St Aidan's College Boat Club, Durham

A coaching guide for college rowing

Padraig Alton, September 2017

"Nice? It's the ONLY thing, said the Water Rat solemnly, as he leant forward for his stroke. Believe me, my young friend, there is NOTHING – absolutely nothing – half so much worth doing as simply messing about in boats."

Coaching rowing at a collegiate university is a unique challenge, characterised by limited resources: time, money, and squad size. Nevertheless, with enough sustained commitment and enthusiasm it's possible to build a formidable race-winning machine. We did just that at SACBC between 2013-2017, building almost from scratch a reputation for being one of the most consistently fast college clubs on the River Wear and acquitting ourselves honourably when racing up and down the country.

These achievements cannot be accredited to any one individual, but rather were the reward for the sustained efforts of several key members of SACBC. It isn't possible in rowing to precisely replicate past successes – something that is doubly true for college rowing, where most people will move on for good after three years or so. Nevertheless, we can and should seek to emulate them. This is my guide to how I think we (or any other college squad, for that matter) can achieve success in rowing in the future.

I. Basic principles for success

"Harmony, balance, and rhythm. They're the three things that stay with you your whole life. Without them civilization is out of whack. And that's why an oarsman, when he goes out in life, he can fight it, he can handle life. That's what he gets from rowing."

In the following section we'll be discussing the broad-brush principles the coach needs to live by if she or he is to make any headway at all.

Happy boats are fast boats, fast boats are happy boats

One of the hardest things to get right is being able to consistently push for excellence whilst also looking after the wellbeing of your squad. There's a temptation to see these two things as opposing goals, with some sort of compromise to be struck (or not) between the two. But that's not so. In reality, a crew in which everyone believes the others are pulling their weight, a crew which is rewarded for its efforts with noticeable improvement and successes, will be a happy crew. If other things aren't going so well, the regular rowing sessions become a welcome and affirming break, rather than just one more commitment. A good coach remembers this and is not afraid to issue constructive criticism even while finding ways to be positive about each session. Remember also that while you can and should expect training to be high on the list of each crew member's priorities, at college level it is right that everyone understands that certain things outrank rowing: most obviously, of course, the rower's degree. Likewise, rowers must look after their health even if that means finding substitutes or doing gym sessions instead. Talk to your crews about this – coaches ought to squash the insidious 'pain cult' promulgated by certain university squads (who shall remain nameless) before it can get a foothold. It's right that your athletes push their limits; but don't let them turn minor injuries or infections into permanent damage, or get into unhealthy modes of thinking about weight, erg scores etc. Encourage them *strongly* to get enough sleep and to eat healthily. The first of these is the single most important contribution to long term performance improvement outside of actual training: young adults need 7-8 hours sleep regularly when they *aren't* doing lots of exercise and the effects of short-changing on one night will linger for days. If early morning sessions are a regular feature of your training programme (and they probably are) then this particular point needs to be crystal clear.

ACTION POINTS:

Right at the start of each term, have a proper discussion with the entire squad present. Establish what the group's expectations of themselves and of each other are: how many sessions a week they can commit to, what they want to achieve, the importance of looking after their health. You shouldn't expect your rowers to live like monks, but be clear that big races will be preceded by drinking bans (and, of course, followed by big celebrations).

Try and schedule sessions regularly (i.e. in the same pattern each week) and thoughtfully. If early morning sessions are a feature, make sure everyone is clear that they are expected to be on time and well-rested – nothing whips up resentment faster than failure to do this.

Mileage makes champions

The more you put into rowing, the more you get out of it. Here are some rules of thumb you ought to apply:

1. When deciding on the training load bear in mind the following: after novice level, less than three sessions a week is useless. For an inexperienced crew, you probably can knock things into shape in three good sessions a week, but it's not much use for a senior crew – enough to avoid embarrassment, perhaps. Four sessions is better for the inexperienced crew, and the starting point for a senior crew. At college level, I'd recommend five or six good sessions per week for a senior crew. After this you tend to get diminishing returns – having a rest day is important and it becomes hard to keep up the quality of additional sessions. Try to spread sessions evenly: better to avoid two in one day or back-to-back evening/morning sessions (unless it's the only way to put the hours in).

2. When consulting on crew selection, the first and easiest cut you should be making ought to be based on who is willing to do the sessions. Don't agonise over this: you win or lose as a crew and selecting one better rower is not worth losing a session a week. Don't pressure people into doing sessions they don't feel able to commit to. Be upfront about your plans and ask people to privately tell you what they feel able to do.
3. Water sessions are the best kind of sessions, but the Wear is an idiosyncratic river on which it's hard to put in long grinds (we'll discuss later why this is important). Erg sessions therefore have an important place. In general, shy away from crew weights or stretching sessions – there will be people in the crew who benefit from either weight or flexibility training, which you should discuss with them, but there's no sense in making *everyone* do these together when they could be doing something better. Most of the time a long, low-intensity erg will be more useful.

ACTION POINTS:

So, what is a 'good' session, since I've made that distinction? A good session is one which is not unduly time-pressured, where every person in the crew turns up well-rested and on time, where the crew warms up together with a short jog plus dynamic and static stretching, gets the boat properly set up for themselves, and then puts in a solid two trips (or more) up and down the Wear. It is far better to have a few sessions of this kind than to have more, flawed sessions.

The importance of style

One of the key points to realise about rowing is that after rowing together for a long time, crew members will adjust to accommodate each other's technique. The coach's job is to guide this process so that it ends up somewhere efficient. In other words, you want to develop a *style*. More importantly, this needs to be consistent across all crews and squads, and ideally ought to be inculcated in the novice squad as early as possible. So what you're actually aiming for is a "St. Aidan's Style".

This is the reason why good rowers from different colleges can't just get in a boat and expect to go fast. Each college will have its own foibles of technique, some of which are arguable and some of which are simply faults which have systematically crept in through poor quality coaching. The important thing is that individual rowers with outside experience adjust to our style – for now I'll defer a discussion of what that style actually *is* – rather than assuming that they know best. Better to be consistent and make those decisions at the top level.

The key principle is this: **better to get your crews to take one good stroke rather than have them waste time doing a thousand bad ones.**

ACTION POINTS:

This principle leads fairly naturally to a particular coaching programme. In short, at the start of the coaching cycle sessions ought to be technical-exercise heavy, with time set aside for the crew to visualise the changes they want to make and for short bits of full-pressure paddling in between. This is also a good way to ensure that crews get into the habit of making every stroke a strong one. Moving forward, coaches should get their crews to do a lot of continuous, steady-state paddling with technical discussions at the end of each trip. As the crews get comfortable with grind-work, this ought to then segue naturally into adding intermediate-rate, high pressure work at the end of each run (with briefer technical discussions) before finally adding in an explosive, race-pace finish to each one. Once this is regularised the crew can move to the final stage of doing one race-pace trip per session (preferably

up-stream so they have the trip home to warm down, rather than coming to a dead stop straight afterwards).

Don't forget about the coxswain!

In my case, I had the good fortune to *be* the cox *as well as* the coach. This is not normal. Usually the person on the bank knows more about what will help the crew go faster than the person steering the boat does. It's very important for me to highlight how that relationship ought to work.

The cox ought to be the coach's trusted lieutenant, who can see all sorts of things the coach can't and who needs to be able to act autonomously during the race. It's therefore a key part of the coach's role to develop the cox's skills. At first the focus should be on steering well and controlling the boat as well as generic encouragement. This synergises well with the multi-exercise outings that should be the focus for the crew at first: these are great for the novice cox to learn the tools of their trade. Before each exercise the coach should explain it properly to the cox, telling them what they want to happen. After the exercise, the coach should try and give the cox some calls they can use to encourage the crew to bring what they learned into the paddling.

Later, when the crew are doing full trips, the coach should save direct communication for when the crew is stationary and instead tell the cox things to say (a walkie talkie with an earpiece is a useful purchase) – it's vital the crew learn to trust what the cox is saying. In the final step you can work on the cox's race calls.

Coaching well

Never forget: coaching is teaching. Bear in mind that people learn in different ways and that you may need to explain a concept in several different ways for everyone to understand it. Use positive phrasing wherever possible – tell people what you want them to do differently, how to do it, and what it will feel like when they get it right. This is much better than mere criticism (e.g. telling someone they are out of time, or are rushing forwards etc). Praise the crew for things they are doing well or have improved on; this makes it easier to swallow criticism. Finally, relaxed, happy crews learn faster, so try to keep it fun!

Hopefully the basic principles are now clear. In the following sections we'll be discussing individual aspects of the coach's role in significantly more detail.

II. The fitness pyramid

"Rowing is perhaps the toughest of sports. Once the race starts, there are no time-outs, no substitutions. It calls upon the limits of human endurance.

The coach must therefore impart the secrets of the special kind of endurance that comes from mind, heart and body."

In this section we'll discuss the physical development of the crew – what's important and what you as the coach are trying to get out of them.

For me, rowing-specific athleticism is comprised of a few key components:

- **Strength**
- **Power**
- **Endurance**
- **Resilience**

These are the things you are trying to develop in your crews.

So what are these things? First I should say there's some overlap in these concepts, but they are distinct. It helps to imagine them as a pyramid, with stuff at the top of the list depending on the things lower down, which are more important.

… yup, that's right: I'm saying that strength is the *least* important thing for rowing (a statement which hopefully will make a lot more sense at the end of this section).

Strength is your ability to apply a force, and stronger people can apply larger forces. Strength can be trained via weights (high load, low repetitions). While rowers are not exactly to be discouraged from doing weights sessions, for most rowers they ought to be done in their own time on top of other training, at least until near the end of the season when the rest of the pyramid is in place. This may seem counterintuitive: isn't being strong good? Well, yes, but look at it in the context of the next level down: **power**.

Power is your energy output over time, which we can identify with your ability to maintain a particular speed for some time. This isn't just about applying a large force, it's about doing so consistently over many strokes at some particular stroke rate. The more strokes you take per minute, the higher your power output. The more force you apply per stroke, the higher your power output. In other words, strength is a fine thing, but it's useless unless you already have **endurance**. Power can be specifically trained via e.g. interval training once you've sorted that lower level of endurance out.

Endurance rather speaks for itself. It's the ability to keep going! If you're specifically training endurance, you're trying to push your cardiovascular system to its limit. This usually means doing long, steady state training in high volumes. When you have done lots of that, you can start pushing up the power output over time until eventually you reach some critical level of high fitness where further gains can be made most easily by training strength. But hang on, a new rower who's just got the hang of rowing technique isn't going to just jump on the rowing machine for 40 minutes a day without complaint! Why not? Well, because they just aren't used to training. They don't yet have **resilience**.

Resilience is your ability to come back tomorrow and do it all over again without your body giving out halfway through. It's about recovering properly between sessions and it is the fundamental level of the training pyramid. Without resilience, you can't put in the high volumes of training needed to build endurance, without which you aren't going to be able to build your power output, without which it doesn't matter how strong you are because you're going to fold after two minutes of racing. Resilience is partly about the basic things: get enough sleep, eat well, and when you're ill you should either stop training or modify your training. But it's also about your body's ability to deal with training. The more you train, the more your ability to train increases. Training resilience is why it's good to gradually build up the length of sessions novice rowers do and why it's good to do a few light sessions after a break

from rowing of a few weeks or more. Technical improvements also come under resilience as a more efficient stroke allows you to go on for longer.

Fortunately the rowing year very much works in our favour here: in the first term the focus should be on building the base of the pyramid, continuing to build the crew's endurance through the second term while increasing power output as (WE)HoRR comes around. In regatta season the focus switches and you can really start to firm up the top levels of the pyramid.

KEY POINTS:

Don't obsess over doing race-pace work too early. Get the fundamentals of technique in place and do lots of strong paddling in high volumes.

The big picture of crew development should now be fairly clear. In the next section, we'll discuss how to make technical progress.

III. How to build technical proficiency

"If you want to know why you didn't make the boat – I'll tell you. You're just out there hammering the water. You're killing fish, not rowing."

By the end of the following section you should have a good idea of how to introduce less-experienced rowers to the most important concepts first and gradually build the crew's technical proficiency.

The golden rule of teaching technique is that **it's never just a technical session.** If your rowers get the idea that they can slack off 'so they can focus better' when you're trying to make technical changes, all they will learn is how to make a slow boat look reasonably pretty. The boat moves differently when the whole crew is applying their full effort.

This golden rule leads us very naturally to the first and most important technical point for the rower to master: how to accelerate the shell.

Accelerating the shell

In some ways, rowing is a bit like a martial art – one in which your enemy is the boat. One doesn't simply run up to a bigger, heavier opponent and try and shove them over; you have to wait for the perfect moment when you can use their momentum to help you and at that point apply maximum force in the right way.

At college level, a lot of coaches fall down by thinking that the best thing to do is to just teach their crews roughly how the sequence goes, then cycle along shouting improvements at the crew while they do the wrong thing, over and over.

While you do want to explain the sequence before you get going, the better thing to do is to teach your rowers how to accelerate the boat powerfully and smoothly. Everything else is just a combination of learning to set up the ideal conditions for this drive phase and avoiding slamming the brakes on.

The key exercise is **weight suspension**, or 'the standing up exercise'. Hopefully your rowers have already come across this as novices, but it's good to cover the same ground again. To remind you, the exercise comes in three parts (do it with half the crew at a time): standing up 1 ft off the seat, then 1 inch, then the thickness of a sheet of paper.

Some rowers will find this all comes naturally, whereas for others it will be a total mystery. Be patient: it is worth taking the time to get this right as soon as possible, even if it means dropping down to a one-trip session. It bears repeating early in the next few sessions after the warm up, too.

The key reason people fail at the first stage is because they try and pull with the arms at the same time as pushing with the legs and/or try and lift with the shoulders. A good analogy is that of carrying heavy shopping. One doesn't walk home from Tesco with arms bent and shopping bags lifted high; the arms are left to hang taut, providing a connection between the bag handle and the shoulders. It's the same here: there's no way the rower's arms can beat their legs, but having the two sets of muscles fight each other messes things up.

The other common issue is that the rower lets the blade come out of the water, unlocking it. It's a good idea to demonstrate to your rowers that a squared blade, left to float in the water, will find the right depth: pulling up or down (rather than parallel to the water) can only mess things up.

A good idea is to try and get the crew to understand how a rower can compel a boat to move before you let them go on the water. This can be accomplished by taking an oar, standing on the bank and asking them to push the blade through the water (hard). Then let them float the blade in the water and walk along the bank instead (easy). The blade turns through the same angle, but it's clear the path of least resistance is for the boat to slide over the water's surface while the blade stays fixed where it is. Highlight the importance of locking up the blade before you try and push. Consider also googling 'rowing on ice' and sending them the video – it makes this point very clear!

As you move through the stages of the suspension exercise, be very clear that at each stage the same thing needs to happen. It's just that in the final stage all the force of the rower's weight is pulling the handle parallel to the water, rather than upwards.

Follow up the exercise with a short stretch of paddling (perhaps half the crew rowing), making clear that the weight is to be suspended each and every stroke.

Tell the cox to use calls like: "suspend the weight", "on the legs", "accelerate", or even "sheet of paper".

An inexperienced crew will quickly get tired by this, so take regular breaks and ensure everyone gets it.

When they do, introduce the **backswing suspension exercise**. We often hear people saying 'rowing is all in the legs', but this isn't actually true. While the legs are very powerful muscles which contribute a lot to the stroke, anyone who's ever compared split times for legs-only rowing to back-and-arms only rowing on an erg can see this isn't the whole story. Moreover, for centuries ye olde time rowers got by without sliding seats, so rowing wasn't completely impractical without leg drive.

Key points:

Heels need to be on the footplate. A common misconception is that the heels come off when the legs reach full extension, but actually at the finish toes should be pointed up, heels firmly on the footplate. Otherwise the body-swing will apply a force on the legs, through the hips, that tries to push the heels back down: you end up fighting yourself.

Knees need to be unlocked. This is a really important point for your crew to understand: locking your knees out doesn't actually make your legs any longer than when the legs were flat but the knees were unlocked. It's a useless movement that makes the rowing stroke more disjointed and, more importantly, locks your hamstrings so you can't get as much less body-swing. It's worth proving this to your rowers by getting them to lock their knees, rock over as much as possible, then unlock their knees and rock over a bit more. It's this fully rocked over position that they want to be in.

Now, for the actual exercise, your rowers need to keep the arms loose and extended as before and swing from the lower back. Tell them to open the angle between their body and legs, lifting their hips towards the handle and keeping the heels planted firmly. Doing this, they should be able to lift themselves off the seats. It may take a few goes! It's worth pointing out, once you get this right, just how far this apparently small movement moves the boat, even with only half the crew involved.

Now, reinforce the movement by doing a short bit of work, probably with half the crew (really don't be shy in the early stages of getting people to drop out and sit the boat; it keeps them rested and means you can focus on the improvement rather than letting poor balance distract people). Get them to team up that weight suspension on the legs with a powerful backswing. Emphasise that it's the movement into the *upright* position that is the powerful one, i.e. they shouldn't be doing sit-ups each stroke, but they *should* keep the knees unlocked and get fully rocked over before they slide forwards.

Coxing calls: "aaaand SWING", "in and swing", "lower backs through", "open the angle"

It's best at this point to touch only lightly on the arm movement. The arms do contribute a bit in the right place, i.e. you pull against the handle as you swing into the upright position, stopping yourself from swinging back further, keeping the heels planted, and letting the powerful shoulder muscles contribute, but that after this they aren't much use as the blade has rotated through the water and isn't firmly locked anymore. Explain to the crew that they should avoid yanking the finish through. Keep this very simple: you can tell them to pull against the handle as they come into the upright position, then as the handle gives way and the elbows bend let the pressure come off. You'll revisit this in more detail later. You might ask the cox to call "release" when they see the elbows bend.

For the first few sessions proper application of power is the main focus. Put in frequent breaks, repeat these exercises, make sure people are applying maximum power. Don't worry about spending a lot of time with only half the crew rowing, just switch over halves often. By all means address the most egregious technical errors made by individuals (they should be familiar enough with the rowing sequence), but keep the crew focus on applying power.

Setting up the drive

With the crew now able to move the boat strongly, it's time to do some work on the next important point, namely locking up the blade. This is what enables the crew to properly apply their power.

This is a good moment to point out that warm-up exercises should always have a purpose. For the first few sessions just do half the crew rowing square blades to encourage getting the sequence right. At this point you want to switch to doing a build from front-stops (i.e. starting with legs-only work). This is intended to reinforce the stuff about suspension by going off from front-stops and separating the legs and backs. Re-emphasise the key points as you go through it (e.g. not locking the knees, swinging into the upright position, shoulders just behind the hips).

In order to set up the drive properly, we need to get a good catch. Explain to the rowers that a good catch is placed on the way forward, so you still have half a turn of the seat wheels to go before front-stops when the blade hits the water.

At first, they won't *really* believe you. I like to do an exercise where you get half the crew to take a stroke, roll up to front-stops, take the catch, and hold the boat in that position. There's a very clear delay between the blades going in and the boat being held. Draw attention to this: the point is that when the blades go into the water, they disturb it. Only when the water settles down do the blades lock up. So if you place the blade while travelling forwards, it will ideally lock up just as you hit front-stops. Also, the faster and more loosely the blade gets placed, the easier it will lock up. It's worth emphasising that if they were to put the blade in too early, that's not a huge deal; it doesn't upset the boat nearly as much as going in late and only loses a little bit of length, which can be gathered up in the next stroke.

It can be good to follow this with a tapping exercise. It's best not to do this mindlessly though: get the rowers to drop the blades first and explain that letting gravity do all the work is a good way to get a fast, loose catch – and that this is why the blades are held well off the water then dropped in good time for the catch, so that they can gather some speed. Get them to pause for a second every time the blade drops in, before taking it out and dropping it back in again. This encourages them to lock the blade up each time.

Coxing calls: "loose … there", "in … there", or (while travelling up the slide) "aaaaand in!" (tip: call 'in' when the shins are vertical – this is when the blade should hit the water. Most people will then slide a bit further as the blade goes in)

It may be that your rowers start rushing into the catch at this point. Crack down on this hard. It's one of the easiest things for the cox to pick up on, so make sure they always call it out. The "aaaand in" coxing call is good for persuading people to lengthen the recovery.

The slide

"Don't rush the slide!" is probably one of the most used phrases in college rowing. Your crew is now in a good position to get into a good mindset about this. Many college crews end up gradually getting a slower and slower slide over the course of a term without ever quite getting to the right place. What you want to encourage instead is a conversation this:

[after a relatively long bit of pressure paddling, weight suspended properly etc.]
"That was pretty hard work, huh? You're working hard each stroke and really moving the boat."
[nods of agreement]
"But you're still rushing the slide. What that actually means is that you're taking more strokes than you need to!"

During the recovery, it should be made clear, the boat slides between the rower's seat and the water, both of which are stationary. You want the crew to realise that actually, all you're asking for is that they let the boat take as long as it needs to bring the footplate back towards them. But what's in their interests, *if* they are working very hard, is to take *longer* than this! In other words, they ought to be trying to hold the boat back a little bit as they approach the catch. That way, to go faster all they would need to do is to take the brakes off and let the boat run freely…

This is, of course, completely the opposite way round to the way most novice rowers would think of it. The point is that when you aren't properly applying force each stroke you feel like you ought to be taking more of them.

A nice exercise here is to get whoever is at stroke to watch a leaf or bubble on the water's surface and try and keep it next to them during the recovery (this way they can be sure that they are sitting still above the water and only the boat is moving). I guess you could even hand a bunch of twigs to the bow pair and get them to drop them in regularly while stern six row in order to simulate this! There are definitely advantages to having one pair sit the boat while everyone else gets comfortable with this – poor balance encourages rushing.

At this point your crews are in a good position: they are recovering slowly, letting the blade lock up properly, and applying force correctly. The good news is that you now have 90% of the available speed! At this point the focus should switch a little bit and you should aim for longer grinds between breaks, building up the crew's resilience and endurance.

Using a full slide build from front-stops (including tapping up and down, quarter legs, half legs, full legs etc.) is a good way to warm up the crew as it helps them go over the key points just mentioned at the start of every session. Don't do it mindlessly, remind the cox why they're doing it and get them to make calls accordingly.

What you're looking for next is a bit more finesse. You want to row with the full crew, but things are probably a bit unbalanced (although they can be surprisingly tidy at this stage – faster boats balance more easily). This is frustrating, but remember that balance is a symptom of other stuff going wrong. Don't stress about it, it's probably due to the finish, which we're about to fix.

The finish sequence

Chances are, you've still got a few people yanking the finish through, which you've probably been yelling at them for. We're now going to take the finish apart, clean it up, and put it back together again.

A good place to start is with a demonstration. Get stern pair to take a stroke, roll up to front-stops, and drop the blades in – then let go of the blades, scoot back to backstops quickly and wait for the blades to drift through. Emphasise how the blades drift through the water at the right depth all the way to the finish.

Take a moment to correct the crew's posture at the finish. They should be sat upright with core muscles engaged, shoulders just behind hips, heels on the footplate, toes pointed up, knees unlocked, pushed up on their glutes. The hands should rest lightly on the handle, with the shoulders loose and low, not hunched. Elbows should be in a relaxed position, neither tucked in tightly to the body nor splayed out to the side ('chicken wings'). Hand heights are dictated by where the handle naturally

floats; this ought to be between the base of the sternum and the navel, and it's your job as coach to get the gate heights adjusted if they're too high (see below for information on adjusting the setup).

Now, explain that while the arms do contribute to the stroke when arresting the body swing, as soon as the handle gives way the rowers need to release the pressure. This stops the blade getting trapped at the finish. The hands need to tap the handle simultaneously down and away from the body before they run out of room and trap it against their body; ideally, they are aiming for the maximum length (where the thumbs brush their t-shirt on the way round), but if they are a little shorter for now, that's not a big deal. The important thing is to let the handle carry the hands through to the finish, *not* the other way round.

Coxing calls: "aaand release", "length theeeeere", "all the way through"

Row on, getting people to apply full, suspended pressure while releasing the blade and letting it unlock. A nice way to explain the correct feeling is as follows:

"When you suspend your weight against the handle, the blade actually bends, storing energy. If you take the blade out of the water at this point, it snaps straight, wasting all that stored energy. If instead, before the end of the stroke you allow it to unbend in the water, it will flick the boat forward at the finish. By taking the pressure off, you actually get more speed."

A good follow-up exercise is to get people to pause at backstops, allowing the blades to roll into the feathered position flat on the water. This makes it obvious if anyone is yanking the handle down into their lap at the finish, as their blade will pop off the surface of the water.

This then leads naturally into pausing at the arms away position. Emphasise that the hands come into the body at one speed, and leave at the same speed, without stopping. Ask the crew to focus on their outside elbow: it should swing back and forth, like a pendulum, without stopping.

The final stage of this exercise is to get people to pause at the bodies-over position. Emphasise: knees unlocked, body right the way over, no pause between the hands extending and the body coming over, no slowing down. The latter is a key point: a prompt rock-over gets the weight out of the bows, lifting them clear of the water and getting the boat to run smoothly. A fast, active rock-over actually swings the boat forward, gaining a little bit of speed.

As the crew gain in confidence, you can add a bonus stage to this exercise – pausing at quarter slide. This is a good thing to deploy if your crew start pausing after the rock-over (something that kills your boat speed). The key rule is that the hands leave the body at the same speed they came through at the finish and should keep moving towards the stern at that speed until quarter slide. Only then should the slide gradually slow down as the crew approach the catc**h.**

Coxing calls: "hands smooth round the turn", (when swinging back, then forward) "swing-swing"

At this point it can be good to switch the warm-up around: a slide build from backstops can help to really nail this sequence. As the crew grow in confidence, this can then be switched to feet-out rowing, first with half the crew at a time, then the whole crew (your warm-up will then be done a lot sooner, which is efficient as you move from technical development into reinforcement).

While this section hasn't been totally exhaustive so far, it's a very realistic programme which will get a senior crew up to scratch in a matter of a few weeks. You'll equip your coxswains with a variety of useful calls, and help them and the crew understand the essential elements of good technique. These

exercises bear repeating, but the focus at this point should switch more towards building the crew's endurance and on the crew's collective, rather than individual technique.

Moving as one

As coach, you now want to look out for a few key things (and get the cox to look for them too):

- Are the blades dropping to the water together?
- Are they all going into the water at the same time?
- Are the crew accelerating together, once the heels hit the footplate? (watch the bow-ball – does it accelerate cleanly and smoothly, or does it judder?)
- Are the crew swinging back and forward together?
- Are the blades leaving the water together?

These are the key issues you can diagnose as you try and bring the crew into line.
To fix some of these issues, pausing exercises can be useful. For the acceleration issue, getting the crew to call "Now", loudly, when they put the pressure on can demonstrate quickly that they're out of time in a very important sense. Get the cox to then call "Now" when stroke's heels hit the footplate.

You have also now reached the stage where you can start to talk about balance a little bit more. At the finish, posture is key: the rower should use their core muscles to balance the shell. Get the crew to sit at backstops, correct their posture, and then get them to 'hover the hands' just above the handle. They'll see that they can balance without the aid of the oars.

Next, demonstrate that when paused at arms away, if all the hands are a couple of centimetres above the saxboard, and the bodies central the boat will remain well-balanced – and that if the hands move away from this it will upset the balance of the boat. Encourage the crew to actively balance the boat by raising/lowering the hands a small amount to keep the boat sat. Make clear that no single crew member ought to be making big changes to the balance.

N.B. it's really important to not start trying to fix the balance too early. Usually, balance is bad because bits of the stroke are going wrong. It naturally improves as the boat gains speed and the crew get in-sync. Emphasising balance before you get this right is one of the big mistakes I see in college rowing and leads to endless frustration as crews focus on something they can't actually fix rather than on making the boat go faster. Instead, teach crews as novices to balance the boat when they aren't rowing and do more work in fours and sixes.

Building momentum

As the crew start to work together better and better, it's good to help them understand how to move *with* the boat.

When the crew apply a bit more power, the boat will accelerate a bit more that stroke. The hands will come through the finish a little faster, and so will leave the body a little faster. The rock-over will then happen a bit faster, and the slide will be quicker. All this means the boat slows down a little less before the next catch. Thus, when the crew take the next stroke they'll move through the whole cycle a bit quicker again. In other words, if you keep accelerating the boat, the stroke rate will naturally rise.

This has consequences. First, the reason crews have a maximum rate is not really because they don't have enough power to go higher, in most cases – it's because they have less time between each bit of the stroke, so they start making mistakes. Secondly, random things like gusts of wind or wash from another boat can affect boat speed, and the crew ought to react to such changes by letting the hands come through a bit slower, letting the slide run out. But most importantly, the crew are able to control the boat.

When wanting the stroke rate to go up, the crew can 'bring the catch forward' (coxing call) while pushing on the legs and put the catch in a little early in the cycle. This means they cut out the slowest, final part of the recovery, which in turn means the boat slows down less and the cycle speeds up at the back end of the stroke (hands come through faster, rock-over happens quicker – you may need to call this explicitly at first). A few such strokes followed by a move back to full length for efficiency will up the rate by a few strokes/minute. Gradual rate builds using this method are a great exercise for teaching the crew to move a boat (and you'll note that they naturally fit into the training schedule outlined above, which calls for gradual builds at the end of each run).

Likewise, the crew can get the rate to drop. This is simply done by slowing down the recovery a little bit, which means the boat is a bit slower at the next finish. "Let it run out" is usually the call for this.

Rate pyramids – going up and down in gradual stages – can be a good exercise for getting the crew to move with the boat. The crucial point of this is to prevent the crew mentally separating paddling and race-pace, a problem a lot of crews have because they don't do any intermediate rate stuff to connect the two.

Bits and bobs

There are a few miscellaneous things to throw in at this point which may or may not become relevant.

Squaring the blades:

Blades should come out of the water square, then immediately feather. Early squaring is to be encouraged, because it gets people into good habits for racing when there's less time to square the blades. Real Olympians tend to square on the way down to the water, i.e. at the last moment, which is because this actually is best – but at college level we're more worried about squaring late, which tends to leave the inside arm too tight and makes the catch stiffer. So, do early squaring – by which I mean, 'fully squared before the hands rise to the catch'.

Rotating to the rigger:

You'll sometimes hear people talk about rotating into their rigger. Note that this does not mean leaning sideways into the rigger, and you should clamp down on this fault where you spot it. Rotating means keeping the upper body loose and rotating from the waist, following the arc of the handle as you reach front-stops. 'Wing rowing' is a good exercise for getting this right: square blades, legs-only, outside hand only rowing … with the inside hand stuck out to the side like a wing. The fingertips, shoulders, and spine ought to be lined up on a straight line at all times, and the arm should be parallel to the oar.

Rotating to the rigger means the outside hand is less overstretched at the catch, allowing it to be looser as you drop the blade into the water.

It's impossible to include in one document every little nugget of coaching experience gleaned over the years, but that isn't really the point. This section should have provided you with a pretty comprehensive armoury of material to get you through the first couple of terms. Keep your brain engaged, learn on the job, and think about how you can get your crew to go even faster.

IV. Setting up the boat

"Rigging is like Zen meditation. You must bend over the boat until your back is breaking, until your brain is filled with numbers and fractions of numbers, until you can accurately measure an oarlock's pitch without bothering to use the pitch meter. Only then will you see the way of eternal rigging happiness."

In this section we will briefly cover the key points of setting up the boat for your rowers.

When you select a fixed crew, you'll want to ensure that the boat's set up roughly correctly for them. And once you've got the crew moving together efficiently, you'll want to try and fine-tune the set-up of the boat to squeeze a bit more speed out of it. Here's a few pointers – obviously there are much more comprehensive guides available.

Gate height

Get your rowers to sit up at backstops and hover their hands over the handle. The handle should be between the navel and the sternum – the higher within this range, the better, but if it's any higher than the rower's shoulders will end up hunched at the finish.

Footplate

Your aim is to have everyone's finish angle be the same. At backstops, see how close to the end of the slide everyone is. You don't want people to hit the back, but there ought to only be an inch or so of slide left.

Feet height

Notice that the footplates also move up and down as well as back and forth. The rule of thumb is that lower is usually better, but you also don't want people to mash up their calves against the boat so that limits things. The main point is that the feet go higher as you bring the footplate closer to someone.

V. Crew selection

"It's not the best eight rowers that row the best boat, it's the eight rowers that row best together."

In this section we'll briefly go through crew selection, which is one of the hardest parts of the coach's job.

Don't put off crew selection. Dithering about it means you don't get the fixed crew together until too late, which is time wasted. Remember, you are allowed to revisit crew selection later in the term if the facts change. The best way is to have a training week right at the start of each term, before everything kicks off. Advertise well in advance and make it clear that those hoping to be selected for the top boats are expected to be there. That alone is a good start to figuring out who is in contention – the rest will come from information gleaned during the training week.

Key points:

Above all else, selection must be fair and transparent. At the end of it you should invite anyone who wants to discuss selection with you to talk privately – you should be able to explain why they didn't get into the boat they wanted and what they can do to put themselves in contention in future.
The aim is to eliminate people on pragmatic grounds first, before making harder decisions based on performance.

The first cut comes from **who turns up** to training week. You can lay a lot of technical groundwork in this week so it's vital people who want to excel turn up.

The second cut comes from **scheduling**. You need to have an honest conversation during training week about what people can commit to. Better to do six sessions a week with the crew who can commit to that than four sessions a week with a crew you think has more potential. You also need people's timetables – if these are very full then you need to tell people that many of those sessions will be early-morning sessions; check they are okay with that (including the point about expecting them to be well-rested).

The next cut comes from coaching. You're looking for **evidence**, during training week, that people can move a boat efficiently and can work hard for a whole session. Alternatively, rapid improvement and a good attitude during the week from a less experienced rower can be sufficient to keep them in contention if they are also physically fit and strong; this is a calculated risk with a potentially high reward. Training week is a good time to try things out, so swap people's sides and seats around freely.

At this point, you may have selected your crew. However, if not, don't panic. Every training week should incorporate a **2km erg test**. This should be seen mainly as a way of tracking fitness, not as a main tool for crew selection ("ergs don't float!"). However, neither should you totally disregard it. If someone completely blows up during the 2km test and gets a notably poor score, or can't maintain

the specified rate (watch out for people lower than r.28) then that indicates that they will struggle with their fitness, which cannot be improved as quickly as technique. Likewise, an exceptional performance can confirm that a less experienced rower is worth investing in, as mentioned above.

N.B. – by all means weight-adjust people's 2km times, but remember that this is a useful measure of relative fitness (it makes it so you're really comparing power-to-weight ratios). It does *not* tell you how fast people will be on the water; the bigger rowers will still go faster, all other things being equal.

Seat racing is a last-resort. Ultimately, it does tell you what exactly you really want to know (which person moves the boat fastest), but it's extremely time consuming (best to do it on a Saturday morning) and needs lots of people on the bank as timers – and so it should only be used to select between two people usually. Also, the Wear is a little short on space, so it's much more appropriate in regatta season. Thus, it's essential that if you choose to seat-race, you're doing so because you're sure that two rowers are of similar technical standard, that they are equally fit, and that neither is obviously more powerful than the other. In other words, to bring this back to the most important principle of crew selection, if you can't look either rower in the eye and tell them exactly why you didn't select them, a seat race provides an empirical result that will justify your final decision.

Hopefully it's now clearer how crew selection ought to work. Remember the key principles: keep things transparent and fair, and make the easy decisions first.

VI. Conclusion

"It is hard to make that boat go as fast as you want to. The enemy is the resistance of the water… But that very water is what supports you and that very enemy is your friend. So is life: the very problems you must overcome also support and make you strong in overcoming them."

I hope you've enjoyed reading this coaching guide. More to the point, I hope you'll find it useful. It's up to you now, so set your goals, gather your crew, and make some boats go fast!