

# **Training plan for 2007 World cup.**

Double periodization. **Period 1**, 7/24/2006 through 12/10/2006.

**Period 2**, 12/11/2006 through 6/10/2007.

The object of this training program is to prepare athletes for international competition by recreating the physical demands of two full training cycles within one 11 month period. Each training period contains base, transition and speed phases. The program is designed for athletes who are already competing at the world level and trying to move into the top ten. Those newer to the sport will probably want to adjust the volume of training. Feel free to email me at [dougcritchie@hotmail.com](mailto:dougcritchie@hotmail.com) if you would like help in creating a training program tailored to your level of fitness and work schedule.

## **Base training phase 7/24/2006 through 10/29/2006.**

The object of the first base training phase is to develop aerobic conditioning, stamina and correct paddling technique. Later, the workouts change focus in order to develop race specific speed and power.

There are specific stroke techniques that need to be adhered to during the base phase. Athletes want to focus on being relaxed during the longer workouts but also on using powerful strokes to train their bodies correctly. Athletes may want to use a technique called “Over stroking”, this is done by utilizing a longer than normal paddle or taking particularly long strokes and generating more rotation than they normally might. Over stroking is done in order to train the body to generate maximum efficiency. Later in the training program, when speed is being developed, the athletes should be able to maintain correct paddling form and thus maximum boat speed.

## **Notes on stroke rate, heart rate monitors and boat speed;**

World class kayak racers generally race with a stroke rate of 100 to 120. Canoe racers are often 80 to 90 strokes per minute. However, it's not stroke rate that makes a boat go fast! A boat goes fast because an athlete takes hard powerful strokes, as the boat speed increases the athlete's stroke rate increases. One should monitor their stroke rate periodically but it's only a

clue into what's really happening. The same is true for an athlete's heart rate. Young world class racers have maximum attainable heart rates in the 190 to 210 range. But simply driving one's heart rate to those levels does not mean the boat is going fast, so here again heart rate is only one more part of the whole equation.

An athlete should focus on training his/her body to paddle with maximum efficiency, and then develop speed and power. The trained athlete's stroke rate and heart rate will increase as the boat increases in speed. A real life example of this is the performance of one racer at the 2006 U.S. team trials. He crossed the finish line with a heart rate of 206, which was verified by his Polar heart rate monitor, the same type used by most athletes. This racer was about 12%, roughly 2 and ½ minutes, behind the winner. So we can see that though he was reaching VO2 max during the race he was not transferring that energy into forward speed.

So, here's a rule to remember;

***It's not how high you take your heart rate, but how you take your heart rate high, that matters.***

During the base phase racers will be training for long periods of time at relatively low intensity. But that measure of intensity refers mostly to aerobic output not to the quality of the forward stroke. One should be using the same stroke that they would in a race, strong and powerful, but slowing their stroke rate down in order to focus on correct technique and to be able to handle the volume of training. A common mistake athletes make is that during the base phase they paddle with a stroke that is too easy, they don't pull hard enough. By paddling easily they maintain a lower heart rate for the long workouts but never develop the physiology or form necessary to generate higher boat speed. What we should focus on is high quality efficient strong strokes that cause our bodies to work hard. We maintain a lower heart rate and aerobic output by slowing down the stroke rate as necessary, not by taking easier strokes. Two great DVDs are available to help explain the forward stroke. The first is from Brent Reitz, the second from Greg Barton. Google "Brent Reitz", [www.wildsprint.com](http://www.wildsprint.com) or "Greg Barton" [www.epcickayaks.com](http://www.epcickayaks.com) and you will be able to find their respective web sites.

A real life example of this type of training occurred in Seattle the week of July 15, 2006 with Tom Weir and me. Tom had just recently returned from the World Championships, held in the Czech Republic.

Tom and I were discussing stroke technique and how it relates to boat speed. As we paddled along I asked Tom what his normal stroke rate would be for a 60 minute aerobic workout. Tom said his stroke rate is normally about 75 strokes per minute, higher when he's in a race (Tom paddles single canoe). So we paddled along at about 75 strokes per minute. We used a GPS monitor to gauge our speed, about 9 kilometers per hour. Tom's heart rate was about 120. I then told Tom to drop his stroke rate down from 75 to 40 or even 35 and try to maintain the same speed. Immediately Tom responded by putting more effort into each stroke and taking slightly longer but much more powerful strokes. We paddled along like this for a few minutes when Tom said "Huh, my stroke rate is just under 40 but we're moving at just almost 10 kilometers per hour". When we were done Tom noted that he wasn't particularly tired aerobically but his body felt like he'd been lifting weights. The interesting thing is that Tom was able to maintain a speed increase of roughly 10% with a stroke rate almost 50% lower than he had been using. Tom believes, as do I, that this type of base training is what develops the correct technique and physiology needed to reach maximum potential. If Tom can train his body to maintain the stroke he was using and then gradually apply more energy while using the same stroke, he should see significant increases in boat speed. If next year he is again racing at 80 to 90 strokes per minute he'll be much faster, unfortunately NOT TWICE AS FAST! There are several laws of physics that prevent that from happening.

### **Transition phase; 10/30/2006 through 11/19/2006**

Here we add more speed and interval workouts. The object is to convert the aerobic fitness we have gained into aerobic power and begin to develop sprint speed. We accomplish this by adding more interval and speed workouts to the schedule. Ideally, the athlete is using the same stroke techniques they developed in the base training phase but paddling at a higher stroke rate for shorter periods of time. The same powerful stroke, delivered at a higher rate should increase the boat speed and thus the aerobic output should increase as well.

An analogy that might make sense is to imagine what happens when you are in a car cruising along at 55 miles per hour. If you want to go faster you step on the gas and more fuel is delivered to the engine, the engine burns the fuel and runs faster, the RPMs increase and the speed of the car increases. But!

The only change in the equation is the amount of fuel delivered. The car doesn't have another gear, the stroke of the pistons doesn't change, and the car uses exactly the same internal motion of the engine at 55 miles per hour as at 100 miles per hour. And that's what you want to accomplish during the transition phase. You want to take the powerful engine you've built, with its efficient forward stroke and start asking the engine to take more strokes per minute. In the real world there are slight changes that happen to a racer's stroke when they are in a race. Some shorten up a little, some don't reach quite as far forward, but for the most part, the stroke of a world class canoe or kayak racer looks almost the same during a 90 minute workout as it does during a 2 minute sprint race. And that's important to remember.

### **Speed Phase; 11/20/2006 through 12/03/2006**

During the speed phase athletes are focusing on developing maximum obtainable boat speed through the use of speed workouts. These are the kinds of workouts used to prepare for major races. U.S. team member Andrew McEwen describes the process as "tricking" the body into going faster by overloading it with sprints. Even during intense lactate tolerance workouts Andrews concentrates hard on maintaining the form he spent hours developing during the base phase. His body is so accustomed to delivering a technically correct powerful stroke that as he adds sprints to his training he is still able to maintain the original form. Thus, his boat goes significantly faster, his stroke rate increases, his heart rate soars and his total level of aerobic output goes off the chart and he is training beyond his body's VO2 max and over anaerobic threshold.

A new racer asked me the other day (he's 14) what type of stroke he should use to go fast. So we worked on stroke technique for a while and discussed how the body works for kayaking etc. He then asked a very interesting question, "Is that the type of stroke you'd use if you had to paddle for hours and hours...like maybe 15 hours?". I was one step ahead of him and said "You mean if you were out at sea or something and were gonna have to paddle for days and wanted to burn the least amount of energy but keep your boat moving towards home?" And he said "yeah". So I dropped my elbows to my sides, brought my hands in closer on the shaft, shortened my stroke up significantly and used my core muscles to rotate through a stroke. I showed him how we could cruise along like this for hours without getting overly

tired, but I also said “This’ll keep you paddling for days, but kid, you’ll never be fast.

So during the speed phase we want to think about sprinting with the same stroke we’ve been using all along.

## **The Workouts**

**Please see training articles on USA Wildwater (technique section) for further explanation of training techniques and theory. Feel free to email me at [dougcritchie@hotmail.com](mailto:dougcritchie@hotmail.com)**

### **Base training phase, 15 weeks.**

#### **Week 1;**

**Monday: A.M. warm-up and 2 X 15’ X 15’**

**P.M. Long paddle of 60 to 90 minutes**

**Tuesday: A.M. OFF**

**P.M. 30’ run, weights (see below for weight workouts)**

**Wednesday: A.M. Fartlek of 60’ to 90’**

**P.M. Long paddle 60 to 90 minutes**

**Thursday: A.M. Long paddle 60 to 90 minutes**

**P.M. Intervals, 8 X 5’ X 3’**

**Friday: A.M. Off**

**P.M. Weights**

**Saturday: A.M. 2 X time trial of 16 to 24 minutes**

**P.M. Long paddle**

**Sunday: A.M. Fartlek**

**P.M. Speed workout. 3 X (2,3,2 X 1') X 3'**

## **Week 2;**

**Monday: A.M. Off**

**P.M. Long paddle**

**Tuesday: A.M. Off**

**P.M. Run of 30 to 40 minutes, weights**

**Wednesday: A.M. Fartlek workout.**

**P.M. 2 X 15' X 15'**

**Thursday: A.M. Off**

**P.M. Long paddle**

**Friday: A.M. Off**

**P.M. Weights**

**Saturday: A.M. 2 X time trial of 16 to 24'**

**P.M. Long paddle**

**Sunday: A.M. Fartlek**

**P.M. 8 X (5' X 3')**

## **Week 3;**

**Monday: A.M. Off**

**P.M. Off**

**Tuesday: A.M. Off**

**P.M. Run, weights**

**Wednesday: A.M. Off**

**P.M. Long paddle**

**Thursday: A.M. Off**

**P.M. 2 X 15' X 15'**

**Friday: A.M. Off**

**P.M. Run, weights**

**Saturday: A.M. Fartlek**

**P.M. Off**

**Sunday: A.M. Off**

**P.M. Run**

**The next week (week 4) the cycle begins over at the top and racers repeat the 3 week cycle. Week 1 contains 10 paddling workouts, 1 running workout and 2 weight workouts. Week 2 contains 8 paddling workouts, 1 run and 2 weight workouts. Week 3; 3 paddles, 3 runs and 2 weights workouts. The base training phase should be done for about 15 weeks or 5 three week cycles.**

Weeks 1 and 2 call for a LOT of training, probably 700 to 850 minutes. Many people are going to need to gradually work into this and should not expect to be able to handle the volume immediately. One of the reasons we are using the “double periodization” is to give racers a chance to adapt to all the demands of training and gain an understanding of how much they can do or should do. We are trying to accomplish this early enough in 2006 so that in 2007 racers are physically and mentally prepared to train for the 2007 World Cup Series.

## **Transitions phase; 3 weeks**

### **Week 1**

**Monday: A.M. 2 X 12' x 12'**

**P.M. 2 X ( 5 X 2' X 1')**

**Tuesday: A.M. Off**

**P.M. Run, weights**

**Wednesday: A.M. Fartlek**

**P.M. 2 X 12' X 12'**

**Thursday: A.M. Long paddle**

**P.M. 3 X ( 2,3,2, X 1')**

**Friday: A.M. Off**

**P.M. Weights**

**Saturday: A.M. One time trial of 16 to 24 minutes**

**P.M. Long paddle**

**Sunday: A.M. 2 X ( 3 X 5' X 3')**

**P. M. Long Paddle**

**Week 2**

**Monday: A.M. 2 X 12' x 12'**

**P.M. 6 X (30'' X 60''), 6 X (60'' X 60'')  
3 X (2' X 1'), 6 X (60'' X 60'')  
6 X (30'' X 60''), 3 minutes between  
each group.**

**Tuesday: A.M. Off**

**P.M. Run, weights**

**Wednesday: A.M. 6 X 5' X 3'**

**P.M. Long paddle**

**Thursday: A.M. Off**

**P.M. 2 X ( 5 X 2' X 1')**

**Friday: A.M. Off**

**P.M. Run, weights**

**Saturday: A.M. 1 time trial of 16 to 24 minutes.**

**P.M. 5', 7', 9', X 3'**

**Sunday: A.M. Off**

**P.M. Long paddle**

### **Week 3**

**Monday: A.M. 2 X 12' X 12'**

**P.M. 5 X ( 1,2,1 X 1')**

**Tuesday: A.M. Off**

**P.M. Run, Weights**

**Wednesday: A.M. 6 X (30'' X 60'') etc., same as Monday of week 2.**

**P.M. Off**

**Thursday: A.M. Off**

**P.M. Recovery paddle**

**Friday: A.M. Off**

**P.M. Run, Weights**

**Saturday: A.M. One time trial of 16 to 24 minutes.**

**P.M. Off**

**Sunday: A.M. Off**

**P.M. 2 X (3 X 5' X 3')**

# **Speed phase; 2 weeks**

**Monday: A.M. Off**

**P.M. Weights**

**Tuesday: A.M. 4 X (1' X 1'), 4 X ( 2' X 2'), 4 X (1' X 1'), 4 X ( 30" X 1')**

**P.M. Run**

**Wednesday: A.M. Off**

**P.M. Recovery paddle**

**Thursday: A.M. 4 X (30 X 1'), 4 X ( 1' X 2'), 4 X (2' X 3')**

**P.M. 2 X 12' X 12'**

**Friday: A.M. Off**

**P.M. Off**

**Saturday: A.M. 3 X (30", 60", 120", 60", 30" X 1')**

**P.M. Recovery paddle**

**Sunday: A.M. 4 X 5' X 3'**

**P.M. 2 X 12' X 12'**

**Second week is identical to the first.**

The second period of training, late December 2006 through June of 2007 will be similar to the first phase but I'd like to have input from racers who are training seriously before writing that part of the program.

Again, it's important to remember that there are many ways to train and you should refer to what's already been posted on USA Wildwater for information about training techniques and theory. If the workouts don't make sense to you, join the club! The workouts often don't make sense so feel free to email me at [dougcritchie@hotmail.com](mailto:dougcritchie@hotmail.com) for further explanation.

## Notes on Weight lifting.

**Exercises that work a paddlers core muscle groups or work multiple groups of muscles rather than isolating muscle groups are listed first;**

Power clean.  
Power clean/push press.  
Dead lift.  
Shoulder press.  
Push ups.  
Squats.  
1 arm rowing.  
Bent over rowing with a barbell.  
Pull ups.  
Back hyper-extensions.  
Back rotations.  
Dips.

**Exercises that tend to isolate muscles are;**

Bench press  
Curls  
Deltoid lifts  
Anterior and exterior cable pull (rotator cuff)  
Dumbbell flys  
Dumbbell press

Athletes should consider an approach to weight training that includes at least two basic concepts. First, there are exercises they can do that will increase their body's core strength. Second there is a group of exercises that should be done for "maintenance".

Core strength exercises tend to be from the first group of exercises. Maintenance exercises from the second. Core strength is where paddling power comes from; maintenance helps keep you from getting injured.

**How often?** Probably core strength exercises twice a week, perhaps once a week during the racing season, working down to zero times per week before major races. Maintenance exercises can be done in conjunction with core exercises. John Pinyerd, World Champion in Masters single canoe does maintenance lifts at least once a week to help avoid injury.

**How many exercises?** Typically two to three core exercises and two to three maintenance exercises per workout. Athletes typically do NOT do all the exercises in one session. Choose from the above list or add exercises you like and vary them during the weeks and months.

**How many sets/reps?** Generally 2 to 4 sets of 8 to 20 repetitions.

**How hard?** My best answer to the “how hard?” question is to be careful. You are not trying to become a weight lifter, you are trying to add incremental core strength or strengthen muscles that can be injured by paddling. A good rule of thumb is that if you are sore from weight lifting to the point where that soreness interferes with your paddling workouts you are probably overdoing it. Back off of the intensity in the weight room.

Email me if you have any questions or would like further information.  
[dougcritchie@hotmail.com](mailto:dougcritchie@hotmail.com)