



PROGRAMMING 101

ISSUE 1 - October 2024

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The aim of this document is to help coaches and sweeps create a structured training plan for a crew for the season ahead. It is designed for established crews who are seeking additional information to help improve their performance. With novice / beginner crews, the main focus should be just getting them on the water, getting them familiar with the boat and the fundamentals of rowing and making the whole experience fun without getting overly technical.

Programming is a methodical and systematic way of taking something that is of a large scale, such as an entire surf season, and breaking it down into smaller, more manageable parts so that each phase, each month, each week and each session is planned. By planning ahead it allows a coach / sweep to review, compare and track a crew's progress at different stages of the season, providing forward planning and structure for the crew.

With this in mind, the most important thing to remember is that programming is “fluid” meaning that any plan or program that has been created must be constantly reviewed and revisited. Changes to personal circumstances or other contributing factors such as shift work, travel, family or work commitments will all have an impact on a rowers fatigue levels and directly influence their ability to complete even the most basic training sessions so being able to plan ahead but revise a session, a week or an entire program is critical.

Many new coaches will create training programs and training plans that start with an individual training session or day and then go to longer time frames from there (a week, a month, etc.). As mentioned though, programming is about breaking a plan down from the longest time frame into increasingly smaller parts so that it is more manageable. The technical terms used to describe each of these parts are: Macrocycles, Mesocycles and Microcycles:

“Before we start programming one main thing is needed. First, a sweep / coach has to determine what their coaching philosophy is and what is most important to them. There are no right or wrong philosophies and different strategies work equally as well.

The following is based on my own personal philosophy of coaching. Again, this isn't right nor is it wrong, it is just something that works for me and my own coaching beliefs but there are numerous instances where coaches and sweeps with opposing philosophies have had equal levels of success.

For me, skills and technique are the foundations that everything else is built upon. As such, each training session will have rowing technique, lifting technique (with gym sessions) or skill development (surf skills, rowing skills or general boat skills) as the primary focus. Following from skills and technique, the next most important ingredient to develop in a rower is fitness. Finally, after all of the above are considered the final ingredient would be strength.”

- Grant Wilkinson



The word Macro means “large scale” and in the case of surf boat rowing a Macrocycle usually refers to an entire season. A Macrocycle in Olympic sports might refer to the 4yr period from one Olympic Games to another.

The easiest way to determine the length of a Macrocycle is to firstly start with an end date and work backwards to a start date. For many of us, our primary target competition for the season will be Aussies. With some crews, especially junior crews or those interstate or in regional areas, it may be their State Championships or even the ASRL Open. Regardless of what the competition is, that final event is the finish date of the Macrocycle.

Due to the nature of our sport, crews often don't just have one primary target for the season. Most sweeps and most crews will have multiple competitions where they want to do well at, which might include ASRL Open, Branch Championships, State Championships as well as Aussies.

All of these other events could be classified as Secondary Targets. Although they are each an important target and will often reflect a crew's performance, a focus should still be kept on the final event - your primary target.

Other events such as local carnivals or perhaps a local series (in NSW; the South Coast or North Coast Boat Series) could be labeled tertiary events. They are important for crews to attend and participate in to help develop race skills and race fitness but they are not season-defining competitions or ones that have any significant importance on an overall scale.

So from this primary target event you can measure back to a date where you may want to start your training program from. If we use this season as an example and have 2025 Aussies as our primary target, the end date would be the week ending with Sunday 6th April 2025. If you were to begin training on Monday 21st October as an example, that would mean that your Macrocycle is 24 - weeks in duration.



MESOCYCLES

Meso is a Greek word meaning “Middle”. It is taking the entire length of the season (in the example above the 24 - week Macrocycle) and breaking it down into smaller “Phases”. Different coaches will have different terminology for Mesocycle phases however a standard definition could be as follows:

- General Preparation Phase (Pre-Season)
- Specific Preparation Phase (Early-Mid Season)
- Competition Phase
- (Main Competition / End of Season)
- Transition Phase (Off-Season)

These phases can be any given length of time to fit across the Macrocycle and training during each phase might tend to focus on one particular aspect of training. An example of this and a very standard approach from most coaches would be that during the General Preparation Phase (pre-season) crews would focus on developing muscular endurance and most of their training would include long rows / ergo or intervals that are longer than race length and are usually done at a low to moderate intensity.

This endurance training at a lower intensity would slowly transition over the Specific Preparation Phase into the Competition Phase where you would see the bulk of training being done at a higher intensity over a shorter duration to help develop speed.

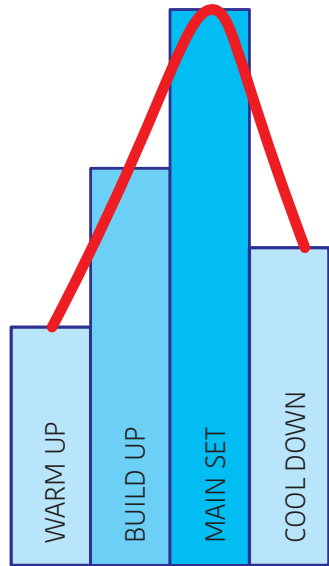
Phase	MESO 1 - General Preparation Phase								MESO 2 - Specific Preparation Phase							
	8 Weeks (2 x 4wk Blocks)								8 Weeks (2 x 4wk Blocks)							
Blocks	Block 1				Block 2				Block 1				Block 2			
Week Starting Monday	21/10/2024	28/10/2024	4/11/2024	11/11/2024	18/11/2024	25/11/2024	2/12/2024	9/12/2024	16/12/2024	23/12/2024	30/12/2024	6/1/2025	13/1/2025	20/1/2025	27/1/2025	3/2/2025
Week Ending Sunday	27/10/2024	3/11/2024	10/11/2024	17/11/2024	24/11/2024	1/12/2024	8/12/2024	15/12/2024	22/12/2024	29/12/2024	5/1/2025	12/1/2025	19/1/2025	26/1/2025	2/2/2025	9/2/2025
Microcycle	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Event																
Periodised Training Loads (example)																



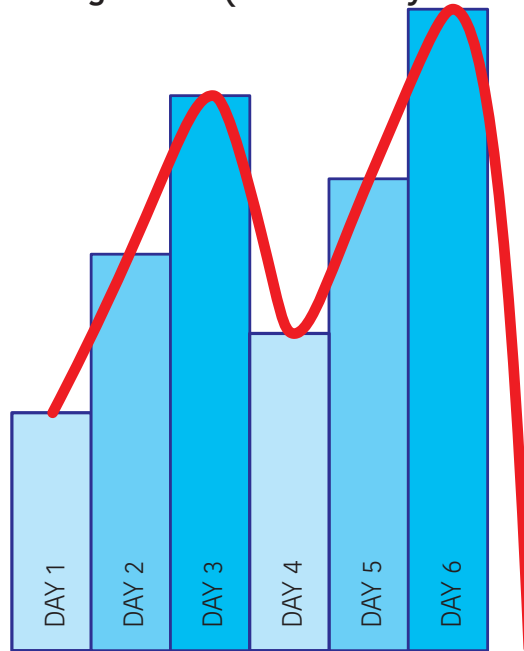
MICROCYCLES

From the Mesocycle, each phase is broken down even further into Microcycles. As the word suggests, Micro means “small” or “extremely small” and Microcycles can cover a range of time frames:

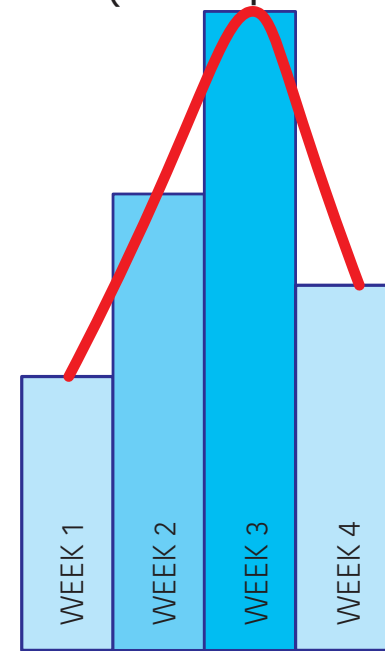
Training Session (aspects within a session)



Training Weeks (a basic 7-day training week)



Training Blocks (for example a 4-week block)

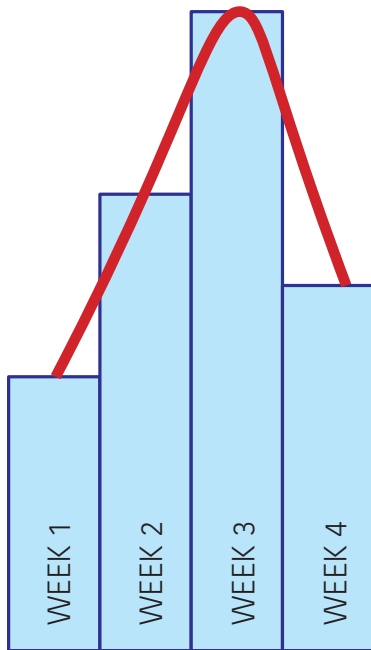


*Note in the “Training Week” we did not use Monday to Sunday. For some athletes and crews, their training week might start on a Wednesday. This could be due to shift work, family commitments or even location restrictions.

Regardless of the time frame, each Microcycle should be periodised so that there are loading and unloading parts to the time frame.



Periodisation simply refers to a systematic way of increasing or decreasing training loads in an almost rhythmical fashion. Personally, I follow a very basic 4-week periodised microcycle where the training load in the first 3-weeks are progressively increasing, however the fourth week is a recovery week.



This approach of progressively loading and unloading an athlete is used by every athlete and every coach within the smallest microcycle (an individual training session) sometimes even without their knowledge. An simple example session might be something like:

10mins x easy - medium rowing (includes skills, drills & technique)
6 x 5mins, 2mins rest
1 & 2 @ 75% effort
3 & 4 @ 85% effort
5 & 6 @ 95% effort
10mins x easy - medium rowing (includes skills, drills & technique)

Most coaches will look at that session and agree that it follows a natural progression of increasing the training load before finally unloading the athlete but again, this rhythmical approach to loading and unloading can be done across any given time frame whether it be within an individual session, across a 7-day

training week or over a 4-week training block.

By taking this periodised and methodical approach to each Microcycle, Mesocycle and to the Macrocycle it means that there is an enhanced ability to track a rower or crews performance whilst also having a reduced risk of training overload and over training.



“Training Load” simply refers to how hard a training session is and the level of fatigue that arises as a result. Whenever we exercise, regardless of the intensity, microscopic damage is done to the muscles. This is known as micro-trauma and if enough micro trauma occurs it leads to Delayed Onset Muscle Soreness (DOMS) - the soreness an athlete feels after a harder session.

The mantra in sports and fitness for the last 20-years or more has been “work smarter, not harder” and anyone who has a fitness tracker such as a Garmin, FitBit, Whoop or Apple watch can readily access data to show the impact training has on their body. This “Smarter Not Harder” approach is all about managing the levels of microtrauma inflicted on the athlete’s body.

Whilst pushing an athlete to their limit is good and will result in increased performance gains there also can be too much of a good thing. Repetitive high training loads without adequate rest or recovery means that the micro trauma inflicted on the athletes body starts to accumulate. On the fitness tracker devices mentioned above this is known as “Overreaching”. Overreaching can be

productive as it forces the body to adapt to the stress and demands of training and the athlete becomes fitter, stronger and faster as a result, however as mentioned there is an accumulative effect of training.

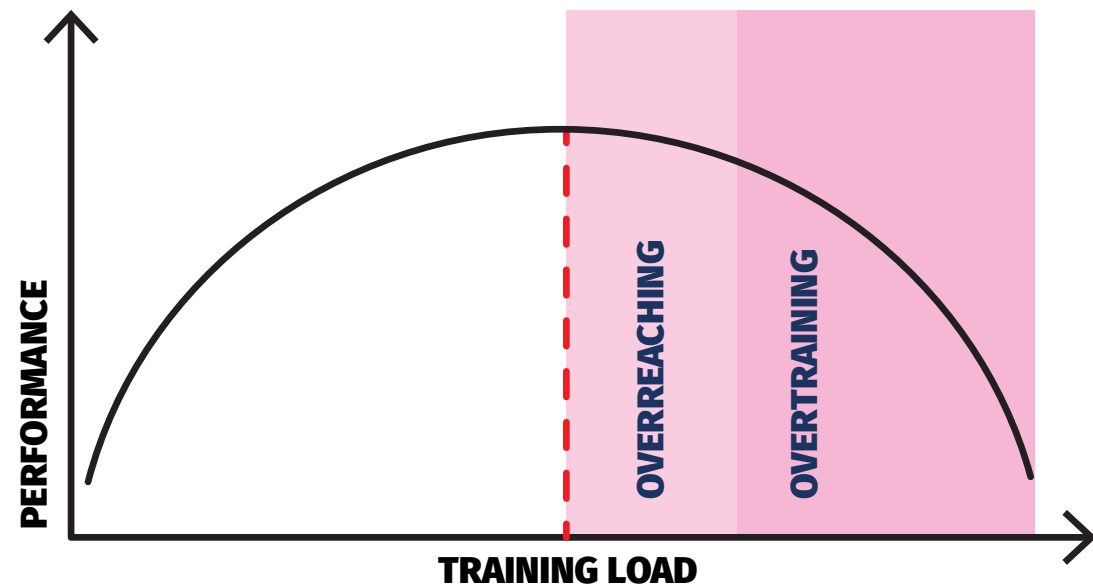
If an athlete continually stays within this overreaching zone with a very high training load and without adequate recovery, overreaching turns into “Over Training”. Once an athlete is in a state of over training they have a much higher risk of illness and injury. Over training is extremely difficult to reverse and is not something that “a few days rest” or “having a week off” will rectify.

OVERREACHING

Can be helpful with adequate recovery

OVERTRAINING

Chronic fatigue that could take months to recover from



So how do we determine what the training load of a session, a week or a block is?

There are four main variables that determine the overall training load:

INTENSITY

(How hard was the session or the week?)

DURATION

(How long were the intervals or how long was the session?)

FREQUENCY

(How many reps / intervals / sessions did they do?)

REST/RECOVERY

(How much rest / recovery was between each interval or each session?)

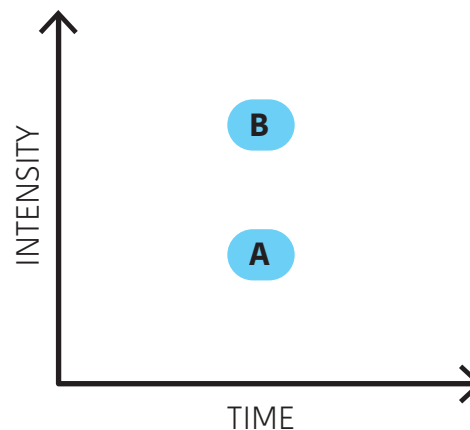
INTENSITY

For example, say a crew does a session where the main set is 4 x 8mins with 2mins rest between each interval (4 x 8mins, 2mins rest). Naturally, the training load will be lower if each of those intervals are done at a low intensity **A** (50 - 70%) compared to if they were done at a high intensity **B** (80 - 100%).

Although the session is the same, by changing the level of intensity from lower to higher we are also changing the overall training load with it.

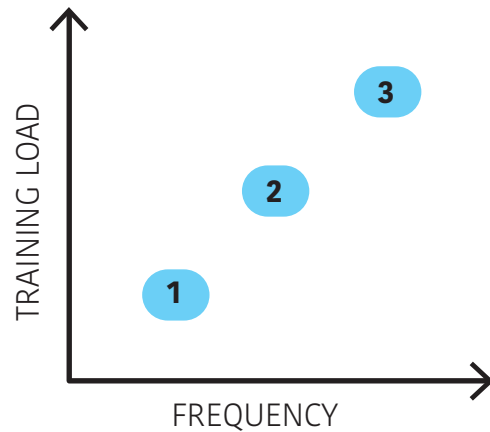
DURATION

If we left the intensity the same, for example at 75%, and left the number of intervals within this session the same or the number of sessions over the week the same (the frequency) but this time changed the duration of the interval then that would also change the overall training load and therefore fatigue the rower experienced. Doing **A** 4 x 4mins @ 75%, 2mins rest could be considered a low training load whereas doing **B** 4 x 12mins @ 75%, 2mins rest would be a higher training load.



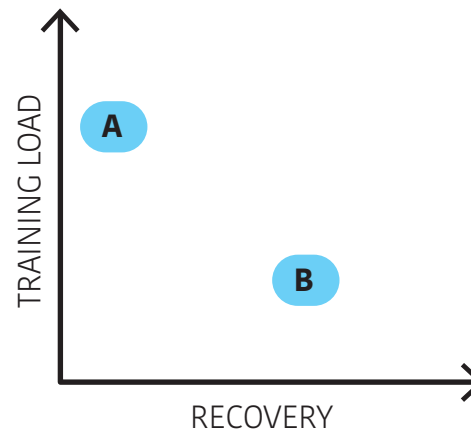
FREQUENCY

If we were to leave the intensity at just a moderate level and the rest was the same (4 x 8mins @ 75%, 2mins rest) but this time instead of doing one session over a week a rower did this three times, the increased frequency of sessions also increases the training load over the entire week.



REST / RECOVERY

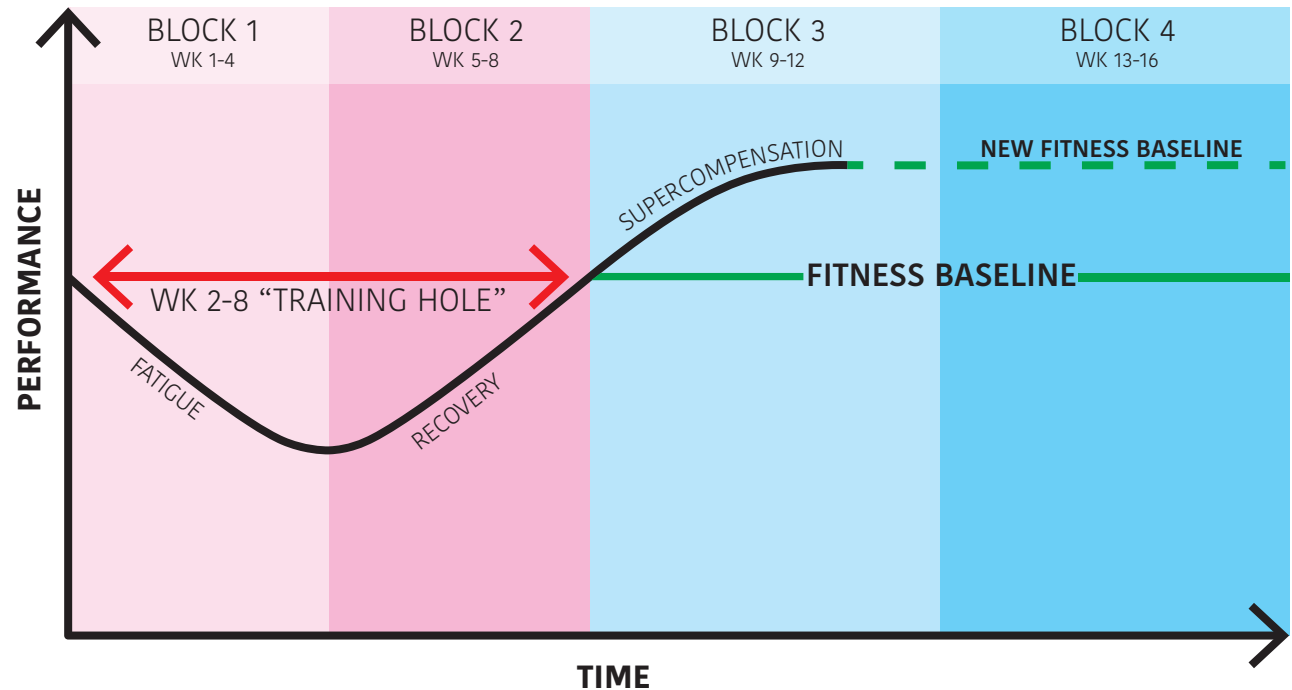
If we kept the intensity, frequency and duration all the same at a standard level (4 x 8mins @ 75% - done once per week) but changed the rest period from 2mins to 4mins, 6mins or even longer then the increased rest between each interval would mean that the overall training load from that session is lower. **A** 4 x 8mins @ 75%, 30secs rest would be a much higher training load and would result in higher levels of fatigue compared to **B** 4 x 8mins @ 75%, 3mins rest. If there were longer periods of recovery between sessions, for example the same session given four days apart rather than two days apart then the longer recovery period would also mean less overall training load within that training week.



PROGRESSIVE OVERLOAD AND SUPERCOMPENSATION

These are just fancy, scientific terms to describe how an athlete gets fitter and / or stronger as they train. As the name suggests, Progressive Overload is when the training load given to an athlete is systematically increased in a periodised fashion. Supercompensation is how the body compensates for the stresses of being overloaded and adapts to these increased training loads. In short, as an athlete trains and fatigues the body's reaction to this overload of stress is to overcompensate and set an increased baseline level of fitness.

*The following is purely anecdotal and I have not found any scientific literature to confirm this observation but something I have seen that happens across every athlete in every discipline regardless of their age or gender is that everyone will go into what I describe as a "training hole" between week two and approximately week six to eight once a training program has started or when there is a big change within a training program.



PROGRESSIVE OVERLOAD AND SUPERCOMPENSATION

Any coach can push an athlete to go harder (intensity), to train more often (frequency) and to train for longer (duration) but for an athlete to get the best out of their training and have peak performance, the rest and recovery has to be optimally timed. It could even be argued that the Rest / Recovery variable is by far the most important in terms of helping an athlete improve without causing too much trauma to the muscles and overloading them to the point where the body can no longer compensate and adapt to the stresses of training.

The next question for most coaches is *“how do I take those four variables that determine the training load and work out multiple sessions across a training week so that each week is progressively increasing (loading) or decreasing (unloading)?”*

There are a number of methods of doing this such as using target Heart Rate Zones, setting an intensity based on a percentage of their maximum effort or even getting feedback after a session of how hard it was (known as a Rating of Perceived Exertion - RPE)

Something I personally found helpful is what I call Accumulative Time. This is where you adjust the overall time of a session based on how hard it is.

For example

5 mins x easy (60%) = 5 mins of training

5 mins x Max Effort (100%) = 10 mins of training.

This is a simple way of helping calculate how hard I think a session or week might be in terms of the overall training load. It is not accurate by any means however it helps me calculate training loads and plan ahead more easily.



PROGRESSIVE OVERLOAD AND SUPERCOMPENSATION

This is a very broad approximation and estimates of various Heart Rates and Zones that would correlate with perceived intensity of effort. The Accumulated Time is a tool I use to help figure out the level of fatigue an athlete will have from a session and again is not accurate nor does it have any scientific validation. These numbers would be a rough guideline for most athletes aged between 20 - 45.

EXAMPLES

- 8mins @ 75% (L3) = HR of 135 - 160bpm;
Accumulated Time = $8 \times (1.5) = 12\text{mins}$
- 4 x 1min @ 90% (L4) = HR 155 - 180bpm;
Accumulated Time = $4 \times 1 \times (1.75) = 7\text{mins}$
- 3 x 10min @ 60% (L1) = HR < 120bpm;
Accumulated Time = $3 \times 10 \times (1) = 30\text{mins}$
- 6 x 4min @ Max Effort (L5) = HR 175bpm+;
Accumulated Time = $6 \times 4 \times (2) = 48\text{mins}$

Training Load	Heart Rate Zone (used on some Fitness Trackers)	Approx. Heart Rates	% of Max effort	Accumulative Time (use the uppermost % of each Level / Zone)
Level 1	Zone 1	< 120bpm	< 60%	(x 1) worth of time
Level 2	Zone 2	115 - 140bpm	60% - 70%	(x 1.25) worth of time
Level 3	Zone 3	135 - 160bpm	70% - 80%	(x 1.5) worth of time
Level 4	Zone 4	155 - 180bpm	80% - 90%	(x 1.75) worth of time
Level 5	Zone 5	175 - 200bpm	90% - 100%	(x 2) worth of time

*Note the vast overlap of Heart Rate Zones. This will vary based on personal data such as age, gender and training experience



So how do we put all of the above information together?

As mentioned, any form of exercise, regardless of whether we go easy or hard, will cause microscopic trauma to the muscles. Programming is a way of methodically planning how to deliberately cause this microtrauma to the muscles and then have adequate rest and recovery so that there are optimal gains in performance.

By first mapping out how much time there is between the start of training and the final, primary competition of the season (macrocycle) we can then break this down into smaller segments (mesocycles & microcycles). Once we have an idea of these smaller segments, we can then go about planning which weeks will have lower or higher training loads and which weeks will have a focus on the athlete recovering.

Once the training load is determined for each week, we can then break down the week and decide which days within that week should have easy, medium or hard sessions. We can also work out which sessions should be aimed at helping the athlete recover remembering that there is a residual effect of training meaning that fatigue and muscle micro trauma is accumulative.

Now that we have determined what days within each week are easy, medium, hard or are recovery we can start to build each individual training session so that it fits into the overall plan of the week in terms of how much training load is required. You can calculate the level of effort and then by using a guide like Accumulated Time work out the rough loading of each session.



Using the timeline given above (24-week Macrocycle) we can break this down from a large time frame into smaller time frames so that the training loads are manipulated in a periodised and methodical way. The examples shown below are done using the coaching philosophy of skills and technique first, fitness second and strength third and each coach could adjust this to suit what their coaching philosophy is.

For ease, I have broken the 24-week macrocycle into 3 equal mesocycle phases being:

General Preparation Phase (8-weeks)

(Monday 21 Oct 2024 to Sunday 15 Dec 2024)

Specific Preparation Phase (8-weeks)

(Monday 16 Dec 2024 to Sunday 9 Feb 2025)

Competition Phase (8-weeks)

(Monday 10 Feb 2025 to Sunday 6 April 2025)

*These are just an example and you could easily change each phase or the length of the overall macrocycle depending on the circumstances of you or your crew.

Given that we now have how long our season is (24-weeks), how long each phase of training is (8-weeks each) we can then go about deciding what sort of training loads (intensities) will make up each week and each session. The below table is again something that I use personally.

There are many coaches who would disagree with the below strategy and again, there is no right or wrong way which is what makes coaching so dynamic.

3 WKS LOADING		1WK UNLOADING (RECOVERY)	
GENERAL PREP (8WKS)			
70 – 100% Skills & Technique (Zone 1 – 3) <30% High HR (Zone 3 – 5)		90 – 100% Skills & Technique (Zone 1 – 3) <10% High HR (Zone 3 – 5)	
SPECIFIC PREP (8WKS)			
60 – 90% Skills & Technique (Zone 1 – 3) 10 – 40% High HR (Zone 3 – 5)		80 – 100% Skills & Technique (Zone 1 – 3) <20% High HR (Zone 3 – 5)	
COMPETITION (8WKS)			
50 – 75% Skills & Technique (Zone 1 – 3) 25 – 50% High HR (Zone 3 – 5)		60 – 90% Skills & Technique (Zone 1 – 3) 10 – 40% High HR (Zone 3 – 5)	



PRACTICAL EXAMPLES

		24-Week Macrocycle																							
Phase	MESO 1 - General Preparation Phase								MESO 2 - Specific Preparation Phase								MESO 3 - Competition Phase								
	8 Weeks (2 x 4wk Blocks)								8 Weeks (2 x 4wk Blocks)								8 Weeks (2 x 4wk Blocks)								
Blocks	Block 1				Block 2				Block 1				Block 2				Block 1				Block 2				
Week Starting Monday	21/10/2024	28/10/2024	4/11/2024	11/11/2024	18/11/2024	25/11/2024	2/12/2024	9/12/2024	16/12/2024	23/12/2024	30/12/2024	6/1/2025	13/1/2025	20/1/2025	27/1/2025	3/2/2025	10/2/2025	17/2/2025	24/2/2025	3/3/2025	10/3/2025	17/3/2025	24/3/2025	31/3/2025	
Week Ending Sunday	27/10/2024	3/11/2024	10/11/2024	17/11/2024	24/11/2024	1/12/2024	8/12/2024	15/12/2024	22/12/2024	29/12/2024	5/1/2025	12/1/2025	19/1/2025	26/1/2025	2/2/2025	9/2/2025	16/2/2025	23/2/2025	2/3/2025	9/3/2025	16/3/2025	23/3/2025	30/3/2025	6/4/2025	
Microcycle	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	ST	2	3	FT	
Event	Block 1 Week 1 (B1 W1) ROW				Block 2 Week 3 (B2 W3) ROW												Block 1 Week 2 (B1 W2) ROW		Block 1 Week 3 (B1 W3) ROW		State Champs		Aussies		
Periodised Training Loads (example)	Block 1				Block 2												Block 1		Block 1		ST		FT		
	*						*											*	*						

ST = Semi Taper (usually 2 - 4 days)

FT = Full Taper (usually 6 - 9 days)

***** = Example sessions



EXAMPLE WEEKS WITH SESSIONS INCLUDED

The example sessions have a given Training Load attached to them but they are still part of the overall training week and fall within the 4-week periodised block. Most rowers and most crews don't just do boat sessions but also incorporate a range of other training sessions from weights to cardio, Crossfit and Pilates to name just a few.

Below are some examples of how we could potentially factor in each of these example boat sessions into each week and stay within our planned training loads for the week and for the block.

As mentioned, each coach will have a particular philosophy of what they think are the most important areas for rowers to work on. Some coaches believe strength is a vital element for rowers and as such the first example gives 3 weights sessions per week. Other coaches will make building fitness levels a priority and as such the second example week only has 2 weights sessions but has additional conditioning (fitness) sessions included.

For ease, the example weeks below have only 1 rowing session included, which correspond to the individual example rowing sessions discussed previously. We will also follow the weekly periodised loading / unloading example shown before where the Day 3 & 6 are the heaviest.



EXAMPLE WEEK LAYOUT 1 - GEN PREP PHASE - B1|W1

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	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
EXAMPLE 1	Weights 4 x 8reps	Cardio 45mins x HR 120 - 150bpm	Weights 4 x 8reps	Cardio (Active Recovery) 30mins x HR 110 - 130bpm	Weights 4 x 8reps	Row (Example Session 1) 2 x 5mins warm up 3 x 12mins, 3mins rest 5 mins x warm down	OFF (Rest Day)
EXAMPLE 2	Cardio 45mins x HR 120 - 150bpm	Weights 4 x 8reps	Row (Example Session 1) 2 x 5mins warm up 3 x 12mins, 3mins rest 5 mins x warm down	Cardio (Active Recovery) 20mins x HR 110 - 130bpm	Cardio or HIIT Cardio = 30mins x HR 130 - 150bpm HIIT = 20mins x Main Set	Weights + Ergo Weights = 3 x 8reps Ergo Example = 6 x 6mins (ODDS = 60 - 75%) (EVENS = broken)	OFF (Rest Day)
NOTES	This is the start of the week following a rest day so there is no / minimal residual fatigue.	Day 2 will have some fatigue from Day 1. Sessions are not overly hard but rowers will still feel the accumulative effects of both days	Day 3 can be the harder day where there is both a harder session plus there is the combined effect of training from Days 1 & 2.	Day 4 is an Active Recovery Session. This is done at Zone 1 / Level 1. Training at this level would assist the rower in recovering from the first 3 days of training.	There will be some residual fatigue from training on Days 1 - 3 however the Active Recovery session on Day 4 would have reduced this. The session can be same intensity as Day 1 but ideally perhaps shorter duration	This is the target day for the week. Although there will be fatigue built up from the week's training, there is a full Rest Day to follow. The session itself can be a little longer, or perhaps more intense or even have shorter rest periods in the session, all of which will make it the highest Training Load of the week.	Full Rest Day. This will assist rowers both physically and mentally to recover and start Week 2.



General Preparation Phase: Rowing sessions - Block 1 Week 1	
WARM UP	ACCUMULATED TIME
2 X 5mins (easy rowing, include skills & drills)	2 x 5min (x1) = 10mins
MAIN SET	
3 x 12mins, 3mins rest	
1. 1 x 60%	1 x 12mins (x1) = 12mins
2. 1 x Negative Split (2nd 6mins faster than 1st 6mins)	6min (x1) + 6min (x 1.25) = 13.30mins
3. 3mins 50% - 3mins 60% - 3mins 70% - 3mins 80	3min each (x1)+(x1)+(x1.25)+(x1.5) = 14.15mins
WARM DOWN	
5 mins x easy rowing	5mins (x 1) = 5mins

*Actual Time of session (including potential extended rest for coaching) = 1.05hrs - 1.15hrs

*Actual Time of Main Set = 3 x 12mins = 36mins

*Accumulated Time of Main Set = 39.45mins

*Accumulated Time for session (incl. warm up and warm down) = 54.45mins

(refer to table on pg 11)



EXAMPLE WEEK LAYOUT 2 - GEN PREP PHASE - B2|W3

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
EXAMPLE 1	Weights 4 x 12 reps	Cardio 1 HR x HR 140 - 160bpm	Weights 4 x 12 reps	Cardio (Active Recovery) 30mins x HR 120 - 140bpm	Weights 4 x 12 reps	Row (Example Session 2) 3 x 4mins warm up 4 x 8mins, decreasing rest 10 mins x warm down	OFF (Rest Day)
EXAMPLE 2	Cardio 1 HR x HR 140 - 160bpm	Weights 4 x 12 reps	Row (Example Session 2) 3 x 4mins warm up 4 x 8mins, decreasing rest 10 mins x warm down	Cardio (Active Recovery) 20mins x HR 110 - 130bpm	Cardio or HIIT Cardio = 45mins x HR 140 - 165bpm HIIT = 30mins x Main Set	Weights + Ergo Weights = 4 x 8 or 3 x 12rep Ergo Examples = 4 x 12min or 5 x 10mins or 8 x 4mins *As duration of interval decreases, intensity would increase	OFF (Rest Day)
NOTES	<p>This is Week 3 of the second 4-week Block of training so will be the hardest week of this block and within this phase of training.</p> <p>As such, the time for cardio sessions has increased, the number of reps for weights sessions have increased and the intensity in the 1 x Rowing session has increased.</p> <p>All of this has meant that the Training Load for the week is much higher than in the first example week above even though there is no change to the number of sessions.</p>						



General Preparation Phase: Rowing session - Block 2 | Week 3

WARM UP	ACCUMULATED TIME
3 x 4mins (easy - medium rowing, include skills & drills)	3 x 4min (x1) = 12mins
MAIN SET	
4 x 8mins - all at 75 - 80%	
1. 1 x 8mins, 2mins rest	1 x 8mins (x 1.5) = 12mins
2. 2 x 4mins, 1min rest	2 x 4mins (x 1.5) = 12mins
3. 1 x 8mins, 2mins rest	1 x 8mins (x 1.5) = 12mins
4. 4 x 2mins, 30secs rest	4 x 2mins (x 1.5) = 12mins
WARM DOWN	
10 mins x easy rowing	10 mins (x 1) = 10 mins

*Actual Time of session (including potential extended rest for coaching) = 1.10hrs - 1.20hrs

*Actual Time of Main Set = 4 x 8mins = 32mins

*Accumulated Time of Main Set = 48mins

*Accumulated Time for session (incl. warm up and warm down) = 70mins

(refer to table on pg 11)

NOTE:

Even though the first example session above (B1, W1) had a longer main set than that of Week 3 (B2, W3) the loading on the body and therefore the fatigue will be greater in the second example session (B2, W3).

This can be represented on the graph on page 24, with Intensity on the left vertical axis and Duration on the horizontal axis. The right vertical axis is the Accumulated Time and overall Training Load on the body.

The intensity increased from 60 - 80% in (B1, W1) to 75 - 80% in (B2, W3) so even though the duration of intervals was greater in B1, W1 (3 x 12mins = 36mins) compared to B2, W3 (4 x 8mins = 32mins) the Accumulated Time (right vertical axis) reflects the increase in training load and therefore increased fatigue from the second session.

Additionally, for the last 8mins in the Week 3 session (4 x 2mins, 30secs rest) even though it is still at 75% this will cause greater micro trauma to the muscles and overall fatigue to the rowers because they have to restart and get the boat up and running again from dead water.



EXAMPLE WEEK LAYOUT 3 - COMPETITION PHASE - B1|W2

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	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
EXAMPLE 1	Weights 3 x 6reps	Cardio 30mins x HR 160 - 175bpm	Weights 4 x 6reps	Cardio (Active Recovery) 40mins x HR 120 - 140bpm	Weights 3 x 6reps	Row (Example Session 3) 3min + 4min warm up 4 x 15str start (warm up) 2 sets of: 1 x 4mins @ 90% 2 x 2mins @ 90% 4 x 1min @ 90% 1 x 4mins x Technique 10 - 15min warm down	OFF (Rest Day)
EXAMPLE 2	Cardio 30mins x HR 160 - 175bpm	Weights 3 x 6reps	Row (Example Session 3) 3min + 4min warm up 4 x 15str start (warm up) 2 sets of: 1 x 4mins @ 90% 2 x 2mins @ 90% 4 x 1min @ 90% 1 x 4mins x Technique 10 - 15min warm down	Cardio (Active Recovery) 20 - 30mins HR 110 - 130bpm	Cardio or HIIT Cardio = 45mins x HR 140 - 165bpm HIIT = 30mins x Main Set	Weights + Ergo Weights = 4 x 4reps Ergo Example = 6 x 4min Race Plans	OFF (Rest Day)
NOTES	Reps of weight and Duration of cardio have decreased compared to Example Week 1 & 2 however the weight and intensity of cardio have both increased (increasing Training Load)	Example 2 has 4 x 6reps compared to 3 x 6reps in Example 1. The extra set is because of doing only 2 weights sessions per week rather than 3		Note the slight change in Duration (40mins to 30mins) and Intensity (HR 120 - 140 compared to 110 - 130) between Example 1 & 2. This is because there will be a difference in the accumulative fatigue following either rowing or weights.	Cardio and HIIT are somewhat conservative in Example 2 to ensure than rowers would stay within Zone 4 and not be overreaching into Zone 5 for this session	The Weights + Ergo block session will take longer than a single rowing session however the load on the body will be slightly less than rowing.	



Competition Phase: Rowing session - Block 1 Week 2	
WARM UP	ACCUMULATED TIME
3mins x easy technique 4mins x Rowing Drills 4 x 10 - 15 stroke starts (1 x 50%, 1 x 60%, 1 x 70%, 1 x 80%)	1 x 3mins easy = 3mins 1 x 4mins drills = 4mins Approx estimate = 2mins
MAIN SET	
2 sets of 1 x 4mins @ 90%, 2mins rest 2 x 2mins @ 90%, 1min rest 4 x 1min @ 90%, 30secs rest 4mins x Recovery (easy rowing / technique)	2 sets of: 1 x 4mins (x 1.75) = 7mins 2 x 2mins (x 1.75) = 7mins 4 x 1mins (x 1.75) = 7mins 1 x 4mins (x 1) = 4mins
WARM DOWN	
10mins x Easy rowing technique Skills / Drills (jump starts, turns, trails)	Approx estimate = 10 - 15mins

NOTE:

As with the previous example, the increase in intensity but decrease in rest will mean that there is a considerably higher loading on the rowers. The 4 x 1mins, 30secs rest will induce a high level of fatigue which is why an active recovery piece of 4mins x easy rowing follows straight after. 30secs rest is not enough time for most people's heart rate to return to baseline but it is enough time for the boat to lose all its run and it will be a heavy load on the rowers body getting the boat up and going again.

*Actual Time of session (including potential extended rest for coaching) = 1.15hrs - 1.30hrs

*Actual Time of Main Set = 32mins

*Accumulated Time of Main Set = 50mins

*Accumulated Time for session (incl. warm up and warm down) = 70mins

(refer to table on pg 11)



EXAMPLE WEEK LAYOUT 4 - COMPETITION PHASE - B1|W3

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	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
EXAMPLE 1	Weights 3 x 5reps	Cardio 30mins x HR 165 - 180bpm	Weights 3 x 5reps	Cardio (Active Recovery) 30mins x HR 110 - 130bpm	Weights 3 x 5reps	Row (Example Session 3) 3min + 4min warm up 4 x 15str start (warm up) 2 sets of: 1 x 4mins @ 90% 2 x 2mins @ 90% 4 x 1min @ 90% 1 x 4mins x Technique 10 - 15min warm down	OFF (Rest Day)
EXAMPLE 2	Cardio 30mins x HR 160 - 180bpm	Weights 3 x 5reps	Row (Example Session 4) 2 x 6min + 1 x 4min warm up 3 x Turns (warm up) 4 x 3mins (1 to 4) 4 x 2mins (1 to 4) 4 x 1min (1 to 4) 3 x 20str starts (MAX) 10min warm down	Cardio (Active Recovery) 20mins x HR <120bpm	Cardio or HIIT Cardio = 45mins x HR 140 - 165bpm HIIT = 30mins x Main Set	Weights + Ergo Weights = 3 x 4reps Ergo Example = 6 - 8 x 3min 90 - 100%	OFF (Rest Day)
NOTES	Reps of weight and Duration of cardio have decreased compared to Example Week 1 & 2 however the weight and intensity of cardio have both increased (increasing Training Load)	Again, it is expected with a slight decrease in reps (6reps to 5rep) that the weight lifted would increase. The cardio would be zone 4 to 5 and so will have a greater impact on the body.		With rowing on Day 3, it is essential that a Zone 1 session is achieved and not into Zone 2 HR. As such, example 2 has a reduced HR (<120bpm) and reduced time frame compared to Example 1.	Cardio and HIIT are exactly the same as Week 3 example above. There has been no increase in this session to allow for the residual and accumulated fatigue from Day 1 - 3.	There is minimal difference in Example 2 from last week however it must be remembered that there is also residual fatigue from one week to the next and so even though this week is meant to have a higher Training Load, there is every chance that rowers will start the week in a state of fatigue from the previous week's training.	



Competition Phase: Rowing session - Block 1 Week 3	
WARM UP	ACCUMULATED TIME
2 x 6mins (60%) - technique 4mins x Rowing Drills 3 x Turns (75%), rest as needed for coaching	2 x 6mins (x 1) = 12mins 1 x 4mins drills = 4mins Approx estimate = 5mins
MAIN SET	
4 x 3mins @ (1 to 4), 3mins rest 4 x 2mins @ (1 to 4), 2min rest 4 x 1min @ (1 to 4), 1min rest *(1 to 4) = increasing intensity (e.g. easy, medium, firm, hard) 3 x 10 - 20stroke Starts MAX Effort	Approx estimate = 24mins Approx estimate = 16mins Approx estimate = 8mins Approx estimate = 3 - 4mins
WARM DOWN	
10mins x Easy rowing technique + Skills / Drills	Approx estimate = 10 - 15mins

*Actual Time of session (including potential extended rest for coaching) = 1.20hrs - 1.30hrs

*Actual Time of Main Set = 24mins

*Accumulated Time of Main Set = 52mins

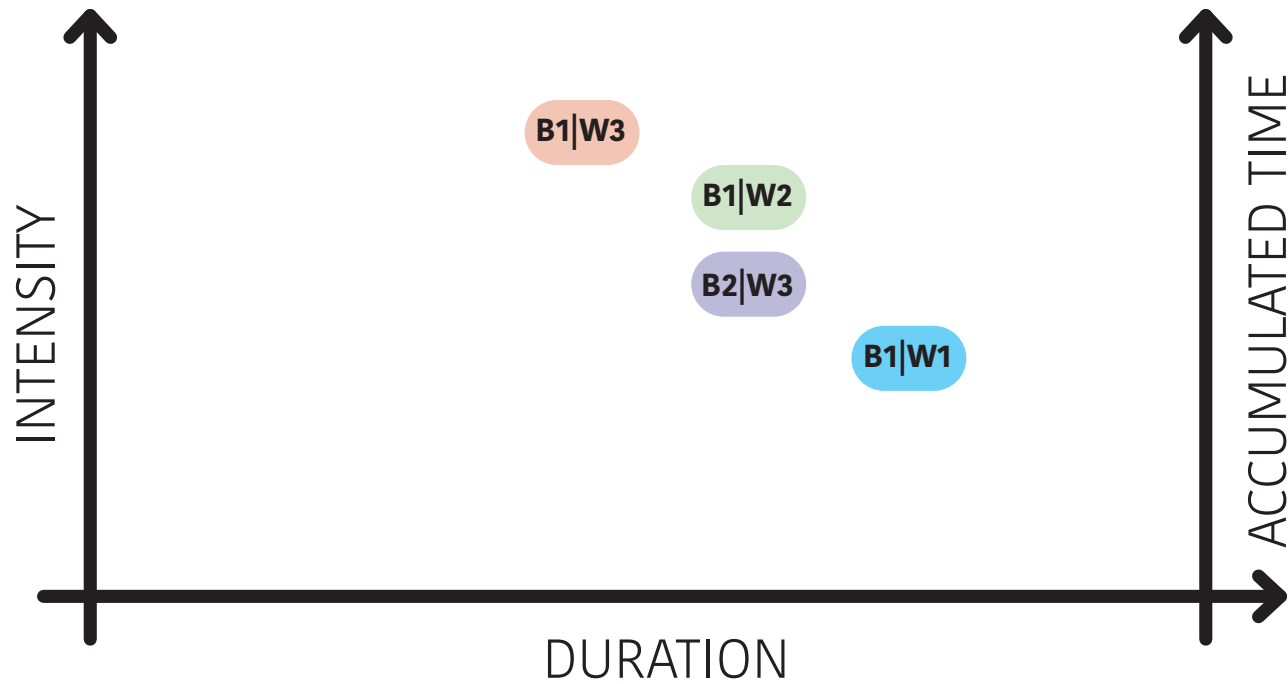
*Accumulated Time for session (incl. warm up and warm down) = 83mins

(refer to table on pg 11)



SESSION COMPARISON (TABLE)

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All of this information is to be used as a guide and is designed to help broaden a coach's knowledge so that they can each come up with new strategies to improve performance. Coaching is dynamic and designing a training program is an experimental process. Every rower and every crew is different however there are some fundamental principles of human physiology that don't change regardless of gender, age or if someone is a surf boat rower, a middle-distance runner or a CrossFit enthusiast.

As mentioned at the very start, this whole process is "fluid" and requires constant revision. It is essential that coaches and sweeps constantly check in on rowers and are kept updated on any changes to personal situations or unforeseen circumstances that might require a coach to change a planned session. By creating and sticking to the overall plan created by programming in this way, sessions can be readily and easily changed with only minimal negative impact on the crew's progression and performance.

By planning ahead there is a greater chance of both improved performance and decreased risk of overloading your athletes. By going through this whole document you will be able to see that programming is easiest when you break the long term time frames down into smaller and smaller time frames, rather than starting with an individual session or a training week and trying to build up across the season.

