

Developing Attentional Skills for Rowing

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Coaches who ask rowers to "concentrate" are being as vague as if asking a rower to "row better." For athletes to learn and improve they need to be given specific information and work on specific skills - mental and physical.

Over the last 20 years, research psychologists have provided sport psychologists and coaches with a more specific definition of concentration. We have greater understanding of how we attend to information, process information and factors that can disrupt our attentional capabilities. This paper provides a basic explanation of attentional capabilities and details on how this knowledge may be applied to rowing. In particular, it identifies concentrational problems experienced by rowers and methods to develop concentration skills.

It is helpful to think of concentration in terms of attention. When concentrating, one is attending to information - potentially from a range of sources. When one concentrates effectively he or she attends to only those things that help to achieve goals. Concentration *lapses* are in fact a result of attending to irrelevant stimuli. Concentration is focusing on (attending to) the right things at the right time.

UNDERSTANDING ATTENTION

Two concepts are most appropriate in understanding the attentional demands of rowing: limited capacity for processing and attentional style.

Limited Processing Capacity

Most coaches have experienced the "cocktail phenomenon" (1). At a party or meeting, the cocktail phenomenon occurs when one tries, unsuccessfully, to carry on two conversations simultaneously. Attempts are usually unsuccessful because of the limited capacity of sensory organs and brain (2, 8).

During the cocktail phenomenon, one is trying to attend simultaneously to two sources of information. Being aware of the topic of both conversations is possible; being actively involved in both is not. One tends to become overloaded and unable to cope with extra information.

Our sensory organs and brain function like a funnel used to pour liquid into a small hole. They limit the flow of information. Too much information and there is overload. By controlling the flow of information coming from the sensory organs, one helps to process the information more effectively (2).

Not only is there limited attentional capacity, but also a limited short-term memory. Information in short-term memory is stored for only 20-30 seconds (7). New information is held in short-term memory before processing it further into long-

term memory. Without processing, the information is lost. Time is needed for that processing to occur.

Another limiting factor is the quantity of information the short-term memory can hold. Short-term memory capacity is limited to between five and six bits of information. That is why it is difficult to remember telephone numbers of more than seven integers without rehearsal (5).

Anxiety is known to negatively affect processing capacity. Although optimal arousal heightens processing capabilities, anxiety diminishes the ability to attend to, and process, information (9).

Our skill levels also affect processing capacity. The more skilled, the greater the volume of relevant information that can be processed (9). As skill develops in a specific area, more task-relevant information is able to be processed. The process is known as chunking. Notice the difference when discussing the technical skills of rowing with a novice as compared with an experienced international rower. Because of stored knowledge, or schemas, the experienced rower is able to attend to and process greater amounts of information than the novice.

Implications for Coaching Style

- Avoid giving too much new information at one time. The short-term memory will quickly become overloaded. Any new information after overload results in wasted words. Athletes will become confused or forget all but the first and last bits of information. Give one instruction and let the rowers apply it before you introduce another.
- Do not overload rowers with instructions or cues on which to focus. For example, do not ask them to simultaneously focus on the catch, leg drive, head position and power. One cue at a time; two, if they are desperate. Remember the objective is to automate technique. There should be no need to focus on all aspects of technique.
- If giving a number of instructions, summarize at the end. A summary is an effective way to transfer information from the short-term memory to long term storage.
- Pause when talking. It gives the rowers a chance to process the information.
- Learn to recognize signs of information overload or anxiety. Adjust your instructions to avoid both. For example, slow down your rate of speech.
- Give the rowers a chance to think for themselves. Ask questions and let them evaluate their pieces before you comment.
- Provide the rower with an awareness of the most important cues. For example, during a steady state session have rowers focus on specific cues for 10 minutes at a time. Success is determined not only on successful implementation of the skill but also on how effectively they can keep their minds focused on the cue.
- Give the rower ample practice concentrating on the most relevant cues.

In summary, concentration is affected by limited attentional capacity. Sense organs can take in only a limited amount of information, processing capacity is limited, short-term memory is limited in both duration and quantity, and anxiety limits attentional and processing capacity. However, as skill develops, attentional and processing capacity increase.

Nideffer's Test of Attentional and Interpersonal Style

Nideffer's concept of attention, and his Test of Attentional & Interpersonal Style, has been successfully applied in sport (6).

He identified four dimensions of attention:

External - all information derived from outside of the body, e.g., the sound of the oars entering the water or a coach's view of a crew training.

Internal - all information to be derived within the mind and body, e.g., the feel of a powerful leg drive, or thoughts.

Narrow - information derived from a limited source, e.g., focusing only on the catch or focusing in the boat, ignoring other crews.

Broad - being aware of information from a range of sources, e.g., at the start of a race being simultaneously aware of boat feel, body position and the starter.

Further, the above four dimensions can be combined:

Broad-external focus of attention - Athletes good in this area are able to effectively integrate lots of external information at the same time. They know what is going on around them (e.g., they are able to spot the open teammate in team sports, they have what the police call a "street sense").

Narrow-external focus of attention - This refers to the skill that allows focus on a limited amount of external information. Athletes good in this area can sustain concentration on one item or person. Examples in rowing include focusing on the head of the person in front, the calls of the coxswain, the timing of the stroke, and feel of the boat.

Broad-internal focus of attention - This refers to a skill often exhibited by coaches of team sports where they have to effectively integrate information and ideas from several different areas. For example, the basketball coach must integrate information about team tactics, player performance, score, time remaining, mood of bench players and so on before he makes a decision.

Narrow-internal focus of attention - This is the skill which facilitates focus on a limited number of internal cues such as thoughts and body. In rowing this may include muscle tension in the shoulders, feel of the oar and thoughts.

Each individual has an identifiable and enduring attentional strength, but we all are different. Some athletes are particularly effective at focusing on a limited number of internal cues while others are more effective at integrating lots of external information. Some people use all types of attentional styles effectively.

Most people exhibit attentional flexibility, the skill to change their attentional style to meet the demands of the situation. The skill of concentration is to match attentional style with the attentional demands of the situation.

Attentional Demands of Rowing

Based on Nideffer's model, the attentional demands for rowing involve a combination of narrow-internal focus of attention and narrow-external focus of attention. Characteristics of a narrow-internal focus when racing include awareness of lactate build-up; muscle tension in shoulders, hands and face; breathing control; focus on positive task-related thoughts; awareness of technique.

Characteristics of narrow-external focus when racing include awareness of the coxswain and instructions; awareness of the starter; the boat and water; teammates; and a hazy awareness of other crews.

Factors That Negatively Affect Concentration In Rowing

Mismatch - Under normal circumstances we use our attentional strengths to our advantage. Under abnormal circumstances, such as pressure-induced anxiety, we often subconsciously return to our attentional strengths. That is beneficial if our attentional style matches the attentional strengths of the situation but falls down if there is a mismatch.

For example, a rower who is particularly good at integrating lots of external information may find himself distracted at the start of the race by other crews warming up. Instead of a narrow focus, his anxiety levels force him to his strengths and he keeps broadening his focus. He has a mismatch.

External Distractions - Another effect of increasing anxiety is to overload our attentional capacity. External overload results from taking in too much information, from attempting to concentrate on too many external things at once.

Problems occur when rowers are distracted by irrelevant external information. Examples include comments made by other people, activities on the bank before the start of a race, other crews during a race, calls from opposing coxswains.

Rowers need to have well-practiced strategies that can be employed to keep their minds focused.

Internal Overload - A common problem for most athletes is "being caught inside one's head" or thinking too much. The source of the problem is usually anxiety.

Skilled performance occurs when one operates on automatic, with as little thinking as possible. All the training and mental preparation is aimed at allowing the rower to slot into this mode. When racing, there should be a limited number of cues that need to be monitored. Unfortunately for some rowers, their minds race and they become distracted.

Rowers need to practice calming their minds and develop strategies to focus on appropriate cues. Techniques rowers have used include focusing on their

shoelaces, the feel of the oar in their hands and the sound of the boat moving in the water. The particular focus is not as important as the process to change their focus from internal to external.

Narrow and Internal Focus - In cases where anxiety is extremely high, most people involuntarily narrow their attention, finally turning inwards. They become momentarily obsessed with the overpowering feeling of anxiety, to the extent that what is occurring in the mind and body dominates their attention. Whether it be mismatch, overload, or narrowing, rowers benefit by developing anxiety control skills and strategies to focus on those cues that are important.

Not Knowing the Job - A number of rowers are not sure of what they should be focusing on during various stages of their preparation and racing. In effect, they do not know their jobs. A handy exercise for a coach is to be continually asking his or her rowers, "What is the best thing for you to focus on at this stage of your race (preparation)?" Sometimes a coach can advise rowers on the best thing. But by questioning, he or she is encouraging the rower to accept responsibility and make decisions. By having them think and decide what is the best focus, the coach is helping them to reduce uncertainty and become more aware of specifics involved in their jobs.

Lack of Attentional Skill - Effective concentration is as much a skill as physical technique. All athletes have the ability to concentrate, however, not all are skilled. Becoming skilled requires disciplined practice. There are many drills rowers can practice on and off the water to improve their attentional skills.

Lack of Discipline - It requires discipline to keep the mind focused. Undisciplined minds jump to the most potent stimuli. Disciplined minds resist powerful distractions and focus on those factors that best help performance. It is of little use exhorting rowers to concentrate or exhibit mental discipline. They must practice focusing on specific cues. And after training, their attempts should be evaluated.

Methods of Development

Personal Skill Development - There are a number of skills rowers can develop to help maintain concentration. Initially they need to become self-aware, understand their attentional strengths and weaknesses, become sensitive to situations when they are likely to be distracted, and understand their emotional reactions and prominent thoughts.

They need to develop an effective short-term method of calming the mind and relaxing the body. Centering is a popular technique (3). Rowers need to develop a range of strategies that can be used to shift attentional focus. Finally rowers need to develop routines or habitual ways of behaving in certain situations.

Training methods - A number of measures can be implemented on and off the water to help rowers develop attentional skills. These include writing out a concentration plan for the pre-competition period and the race. Off-water concentration training drills can be incorporated with weight training or as separate sessions. On-water concentration drills can complement physical work.

Providing the rower with questions about the level of attentional intensity and direction of focus helps to develop an awareness.

Summary

Effective concentration is a skill. To help rowers develop concentration skills coaches need to understand the concept and the attentional demands of rowing. They also need to be aware of factors that interfere with effective concentration and common problems experienced by rowers.

Coaches then need to incorporate concentration exercises into off and on-water training. Concentration skills can be developed in the weight room, in the boat or at specific in-house sessions.

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