STROKEARCS

The Newsletter of the Association of Rowing Coaches, South Africa

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This question was asked: Who would be on your short list of acceptable mentors? It does not have to be a short list. I recommend you find people who are doing what you want to do and seek them out. It does not have to be formal. Sometimes an occasional conversation is all that is necessary to get you on the right track. Respect their time. It is not about letters or being high profile. Some of the best mentors I have had and continue to have are people no one has heard of. To me it is about sharing and expanding the knowledge base. I have a whole list of people that I want to contact and exchange ideas with. Incidentally they transcend the field of Athletic development. I definitely think you MUST go outside your chosen field to improve

From Vern Gambetta Blog www.functionalpathtraining.blogspot.com

TECHNIQUE

KRIS KORZENIOWSKI

INTRODUCTION

Athlete's technical capacity, condition and motivation determine the level of their performance. Although technique plays a role at all sports, rowing demands a considerable technical quality before a high performance level can be reached. It makes no sense to train for strength, endurance and other physiological aspects if a rower does not have the skills to use these for increasing the boat speed.

Frequently smaller and weaker athletes can compete with stronger and bigger athletes because they are technically better.

Coaches must concentrate on the basic principles of the rowing technique. By continuing to focus on the basic principles you can both begin and progress athletes development. A lot of experience and successful coaches have simplified their coaching of technique over the course of years.

As coach you must understand the basic principles of the rowing technique entirely and master this. You must have a clear picture of the rowing stroke and be to describe this in simple, terms clear to your rowers.

Natural rowing

The technique which is presented here is a logical, natural movement. There is no place for abrupt movements which disrupt the speed of the boat. Body movement, hendelvoering and drive must be in agreement with the speed of the boat.

At the beginning of the stroke the rower must place the spoon in the water, at the same time as the legs push against the stretcher. The upper body and the arms only give support: you hang on the oar whereas the legs are kicked off. At the end of the leg drive the upper body sways to the back, followed by fast bend of the arms. The legs, upper body and arms cooperate in a logical and natural order, each partially overlapping. Because of this a constant pressure is provided on the spoon.

If the rowers can maintain the idea of hanging, it will be not necessary them tell when to ' open the back ' or the arms to bend. Hanging on the oar dictates the natural movement order.

Another main point is that all movements are dependent on each other and in harmony is with the speed of the boat. This way the complete stroke cycle - irrespective of the tempo - seem simple, fluently and easy. Movements that are not fluid makes for wrong movements - abrupt accelerations, jerky movements – and are more clearly visible.

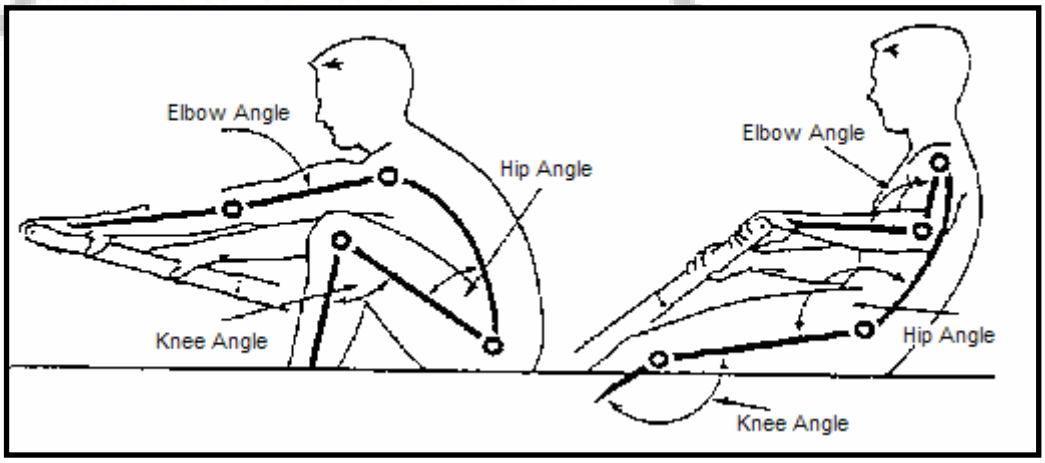
Phases of the Rowing Stroke

Rowing is a cyclic sport; rowers repeat the same order of movements each time. If we talk about the rowing stroke we also talk about the stroke cycle.

The stroke cycle consists of 2 phases:
The propulsive phase - drive - the spoon sits in water, and;
Recovery phase - recover - the spoon is above water and the rower slides forward (actually sternwards).

To develop a good picture of the rowing stroke, we these have subdivided positions:

- First half (beginning) of the recovery,
- Second half (in the middle of) of the recovery,
- Placement (catch) of the spoon in the water,
- First half (beginning) of the drive,
- Second half (in the middle of) of the drive, and
- The finish and extraction



Changes of the angles of knees, hips and elbows determine the work positions of the most important muscles in legs, back and arms. To simplify the learning process three control points the for each position are used:

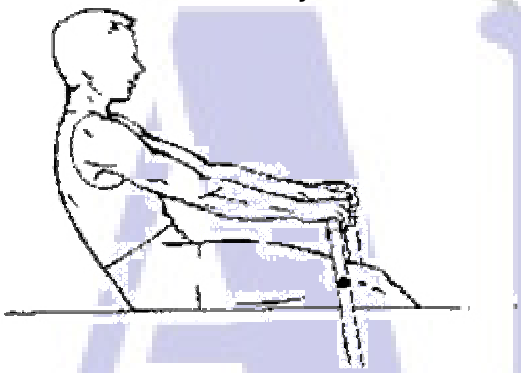
- Knee angle - leg stipulates action and the place of the bankje
- Hip angle - the stipulate position of the upper body
- Elbow angle - arm position and arm ' work '

Fig 1. The angles of the most important muscle groups which are used in rowing.
Left the angles at the catch, Right the angles at the finish.

The analysis of the stroke cycle starts with the first part of the recovery. During the recovery the rower not only slides forward, but the preparation (body preparation) for the critical moment of the placement of the spoon in water takes place.

Insufficiently forward body angle causes a range of errors: with hands and shoulders diving into the boat at the catch, the spoon moves, invegen from water, etc. For this reason the importance of good recovery and body preparation cannot be emphasized sufficiently.

Sculling
First half of the recovery

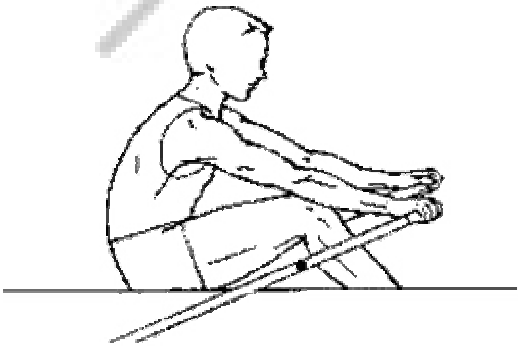


The knee angle is flat, the seat is in the hindmost position. The hip angle is open; the upper body is in ' lay-back ' position.

The elbow angle is flat; the arm has been stretched and the upper body moves from Lay-back to a more upright position. Then the glide phase starts forward.

This position is a very important point in first half of the recovery. The body is still in lay-back the position, whereas the hands move away from the body.

Second half of the recovery

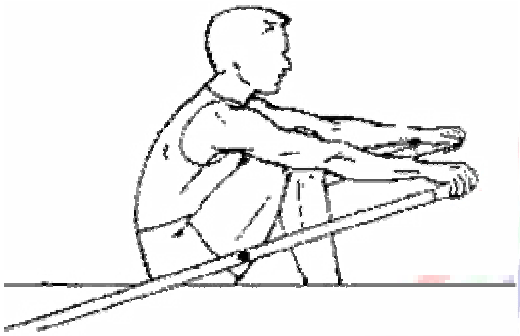


The knee angle has been bent slightly; the seat is itself in the middle of the slide.

The hip angle is rather sharp; the body leans forward to maximum reach.

The arms have been stretched. It important that the arms are fully stretched has been stretched body position fixed, so that you only slide to the catch.

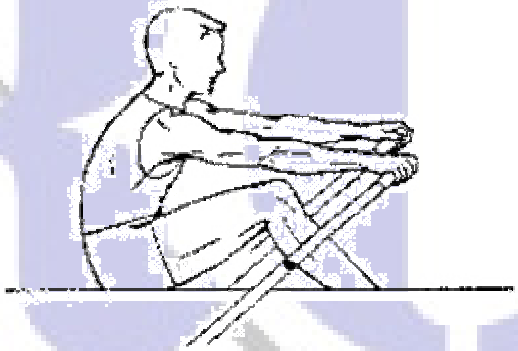
Placement of the spoon in the water - the Catch



The knee angle is sharp; shins are in full compression almost vertical position
The natural body attitude has been bent forward slightly from the hip reaching with the upper body. The sitting position is ' high ' and relaxed; you use complete length and reach.

The arms have been stretched entirely.

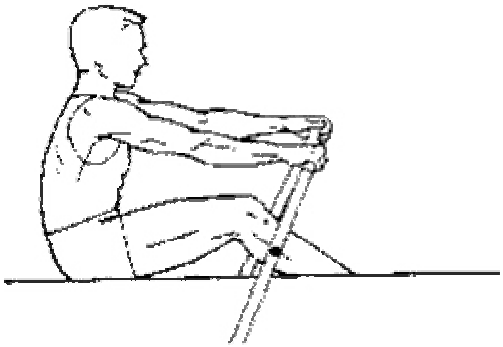
First half of the drive



The knee angle becomes flatter. After the placeemnt of the spoons in the water, the body weight is transmitted on the stretcher by use of leg strength. The seat has been pushed back.

The hip angle remains the same. Because of this horizontal power application occurs. The muscles in back, shoulders and arms give backpressure, as a result of which a good link between legs and spoon occurs. The upper body does not come over.
The arms remains stretched.

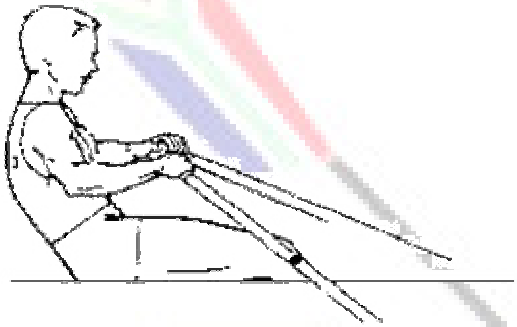
Second half of the drive



The knee angle is almost completely flat. The seat sits on the last quarter of the sliding. The legs are themselves in very efficient position, flat for the last push down.
The hip angle has been opened; the body swing supports the leg drive. The upper body is high and (almost) vertical.

The arms are still stretched, ready for them to start bending. At crossing the hands the bowside hand is flat above the stroke side hand.
The oars come almost perpendicular on the boat, mechanically a very efficient part of the stroke. The body weight hangs still between the oars and the stretcher.

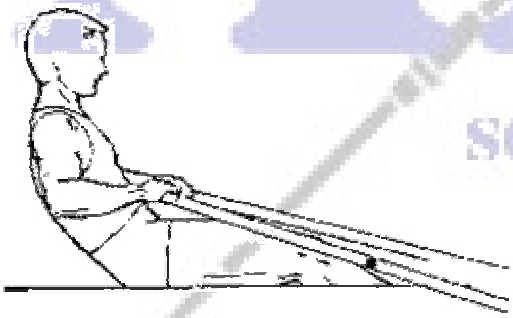
The Finish and Extraction



The knee angle is flat and the seat is in rearmost position. The legs and back are almost completed. The legs continue to push against the stretcher, through the finish. The hip angle is open, the torso is in the lay-back position, approximately 25 degrees past the vertical. The head and the shoulders are behind the handles.

The elbow angle decreases as the hands move to the finish, supported by firm push of the legs against the stretcher. The forearms are horizontal.

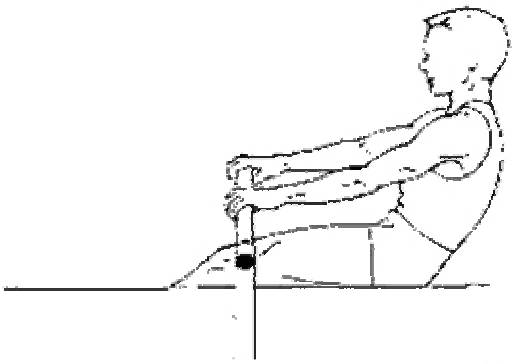
You must maintain pressure on the spoons, in spite of acceleration the boat.



At extraction the hands finish a circle movement down and away, without touching the body. The bow side is flat above the stroke side hand, until the hands are next to each other and at the sides of the body.

Sweep Rowing

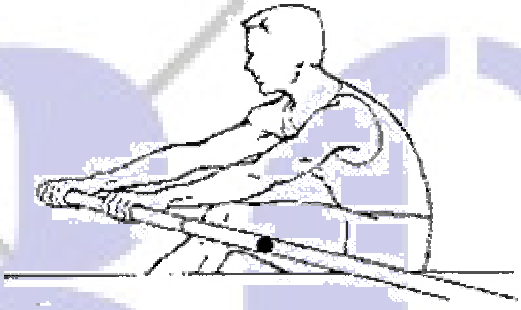
First Half of the Recovery



The knee angle is flat, the seat is in the hindmost position. The hip angle is open; the torso is in lay-back position. The elbow angle is flat; the arms has been stretched and ' draws ' the torso from lay-back to a slightly forward leaning position. Then the glide phase begins.

This position is a very important point in first half of the recovery. The body is still in lay-back the position, whereas the hands move away from the body.

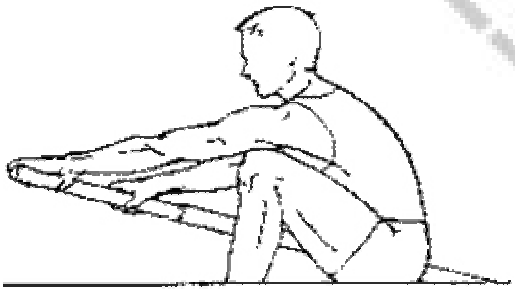
Second Half of the Recovery



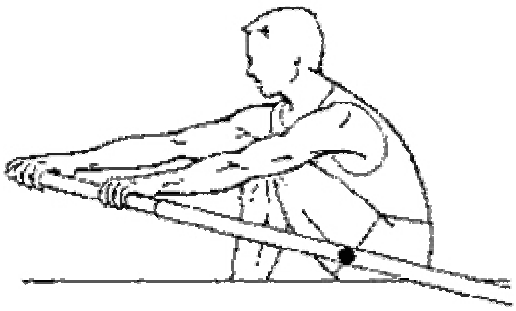
The knee angle has been bent slightly; the seat is in the middle of the slides.
The hip angle is rather sharp; the body is ready with forward lean (body preparation). The outside shoulder is further stretched and is higher than the inner shoulder.

The arms have been fully stretched. It important that the arms have been completely stretched and the body pivoted forward, so that you must slide only to the catch.

Placing of the spoon in the water – The Catch

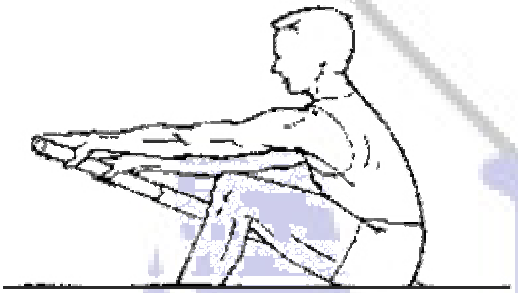


The knee angle is sharp; shins are in full compression almost vertical position.
The natural body attitude has been bent forward slightly from the hip reaching the torso. The armpits are high and relax themselves, you use yourself complete length and reach. The outside shoulder keeps a little higher than the inner shoulder.
The arms have been stretched entirely.

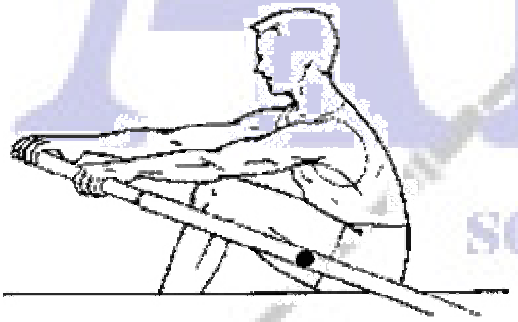


At maximum reach the spoon goes into the water. The back does not rise; only the hands place the spoon in water. The speed of placement is critical. You want you ensure that the optimal place for the catch is not missed. The efficiency of the leg drive will be lost if the spoon is not put immediately complete in water.

First Half of the Drive



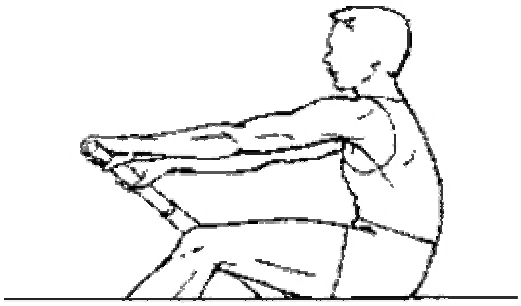
The knee angle becomes flatter. After the placement of the spoons in water, the body weight is transmitted on the footboard by use of leg strength. The seat has been begun to move.



The hip angle remains the same. Because of this horizontal power application occurs. The muscles in back, shoulders and arms give back pressure, as a result of which a good link between legs and spoon arises. The torso does not rise.

The arms remains stretched. The outside shoulder has most of the tension.

Second Half of the Drive

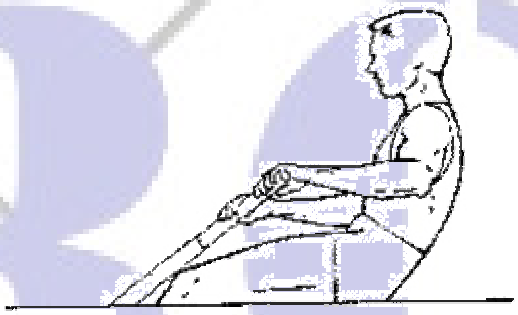


The knee angle is almost completely flat. The seat sits on the last quarter of the sliding. The legs are themselves in very efficient position, flat for the last push down.
The hip angle has been opened, the body swing supports the leg drive. The torso is high and (almost) vertical.

The arms are still stretched, and about to start bending.

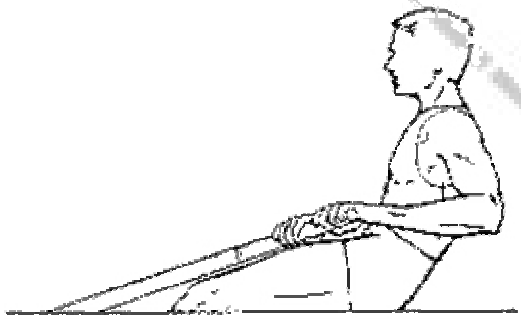
The oars come almost perpendicular on the boat, and are in a very mechanically efficient position. The body weight hangs still between the oars and the footboard

The Finish and Extraction



The knee angle is flat and the seat is in hindmost position. The legs and back are almost finished. The legs continue push finishing against the footboard, well supportive.

The torso comes in maximum lay-back; the outside shoulder is a little higher than the inner shoulder. The head and the udder are themselves behind the oar.
The elbow angle decreases as the hands approach the finish, outside forarm is horizontal

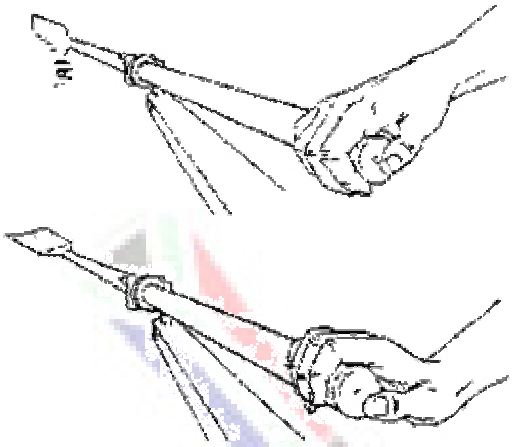


At the extraction the rower in lay-back position. The hands finish a circle movement down and away, without touching the body.

Grip
Beginners must learn a correct grip of the oar early. A wrong grip causes a lot of errors and is not easily correct. Did not be afraid to invest time in teaching a correct grip

for beginners. Teach them how to hold an oar before anything else, Every training session should start with attendtion to the correct grip and rotation of the oar.

Sculling Grip

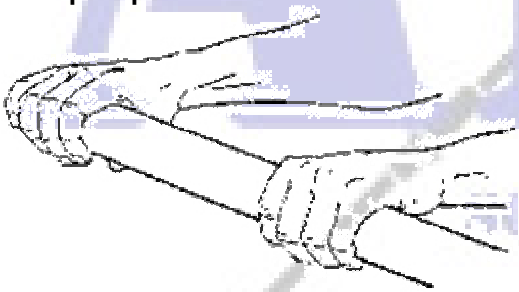


The scull grip must be relaxed to be with one's index fingers on the end of the handle and the thumb on the end of the handle.

The other fingers have been bent around the grip. The palm is not on the handle and the wrist remains virtually flat, both during the drive and the recover.

Twisting at release and catch happens by use of the fingers, as a result of which the handle ywsts in the fingers. The wrist remains flat.

Sweep Grip



The hands are approximately 2 hand breadths from each other have been put on the oar handle.

The fingers joints have been bent for the grip, with thumbs under the handle.
Both wrists are flat, with the hand palms apart from the handle. The oar must be carried by the fingers, not to be held in the hands.

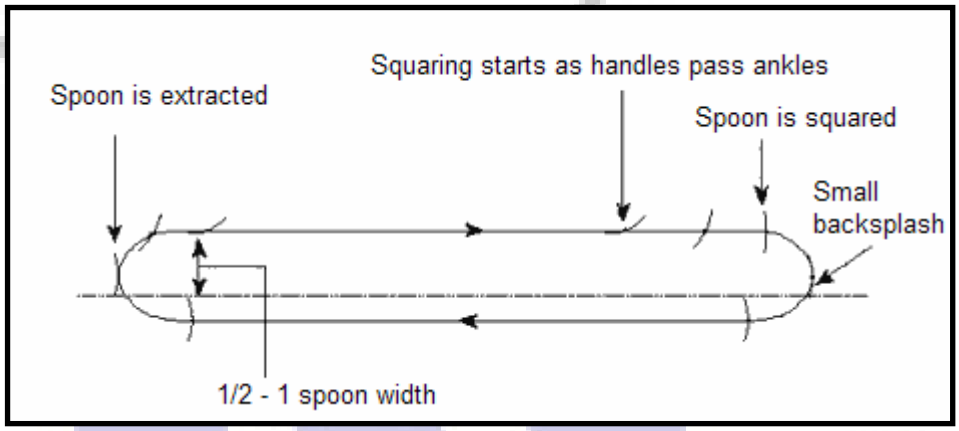
At extraction the fingers of the outside hand press the handle down. (At sweep rowing the outside arm is most distant from the spoon). The oar is twisted by movement of the inner hand. It is important that the outside wrist remains flat. The outside wrist of the rowers remains flat, whereas the oar in the fingers rotates.

Squaring happens by the fingers and thumb of the inner hand, where the fingers of the outside hand remain around the handle. Twisting the handle, both at catch and extraction, in done by only the inner hand.

The outside hand remains relaxed and flat, as a result of which the rower can rotate the handle in the fingers. The use of the outside hand and arm in the catch is very important, because the outside arm has a longer gearing. The fingers of the outside hand cannot be ' separately ' of the oar. The outside hand and arm must be prepared immediately after the catch to take the pressure.

Blade Work

The blade work has direct consequence on the movement and speed of the boat. For this reason many coaches give more attention on correct blade work than to the body movement. However, the blade work is an direct consequence of what happens in the boat. It is possible for the body movement or the blade work to change and on the other hand improvements to see. An example of good blade work



Recovery

During the recovery the spoon moves in a smooth, horizontal movement toward the bows. The rower must have sufficient space to square the spoon, without touching water.

Squaring for the Catch

Ideally twisting the spoon starts as the hands move over the ankles. Turns must happen quietly, during the last bit of the recovery. It must not influence the horizontal movement of the spoon.

The Catch

The placing of the spoon in water happens rapidly, as a continuation of the recovery. It must be coordinated on the speed of the boat, without much back-splash or front-splash. For beginners however, a small back-splash is advised, to ensure that no water is missed. The weight of the oar does not ensure the catch speed. The placing of the spoon in water, must be followed immediately by the horizontal power application as the blade is covered.

Drive

During the drive the spoon must sit 2-3cm under the water. Because the boat accelerates during the drive, it is important also the handle accelerate, as a result of which the horizontal movement is maintained.

Extraction

The rower must make a smooth, fluent, half-round movement, to get the spoon out of the water. Feathering happens after the spoon is out of the water.

The path of the spoon must be linked both during the drive and the recovery by horizontal movements, and by round movement, as the oars change direction.

The complete movement (turns, catch, extraction and recovery) must related be to the speed of the boat and the tempo.

Summary

The basic rowing technique is a logical, natural movement. There is no space for drastic, abrupt movements which limit the speed of the boat. Body action, blade movements and movements of the seat must be all in harmony with the speed of the boat.

ASSOCIATION OF ROWING COACHES, SOUTH AFRICA

COACHING SKILLS

DEVELOPING A COACHING PHILOSOPHY

As a new and inexperienced coach, there is much preparation for your first season. Of course, you are excited and eager about your first head coaching position. You most likely have planned what you are going to do and believe that you are ready. But are you truly ready? Have you thought about the how's and why's of everything you will do as a coach? It is important as you get started in coaching to develop a philosophy. For that matter, even the experienced coaches may want to reevaluate their philosophy.

Many coaches do not believe in the value of developing a coaching philosophy. They do not realize how a philosophy can have an impact on their daily coaching procedures and strategy. However, a coach's philosophy is actually a very practical matter. In fact, every coach, aware of it or not, follows certain principles based on their own playing experience. Most of our basic philosophy emanates from former high school and college coaches. This is a natural start, because it is the approach with which we are most familiar and comfortable.

It is also reasonable to assume that the philosophy of a person's everyday life thinking and actions would be applied by most when it comes to coaching. For example, a salesman discovers that one of his clients is dishonest. He decides to sell to a competitor despite the fact that he will make less of a profit selling the same product. This may not sound like good business practice, yet many people are willing to adhere to their principles even if it meant making less money. How many coaches would stick to principles of sportsmanship or fair play rather than win the game? We can see a gap between what a coach may think is the right thing to do in every day life, and the actions they may end up taking on the field or court.

In your effort to form or analyze you own philosophy of coaching we must first know what a coach is. A coach can be many things to many different people. A coach is a mentor, a teacher, a role model and sometimes a friend. Most of all a coach must be positive. A positive coach has the following traits:

Puts players first:
A positive coach wants to win but understands that he is an educator first and the development of his players is his top priority. He avoids thinking the game is about him rather than the players. Has an unwavering commitment to what is best for the athletes.

Develops character and skills:
A coach seizes upon victories and defeats as teachable moments to build on self-confidence and positive character traits such as discipline, self-motivation, self-worth and an excitement for life. The desire to see the athlete learn and the ability to effectively improve their skill is the key to an effective coaching program.

Sets realistic goals:
Focuses on effort rather than outcome. Sets standards of continuous learning and improvement for the athletes. Encourages and inspires the athletes, regardless of their skill level to strive to get better without threatening them through fear, intimidation or shame.

Creates a partnership with the players:
A positive coach involves team members in determining team rules. Recognizes that communication is crucial to effective relationships with players. Develops appropriate relationships based on respect, care and character.

Treasures the game:

A positive coach feels an obligation to the sport they coach. Loves the sport and shares that love and enjoyment with the athletes. Respects the opponents, recognizing that a worth opponent will push the team to do their best.

There is no level, where as a coach, you cease teaching the game. As long as you teach, teach in a positive manner. You will produce the best players, and ultimately, the best results.
It is extremely important to develop a philosophy with the following statements in mind:

Your approach should be educationally sound.
Your drills should serve a purpose and not merely used for "killing" time. They should be structured to provide the necessary repetition for each athlete and should be relative to the athlete's ability level.

Your approach should be appropriate for your players.
You may learn a lot of new offenses and defenses and they may be excellent systems, but are they suited for your players? Use an approach that is developmentally appropriate to your players.

Your philosophy must be ethical.
In basketball, for example many coaches instruct players to fake an injury in order to stop the clock. This is unethical. Consider what you do in all aspects of coaching. Coaching from an ethical standpoint is extremely important. Remember, you are a role model for your players

Stick to your philosophy.
Most coaches, especially on the high school level, have to develop the talent on hand. There may be some years in which the athletes may not possess the ability or skill to fit into your philosophy.You cannot change the players, but you can alter your approach.

Is there a better way of doing what you are doing?
Apply this question regarding all aspects of your coaching philosophy-the offense, defense, motivation or your athletes, etc. Keep an open mind. Learning should be a life-long pursuit and this should definitely apply to your coaching philosophy.

Explain why you do the things you do.
To instruct and to motivate your athletes, you have to justify what you do. Can you? You better be able to.The days of just simply saying, "Well, this is the way we are going to do it," are long gone. There is no way that you can justify anything associated with your program or team to athletes and parents without an explanation.

Your coaching philosophy should be compatible with your personality.
Are you a risk taker? Patient or impatient? Deliberate or aggressive? You will be more successful if your philosophy and personality are both in sync.

Sportsmanlike conduct should be a top priority involved with your philosophy.

There are certain situations in some games, which could be considered unsportsmanlike by opponents, officials and fans. Running up the score, playing starters long after the outcome has been determined and taunting are just a few examples to be considered. If any of these exist within your approach to coaching, you may have to make some changes.

After analyzing all the factors that I have mentioned, develop your own philosophy by putting it into written form. It is extremely important to be able to express and to explain your approach to athletes, parents and supervisors. A written document can also give you something concrete to reexamine and to evaluate annually

DRILLS & FAULT CORRECTION

DRILLS & WORD IMAGES

The Release

DRILLS

1. Rowing with one arm only, either inside arm or outside arm
2. Rowing with blades square to learn downwards pressure needed to extract oar from the water
3. Rowing half slide
4. One person rowing in pair oared boat shows effect f dumping finish into the lap
5. Pick drill with or without feather to develop finish timing
6. Release and glide

COMMENTS OR WORD IMAGES

1. Move the pin by the blade
2. Uncoil the body on the drive
3. Keep constant pressure on the foot stretcher and the pin throughout the drive and release
4. Build the speed of the handle during the drive
5. Drive the hips into the bow
6. Pry the boat forward
7. Hang your body weight on the oar to assist in the pulling

The Catch

DRILLS

1. Row single strokes, starting and stopping over the knees
2. Pick drill
3. High stroke pick drill
4. High stroke paddle
5. Row with squared blade and catch on coach's/cox's command
6. Intentionally make blacksplash at catch to reinforce blade near water at catch
7. Outside hand to set the square
8. Single man rowing in a pair

COMMENTS AND WORD IMAGES

1. When coach says quicker at the catch it usually means earlier in the stroke cycle
2. Take the catch as you reach front stops not when
3. Roll the wrist up at the catch
4. Balance of the oar makes burying of the oar automatic as oarsman mearly guides the oar in
5. Pick files off a table
6. Unweight the hands as you approach the catch
7. Loop the blade in
8. Put the blade in a slot in the water
9. Anchor the blade behind a peg
10. Don't kick, push
11. Make sure that the wheels are still rolling forward when the catch is started

The Recovery

DRILLS

1. Pause with hands over the knees at extended back position to demonstrate position of body out of bow
2. Pick drill
3. Fractional use of slides to develop awareness of control ¼, ½, ¾ slide
4. Alternate power and paddle strokes to maintain relaxed recovery on power similar to paddle
5. Ultra slo-mo rowing
6. Stop on coaches orders during recovery
7. Row with feet out of stretchers
8. Stroke play at ¼ power with strokeman raising or lowering the stroke at will
9. Turn oar full revolution of oarlock during the recovery
10. Row with eyes closed

COMMENTS OR WORD IMAGES

1. Let the knees rise slowly
2. Don't lift knees until you feel a slight pull on top of thigh behind kneecap
3. Watch the knees come up
4. Listen to the wheels on the recovery
5. Rebound out of the bow
6. Sit lightly on the seat, feel weightless on the recovery
7. Keep posture natural
8. Pivot forward on the cheekbones
9. Curl out of the bow by doing a sit up

The Drive

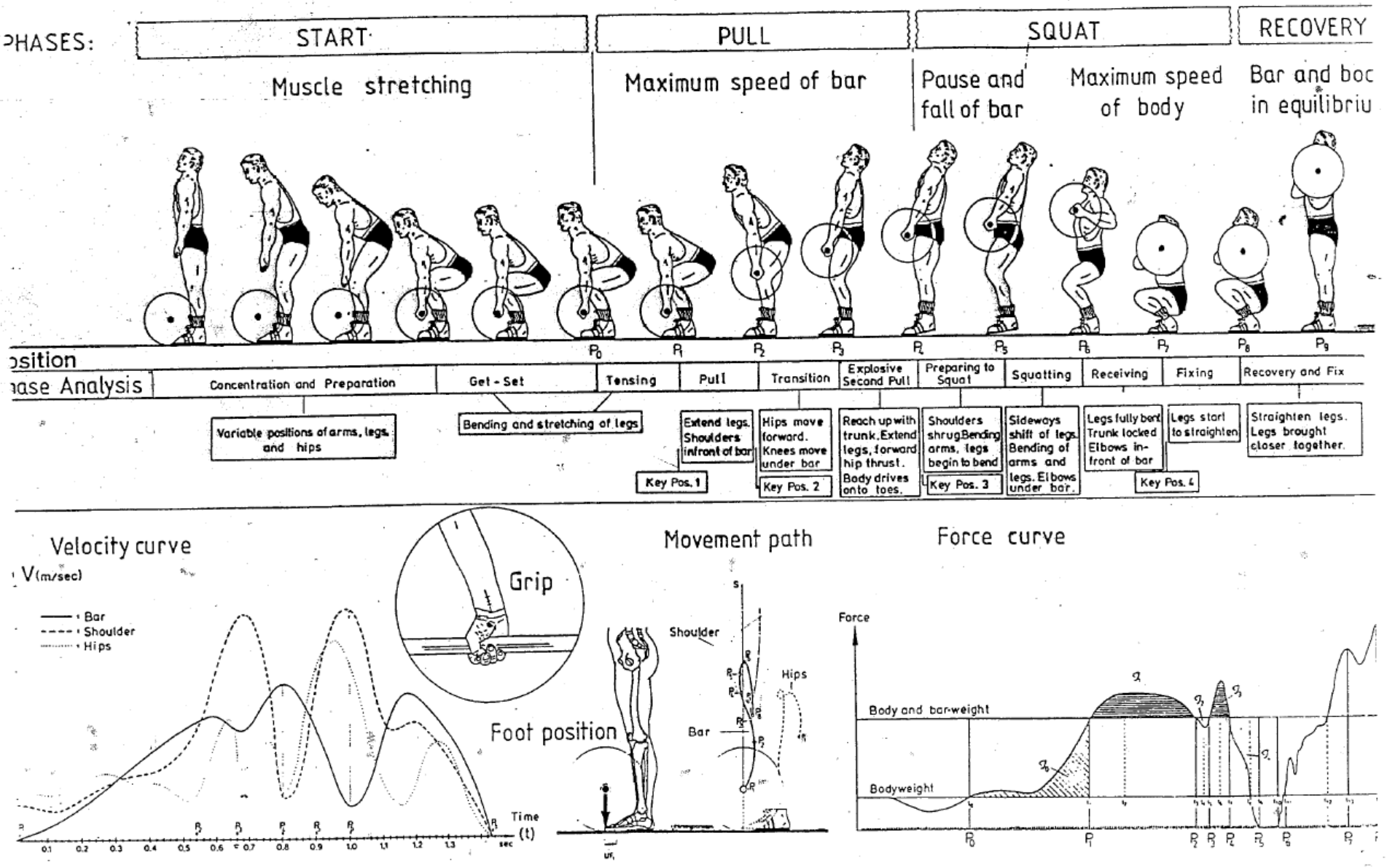
DRILLS

1. Pick drill
2. Drive with feet out of stretchers
3. Row single strokes with concentration on the drive
4. Draw with the outside arm
5. Accelerate through the drive
6. Feel the tension in the lower back and hold the back against the leg drive
7. Pinch the shoulder blades together

COMMENTS AND WORD IMAGES

1. Move the pin by the blade
2. Uncoil the body on the drive
3. Keep constant pressure in the footstretchers and the pin throughout the drive and during the release
4. Build the speed of the handle during the drive
5. Drive the hips into the bow
6. Pry the boat forward
7. Hand your body weight on the oar to assist in the pulling

TECHNIQUE of the CLEAN



COACHING DEVELOPMENT

THE DANGER IN KNOWLEDGE

Knowledge is an interesting concept. In the Websters New Dictionary the word "know" is defined as:

1) To perceive with certainty; to understand clearly;
to be sure of or well informed about. As, we KNOW the facts.

That's the preferred definition. Hmmmm. "To perceive""....
Lets look at perceive.

2) to take hold of, to feel, to grasp mentally, to recognize, to observe. To become aware of.

So, to KNOW something is to perceive it with Certainty. And, to perceive it is to feel, hold, grasp it, recognize it. So what you know, is what you perceive?

What if what you perceive is limited?

- Limited by looking through a microscope at the cells of a whale.
- Limited by standing in Manhattan, and looking at the Statue of Liberty.
- Limited by listening to only one source. (What if Eddie Murphy was the only person to listen to?
- Limited by reading only one opinion. (What if you could only read Rush ?)
- Limited by seeing only one quality swimmer. (What if you ONLY saw Janet Evans swim freestyle?)
- Limited by only one source for scientific information? (Chinese/East German athletic system?)

This is scary.

Back in 1980, there was an article in Time Magazine that noted a small footnote of a disease found in Haiti that debilitated the immune system of black male homosexuals. The article assured us that there was no danger to any other population.

In 1982, TIME printed that the disease had spread and now, only male homosexuals were at risk. Everyone else was ok. No worries, unless you were a male homosexual. In 1985, TIME's story was that homosexuals, male and female were at risk. No one else need worry.

In 1986, TIME said there was evidence that it was spread through the blood. (and the blood supply for those who had transfusions. No one not homosexual or in need a transfusion need worry.

Then they added that well, maybe a few heterosexuals might have IT also. Then they finally noted that well, yes, it did appear that it was sexually transmitted, as well as blood borne. Now, you note, AIDS is the scourge of the century, with no cure in sight. But in 1980, we KNEW that only black male homosexuals could get it. No worries. Scary. Now, remember, they are absolutely sure that mosquitoes can't carry aids. I'm reassured. How about you?

What does this have to do with swimming?
A lot. One thing that most of us have in common when we start to coach, is that we want to do a good job. To do a good job, we are convinced we have to KNOW something. I read Doc Counsilman's early books, and was absolutely certain that I KNEW that action-reaction was what produced forward propulsion, and anything other than that was a waste of time. And I vigorously fought for that stroke with my swimmers, and with my assistant coaches. Then I met an engineer who talked about funny things like "lift" and Bernoulli's Principle and things...and I thought he was crazy and kept on teaching what I KNEW as correct.

Five years later, Doc and many other people decided that LIFT and Mr. Bernoulli and his principle was the main thing. (And Doc told us, repeatedly, to "QUESTION EVERYTHING", and we thought he was just being modest.) So I learned and KNEW that the new paradigm of lift was "the Answer". Now I am reading material that

says that at certain speeds, the Action/Reaction Drag force is the only way to move fast enought. Hmmm.... Yet many of us insist on "knowing" something. And once we have that "perception" of "knowledge", it becomes deeply a part of each of us. We defend what we know with vigor, enthusiasm, and a touch of....desperation? Why? Because we value, and we hope others value, something called knowledge. If we actually "know" less, we are therefore, worth less. (or worthless?)

When I was a young coach, with no achievements behind me, and a very challenging world in front of me, my "knowledge" was all I had. The same is true for many coaches today. Yet that very knowledge, so precious to us, keeps us from doing the very best job we can do as coaches. That's what makes Knowledge dangerous. Coaches are good salespeople. We sell ideas to our swimmer and parents daily. We are selling our "knowledge". (Gulp)

Because its not really KNOWLEDGE in the sense we think of it. Its not TRUTH. Not permanent. Not inerasable. Its changeable. Its a product of perception. A product of what we see, hear, sense, "hold", smell and taste. To KNOW is simply to PERCEIVE. And perception, by definition is faulty.

How do we think we acquire KNOWLEDGE? By Education. Does this put Education in a bad light? Not if the Educational process presents its material in the correct light. What is the correct light? Its INFORMATION. Its what we perceive about a subject right now. As we get a bigger and better microscope, we get more information about the real size and scope of the whale. If we turn around we see a city, rather than a metal lady standing in a bay. We hear Jesse Jackson as well as Eddie Murphy, we read liberals as well as Rush, we watch Matt Biondi and Popov as well as Janet Evans. We get our science from ICAR, from Universities, as well as from the Chinese and East Germans. We want information from many sources.

In short, we gather INFORMATION. And we put it into our coaching TOOLBOX. One of my favorite expressions is "If you only have a hammer, everything looks like a nail." No one tool can address every project or problem. Anyone who builds can tell you that having the right tool is 90% of doing the job the best way possible, with the best result. Our task as coaches is to build our toolbox. Without getting married to our saw, or our planer, or our chisel. No one idea, no one coaching method, no one stroke mechanic principle is "the tool" for everyone or every problem. We have to gain the set of tools necessary to do the job in each situation which we face. And that takes time, and experience.

The same materials go into your coaches Toolbox, as into your KNOWLEDGE, but you recognize that everything is simply information, and it can ALL be useful. Its up to you to apply the information that you acquire. And you don't learn ONE WAY of solving a problem, decide that you KNOW how to solve that problem from now on, and never look for new tools. There is no one way to build a team, win a national championship, teach a stroke, or a start or turn, plan a workout, plan a season, recruit a swimmer. There are many ways for every task, and they will all work well for someone, in some situation.

First, clear your mind of "Knowledge", then, fill it with information. The information forms your toolbox, and your experience will tell you what tool to use to solve each problem.

The older I've gotten the less I know. But the more experiences I've had, and more information I've touched...maybe not "held" exactly, but touched. Doc Counsilman was right. Question Everything.

And I'll add, Put It In Your Toolbox.

And expand your toolbox at every opportunity.

ANATOMY

MUSCULATURE USED IN THE ROWING STROKE

The Drive

Foot and ankle
- Plantar flexion
  - Gastrocnemius
  - Soleus

Knee
- Extension
  - Rectus femoris
  - Vastus intermedius
  - Vastus lateralis
  - Vastus medialis

Hip
- Extension
  - Gluteus maximus
  - Biceps femoris
  - Semimembranosus
  - Semitendinosus

Trunk
- Extension
  - Erector spinae

Shoulder Girdle
- Adduction and Depression
  - Trapezius
  - Rhomboid
  - Pectoralis minor

Shoulder Joint
- Extension
  - Latissimus dorsi
  - Teres major
  - Posterior deltoid
  - Teres minor
  - Infraspinatus

Elbow Joint
- Flexion
  - Biceps brachii
  - Brachialis
  - Brachioradialis

Wrist and Hand
- Flexion
  - Flexor carpi radialis
  - Flexor carpi ulnaris
  - Flexor digitirum profundus
  - Flexor digitorum superficialis
  - Flexor pollicis longus

The Recovery

Foot and Ankle
- Dorsal flexion
  - Tibialis anterior
  - Extensor hallucis longus
  - Extensor digitorum longus
  - Peroneus tertius

Knee
- Extension
  - Biceps femoris
  - Semitendinosus
  - Semimembranosus

Hip
- Flexion
  - Iliopsoas
  - Rectus femoris
  - Pectineus

Trunk
- Flexion
  - Rectus abdominus
  - Internal oblique abdominal
  - External olique abdominal

Shoulder Girdle
- Abduction and Elevation
  - Shoulder girdle adductors and depressors (eccentric contraction)

Shoulder Joint
- Flexion
  - Shoulder joint extensors (eccentric contraction)
  - Deltoid

Elbow
- Extension
  - Triceps brachii

Wrist and Hand
- Extension and Flexion
  - Hand flexors (eccentric contraction)
  - Extensor carpi ulnaris
  - Extensor carpi radialis brevis
  - Extensor carpi radialis longus