

STROKEARCS

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ASSOCIATION OF ROWING COACHES, SOUTH AFRICA

PSYCHOLOGY

MUSIC WHILE YOU ERG

INTRODUCTION

Research has shown that physical performance can be enhanced with the accompaniment of music. Indeed music may be regarded as an ergogenic aid; in his book 'Physiology of muscular activity' Karpovich states that 'the purpose of an ergogenic aid is to improve performance or hasten recovery or both'.

The idea of using music to enhance performance in rowing is not new; the Greeks used an 'auletes' and the Romans a 'hortator' to initiate and maintain, with the use of a drum or a flute, the stroke rate in their warships. Shanties and work songs have been used over the centuries to accompany work associated rowing and the principle has been that the strong beat in the song comes at the point of greatest muscular contraction. As an aside to this it seems logical that the strong beat comes at the catch but there may be preferences for having it at the finish or elsewhere in the stroke depending on the music, the individual and the rowing style as measured by the magnitude of the rowing force during the work phase.

As rhythmic self-paced activities par excellence, rowing and erging, apart from the problem of the unequal work and recovery phases, would seem to be ideally suited to be performed to music. Nevertheless, appreciation and response to a musical stimulus is subjective, as is the athlete's rating of perceived exertion; so choice of music is all important. Some pertinent questions on its use might be:

- will the use of music make boats go faster or erg times better and will the training be more enjoyable?
- can music help in the learning of rowing and in adaptive rowing?
- how can we use music?
- can music be used in the competitive situation?
- is it fair to use music?

The main considerations in this article focus on the effect of music on performance on the ergometer (with some references to boat rowing), the practicalities of using music and the possibility of using music in competition.

Very little research has been done on music and rowing but one study by Scott (et al.) in 1999 tested novice rowers during a 40 minute row on a Concept2. The subjects were divided into three groups. The first group listened to a task-related "associative" audio tape which was the sound of a cox motivating a crew; this produced an increase in performance. The second group listened to "dissociative music" but nevertheless music chosen by the group; this group did not demonstrate any marked performance increase. The third group watched a "dissociative videotape" of races from the 1992 World Rowing championships; here there was some increase in the level of performance. A logical follow-up to this approach would be to see how performance levels are influenced by watching an associative video as well as listening to associative music.

Another piece of research entitled "Effects of asynchronous music on flow experience during an indoor rowing class" is currently being conducted by Victoria Warren at Brunel University.

Rowers themselves are divided on the use of music. In researching for another article on the same subject I was interested to see whether there were any thoughts and opinions from rowers themselves. A search on the internet revealed a divergence of opinion ranging from those who did not or could not row to music to those who found it enhanced their performance. There was even the suggestion that there should be separate rankings for those who use music which raises the question of whether its employment is ethically acceptable.

HOW WE CAN USE MUSIC

1 - ASYNCHRONOUS MUSIC

In this situation there is no rhythmical relationship between the music and the required physical movement. The music, usually of an excitable, energetic, powerful nature, merely serves to provide a working atmosphere. The music, often chosen by the athlete(s) performs the three basic functions of music in this situation; to stimulate, to offer a distraction and to make the training more enjoyable. For this reason it is not inconceivable that this approach could also be adopted in the competitive environment. Because the appreciation of music is subjective it is not easy to

recommend specific pieces. In addition, pleasing everybody, let alone achieving optimum results, is even more difficult in the group situation. I do not know of any evidence that suggests that rowers are either more or less receptive or responsive to an audible musical stimulus than other athletes.

It is important, however, to remember that asynchronous music, in certain situations, might be detrimental to performance if it comes into conflict with the rhythm of the rowing action.

The Aarhus Studenter Roklub finished top of the Concept2 Open Men's Winter Team Relay League in 2005/6. The nature of the competition - eight rowers using one machine - means that competing synchronously to music is not feasible and indeed the crew used Heavy Metal (e.g. Rammstein) and Techno as a background during their efforts.

2 - SYNCHRONISED ROWING TO MUSIC

This is where the rowing stroke, either in the boat or on an ergometer, is performed in perfect time to the music. More and more rowing clubs and fitness centres offer group rowing sessions with a lead instructor and accompanying music thereby giving participants both a visual and aural stimulus during the workout. The music should have a clearly discernible beat at one point in the rowing cycle. As mentioned above, this would normally be, but not necessarily, at the catch.



In Italy, the company 'Musicforfitness' has produced two CDs specifically for rowing. The music ranges from 114-140 beats per minute; indeed research suggests that for sustained sub-maximal effort a tempo of about 130 beats per minute is ideal. Musicforfitness also talks about the notion of 'colpi per minuti' or strokes per minute (in this case between 28 and 35) with the main beat measured on the drum.

Similarly, R2Music is producing CDs aimed at rowers taking them through a series of tempo changes during the workout.

Rowyo's cadence training software seems to be the modern equivalent of the Roman hortator with a programmable metronome and is declared to be ideal for synchronised

erg training. As far as I know, music is not offered in the software.

Of course, indoor rowing sessions will often work at lower ratings and beatcounter software offers the possibility of not only finding music for a given rating but also the option of modifying the tempo of the music without affecting the pitch. There is also no reason why music cannot be composed specifically for erging and rowing which would take into account the problem of the unequal work/recovery ratio.

In the competitive situation an athlete could use his or her own pre-recorded music designed to produce the best result over the 2000m row.

3 - EXERCISE CONTROLLED MUSIC

This is the most exciting development in the application of music to physical performance because it allows the athlete to be in control of the music according to the way that he or she exercises. Nike has just brought out a product (Nike+) for runners, using sensors in the shoes linked to an iPod, which gives the athlete feedback on his workout and changes the music based on the way he runs. Similarly, Sony has recently developed the 'Music pacer' for its NW-S200 MP3 player which will adapt its music according to how the athlete runs.

Being able to control music in this way should not be difficult to achieve in rowing. Modern rowing ergometers and many racing boats are fitted with monitors that display, among other things, the stroke rate. If the information on the stroke rate can be linked to a sound device then it would appear that the problem is solved and controllable music can be used for both crew rowing and indoor rowing.

By using the device known as pitch lock the music will follow the beat of the athlete but will not be distorted. Another approach is that the change in the stroke rate could initiate a change of track. Whichever method is used it is important that the music faithfully and immediately reacts to the athlete's effort.

Exercise led music, therefore, gives the athlete control of his music and could also be employed in the competitive situation.

Looking at the race analyses of the BIRC on the Concept2 website, much can be learned about the interaction between pace and stroke rate and how these change over 2000 metres. Although some rowers have the discipline to maintain their optimum rating over the whole 2000m course and are not influenced by final sprints (they judge their effort precisely and distribute it over the effort to achieve the best result) many competitors increase the stroke rate over the last few hundred metres. This is normal in competition and it is at this point, in the final stages of the effort, that the athlete starts to become concerned only with the rowing to the exclusion of all other distractions; he is in his own erg-world, becomes oblivious to the shouting of the crowd, the sound of tens of rowing machines, the screen displays, and the other competitors. By using music which follows his effort, the athlete can be both motivated and disciplined through the final period.

In indoor rowing competitions the rower is in control of his or her destiny; it is a self-paced activity. The conditions for racing are always more or less the same and there are no unexpected external factors which might influence the performance or result.

Using the technique described above when the rower takes up the rating, usually over the last few hundred metres, the music will follow but of course the rower needs to maintain that delicate balance between the three vital factors of stroke length, stroke rate and power so that pace is not compromised.

Even if it does not seem feasible for some to use music over 2000 metres it could be an invaluable ergogenic aid over the longer distance competitions.

CONCLUSION

It is clear that many rowers use music either individually or as part of group or team indoor rowing sessions; some use synchronous music, others prefer asynchronous music.

It is hoped that this short article will encourage a more critical analysis of the use of music in the training and competitive situation and an evaluation of how it can be employed to produce the best results. What is perhaps also needed is a workshop or seminar to discuss and exchange ideas on rowing with music and to develop models of good practice. Also ergometer and stroke rate meter manufacturers should look into the possibilities of linking their products to music systems. Certainly WaterRower has some interest and states on its website that you can 'Listen to music, or even watch television while you row without raising the volume'.



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- <http://www.r2music.co.uk/Home.html>
- <http://www.rowyo.com/>
- http://www.waterrower.com/en/gym_intrusion.htm

The first part of this article talked about the diverse opinions of rowers on the subject rowing and music. Some opinions can be found at

- <http://www.row2k.com/stories/index.cfm?action=read&ID=108>
- <http://www.c2forum.com/viewtopic.php?t=1739&start=0&postdays=0&postorder=asc&highlight=&sid=c3f19e4748ddf7c02eb14a98830c93ca>



PLANNING

CYCLING YOUR PERIODIZATION PLAN

The “principle of the cyclic arrangement of load demands” consists of two concepts working simultaneously: 1) cycling and 2) stages (Harre 1982, p. 78). Cycles of training are organized so that work is punctuated with rest and so that athletes progress through a program that systematically varies the training tasks and load

The overall cycle that each athlete goes through consists of repeating three stages: a) acquisition of athletic form b) stabilization of athletic form c) temporary loss of athletic form (Harre 1982). Practical experience has shown that athletes do not continue to improve in a progressive linear manner. Athletes require work periods that cause fatigue, and then these work periods are followed by rest and adaptation.

Training load is cycled by increasing load demands followed by decreasing demands. The second concept, stages, is again based on practical experience. Athletes simply cannot work on all of the demands of training and competition at the same time. The demands are too numerous, and available time is too limited. Taken together, these two concepts are united under the modern training approach called periodization.

The concept of periodization has been around at least since the 1920s (Nilsson 1987), and there are at least a dozen models of periodization. Caution should be exercised in their use due to the tendency to infer too much from individual models (Francis and Patterson 1992; Siff 1996a, 1996b; Siff and Verkhoshansky 1993; Verkhoshansky, U. 1981; Verkhoshansky 1977, 1985; Viru 1988, 1990, 1995). Further, most of the models have been tested only cursorily, if at all. Table 1.1 presents a list of several models.

Table 1.1 EXAMPLES OF PERIODIZATION MODELS	
MODEL	COMMENTS
Matveyev	Volume and intensity are reciprocal.
Conjugate sequence system	Different training tasks are specifically linked to optimize results
Concentrated loading	Part of the conjugate (overlapping sequence system, but also a model unto itself. Period of very high loads followed by relative rest.
High Performance- Matveyev	Volume and intensity are reciprocal, but are maintained at much higher loads.
Francis	Intensity remains constantly high; volume oscillates
Varying intensity	Volume remains constant while intensity oscillates.
Oscillatory	Volume and intensity are increased and decreased together in a wavelike pattern.
Bondarchuk	Specialized training immediately and throughout the training program.
Sleamaker	Primarily for endurance athletes.
Clustering	Primarily for relative strength development.
Incremental	Volume and intensity are gradually increased. Primarily used by team sports.
Instinctive	No formal plan except to proceed based on the “feelings” of the coach, athlete, or both at the moment of training.
Professional competitive	Contest-to-contest training with little time for anything but travel to a new competition site and immediate preparation for the subsequent competition.

Planning with Periodization

The most common method of developing a periodization plan is to divide a competitive season into three levels of cycles: a) macrocycles—several months in duration up to a year or slightly more: b) mesocycles--- from approximately two to approximately eight weeks in duration; and c) microcycles—usually seven to fourteen days in duration.

The three levels of training organization permit a “divide and conquer” approach to the assignment of training tasks in a definite pattern for a definite period. Unfortunately, various authors have taken considerable liberty in using terms to describe varying durations, contents, and objectives of training within this context.

The three levels of training duration are placed within an overall structure of the training year that consists of a preparatory period, a competitive period, and a transition or rest period.

An athlete requires approximately 22 to 25 weeks to reach peak performance (Verkhoshansky 1985) before a type of fatigue or exhaustion occurs that is poorly understood (Poliquin 1991). Experience has shown that performance generally declines within these time constraints, but the mechanisms of the decline are unknown.

This idea of a limited time for adaptation leads to the concept of multiple periodization, which simply means that the training year is usually divided into two, rarely more, phases consisting of preparatory, competitive and transition periods (Bompa 1990a, 1990b, 1993; Siff and Verkhoshansky 1993; Verkhoshansky 1985). Perhaps unfortunately, many modern training programs force athletes to attempt to peak too often.

Description of the Periods

The preparatory period is usually divided into general and specific phases. The general preparatory phase is used for broad or multilateral training (Bompa, 1990b). The training tasks are aimed at improving the athlete’s overall strength, flexibility, stamina, coordination, and so forth.

The specific preparatory phase more closely resembles the sport and sport-specific tasks. Training during the specific preparatory phase are aimed at improving sport-specific tasks and fitness such as jumping, flexibility and strength in extreme ranges of motion and applying any newly acquired fitness to solving specific sport tasks.

The preparatory period should be relatively longer for inexperienced athletes in order to allow for sufficient development of basic fitness. However, in elite athletes the preparatory period may be relatively short due to frequent competitions and the necessity of elite athletes to remain close to top condition throughout the training year (Francis and Patterson 1992; Siff 1996b; Siff and Verkhoshansky 1993; Zatsiorsky 1995).

The competitive period involves the majority of competitions during the particular season or macrocycle. The fitness of the athlete should be relatively stable during this period, and training focuses on maximizing and stabilizing performance. The preparatory period is linked to the competitive period in that a well-executed preparatory period, with sufficient duration to achieve a high level of fitness at a reasonable pace, allows the athlete to demonstrate more stable performances during the competitive period (Harre 1982; Siff and Verkhoshansky 1993; Verkhoshansky 1985).

The idea of performance stability is particularly important for athletes in resistance training, and may differ somewhat from sport to sport. For example, the tactical approach of a pole vaulter is quite different from that of a diver. The pole vaulter may often face performances that he or she has never equaled. This is seen in personal-best records. The pole vaulter may try previously unachieved heights in many competitions throughout a season. The diver should face this type of scenario only in the protected environment of training. The diver must perform what he or she has performed (i.e. dives) hundreds or thousands of times before, but must perform dives precisely in the decisive moment of competition. No byes or failed attempts are allowed in diving. Therefore, the diver seeks to stabilize performance at a level that is consistent with his or her skills, while the pole vaulter must assault and achieve new levels of performance during a competition and can use more than one attempt.

The transition or rest period involves one to four, rarely more, weeks of reduced training load to facilitate recovery from the rigors of previous training both physically and mentally (Bompa 1990a, 1990b; Harre 1982, 1986; Siff and Verkhoshansky 1993). During the transition period the athlete should attempt to maintain fitness while allowing injuries to heal, develop new goals for the next competitive season, evaluate the previous competitive season and basically ensure that the next competitive season begins with a renewed vigor and commitment.

Types of Periods

There are a number of different types of periods of training depending on training goals, time of the season and capabilities of the athlete. Macrocycles are usually described based on common sense understanding of the nature of the competitions within the macrocycle. For example, there may be an Olympic preparation type of macrocycle due to the modification of competition schedules to fit properly with the Olympic Games. There may also be a Pan American, national championship, or other type of macrocycles depending on the most important goal of the macrocycle. The second level, mesocycles can be categorized by the objectives of the mesocycle. Mesocycle-level objectives are relatively similar across macrocycles, which aids in the consistency of their defining characteristics. Mesocycles thus become similar to inter-changeable planning “parts” that can be used and reused in different macrocycles. Table 1.2 shows a list of mesocycle types and corresponding tasks (Harre 1982).

Table 1.2 MESOCYCLE CLASSIFICATIONS

TYPE	TYPICAL DURATION	MAIN TASKS
General	Almost any duration	General education and training, primarily general preparatory phase; develops basic fitness.
Basic Sport Specific	~ 6 weeks	Improving the functional level of performance in specific skills and fitness; develops specific fitness
Preparatory	~ 6 weeks	Training focused on competitive preparedness; sub maximum to maximum loads to directly enhance fitness and skills for competitive mesocycles.
Immediate preparatory	~2 weeks	Training focused on recovery and peaking for a competition; tapering or testing.
Stabilization	~4 weeks	Perfecting technique and fitness; eliminating technique and fitness errors while stabilizing acquired skills and fitness. Stabilization is the most important.
Build up	~3 weeks	Further buildup of training loads to enhance foundational skills or fitness during a long preparatory period; more general training and conditioning than specific; active recovery from earlier specific and high-load training.
Precompetitive	~6 weeks	Development of the optimum expression of all skill and fitness factors for a specific competition or series of competitions; specific training with individualized loads; focused on bringing all fitness and skill characteristics to their peak.
Competitive build up	~ 3 weeks	Focused on restoring fitness during a long period of competitions.
Competitive	~2- 6 weeks	Special emphasis on a specific competition that occurs during a mesocycle.
Recovery	~1-4 weeks	Specific focus on recovery and rehabilitation. May follow a series of competitions or serve between important competitions such as World Cups.

The mesocycles can be linked to form an annual plan (Bompa 1990b), or a specific macrocycle (Harre 1982, 1990; Matveyev 1977).

Microcycles are periods of training lasting from seven to fourteen days. Microcycles are the smallest basic unit of training planning that has strictly applied objectives. The training lesson is a smaller training unit, but the goals of any particular training lesson can be modified based on current circumstances. However, the objectives of the microcycle remain intact so that the subsequent training lessons are adapted to reach the objectives set for the microcycle (Verkhoshansky 1985). Various types of microcycles are shown in Table 1.3 below.

Table 1.3 MICROCYCLE CLASSIFICATIONS

TYPE	COMMENTS
General Preparatory	Main type of microcycle, used mostly at the beginning of the preparatory period. Focusing on developing general fitness and skills.
Special preparatory	Greater proportions of specific exercises, used at the end of the preparatory period. Focused on developing sport-specific fitness and skills
SUBTYPES OF GENERAL AND SPECIAL MICROCYCLES	
Preparatory build-up	Gradual increase in training load across the microcycle.
Shock	Sudden and severe increase in training load to shock the athlete, increase fatigue, and force LLTE (long-term lag of training effect).
Competition/Camp	Mimics the load that will be faced in a competitive setting lasting several days, resulting in either tapering or high psychological and physiological concentrated loading.
SUBTYPES OF THE INTRODUCTORY MICROCYCLE	
Tapering	Decrease in training load to enhance recovery and later peak performance
Competitive simulation	Increase in training load to "teach" the athlete about the types and magnitudes of stress that will be faced during an upcoming competition.
Competitive	Immediate training preparation, travel, site preparation for a contest, warm-up routines, and the competition
Recovery	Used after a series of shock microcycles and following a competition or a series of competitions. The primary goal is to rest, recuperate, heal and prepare for the next training or competition.

As described earlier, the cyclic arrangement of load demands refers to periodization, which is composed of two concepts used simultaneously. The first concept is that of cycling the training load by alternating between work and rest. The second concept is that of periods of training with specific, distinct and linked goals. The importance of these periodization concepts lies in the organized and systematic fashion in which training loads can be applied for the improvement of sport performance.

Excerpted from Principles and Practice of Resistance Training by Michael H. Stone, Meg Stone and William A. Sands; Human Kinetics Champaign, IL. 2007. Reprinted with permission from Human Kinetics.



ASSOCIATION OF ROWING COACHES, SOUTH AFRICA

COXING

FIVE KEYS TO COMPETITIVE COXING

I walked into the University of Wisconsin boathouse in the fall of 1984 as a very green freshman. Like many other now successful rowers and coxswains, I knew nothing about rowing. Still, I smiled and nodded as Jane Ludwig, the novice women's coach, gave me and 16 others a stack of handouts on coxing. A few weeks later, seated high on the seat of a wooden Pocock eight, I coxed my first competitive piece. With the standard battered megaphone held together by athletic tape and strapped to my head, I gripped the gunwales with white knuckles and called the building strokes for our first race. I can't remember if we battled it out 20 strokes or 100 (it was hard to tell with all that white water flying around) but from that day on I was hooked.

Since then, I've coxed my share of great and not-so-great races in collegiate and international competitions. At one point, my crews went two years without losing a race, but looking back, I realize that my most valuable lessons were learned in defeat—those situations where my crew and I could have handled situations better, but didn't. As my experience grew, I understood that the best way to perform consistently was to master the major elements of coxing and then perfect implementing them in pressure situations. Six years, nine coaches and thousands of hours on the water later, I've developed those elements into what I call "the five keys of competitive coxing." These keys have broadened my coxing horizons and enhanced my creativity—they're universal guidelines that improve basic skills as well as the more difficult, finer points of coxing.

Key 1. Steering

After safety, steering is a coxswain's number one priority. Steering is worth reviewing because most coaches don't teach it in enough detail. Before moving on to the other elements of peak-performance coxing, you must master steering. First, it's a common misconception that steering should take place only on the drive.

Coaches often teach moving the tiller when the blades go in the water and straightening it at the release. However, for subtle adjustments, this motion has far too many repercussions. Not only is the boat's balance somewhat effected when the tiller moves back and forth each stroke, but even if you try to steer very smoothly during the drive, excess drag is felt because the tiller is at an angle while the blades are in the water. Instead, for subtle adjustments, steer with a very gentle hand on the recovery. With the oars out of the water, the boat will adjust faster and your tiller won't work against your oar propulsion. In a straight-shot 2,000 meter race, this method of steering is almost always most effective.

For longer turns during practice or head racing, steering should occur during the recovery, and drives of several strokes. You should initiate steering gently on the drive, continue to ease the tiller into the turn over the next one or two strokes, hold the tiller in that position until past the center point of your corner, and then ease it gently back when coming out of the turn. For these larger turns where tiller drag is unavoidable, always tell your crew you are steering. A statement like, "I'm easing gently to port" tells them the corner is sharp enough that they will probably feel it. Steering in smooth, longer motions also lets your team adjust their handle heights for the corner to avoid rocking from side to side.

For a really big turn (like the 90 degree Weeks Bridge turn in the Head-of-the-Charles- Regatta), you need to set the tiller, which means you ease it all the way to one side and hold it there for the core of the turn. In this situation I would say, "I'm going to ease onto the tiller and set it full port. Starboards be ready to lower your hands a little (on the recovery) to keep the balance through the corner."

Steering and Coxswain Overload

All coxswains experience periods where they don't steer exceptionally well. This almost always happens when you have too much to think about or communicate to your team. The best strategy for improving bad steering is to back off on coaching and motivation and streamline your comments. In longer pieces, give your team a little quiet time to think and feel their rowing and to let you focus on seeing and feeling your steering.

Key 2. Technical Coaching/Serving as Liaison Between Coach and Crew

Learn to Row

Step one in being a good technician is to know how to row. Every excellent technical coxswain I know can sit on an erg or in the tank and demonstrate what a rower is doing right or wrong. Ask your coach to evaluate your rowing and your ability to identify technical flaws. If you support your coach's technical style, you will gain your coach's trust and the confidence of your rowers.

Unifying the team

The coxswain's primary technical goal is to make calls that unify the team. One way is to supplement the coach's comments to individual rowers. For example, if the coach tells a rower to clean up her release, you could say, "Everyone, we're going to take a ten to pull in high enough and cleanly push the puddles off of the blades." While it's important for the coxswain to identify individual flaws, the cox who can apply those corrections to whole boat improvements is a step ahead of the game.

For longer pieces, try giving the boat one focal point "for the next minute" or "for this piece." However, if you name a theme for a time frame or piece, stick to related comments. Giving the rowers a moment of silence is also a good long piece tactic. A helpful focal point for a quiet time is to have your rowers close their eyes and feel their legs draw their seats into the catch, lock their blades in and reverse without checking the boat.



Talk how it is supposed to feel. Varying the tone and pace of your voice sets the rhythms for your pieces. If the catches are slow or heavy, I will say "quick" or "sharp" when the blades hit the water. If I'm trying to unify the team's body swing, I'll say "swing" or "shoulders" at the point of the body swing during the drive. To get more send or acceleration with the finishes, I'll say "sending, celerating," or "bending the arms," in time with the

swing and arm being of each stroke, emphasizing the syllable that falls on that part of the stroke. Higher cadence pieces require a crisp tone and strong rhythm. The tone for steady state should be relaxed and flowing, but still alert.

Many international coaches actually encourage dictating the rhythm. My coach, Hartmut Buschbacher, often yells, "Jump!" or "Hop!" in time with our finishes or leg drive. U.S. men's coach Kris Korzeniowski is renowned for yelling, "Cha...shahh" or "Chaack... Chaack" in time with catches and finishes.

Videotapes of the 1988 U.S. men's eight reveal coxswain Seth Bauer calling, "Push...swing" in time with the leg drive and body swing of each stroke. If you listen in on videotapes of World Championship and Olympic races, you'll hear rhythms dictated by coxswains in a multitude of languages.

Improving Your Technical Eye

Resources for improving your technical knowledge may be right at your fingertips. Most boathouses have a copy of the USRowing Coaching Education Level I Manual, which has chapters on basic rowing technique, teaching and improving technique and other subjects. Discuss technical material with your coach to see how it fits into his or her style before you implement it.

Rigging

Learning to rig (a requirement for women's National Team coxswain candidates) also fine tunes a coxswain's eye. Learning to adjust spreads, heights, and forward and outward pitches develops an eye capable of picking out subtleties in blade depth during the drive, height of the blade off the water during the recovery, a rower's ability to handle the load on the blade, and how cleanly the rower catches and releases.

Weight Training

Learning weight training exercises teaches a coxswain to coach rowers on proper weight training technique and imparts a better understanding of the exercises' relationship to the rowing stroke. The coxswain learns firsthand where muscles gain strength and can apply that knowledge to improving the rowers' technique on the water.

Key 3. Flow of Practice

Coxswains are almost solely responsible for how well a practice flows. Get used to this idea, because it's almost always true. A well-organized, cool-thinking coxswain can make a practice work out even it seems everything is going wrong. The following pointers should help you:

Know the workout in advance. If the workout is complicated, write it down and take your notes in the boat with you. Always find out the goal of the practice, and make sure you understand the drills or pieces before going out on the water.

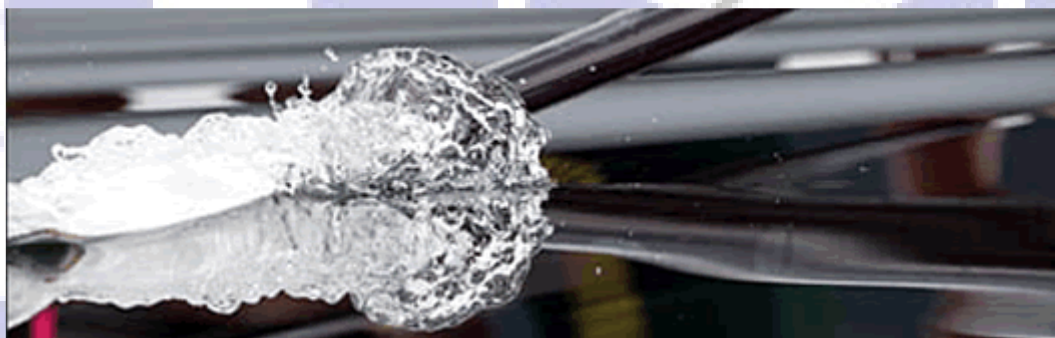
If you have problems making difficult transitions in pieces or remembering why the practice jumps from one drill into another, think about why the coach has structured the practice that way. Often it's easier to remember something if you know the reason you're doing it.

Keep your focus and your rowers' focus within the boat. In practice settings, when two or more boats are often side by side, it's easy to be distracted by other coxswains, especially if your competition with one another is fierce. Remember your overall goal is to create a fast team, and the best way to attain that goal is by running smooth, focused practices. Rowers and coaches are constantly aware of how well the coxswains work together. They also remember which ones keep their cool and focus under pressure. If you have a disagreement with another coxswain, save it until you're off the water. Coaches who look out for fairness and require excellent teamwork among coxswains make all the difference.

Key 4. Motivation and Teamwork

After years coxing, I still find the motivational aspect of the job to be most satisfying because it encourages so much creativity. Yet, I've spoken with many coxswains who feel pressured to take on a racing personality they feel uncomfortable with or who just have difficulty finding creative things to say.

Often in coxswain clinics I get a sense that coxswains are looking to me to give them some key motivational phrases. I know this is true because for laughs I often tell the story about Harvard's Devin Mahoney taking a "See you later, assholes," power ten in a race, and I'll see 90 percent of the coxswains scribbling it down in their notebooks. I tell the story because it illustrates a point in a race where the coxswain (Devin) realized her boat should be pulling away, and yet 1,000 meters had gone by the boats were still even. "See you later, assholes," was a completely spontaneous, yet smart, call by her. Knowing Harvard had to move, she overcame the pressure of the tight situation and communicated an aggressive, confident move instead of panicking. Devin convinced her crew there was no reason the boats should be even, and they ran with it.



When you know the story behind a call like Devin's, it's easy to understand how she made it work. In another situation, however, it could have failed miserably. The point is, the "no-fail" call does not exist. To make the right call at the right time, ask yourself these questions: "What initially attracted you to the sport? What are your personal motivations?"

For me, it was and still is the race: The thought of how the boat feels when we are moving fast, the momentum we generate when we move through another boat and the reward of take the hard work from practice out onto the race, determined to put 110 percent of it on the line and doing everything imaginable to get my team down the course the fastest. Knowing your own motivations is the first step in helping other realize theirs.

How well do you understand your teammates' motivations and goals? On every team, there are a multitude of personalities. By mentally noting the strengths and positive attributes of your teammates, you can plan for ways to call upon and maximize both. An easy example is the rower with the big erg score. In the boat, you could call on her or him to lead a "ten for aggressive body swing, just like you had all winter on the erg." Look for the other not so obvious qualities, too. How about the quiet person who is always there and working hard, but keeps to himself— "Bill, we're gonna tackle this middle thousand with the same consistency and intensity you've shown since day one." Or the person who puts in extra workouts each week in the stadium – "Anna, we're taking ten to blast off the footboards the way you blast up the stadium stairs."

The coxswain's motivation should always be positive and constructive, even if the coach's is not. Remember, you may be the link between the coach and the team, but the rowers are your teammates. If the coach is furiously yelling at your stroke because her catch is late, you can keep the team cool by saying, "OK, we're going to take ten for quicker catches. Relax the shoulders, and let's feel the blades go in before the legs go down. Let's go." This corrects the problem and keeps the team relaxed and together.

It also treats the coxswain and crew as one unit. Calls like, “We’re taking ten to double our margin,” and “We need to match the body swing better to push out the run,” always make a team more cohesive than “I want...” or “You need to...” How well do you understand the pain of the race and what you are pushing your rowers through?

It’s not the job of the coxswain to sympathize with the rowers when they hit the wall in practice or in the race, but the coxswain who knows what it feels like has a better idea of how to get through that wall. I think every cox should experience at least one good erg race. The coxswain who understands pushing through the pain threshold possesses a valuable insight and is respected by rowers as a fellow athlete.

Key 5. Racing and Strategy

The bottom line of racing is performance under pressure — that’s why I saved Key 5 for last. If you’ve done your homework and perfected your steering, technical points, flow of practice and motivational keys, you’re 85 percent of the way to acquiring what I call “Total Focus.” The next step is developing your race strategy.

Use your arsenal of motivational and technical tactics to determine a few key points you want to take moves for in the race. For our team, depending on the importance of the race, we might make these decisions two weeks or two days in advance. Most major moves are discussed by the team and coach. Together, we determine the technical focus for each move, and sometimes the motivational focus as well. Otherwise the motivational calls are up to me. Aside from start and finish, we rarely plan more than two moves for a race. That leaves me flexibility for smaller technical moves.

Sometimes, when a motivational idea comes to me in advance, I may mention related incidences in practices prior to the race, just to jog the rowers’ memories. Then, when I drop it into a race move, they are subconsciously ready for it. Every motivational call in a race should be positive — no matter what. Of course, it’s easy to be positive when you’re winning and the boat feels great, but the cox that can keep it positive when the race is tight or the team is behind can create momentum and get a crew together and moving again.

The coxswains number one goal during the race should be to establish a controlled flow of information to the team. Using “pacing” skills makes the crew feel very aware of all that is happening in the race, but not overwhelmed or hectic. The rowers feel they have time to digest all the information coming in and have control over their situation. An excellent pacer can help the team establish a rhythm that feels lower than what they are actually rowing. The key to a coxswain’s action and reaction in the race is to keep the situation simple. Instead of thinking that I have eight rowers, five other crews and my course to keep track of, I tell myself there are only three things: our team, distance traveled, and the competition. Let’s break it down:



Because I have prepared for the race, I know where to execute my major moves, what to focus on, and for the most part, what we are capable of. As soon as the race begins, I focus on how our boat feels and on establishing the rhythm we have practiced. Spacing (the distance between the two seat’s puddle and the stroke’s catch) is a primary theme from stroke one to stroke 240 because it shows how far we are sending the boat each stroke. The more spacing the better. So, even if I am calling off another boat, I will say

“We’re up two seats on the Soviets, and we’ve got three feet of space. We’re taking two seats in the next seven strokes by pushing the space out another foot using body swing. Let’s go!” That way, although I refer to the Soviet’s position, the focus stays on how we’re moving out boat — the control remains with us.

My focus for distance covered simply involves telling my team when we are approaching our moves and when to take them. Before each race I map out our strategy, as well as backup in case we are not where we want to be at a certain time. Everyone knows the backup beforehand.

In tracking the competition down the course, I look for who is within striking distance and who we are moving on. In the first 20-30 strokes of the race, if it’s tight all the way across, I’ll say, “It’s a pack,” and then go back to the focus for our starting sequence. If someone is way up, I’ll say so, and we’ll focus for more efficiency in the high strokes. Once we

settle, I give all the locations of the crews once. After that I talk only about who we're racing closely with, or if someone comes suddenly from behind. But even then our moves are focused for improving our own boat speed.

The following are a few strategies from the past that have worked well for my teams:

Technical Checkpoint

In practice, the cox gives each person a technical checkpoint — a focus for a specific technical problem she or he working on that usually comes out in racing. If and when the problem surfaces in the race, the cox says, "Mary, checkpoint," This works nicely when there isn't time to communicate in detail. We use team checkpoints as well — they're especially helpful during head races when technical work really has to go the distance.

The Ratio Call

We use "the ratio call" when we are rowing at the correct stroke rate but our spacing is bad. When I first started using it, I would say, "Slide comes down one beat, power with leg drive (or body swing) goes up one beat... get set... on this one." It's different from your standard ratio call because it requires a conscious shift in power immediately. However, all that took too long to say so we changed it to, "Ratio Call...get set... on this one."

The Flex

We created "the flex" just before the 1990 World Championships in Australia. Flex stands for flexible and for flexing a little muscle. It was our secret racing move. Our plan was that at some point in the race, when I decided it was most needed, I would call, "Flex! On this one!" Regardless of what was happening or where we were, the flex had to be the best ten of the race. To practice the flex, for one month before racing, our eight exercised the flex once and only once each day. If we were doing steady state and flex was called, everyone had to shoot up to stroke rate 36 on the next stroke and execute a perfect ten. The flex locked us into a silver medal in Australia, and moved us to within four seats of gold.

Many races have come and gone since my coxing beginnings in 1984, and many hours have been spent in search of ways to improve so that I in turn could help my teams be better, faster and stronger. These five keys are for you to use to do the same: to help you communicate more effectively, develop greater sensitivity for steering and for the feel of the boat, to enhance your motivational skills and ultimately, to fine tune your racing skills into winning strategies.



RECOVERY

AVOIDING AND OVERCOMING BURNOUT

As with many other aspects of life, it is easier to spot overtraining in others than in ourselves. In this article, we will examine the causes of overtraining and how to get back into a rested state, ready for further training and racing.

Depending upon a number of factors, a particular level of training may be too much for a given runner at that stage in his or her running career, or it could be just the right amount to prepare for an upcoming race. Keep in mind that each individual and each situation is different. We will try to identify truths applicable to most ultrarunners.

Definition

An overtrained runner will often have a feeling of malaise about his or her running. The legs may feel heavy during the day, as well as when running. Runners past the point of diminishing returns in training are more susceptible to illnesses such as flu and colds (Gabriell, HH et al., 1998). These runners will have difficulty running either long or with much quality, and their recovery will be lengthened after runs of longer duration or speed than in the past, when they were not overtrained. There are certainly different levels of overtraining. As described by Tim Noakes in chapter 10 of the 1991 edition of *Lore of Running* (Noakes, 1991), these levels include "the plods" or "mini-burnout," or the "super plods," which includes persistent muscle soreness, and finally the fully overtrained state, "maxi-burnout" in which the runner has several of the symptoms of overtraining.

Diagnosing Overtraining

There are a number of signs to help diagnose overtraining in yourself or others. The first is motivation level. Are you enthusiastic about your training runs planned for the next few days or about an upcoming race? Or do you have an uninterested point of view about your running and lack a desire to train or compete? If it is the latter, you might want to look at your recent training and racing to see if you are overtraining. There are physical measures of overtraining as well, which tend to occur in a common sequence as the level of overtraining increases. First, post-workout afternoon

weight will often fall. Fluid intake in the evening will likely increase, and the runner will go to bed later than normal, but awoken at the normal time or a bit earlier. These signs were observed by Richard Brown, coach of the Athletics West Track Club (Brown and Henderson, 2003). Other physical symptoms to be on the lookout for include an increase of morning/awakening pulse rate of five beats per minute from normal, an increase in heart rate at a given level of exertion or pace during a run, extensive and lasting muscle and joint pain, lowered ability to finish normal training runs, and an incidence of a recent or current injury or illness, such as a head cold. In addition, quantity or quality of sleep may be reduced in the overtrained runner, such that he or she awakens not feeling rested.

Tips to Prevent Overtraining

There are two main ways to prevent overtraining. First, monitor signals from your body, as well as your mood, as you train each week-and especially following races. Signals to observe include how you feel a mile or two into each run in terms of your energy level and degree of leg muscle soreness. This information can be included in your running log, which should be reviewed a few times each week. Also note in your log your resting and waking heart rate and weight (at the same time each day), as well as your sleep patterns and quality (Taylor, SR et al., 1997), as these can be the first signs of overtraining.

The second way to avoid overtraining is to build rest into your training program, both on weekly and yearly bases. Try to take at least one complete day of rest each week, to allow your body to recover from previous training and to prepare for upcoming long and faster training runs. You can take a rest day if you feel a lack of enthusiasm about running and instead do a short cross-training session at a sport that does not put much stress on your legs. Including one or more days of cross-training per week is also a form of rest, whereby you are still active but give your legs a break from the pounding of running, while doing something different that refreshes your mind and outlook.

Planned Rest Periods

An additional way to design rest into your training program is to incorporate one or two "off seasons" per year. These periods should last three to eight weeks, during which you cut back on mileage by about a half or more from your peak mileage. Training time should be reduced about 30 percent or more from your peak; in addition, take one to three days per week totally off from exercising. The frequency of running in the off-season can range from two to four runs per week. One to three cross-training sessions included per week will maintain an aerobic base of fitness and address strength issues as well.

When to take an off-season is a matter of personal preference; there are a number of options. You can rest following a big race that you just completed to allow for adequate recovery and repair of your muscles, energy stores, and any blisters or hydration problems you developed during the race. A second option would be to rest based on the calendar. Runners in hot climates might want to schedule a rest season for the summer and focus on cooler sports such as swimming or biking at those times. These athletes can train and race more in the fall, winter, and/or spring. Runners in areas that have cold winters might want to take their off-season in the winter, doing more training indoors in the gym during a three to five-month period, and then build up running mileage in the spring, and compete in some races during the summer and fall. A short off-season could then be included between the spring and fall racing seasons.



Cutback Weeks During Training

As you progress in a training program towards a goal race, a week of relative rest can be added to your plan about every four to six weeks. A good plan is to include your final cutback week before a key race about four to five weeks before that race. Then you can train for another two weeks at a high level after the final cutback week, and then rest during a two-week taper leading up to the race. During your cutback weeks, reduce your running mileage by nearly a half, and training time by a quarter or more. The long run duration during the cutback week should be kept under two hours. This should provide adequate rest, allowing your body and mind to "catch up" to your recent training and undergo a significant level of adaptation.

The cutback week has three main purposes. First your legs will rest from the stresses of running and become fresher throughout the week, and the following week as you return to "normal" training. Second, the processes of rehydration and refueling are easier when your training level is reduced compared with a full training schedule. Finally, the rest week gives you a mental break from having to focus each day on the details of training; thus, you can devote more energy to other areas of your life.

Cross Training

Including cross-training into your running program is one way to add variety and aerobic conditioning to your training plan. Select sports that work your legs, main trunk muscles, and/or a combination of the two, in a non-pounding manner. Crosstraining provides the three benefits mentioned in the previous paragraph. In addition, you develop muscle strength in the legs and other areas that affect hill running form and power, along with an ability to maintain

good posture late in an ultra. Short cross-training sessions can be incorporated into your cutback weeks and during your annual or semi-annual rest period. Include these workouts on days when you are doing a short run, or on days by themselves.

Sample Training Schedules

Two sample weekly schedules are given below. The first is for a cutback week for a runner who has been training about 10 hours per week for a number of weeks prior to the cutback week. The second is for a runner in the middle of his or her off-season, who lives in a cold climate and does the bulk of his or her winter training indoors.

Cutback Week

Monday: off for a rest day; Tuesday: five-mile run on flats; Wednesday: cross-train one hour (one hour on bike or 30 minutes on bike and 30 minutes weight lifting); Thursday: 10-mile run on slightly rolling roads or trail; Friday: one hour cross-training (30 minutes on elliptical trainer or stationary bike, 30 minutes weights); Saturday: one hour run on flats; Sunday: off for a rest day.

In this cutback plan, the runner completes about 23 miles of running and does two short cross-training sessions; there are two days of complete rest. The days with weightlifting are separated by at least one non-lifting day to allow for muscle recovery and repair. The number of hours of training is just over five for this cutback week. The athlete should come out of this week feeling energized and with freshness in the legs and enthusiasm for upcoming training weeks. General guidelines for the cutback week include reducing running mileage by about 50 percent from previous levels, taking one to three days of complete rest, and doing no speed work or super hilly running.

Off-season Sample Week

Monday: cross-train for 45 minutes (20 minutes on stair climber to warm-up, then 25 minutes total body weight lifting); Tuesday: five-mile run outdoors on flats; Wednesday: off; Thursday: six-mile run on a treadmill with running some one to two-minute inclines at four-percent grade; Friday: one hour cross-training (30 minutes stationary bike, 30 minutes total body weights); Saturday: one to 1.5-hour run on treadmill with five pickups of 45 seconds each at one minute/mile faster than normal in middle of run; Sunday: cross-train for 45 minutes (20 minutes stationary bike, 25 minutes on stair climber).

This program involves about six hours of exercise during the off-season week, consisting of 17 to 20 miles of running and three cross-training sessions. Wednesday is a complete day of rest. Most of the running is done on flat ground except for the small simulated hills during the Thursday run. The work the runner does on the bike and stair climber as well as during the weightlifting sessions will help maintain most of the strength developed during the previous running season. General guidelines for the rest period are to run about 25 to 60 percent of normal training mileage, to mix in two to four cross-training sessions per week, and to keep running sessions at aerobic effort levels and at durations less than two hours. Exercise time per week is reduced by about 30 to 60 percent from the peak in the previous running season.

Causes of Overtraining

There are a number of possible causes of overtraining. Keeping and reviewing a running log on a regular basis can help you spot these problems before you develop a full bout of burnout. One of the most common causes is too quick a buildup in training mileage, either after an injury or race, or after signing up for an upcoming race. You get overeager and do too much before your body is ready to handle a high training load. Generally speaking, only increase running mileage by 10 percent every other week as you increase your training levels. The second common cause is running a number of long (over half marathon distance) races in a period of a few weeks to three months, without any rest weeks between races. This can drain your energy stores and leave you with "dead" legs. Try to allow for at least two weeks of relative rest (doing only three to five short training sessions per week) following a long race, and then return to training at a reduced level compared with your previous peak. Other causes of overtraining include not adequately rehydrating and refueling after a long training run or race, running multiple hard sessions several days in a row, and trying to train at high levels while undergoing a stressful time in your life, such as when you have a newborn baby, have just moved to a new city, or are planning a wedding.

Overcoming Full burnout

Keep in mind the symptoms of overtraining as you progress in your training program and you will be able to spot the start of a burnout and make an adjustment to your plans by adding a rest day or two, a cutback week, or even off-season period that combines rest, shorter running sessions and cross-training. If you do develop full blown overtraining syndrome, then you will need to rest for three to eight weeks or more. During this time, training volume should be reduced by 50 to 80 percent, with no faster or long distance running sessions planned. It is important to not run any races during this recovery period and to not do any workouts at more than an aerobic level (75 percent of maximal heart rate). Be very mindful during the recovery weeks of your hydration levels and refueling, and ensure that you get adequate quality sleep. After a few weeks, you can slowly start to build your training load and running mileage, and then to slowly add in some workouts at higher intensity.

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