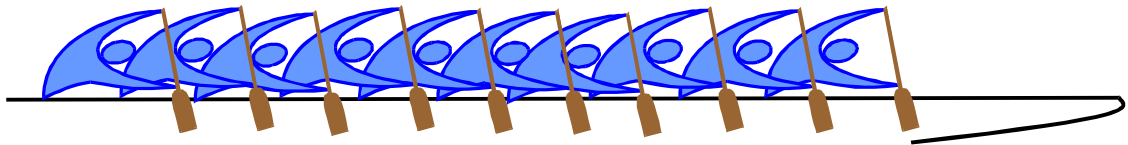


FCRCC

FALSE CREEK RACING CANOE CLUB



Dragon Boat Coaching Manual

Welcome to the False Creek Racing Canoe Club 2000 technical coaching manual for Dragon Boat paddling. It is our intent to make this manual a comprehensive source of DB training information. We are trying to include any new information we receive from our network of coaches, managers and, of course, the paddlers. Eventually, the FCRC and British Columbia Dragon Boat Association would like to see this manual become the foundation for a Dragon Boat coaching certification program based on the NCCP model.

We intend that this coaching manual be updated with additional material as you take the recreational and competitive Dragon Boating modules.

At this time there is no formalized Dragon Boat coaching certification. We hope to begin addressing this need through the clinics we are offering.

To properly prepare this manual we are certain it will take some time. While we have tried to keep it fairly simple, we know there will be sections that need work. So, please give us some feedback! Any questions or comments can be directed to the FCRC office 604.684.7223 or fcrc@telus.net

Alan Carlsson

INTRODUCTION

Coaching a Dragon Boat team presents many challenges. The intent of this manual is to help identify those areas and suggest ways to make the paddling experience as enjoyable as possible for everyone. When we think of a Dragon Boat team our first thought is the twenty individuals who paddle the boat. What we would like you to do is think of your team as including the following;

- Paddlers,
- Drummer,
- Steersperson,
- Coach,
- Manager,
- Sponsors,
- Family and friends

At the novice paddler level, a coach faces different challenges than with a more advanced or experienced team. While, the most obvious challenge with a new team is getting twenty paddlers to show up at the same time and place. For novice paddlers, the challenge of learning a technically sound stroke is where the largest performance gains are going to come from. Even when fitness improves in recreational and competitive paddlers, proper technique still limits performance and this should never be forgotten.

There are a number of different groups who chose Dragon Boat as a team sport. Some of these will require different approaches in your coaching. Some of the teams we work with include;

- Mixed teams (12 men and 8 women),
- Women only,
- Men only,
- Juniors (18 and under),
- Seniors (55 and over),
- Special populations
 - Cancer survivors,
 - Major organ transplant recipients,
 - Visually impaired persons.

PHYSICAL TRAINING THEORY

Another challenge to coaching Dragon Boat is the duration of the sport. Whether you are coaching a novice team or a competitive team, the 2-4 minutes it takes to complete a 500 m event places you into a very tricky training category known as "middle distance". Other comparable events are the 500 m in canoeing and kayaking, 200 or 400 m in swimming, or the 800 m in running.

The requirements in training a paddler's physical fitness reside not only in the prescription of either long distance endurance or short distance sprints, but in the integration of the two.

This section of this manual presents an overview of physical training theory. This is followed by a brief explanation of the process by which training programs are designed for novice teams, as well as the early season training for recreational and competitive teams. Included is a section on planning practices and examples of workouts to address the aerobic and muscular conditioning aspects of training.

Please note that for simplicity, the time values in this manual are given in a notation whereby 5 minutes 30 seconds is written as 5' 30".

Principles of Training

Over the past few decades, the sciences involved in training athletes have been continually evolving. This evolution has resulted in a slow, but steady, increase in both the fitness and performance demonstrated by top athletes. Examples of the advances in sport physiology are the association of heart rate with workload, identification of the relative contributions of the aerobic and anaerobic energy systems, utilization of training intensity zones, and sport specific testing. More recent developments have allowed sport scientists to estimate the contributions of physiological characteristics and training techniques to overall performance. All of this knowledge allows us to prescribe more effective and more efficient training programs to our athletes.

At the upper levels, prescription of training programs can become quite complex. However, there are a number of fundamentals that apply to all levels of athletes and should be understood by all coaches. The first of these is the difference between the concepts of **fitness** and **performance**.

FITNESS VS. PERFORMANCE

Fitness represents an athlete's ability to demonstrate the basic requirements for completing the sport in question. Attributes of fitness include aerobic power and capacity, anaerobic power and capacity, muscular strength and power measures, and other non-skilled components. Performance, on the other hand, is the athlete's ability to integrate fitness with sport specific skills. Time trials and competition results are performance measures.

Fitness aspects of training are best addressed early in a training plan. Focusing on performance is best reserved until competitions are closer. However, it is necessary to evaluate both fitness and performance on an ongoing basis to fully understand an individual's strengths and weaknesses.

PRINCIPLES OF TRAINING

There are eight principles that are essential to the design of an effective training program (see Table 1.1). For Novice level coaches only the first six are important. The last two, maintenance and fatigue will be addressed in the recreational and competitive modules respectively.

Table 1.1 Fundamentals Principles of Training

FUNDAMENTALS PRINCIPLES OF TRAINING
1. Overload
2. Super-compensation
3. Recovery
4. Specificity
5. Frequency
6. Periodization
7. Maintenance
8. Fatigue

i) OVERLOAD

The overload principle states, that for athletes to improve, they must systematically encounter workloads and stresses that exceed their current abilities. This overload does not necessarily occur on a daily basis, but should span successive days, months and years. Overload will result in fatigue, which in turn will trigger fitness super-compensations. If an athlete's abilities (physical, technical, and psychological) are not overloaded, they soon adapt to the level of stress to which they are subjected and improvement no longer occurs.

ii) SUPER-COMPENSATION

The principle of super-compensation is based on the fact that once stressed, an athlete will adapt to be better able to cope with a similar stress at a later date. In order to experience super-compensation, an athlete will pass through a period of fatigue, then a period of enhanced fitness.

iii) RECOVERY

The principle of recovery states that for fitness to improve and even be maintained, a period of reduced effort is necessary. The need for recovery is inherent at all levels of training; within workouts, between workouts, between days of training, etc. By allowing differing amounts of recovery, a program can direct an athlete's preparation towards a specific goal; be it aerobic, anaerobic or technical.

iv) SPECIFICITY

Specificity is the similarity with which training approaches the competitive requirements of a sport. For novice paddlers, specificity is secondary to general fitness. However, paddling is part of a unique group of sports (including swimming, rock climbing, and cross-country skiing) that require unnatural movements for locomotion. Consequently, only a limited amount of non-specific training will enhance performance. As the athlete becomes more experienced, non-specific training benefits are greatly diminished. Thus, specific training gains importance in the training programs of older and elite athletes.

v) FREQUENCY

The frequency with which an athlete engages in training is always important. Frequency needs addressing both within and between workouts. Within a workout, frequency is defined by the duration of work and rest intervals possible in the duration of the workout. The desired training effect will also direct the number of workouts possible in a given day, week, or month.

vi) PERIODIZATION

One of the most important aspects of training is the systematic assembly of training into a cohesive unit. Periodization is the process by which a season or year is broken down into a number of phases that address specific phases or goals. These phases include:

a) Preparation Phase

The preparation phase consists of a series of weeks that systematically address an athlete's strengths and weaknesses (i.e. aerobic, anaerobic, power, muscular conditioning). It is often divided into a **general preparation phase** (GPP), during which broad base training prepares the athletes for subsequent sport-specific stresses, and a **specific preparation phase** (SPP), in which the physical conditioning and training take on a sport specific focus. The transition between the general and specific phases is smooth and gradual.

b) Pre-Competition Phase

The pre-competition phase addresses an athlete's specific preparation (i.e. intensity, technique, psychological, tactical) for the competition phase.

c) Competition Phase

The competition phase spans a series of races. In many sports, there may be more than one competition phase in a season if there is sufficient time to include a pre-competition phase for each. In Dragon Boat paddling, there is usually only one competition phase.

d) Transition Phase

The transition phase (also referred to as the off-season) is a period used for regeneration or maintenance. Ideally, this phase involves a one to six week period where formal training is virtually non-existent. Instead, the athlete is involved in fun physical activities and passive recovery.

NOVICE and EARLY SEASON WORKOUTS

Training Phases

As was outlined in the previous section, the basic training year is divided into five phases, each with a specific objective. The phases are the general preparation phase (GPP), the specific preparation phase (SPP), the pre-competition phase (PCP), the competition phase (CP), and the transition phase (TP).

Variety within these periodized phases is an important component of a training plan. However, for inexperienced athletes, almost any systematic training will result in performance and fitness gains. There is little risk in using the same workout a number of times. However, elite athletes will fail to respond to a program with no variety in it. Variety is an essential element of every formal training program, seasonal and yearly alike.

To vary training, the durations and intensities of the workouts may be changed slightly. In addition, the mode of training (cycling, running, swimming, skiing, etc.) can be changed so that the muscle groups of interest are worked differently. In these ways, the constant variety stresses the athlete differently each time, although not so differently as to stray from the original objective.

Caution must be used so that training does not become so randomized that there is no identifiable progression, overload, sport specificity or direction. Finding and prescribing this balance takes both knowledge and experience.

Novice programs and the general preparation phase

In the GPP, the objective is to prepare the athlete for the sport specific training to follow. Initially, this will require that an aerobic base is prepared. This phase will allow muscles, joints, and tendons to be conditioned for the repetitive stresses of training. The aerobic conditioning will enhance the athlete's ability to recover between training sessions and during the rest intervals of high intensity, interval sessions.

Typically, the duration of the general preparation phase is quite long (8-12+ weeks), especially for athletes with few years of training. For more experienced athletes, the general preparation phase will be shorter, acting as a link between the transition phase from the previous year and the specific preparation phase of the current year.

In many novice Dragon Boat teams there is not enough time to go through both a GPP and a SPP. The result is a compromise, a general preparation with more of an emphasis on sport specificity, i.e. paddling. This combined GPP/SPP will be referred to simply as the GPP from here on in, as it is essentially a GPP with more paddling.

Physical

The overall objective of the GPP is to prepare athletes for sustained exercise at sub-maximal workloads. This can be done through either specific (i.e. paddling) or non-specific (i.e. running, cycling, rowing or skiing) exercises. It is always a good idea to ensure a minimum of 20% specific training in the GPP.

This phase marks the beginning point from where all paddlers prepare for the Dragon Boat season. The pursuit and maintenance of aerobic fitness is a lifetime activity, achieved not only by way of low intensity distance training, but also the judicious use of high intensity intervals. The GPP is also an excellent opportunity to increase muscular strength. Enhanced general muscular strength and injury prevention are cornerstones of the GPP.

This phase is very important for all athletes, not just newcomers to the sport. All athletes require time working on the individual energy systems (which we will talk about further in the recreational and competitive modules) that will contribute to the final performance. It is not possible to become an elite level athlete, or any other kind of athlete, without adequate preparation in all aspects of physical fitness.

Technical

For many athletes, the general preparation phase is a period during which very little paddling specific training is performed. Instead, training modes such as cross-country skiing, swimming, cycling, and running are used extensively to build a strong base on which the subsequent training can be done. Using alternate modes of training prevents boredom and helps to keep the athlete in a psychologically fresh frame of mind.

Due to the complex technical nature paddling, it is important for athletes to spend many years perfecting technique. This learning process should be begun each year at low speeds until the basic movement patterns are learned, or re-established. However, once technique at such movement speeds is acceptable, there should be little hesitation in introducing faster speeds (i.e. stroke rates). Thus, once the basics are in place, the athlete can begin to spend time perfecting that same technique at higher intensities and movement speeds. This learning occurs mostly during the specific preparation phase that follows.

ENERGY SYSTEMS

A cornerstone to coaching timed distance sports is the concepts of energy systems. Simply put, energy systems are the different methods your body uses to power your muscles during exercise. There are two basic energy systems you need to be aware of at the novice level, aerobic and anaerobic. However, from a coaching perspective we believe that there is only one energy system you need to worry about, the aerobic energy system. Spending specific time on the anaerobic system will probably lead to technique problems and inefficient use of training time.

AEROBIC TRAINING

There are two objectives in aerobic training, to increased aerobic power and aerobic capacity. Aerobic power is your body's ability to work hard for long durations (2' -3' and up) and is best trained by high intensity intervals. Aerobic capacity is your body's ability to work for long periods of time and is best trained by low intensity volume. For Novice Dragon Boat crews, Aerobic Capacity training will produce almost all of the performance increases you need. If there is time you could consider adding in some aerobic power intervals (in and around race length pieces) in the last few weeks before you race.

The following guidelines tell you how long to train each of the energy systems before you will see appreciable fitness changes. For Novice crews we recommend no more than 3-4 aerobic capacity workouts a week, and 1 aerobic power workout per week after the initial six weeks are finished.

AEROBIC CAPACITY (Ae Cap)

Cycle Length: 2 - 6 weeks

Focus: To increase easy long duration efforts and the percentage of your high intensity pace you can sustain for long durations. Aerobic mechanisms are slow to adapt as such they are introduced early in the program

Target Training:

1. Long duration (20' +) workouts at very easy efforts, 50-65% peak heart rate
2. After 6 + weeks begin Aerobic Capacity Interval workouts: 3' 00" - 6' 00" work intervals at 90 - 100% peak heart rate on short to medium recovery (4:3 to 1:1)

Days of Consecutive Training: medium to long (4 to 14 days)

AEROBIC POWER (Ae Pwr)

Cycle Length: 2 - 4 weeks

Focus: To increase amount work of hard aerobic work possible. This becomes very important when complemented by Aerobic Capacity training.

Target Training:

1. Aerobic Power workouts: 90" - 6' 00" work intervals at peak heart rates on medium to long recovery (1:1 to 1:3)
2. Long easy duration at Aerobic Threshold (AeT) for 20' +

Days of Consecutive Training: short to long (1 to 14 days)

PLANNING PRACTICES: BASIC PRINCIPLES

When planning a series of workouts, a training focus must be decided. The focus will be dictated by team needs, the yearly plan, and as a result paddler feedback. Once this is established, goals must be set to fulfill the requirements for the series of practices.

In turn, volumes and intensities must be determined for each workout. Knowing the answers to these questions, the coach can then design an effective practice.

A well planned training session will allow for:

1. A **warm-up** time of 10-20' during which time flexibility, range of motion and intensity are gradually brought into the required range for the planned session. For easy aerobic training workouts, the warm-up is essentially the first few minutes of the workout. For all types of training sessions, the warm-up is included in the total training time.
2. The **main training set**. This will include a description of:
 - a) The **number of intervals** required,
 - b) The **duration** of each interval. It is best to use time as a measure of duration rather than distance. Time durations remain constant in all conditions while distances can become reduced, or lengthened as a function of fitness, terrain, weather, equipment, etc.,
 - c) The **exercise intensity** required for each interval using an intensity scale all athletes are familiar with. We use a scale where 100% refers to 100% for that particular duration. Thus the intensity for 1 minute at 100% is harder than 6 minutes at 100%,
 - d) The **required recovery interval** for each effort. We recommend you indicate the Recovery Time required after the completion of the effort.
 - e) The **required technique and technical focus** for each effort.

Examples

- **20' 00" at 65%: focus on rotation from the hips, initiating the catch with the legs**
 - **3 x 6' 00" at 75% on 6' 00" recovery at 60%: focus on slow stroke rate (30-40 strokes per minute)**
 - **3 x 3' 00" at 100% on 6' 00" recovery at 60%: focus on catch**
3. Any **secondary sets**, listing all of the same.
 4. For novice athletes, or novel training exercises, a list of **equipment** might also be advised.
 5. **Warm-down** time should also be included in the workout. A minimum of 10 minutes is advisable, while more than 15 are probably unnecessary. As a rule, the last recovery interval from an interval session can be included in the warm-down time, all of which count toward the total exercise time.

When planning a day of training, you should schedule technical and intense efforts prior to less intense, longer duration sessions. The theory being that it is always possible to do volume training while fatigued, but not always possible to do technically good efforts of any intensity while fatigued.

As such, the following order is recommended:

1. Technique training, time trials and testing.
2. High intensity training.
3. Muscular conditioning.
4. Easy aerobic conditioning.

WHY STRENGTH TRAINING?

Dragon Boat racing is a strength endurance sport so the strength component should be an integral part of your training program. The first few strokes of a race can exert a 30 –40 kg pull to get the boat from a stationary position to get it moving. Even when the boat is up and running, an estimated 20 –30 kg pull is required on each stroke. Now, take into account paddling at 70 strokes a minute for a 500 m race (2 + minutes). That works out to 140 + strokes and over 2800 - 4200 kg of resistance over that period. Do you need strength training?...you bet you do!!!

Strength can be defined as the force or tension a muscle or group of muscles can exert against a resistance. In Dragon Boat racing it is advantageous to develop localized strength in the upper body to provide strength in the stroke. Conversely muscle bulk in the lower body has very little functional purpose for the paddler, hence it is not developed to such an extent.

It is important for coaches and paddlers to understand that early changes in strength following the implementation of a strength training program are primarily due to learning factors rather than physical changes in the muscle. As the novice learns to perform resistance training exercises correctly, the neural pathways become more efficient, resulting in more muscle use. Sport scientists estimate that untrained people are unable to use much more than ~50% of their available muscle. With strength training this increases rapidly, eventually approaching over 90%. Changes start to occur in the muscle architecture after several months of well designed and systematic strength training.

The most predominate change in the muscle itself is called hypertrophy, or an increase in the muscle size. This is strongly correlated with increases in strength. In addition to muscle hypertrophy, strength training also improves the structural and functional strength of the tendons and ligaments supporting and surrounding the joints. This adaptation is important in terms of improving joint stability, an integral part of injury prevention.

Most strength training programs are designed around a three sessions per week regime. It has been established that optimal strength gains are obtained when the number of repetitions per exercise is between 3 to 9, with 6 being preferred. Similarly the optimal number of exercises per session is around 6 to 8 with 3-4 sets per exercise. The sequence of exercises should proceed from the most complex (those involving large muscle groups and multi joints) first to the least complex later in the workout.

Attached is a sample base workout for the novice paddler. Most gym instructors or personal trainers should be able to guide you through these exercises. In the up and coming clinics we will be looking at peaking your strength and converting that strength into power.

Weights Program: Dragon Boat**Strength program:** Base building**Date:** early season

Note:

- Keep good form through out all movements
- Alternate workouts (program 1 then program 2) once a week
- Work hard to reach repetition range
- As you reach upper end of rep range for 3 sets, increase weights

Day 1

Exercise	Sets	Reps	Tempo	Rest
Warm up - as shown	- light plate pressing and rotation exercises			
Squats (warm-up 1 x 16-20)	3	12-16	3-1-3-1	3
- Keep back in neutral position throughout movement(alternate this with heavy leg presses between workouts. Warm-up with 2 light sets of leg extension 12 16 reps)				
Bench press (flat with bar)	3	12-16	3-1-3-1	2
-(Work on full range of motion)				
Bench pulls (or seated cable row)	3	12-16	3-1-3-1	2
- Take care not to flex or hyperextend lower back				
Bicep curls (Straight bar)	3	12-16	3-1-3-1	2
- Avoid swinging through final reps				
Abdominals- lower/upper	2-3	16-20	2-1-2-1	2
- Keep good form through range of motion. Try to isolate muscle groups				

Day 2

Warm up - as above				
Lat pull downs (3 grip)	3	12-16	3-1-3-1	2
-1 w/up set 16 reps				
Peck flys	3	12-16	3-1-3-1	2
-Use peck machine. Do not allow elbows to drop below the plane of your back				
Upright row	3	12-16	3-1-3-1	2
- Keep elbows above bar height, firm in mid section				
Tricep extensions (cable)	3	16-20	3-1-3-1	2
- Can perform either double arms or single to full extension				
Deadlift Super Set with leg curls	3	12-16	3-1-3-1	3
- Keep good form throughout entire range of movement. Keep back in neutral, head up.				

BASIC PADDLING TECHNIQUE

In preparing this section of the course, it was decided to teach the dragon boat stroke by building the technique out from the paddle. This approach was chosen given that many teams are imitating what they see faster teams doing. However, all too often they imitate what they see the paddler doing, and fail to carry that through to what the paddle is doing. Coaching people to paddle better, not just to look like they paddle better is ultimately our goal.

In many Dragon Boat crews, paddlers have an assigned side to paddle on. At the novice level specialization on a single side should not be encouraged. In fact, becoming proficient on both sides is more favourable as it will minimize overuse injuries and help balance muscular development.

A good format to adopt that will encourage bilateral paddler development is to have paddlers alternate sides from one workout to the next. Another good policy to adopt is that of warming-down on the opposite side to that used in the workout.

The technical sections that follow will present the seven portions of the stroke with a number of key points to remember. It is important to remember that each paddler will learn at a different rate. You as a coach will need to learn how to correct technical problems in both your boat as a whole and each paddler as individuals. As such a Dragon Boat Trouble Shooting Guide is available to help you identify problems, then propose possible solutions.

Table 1.3 The elements of the Dragon Boat stroke.

THE DRAGON BOAT STROKE
1. Rotation
2. Reach
3. Entry
a. Top arm drive
b. Top arm / torso stability
4. Catch
a. Leg drive
5. Pull
6. Exit
7. Recovery

BASIC SETUP

With many Dragon Boat paddlers, new and old alike, even the most basic ideas can be foreign. The starting point for every paddler should be good grip on the paddle, and proper seating position

1. Grip on paddle
 - a. Bottom hand
 - i. Grip 2-3 fingers above neck of paddle.
 - ii. Thumb wrapped around opposite side from fingers
 - iii. Grip should be firm but not tight, with all fingers around shaft.
 - iv. On personal paddles: build a ridge above thumb/forefinger (i.e. O-ring covered with electric tape) and another below little finger position.
 - b. Top hand
 - i. Hand loosely placed on top of T-grip.
 - ii. Thumb under or over the T-grip.
 - c. Paddle size
 - i. While sitting in the boat with body in basic position, hold the paddle upside down in your bottom hand in its usual position on the shaft.
 - ii. Extend you arm parallel to water: top of paddle should just touch water
2. Seating position
 - a. Torso angled slightly forward, chin over mid-thigh region.
 - b. Gunwale leg: braced against seat in front or extended forward to push back with.
 - c. Inside leg: braced for stability against seat you are sitting on with knee pointing towards centre of boat
 - d. Slide against gunwale of boat, positioning weight on gunwale glute.

STROKE MECHANICS

1. ROTATION

- a. Rotation is all initiated through the hips by letting inside knee rotate outwards, pushing inside hip back
- b. Rotation extends from hips through lumbar and thoracic vertebrae, NOT into cervical vertebrae
- c. Keep head looking straight ahead through paddle shaft or up and across for timing cues.
- d. Gunwale side shoulder should now be leading

2. REACH/EXTENSION

- a. Reach is achieved from the shoulders and arms
- b. Torso position and angle remain unchanged in boat (no diving forward from waist, or by flexing back)
- c. Top arm extends forward to keep paddle angle closer to vertical
- d. Arm is relaxed in reach, torso is stretched

3. TOP ARM DRIVE

- a. Top arm initiates paddle entry into water at angle between 70-80°
- b. Bottom shoulder pivots allowing both arms to drop towards the water simultaneously
- c. Paddle travels along path continuous with shaft of paddle, not vertically
- d. Once blade of paddle is submerged up to neck, top arm drive ceases, stabilizes and becomes **HIGH PIVOT POINT**

4. CATCH

- a. Catch is moment immediately after top arm drive ceases, stabilization is begun and pull is initiated
- b. This is a crucial point in the stroke and should be controlled
- c. Once top arm stabilizes, gunwale leg initiates push that puts pressure on blade by starting rotation in torso then transmitted into arm- arm is relaxed and pull absorbed on shoulder and wrist

5. PULL

- a. Water pressure on paddle increases dramatically as rotation increases in speed
- b. Pull on bottom shoulder matches and slightly exceeds hull speed
- c. Top arm (shoulder, elbow, wrist) height about equal to shoulder
- d. Top hand position (vertical and horizontal) remains stable during first half to two-thirds of the stroke
- e. Torso position does not change- rotation around long axis of spine
- f. Top arm may drop slightly at exit
- g. Gunwale shoulder does not come behind spine: finish square to direction of boat travel/long axis of hull

- h. One element that it is essential to convey to paddlers is the importance of a vertical and square blade through the pull. Many novice paddlers have a twisted blade and never maintain a vertical angle. The following table illustrates what happens to paddle force as blade angles change. This may well explain the huge margins of victory seen between teams who may otherwise be identical.

Table 1.2 Paddle angles and estimated percent force loss

		horizontal paddle angle						
		0	5	10	15	20	30	40
vertical paddle angle	0	02:30	02:30	02:33	02:35	02:40	02:52	03:15
	5	02:30	02:32	02:33	02:36	02:40	02:54	03:17
	10	02:33	02:33	02:35	02:38	02:41	02:56	03:20
	15	02:35	02:36	02:38	02:41	02:45	02:59	03:23
	20	02:40	02:40	02:41	02:45	02:50	03:05	03:28
	30	02:52	02:54	02:56	02:59	03:05	03:20	03:47
	40	03:15	03:17	03:20	03:23	03:28	03:47	04:14

6. EXIT (GOOD TECHNIQUE)

- a. Exit initiated at knee,
- b. At end of stroke bottom arm relaxes,
- c. There is a slight external elbow rotation and upper arm is lifted up to side,
- d. Top hand remains relatively fixed in space,
- e. Elbow leads the exit to outside,
- f. Wrist curls inwards "around the paddle" pushing blade out of water to side,
- g. Exit should be clean and relaxed,
- h. Exit completed by mid thigh.

7. EXIT (EASIER TECHNIQUE)

- a. Exit initiated at knee
- b. Blade exits vertically
- c. Top hand pulls up along length of paddle shaft
- d. Bottom arm assists slightly
- e. Exit completed by mid thigh

8. RECOVERY

- a. Gunwale side leg bends slightly at knee to "reload"
- b. Inside leg pushes back to initiate rotation
- c. Emphasis on relaxed recovery

POWER through STROKE RATE vs. FORCE per STROKE

The power output of each paddler contributes to the speed of the Dragon Boat. Each paddler's power output is a function of their stroke rate (assuming water time and air time to be proportional) and their force per stroke (kg). Too much rate reduces force, too much force reduces rate. There is an optimal balance point for each paddler and crew

For novices and early season paddling for all other paddlers, it is essential to learn how to paddle with good force at slow stroke rates. As the season progresses increase the rate slowly. Ideally you may be using rates as low as 40 strokes per minute early in the year. Look at increasing this by 5-10 strokes per minute per month.

Without learning the basics at low rates, you will not be able to paddle well at higher rates. Learning faster stroke rates can be done by gradually adding intensity pieces at higher and higher rates.

STARTS

At the novice level and this early in the season for any other paddlers, starts are not very important and do not figure in training much. However, they are fun and motivational for all paddlers. We suggest adding starts in for novice paddlers after 5-6 practices and walking through the start sequence a few times each session. Always emphasize doing starts slowly to ensure learning takes place

In a race a novice crew, in fact any crew will do much better having worked on timing and proper paddling technique as opposed to blazing fast starts. For "race simulation" pieces we recommend that novice teams adopt the following start procedure.

Pre-start

- All attention focused on drummer for commands,
- All paddlers verify their torso position,
- All paddlers verify their leg position for stability and set up for stroke one with gunwale hip forward slightly and leg ready to push hip back,
- Paddle is held in a relaxed position across the legs, bottom hand and blade over the water.

"Attention please"

- Activate abdominal muscles to stabilize torso,
- Rotate top hand up over bottom hand so blade is vertical, perpendicular to water,
- Position whole blade in the water,
- Begin bracing with legs in anticipation of start signal,
- Exhale and hold breath listening for start signal.

"Go": Stroke 1

- Shorter stroke covering only the last ½ of a full stroke.
- There is some rotation, slight elbow flexion and a pronounced leg drive to get a deep, slow and powerful stroke.

Stroke 2

- Shorter stroke covering only the last 2/3 of a full stroke.
- There is more rotation, less elbow flexion and a still a definite leg drive in a deep, slow and powerful stroke.
- Stroke rate increases slightly (~5 strokes per minute increase).
- Keep speed of initial strokes low: no white water or big boils surfacing anywhere.
- It is common for novice and experienced crews alike to go straight into full length strokes within 5 strokes per minute of racing stroke rate

-

Stroke 3

- The next stroke lengthens some more to the last ¾ of a full stroke, still slow and powerful using a little more rotation. There is no elbow flexion except at exit.
- Stroke rate increases slightly (~4-5 strokes per minute increase).

Stroke 4

- Stroke rate increases slightly (~3-4 strokes per minute increase).

Stroke 5

- Next stroke is a full stroke length, but still slow and powerful.
- Stroke rate increases slightly (~3-4 strokes per minute increase).

Stroke 6

- The last start stroke is a full stroke length, but still slow and powerful.
- Stroke rate remains the same or only a slight increase (~1-2 strokes per minute increase).

Strokes 7-10

- Three to four transition strokes to increase reach and rotation (drummer calls out, "ready-and-reach").
- For novice crews there should be NO sprint strokes. The timing will fall apart and compromise the remainder of the race.
- Settle into race rate and effort quickly.

The start is a place to either gain distance on other teams or lose it. If you spend time on working on a good start, you will gain distance. If you rush your start, you will lose a lot of distance very quickly.

STEERING

The steersperson is the person responsible for the safety of the crew and the boat. It is their job to ensure all safety equipment is on the boat and the boat is water worthy. The drummer should understand that at any time the steersperson can take over boat for safety reasons.

Steering is a skill achieved through practice, just as paddling is, and a good steersperson can win or lose a race for any team. For novice teams, we suggest having a number of steerspersons within the team and rotating through them from practice to practice.

At this level going in a straight line is the number one priority. This is best achieved by having the steersperson learn to use small corrective strokes as opposed to using the steering oar like a rudder. As with all steering positions, always keep your head up and look where you are going.

DRUMMING

Drummers control the boat. No questions asked. If the drummer says something, the team must be conditioned to respond as a unit. The only exception to this is that the steersperson can take over boat at any time for safety reasons.

For many novice teams it will be the coach who assumes this role. The drummer, coaches the crew through the workout, calls technique reminders, and keeps the crew motivated. The toughest job for the drummer is learning what excites and what calms the crew, then using each when appropriate. In some cases a good drummer will know this for each paddler.

STROKES

The strokes set the rate for the rest of the boat. They work as a pair, left and right with one being the dominant pace setter for any given workout or piece. Your strokes should be fitter than the average paddler so that they are able to keep the stroke rate for the entire race piece without tiring.

Your strokes also need to be very confident and able to gauge when the boat is working well. They should also be able to tune out the incessant requests from the middle of the boat to go faster.

Having a number of different strokes is always a good idea. This way you can have spares in the case of injuries and absences.

FRONTS

The front seats of the boat are quite tight and better for smaller paddlers. Lighter paddlers with very good timing are best used in this section of the boat as the timing of the rest of the boat comes from here.

You will also want to consider placing good technical paddlers here; those with good entries, good catches, and good endurance.

MIDDLES

The middle seats of the boat are best kept for your taller and stronger paddlers. They will be more comfortable and better able to use the space. Keeping your heaviest paddlers in the middle also helps with keeping the boat balanced.

BACKS

The back seats of the boat are a mixture. Some coaches put their worse paddlers here thinking that they won't interfere too much way back in the boat.

We tend to think that putting a poor paddler in the back virtually eliminates him or her given the fact that the water at the back of the boat is moving quite quickly and is tricky to paddle in. We favour placing some technically good paddlers at the back, especially those paddlers who can stay in time regardless of what is happening right around them

BALANCING THE BOAT

When loading and balancing the boat don't be too exact in seeking to balance the lefts and rights, fronts and backs. Admittedly it is important but don't underestimate balancing paddler strength, moving your drummer over slightly one way or the other, or leaving empty seats.

Play around with different crew set-ups, and if in doubt leave your boat flat or slightly bow heavy.

COMMANDS ON THE WATER

"Paddles up": ready to paddle, all paddlers with paddles above water ready to enter water

"Take it away": begin paddling.

"Let it run": stop paddling and let the boat glide

"Hold the boat": place paddles in the water and brake the boat to a stop.

"Back it down": paddle backwards

"[front] / [back] **Draw** [left] / [right] ": initiates a turn using draw strokes by the designated paddlers

"[load] / [unload] **from the** [front] / [back]": to indicate how you want your crew to load the boat.

FCRCC DRAGON BOAT TROUBLE SHOOTING GUIDE

Always do these drills once the boat is moving at a good speed. We suggest you practice a drill for 10-20 strokes then return to "normal paddling", or paddling without a high degree of focus. Some drills will require your paddlers to do more than 30 strokes, but these drills are designed this way. Do not try to overload you paddlers with drill after drill after drill without any mental breaks.

CAUTION: having individual rows perform drills is a good way to injure your paddlers and should be used with extreme caution.

PROBLEM

BASIC BODY POSITION

DRILL

1. Sit with back straight: cue paddlers to be "tall", have them visualize being pulled up by a string running the length of their spine
2. Angle torso from hips so that chin is over mid-thigh
3. take 10 stroke, then rotate only for 5, repeat feeling boat run between strokes
4. For slouchers put a baseball cap on them and pull it down low over their eyes and require them to look up sufficiently to see the head of the paddler in front of them
5. Perpendicular to water: top hand position follows
6. Top hand holding the shaft. Take a few strokes. This will emphasize the importance the top hand has with regards to controlling the blade angle in the water
7. Thumb drag on hull
8. Single arm drill top hand follows over to find position

TIMING: GENERAL

1. Front half or back half paddle while the other half sits (encourage those sitting to move with the boat- close eyes and feel each stroke)
2. Odd rows / even rows
3. Lefts / rights
4. Front lefts (rights) / back rights (lefts)
5. Front 2 rows only paddle, then add in a row every 5+ strokes
6. Drill 4, but removing rows from the front after 3-5 rows are paddling
- i.e. rows 1 through 5, then add row 6 and remove row 1.
7. Initiate drive from leg, change timing focus from arms or upper back to lower body, especially hips and legs
8. Keep head facing forward and up
9. Have paddlers pause together just prior to entry at full extension (begin with long pause and decrease as timing improves- vary pause duration to keep paddlers alert)

- TIMING: RATE**
1. Increase rate for 10 strokes, decrease for 10, repeat having crew follow strokes exactly. To begin say "rate up/down in 3-2-1, NOW!", then progress to "in 2-1, NOW!", then "NOW!"
- REACH**
2. Fix body position / lean angle (nose over mid-thigh)
 3. Ensure gunwale side leg forward
 4. Reach along gunwale, stretch forward
 5. Tap shoulder of person ahead with bottom hand
 6. Single arm rotation - dip paddle in where you want to enter the water on the catch. Add top arm to dip.
 7. Boxer drill (jab not hook): aim for or past shoulder in front
 8. Repeat 4 and stretch another few cm forward
- ROTATION**
1. Loosen hips: seating position work
 2. Hold paddle in bottom hand, rotate through normal ROM 5-10 strokes, paddle 5-10 strokes
 3. See Bottom Arm Bends drill 2
- BOTTOM ARM BENDS**
1. Get paddler to extend elbow by pushing up with upper arm. Many think about extending lower arm from upper arm, which is unstable.
 2. Use sections of thin corrugated PVC pipe to fix arm in extended position
- ENTRY**
1. Have paddlers perform an entry, then immediately release (exit)
 2. Double entry then pull
- CATCH**
1. Enter to fully buried position (complete entry) and hold at full reach and rotation until paddler feels water push on blade. Then initiate pull. Begin decreasing time between completion of entry and pull until water push and pull coincide
 2. Drive with gunwale side leg pushing hip back to initiate rotation
 3. Imagine your bottom arm, from shoulder to hand, is a string (i.e. no arm pull), your top arm elbow angle fixed at 90°. As you paddle let your bottom hand track down to the water
 4. Have paddlers close their eyes for 10-20 strokes and feel for the catch in boat movement. This is also a good timing drill.
 5. Dock side drill to stabilize pivot point
 - a. In pairs, on paddler sitting on dock paddling the

- other facing them.
 - b. Non-paddling person gently holds the paddle just under T-grip
 - c. Try to maintain the top hand in place by firmly pressing back on the paddle shaft
 - d. Paddler should seek to feel the stable top hand pivot and view the paddle shaft as a long lever
 - e. Avoid pushing forward with top hand, or pushing shoulders back
6. Progressive drill to teach the feel of the catch:
 - a. Have team do draw strokes at 90° to boat, look for little to no side to side movement in the boat. This indicates all paddlers are applying pressure on their blades at the catch
 - b. Do a series of 5-10 good draw strokes, then have the paddlers move 1/4 (22.5°) towards a normal stroke and repeat 5-10 strokes
 - c. Repeat step b. adding in another quarter rotation towards forward until paddlers re paddling normally

PULL

7. One arm pull. Keep the lower hand on the paddle and pull slowly feeling for the water and how it reacts to the blade
8. Pull with both hands on the blade. Do 5 strokes trying to keep the paddle as vertical as possible top hand over the water, bottom hand under the top hand

EXIT

1. Have paddler stand with back to a wall and place palm of hand on wall. Have paddler push back on wall moving self forward
2. Scooping water: keep top hand directly above bottom hand
3. Scooping water: overemphasize straight arm at exit
4. VERTICAL EXIT
 - a. Visualize pulling sword out of scabbard (i.e. along length of shaft)
 - b. Focus on initiating exit at knee, pulling out at mid-thigh
5. FEATHERED EXIT
 - a. Initiate outward and upward elbow flexion at mid-thigh
 - b. Trace curve of "D" just over surface of water

RECOVERY

1. Slow down recovery to 1, 2 or 3 seconds without pausing anywhere
2. Drag the blade in a 'D' shape over the surface of the water (stationary first then moving)

3. Progress to dragging blade over the surface of the water straight through

**VERTICAL
BLADE
BLADE
ROTATION**

1. Have paddlers shorten forward reach slightly
2. Adjust paddlers grip so that knuckles, wrist and elbow are in flat plane, with wrist offset to outside of paddle shaft
3. Inspect top hand position, have paddler keep thumb on top hand pointed out along axis of T-grip and directed at 90° to side of boat

**BOW BOUNCES
AT CATCH**

See body position drills, entry drills, catch drills

**BOW BOUNCES
AT EXIT**

See exit drills

**CATEPILLAR IN
TIMING**

See timing drills

**STERN
BOUNCES AT
CATCH**

See body position drills, entry drills, catch drills

**STERN
BOUNCES AT
EXIT**

See exit drills

**SIDE TO SIDE
ROLL**

See body position drills, exit drills