and strength. This may also be true with stroke rate.



4. Be sure to supplement your Indoor Rower workouts with body exercises that encourage additional flexibility and reciprocal joint and muscle strengthening. For example, try push ups, pull ups, stomach crunches and back arches, as well as simply bending over and touching the fingers to the toes, letting gravity help lengthen you out a little.
5. Be sure to schedule in rest days as well as test days.
6. Keep a log. This helps in terms of motivating yourself by noting your improvement and helps identify a successful series of workouts.
7. Train with a friend either on two Indoor Rowers or by alternating pieces on one Indoor Rower while one of you is stretching or doing body exercises.
8. Enjoy the rowing. It is a great way to spend some time with your body!

Key Workouts to Prepare for a 2000 Meter Race

1. 30-40 minute steady piece at a moderate to hard intensity, focusing on effective technique.
2. Three 10-minute pieces with 2-3 minutes rest. Your total meters rowed should end up being more than the meters you row in a single 30-minute piece.
3. Four to six 5-minute pieces with 2-3 minutes rest. Make these pieces more intense than the 10-minute pieces.
4. Four 1000-meter pieces with 3-4 minutes rest, at about the pace you might row a 2000 meter race.
5. Six 500-meter pieces with 3-4 minutes rest, at a pace 2-3 seconds faster than your pace for the 1000 meter pieces.



CONCEPT II INDOOR ROWER PACE CHART

Use this chart to predict your final time or distance for the workouts shown.

| Avg pace per 500 m | 1000m | 2000m | 2500m | 10,000m | 20 min | 30 min | 60 min |
|-----------------------|-------|--------------|-------|---------|--------|--------|--------|
| 1:28 | 2:56 | 5:52 | 7:20 | 29:20 | 6,820 | 10,230 | 20,460 |
| 1:30 | 3:00 | 6:00 | 7:30 | 30:00 | 6,670 | 10,000 | 20,000 |
| 1:32 | 3:04 | 6:08 | 7:40 | 30:40 | 6,520 | 9,780 | 19,560 |
| 1:34 | 3:08 | 6:16 | 7:50 | 31:20 | 6,380 | 9,570 | 19,140 |
| 1:36 | 3:12 | 6:24 | 8:00 | 32:00 | 6,250 | 9,380 | 18,760 |
| 1:38 | 3:16 | 6:32 | 8:10 | 32:40 | 6,120 | 9,180 | 18,360 |
| 1:40 | 3:20 | 6:40 | 8:20 | 33:20 | 6,000 | 9,000 | 18,000 |
| 1:42 | 3:24 | 6:48 | 8:30 | 34:00 | 5,880 | 8,820 | 17,640 |
| 1:44 | 3:28 | 6:56 | 8:40 | 34:40 | 5,770 | 8,650 | 17,300 |
| 1:46 | 3:32 | 7:04 | 8:50 | 35:20 | 5,660 | 8,490 | 16,980 |
| 1:48 | 3:36 | 7:12 | 9:00 | 36:00 | 5,560 | 8,330 | 16,660 |
| 1:50 | 3:40 | 7:20 | 9:10 | 36:40 | 5,450 | 8,180 | 16,360 |
| 1:52 | 3:44 | 7:28 | 9:20 | 37:20 | 5,360 | 8,040 | 16,080 |
| 1:54 | 3:48 | 7:36 | 9:30 | 38:00 | 5,260 | 7,890 | 15,780 |
| 1:56 | 3:52 | 7:44 | 9:40 | 38:40 | 5,170 | 7,760 | 15,520 |
| 1:58 | 3:56 | 7:52 | 9:50 | 39:20 | 5,080 | 7,630 | 15,260 |
| 2:00 | 4:00 | 8:00 | 10:00 | 40:00 | 5,000 | 7,500 | 15,000 |
| 2:02 | 4:04 | 8:08 | 10:10 | 40:40 | 4,920 | 7,380 | 14,760 |
| 2:04 | 4:08 | 8:16 | 10:20 | 41:20 | 4,840 | 7,260 | 14,520 |
| 2:06 | 4:12 | 8:24 | 10:30 | 42:00 | 4,760 | 7,140 | 14,280 |
| 2:08 | 4:16 | 8:32 | 10:40 | 42:40 | 4,690 | 7,030 | 14,060 |
| 2:10 | 4:20 | 8:40 | 10:50 | 43:20 | 4,620 | 6,920 | 13,840 |
| 2:12 | 4:24 | 8:48 | 11:00 | 44:00 | 4,550 | 6,820 | 13,640 |
| 2:14 | 4:28 | 8:56 | 11:10 | 44:40 | 4,480 | 6,720 | 13,440 |
| 2:16 | 4:32 | 9:04 | 11:20 | 45:20 | 4,410 | 6,620 | 13,240 |
| 2:18 | 4:36 | 9:12 | 11:30 | 46:00 | 4,350 | 6,520 | 13,040 |
| 2:20 | 4:40 | 9:20 | 11:40 | 46:40 | 4,290 | 6,430 | 12,860 |
| 2:22 | 4:44 | 9:28 | 11:50 | 47:20 | 4,230 | 6,340 | 12,680 |
| 2:24 | 4:48 | 9:36 | 12:00 | 48:00 | 4,170 | 6,250 | 12,500 |
| 2:26 | 4:52 | 9:44 | 12:10 | 48:40 | 4,110 | 6,160 | 12,320 |
| 2:28 | 4:56 | 9:52 | 12:20 | 49:20 | 4,050 | 6,080 | 12,160 |
| 2:30 | 5:00 | 10:00 | 12:30 | 50:00 | 4,000 | 6,000 | 12,000 |



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