



AD in W & G Rugby 3: Running Demands

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Third of 3 AD Workshops

- Looking at:
 1. Injury awareness around W&G rugby
 2. Using primal movements in W&G rugby
 3. **Running demands in W&G rugby**

Disclaimer: This will not qualify you as an AD coach

Introduction

- Understanding running demands can improve performance and help prevent injuries.
- **Presentation goals:**
 - Review key running elements in W&G rugby (WHAT happening)
 - Connect energy systems to running types (WHY these training suggestions)
 - Offer practical training advice (HOW to train effectively)
- **Two Sections:**
 - Energy systems overview
 - Data / practical advice



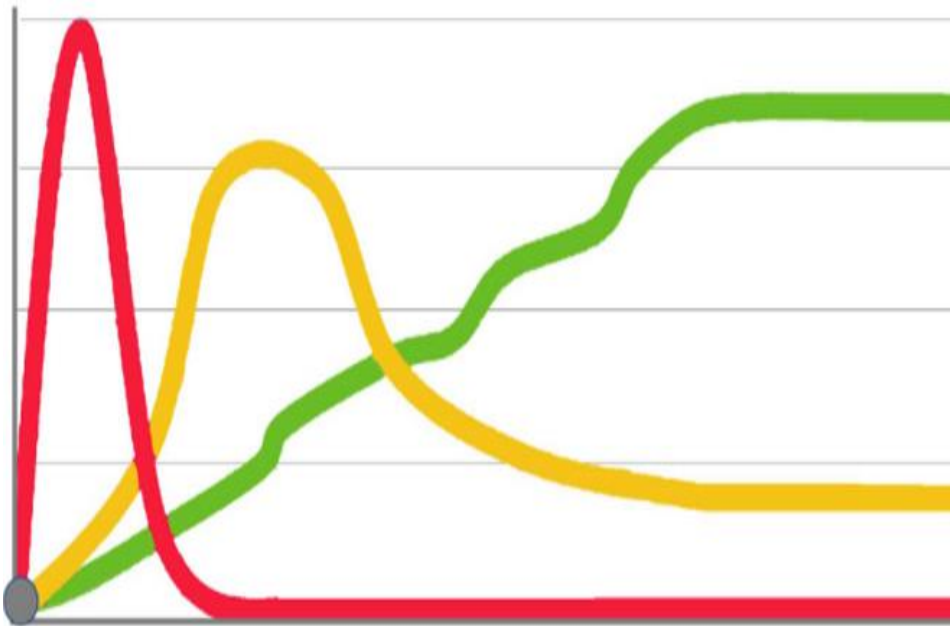
Energy System Overview

Energy Systems Overview

Alactic

Anaerobic/ Lactate

Aerobic



Energy System	Impact	Utilises	Exhaustion Time	KG Term
Alactic	Explosive	Stored energy	<15 secs	Speed / Agility
AnAe/ Lactate	Fatiguing	Recycles waste product	1 to 2 mins	Repeated Effort
Aerobic	Endurance	Uses oxygen to convert	Hours	MAS Underpinning

Energy Systems Overview

Note:

All energy systems contribute at the start of movement

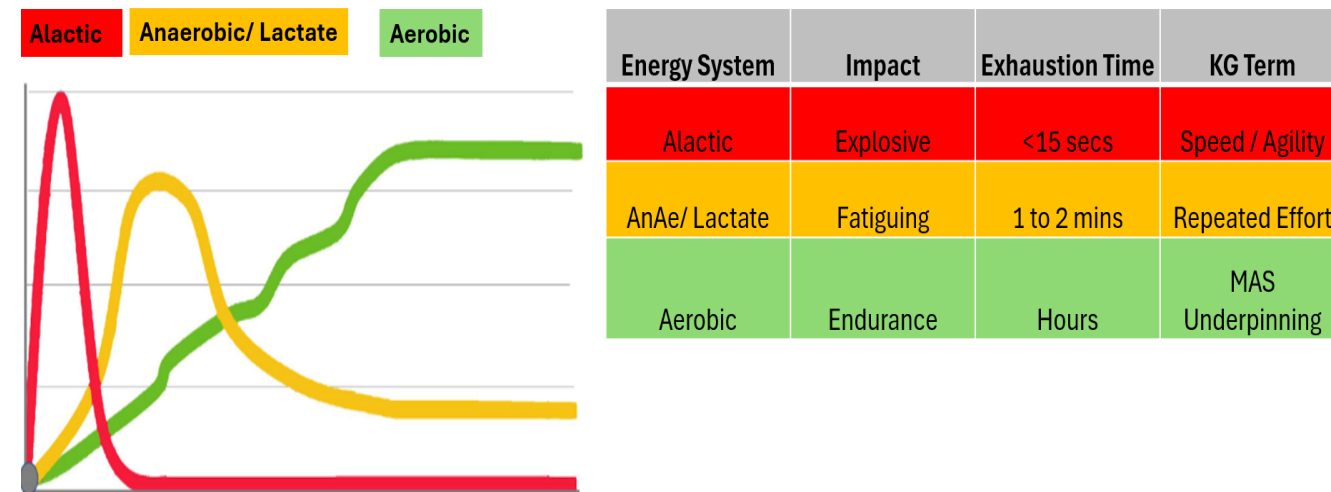
The dominant energy system depends on intensity and duration

More explosive the movement, the longer it is to recover

Example:

- A maximal sprint uses short-duration, high-intensity energy; jogging uses lower-intensity, longer-duration energy

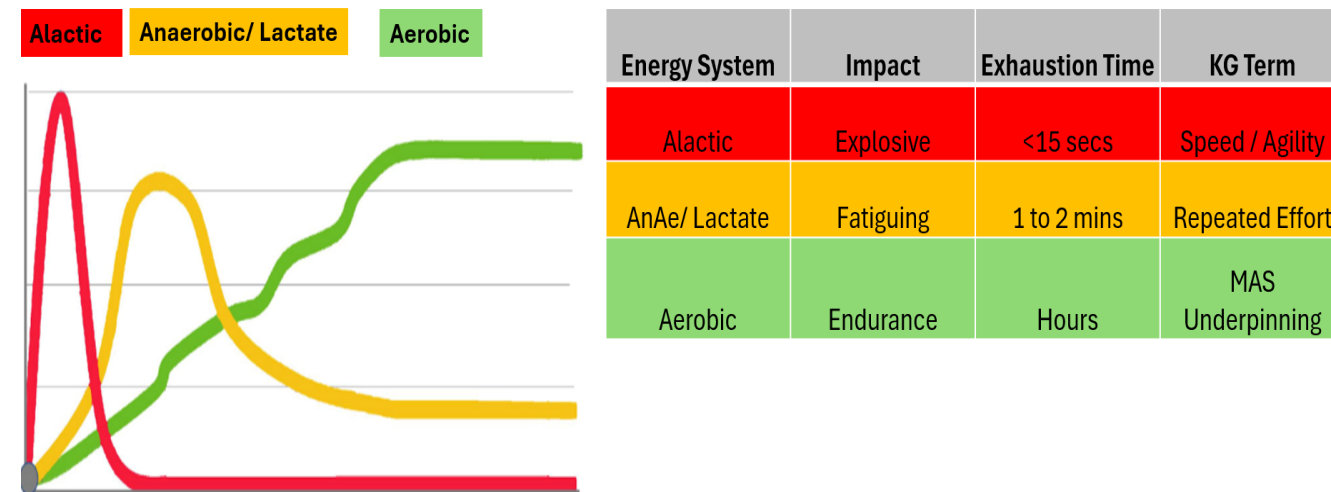
The AnAe/ lactate system can cause fatigue (lactic acid)



Our Challenge

Can we become ‘fitter’ to enable:

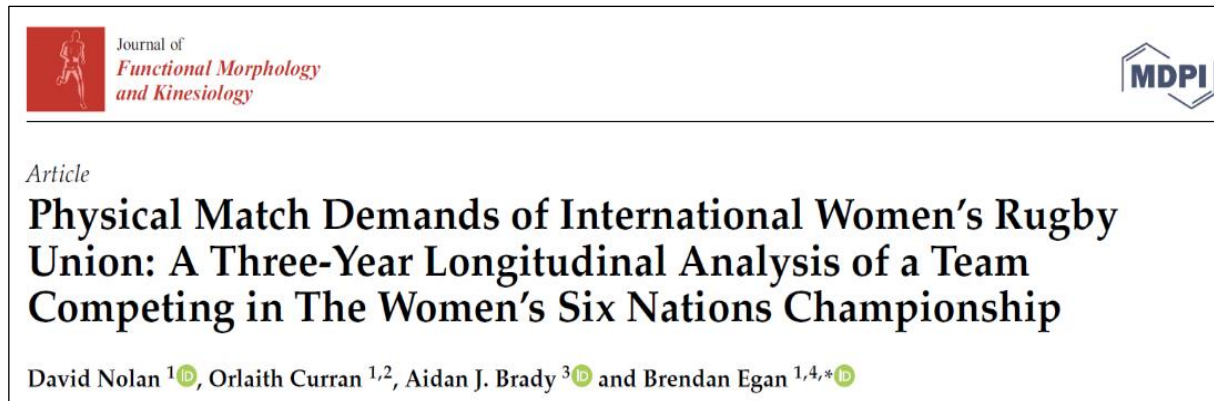
- Sprint recovery / perform more sprints
- Delay fatigue – Player faster / at higher intensity for longer
- **Recovery? Delay fatigue?**
 - Underpinning





Data & Practical Direction

Published GPS Research (Nolan et al, 2023)



- Recent
- Relevant to Irish women's rugby
- Consistent with other research
- Provides an insight to pathway programme
- (Citation is at the end)

What does the Research Say?

NB: Anything in yellow has been calculated for this presentation to provide context

Running match play demands for a squad of international female rugby union					
m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.	Running Category
<1	<3.6	>100s	741m	17.7	Recovery
1.01 to 3	3.6 to 10.8	100s to 33s	2076m	49.7	MAS Underpinning
3.01 to 5	10.8 to 18	33s to 20s	1157m	27.8	Repeated Efforts
5.01 to 5.5	18 to 19.8	20s to 18s	97m	2.3	Agility / Speed
>5.51	>19.8	>18s	106m	2.5	Speed

Mean Total Distance for all speeds = **4177m**

Nolan, et al (2023)

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Start with Slowest Zone (<1m/s)

m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.
<1	<3.6	>100s	741m	17.7

- **What's Happening?**

- Game stoppage
- Organisation at stoppage (scrum / reset scrum, lineout)
- Trapped in rucks
- Getting back to feet

- **In Training:**

- Players walk, jog to / from changing rooms
- Walk / jog between drill stations
- **Appropriate breaks**
 - **Conditions recovery efficiency**

Recovery Zone Key Point

- Appropriate breaks



Developing Speed / Agility

Note:

- **The best way to get faster is to run fast**
 - High correlation between acceleration & max speed practice with speed improvement.
- **Sprint training is an injury prevention tool**
 - Not practiced = shock when faced with it in a game = pulled muscles
- **Agility is a series of acceleration and braking**
- **Only can maintain for short duration**
 - (Usain Bolt – 100m pace = 10.44m/s; marathon time at this pace...
 - = 1hour 7secs)
- **Controlling sprint volume is essential**

Speed / Agility Volume

Too much = <90% max
speed = muscle soreness =
potential injury

Too little = under prepared
= **potential injury**

Avoiding sprints= under
prepared = **potential
injury**

How much is “Just Right?”

Speed / Agility

Running match play demands					
m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.	Running Category
>5.51	>19.8	>18s	106m	2.5	Maximal speed

- Here we see...
 - Players approaching top speeds
 - Sprinting
- Here we see...
 - Low meterage
 - Acknowledge:
 - Players accelerating (pass through to top speed)
 - (Limit meterage)
 - Contact stops acceleration
 - Brake to change direction
 - Done in small space – low meters

Acceleration, braking and direction change suggests agility

How Much Agility Work Should We Do?

Running match play demands					
m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.	Running Category
5.01 to 5.5	18 to 19.8	20s to 18s	97m	2.3	Transition to speed

In an appropriate warm-up perform:

- 5m accelerations from hops, jumps, leaps & skips (2 x 5m per movement)
= 60m
- 5m & 10m acceleration & brakes
 - (3x 5m + 3 x 10 each leg)= 60m
- 4x 20m agility drills
=80m
- 60m + 60m +80m = 200m

NB – Don't do agility drills on same day as sprints

(Control that volume!)

Example: Hops etc + to run



Examples: Agility Drills



How Much Speed Should We Do?

Running match play demands					
m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.	Running Category
>5.51	>19.8	>18s	106m	2.5	Maximal speed

After warm-up (inc. agility prep but not agility drills) move to sprint:

- Sprint practice 4 x 40m
- TOTAL = 120m
- (Distance allows players hit top speed)
- Backs can do 1 or 2 reps more

Example – Speed Drills



Speed / Agility Key Points

- Only do what is necessary (Control volume)
- Incorporate in warm-up to prep for max speed:
 - Hops
 - Jumps
 - Accelerations / brakes
 - (Utilise the injury consideration workshop)
- Perform either speed or agility drills
 - Ensure players hit max speed (within 90%) with walk back recovery



Repeated Effort

Running match play demands

<u>m/s</u>	<u>km/h</u>	<u>100m Context</u>	<u>Accum. Dist. At given speed</u>	<u>%age of Mean Total Dist.</u>	<u>Running Category</u>
3.01 to 5	10.8 to 18	33s to 20s	1157m	27.8	Repeated effort

- Acknowledge:
 - Players are acceleration to faster zones
 - Contact stops them in their tracks

What is Happening:

- Pace (m/s)
 - Too fast for aerobic
 - Too slow for Speed
- Therefore, in AnAe/Lactate zone

Repeated Effort

- **Watch this video clip**
- What are we seeing from the **yellow player** highlighted?



Repeated Effort



- Not at maximal speed
 - But working hard
 - Repeated high intensity explosions
 - Very fatiguing
- Hence:
 - Repeated Effort

Repeated Effort Development

In training:

No specific running required

- Plenty of meters in this category from:
 - Core 4 drills
 - Mini game
 - Big game
 - Contact drills

Maintain Quality:

- Technique
- Intensity
- Plenty of reps

Running match play demands					
<u>m/s</u>	<u>km/h</u>	<u>100m Context</u>	<u>Accum. Dist. At given speed</u>	<u>%age of Mean Total Dist.</u>	<u>Running Category</u>
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Repeated Effort Key Point

- Get the work done through intense rugby drills and training games



MAS Underpinning

m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.
1.01 to 3	3.6 to 10.8	100s to 33s	2076m	49.7

- MAXIMAL AEROBIC SPEED
 - How fast can you run, but stay in this aerobic zone (not move to fatigue?)
- Highest accumulated distance of any category (49.7% of total distance)

MAS Underpinning (what's happening?)

m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.
1.01 to 3	3.6 to 10.8	100s to 33s	2076m	49.7



MAS Underpinning Speed- what's happening?



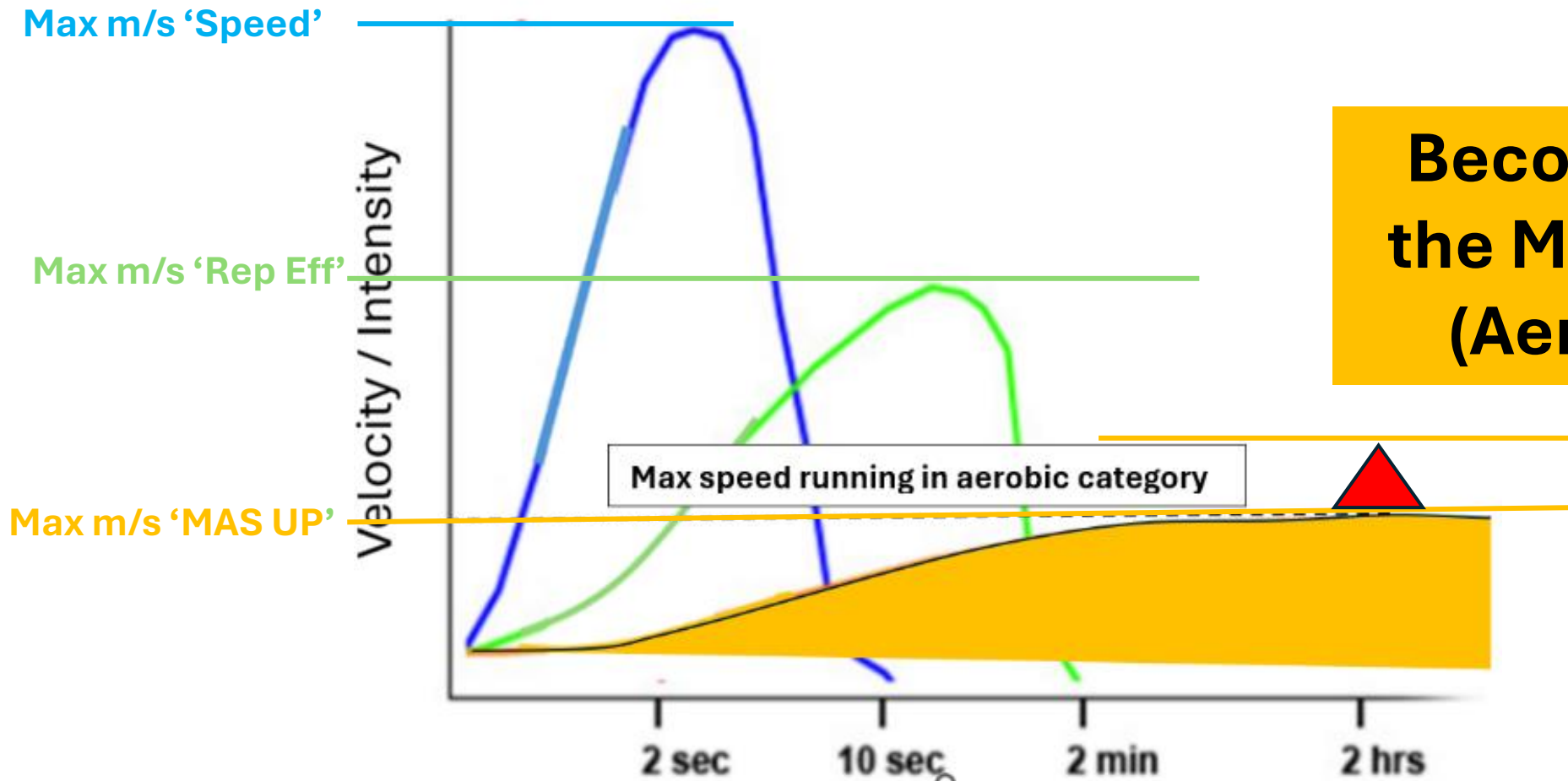
- Some acceleration
 - Move through the gears to attain any speed faster than this category
- Majority is **low speed repositioning**

MAS Underpinning

m/s	km/h	100m Context	Accum. Dist. At given speed	%age of Mean Total Dist.
1.01 to 3	3.6 to 10.8	100s to 33s	2076m	49.7

- **Pace (m/s) is Key:**
 - If we can increase pace
 - Cover more ground (increase workload)
 - Set up faster
- **Improve pace = improve aerobic efficiency**
 - 'Underpin' both speed and repeat effort zones
 - Make recovery more efficient

Increase MAS pace



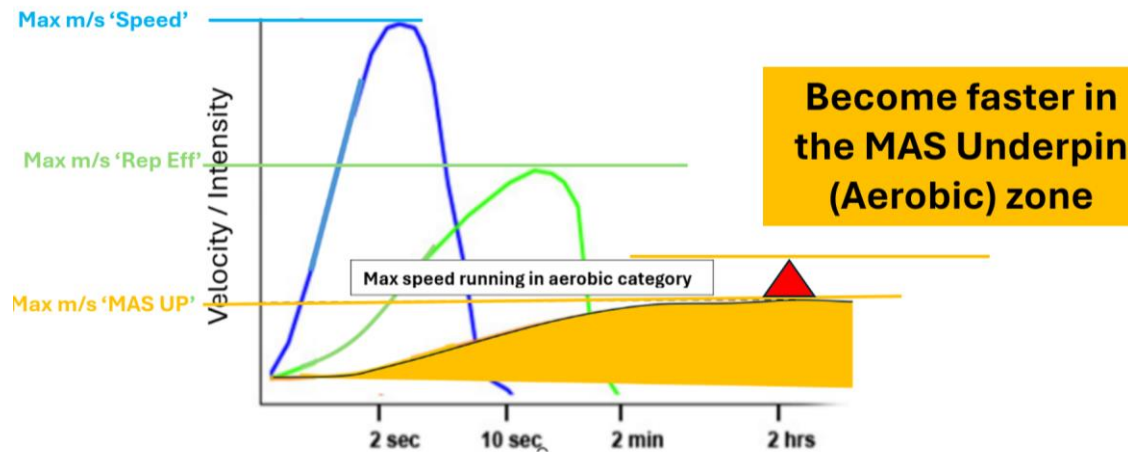
**Become faster in
the MAS Underpin
(Aerobic) zone**

Think

Running a marathon is endurance

Winning a marathon is still endurance....
... but at a much faster pace.

Underpinning Higher Intensities



- Faster pace
 - Underpins:
 - Speed/agility recovery
 - Repeated effort recovery
- Better recovery
 - = Higher sustainable work rate

If MAS improves, then everything above it becomes easier

MAS Underpinning Key Points

- Speed wins moments
- Repeated efforts wins phases
- **MAS wins matches**
 - by allowing players to do more of the above for longer



MAS Training (How?)

- Requires an assessment to establish a pace for all players
- Alter volume or intensity to challenge
- Monitor total distance run

What we do

MAS 1200m RUN TEST

- Based on a timed constant pace over a set distance
 - We use 1200m (12 lengths of a pitch)
- However, some players are not fit enough to complete.

MAS Recommendation to clubs

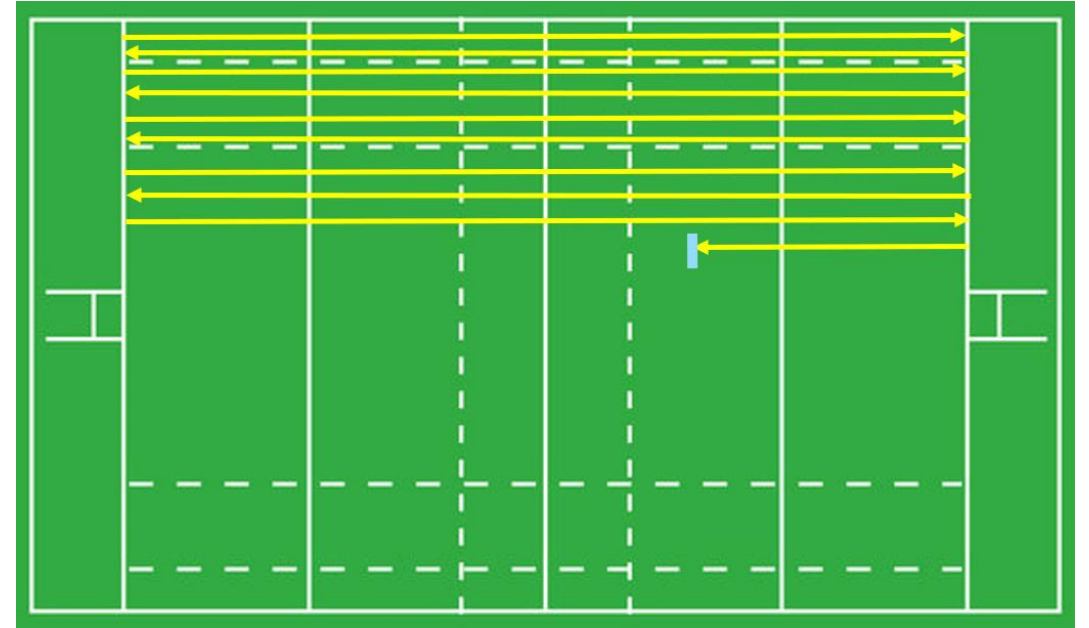
- 6-minute Run Assessment
 - How many lengths (and part of) can a player run in 6 minutes
 - Difference in psychology
 - Run 1200m vs run for 6 minutes
- Mixed ability friendly
 - Fitter players will easily cover > 1km
 - Slower players will have to rely on the aerobic system.

6-Minute Run Assessment Set-up

- Mark the rugby pitch with cones at the tryline and every 25m up to the opposite tryline.
- Instruct players to run hard but maintain a sustainable pace.
- Give time calls every minute to help players pace themselves.
- Motivate a strong effort in the final minute.
- At 6 minutes, record how many lengths each player completes plus the last quarter marker passed.

6-Minute Run Assessment Example

- A player's runs:
 - 9 lengths (900m) plus around 33m (approx. 933m total)
 - The last quarter point they passed was 25m.
 - So, distance covered is **925m**.



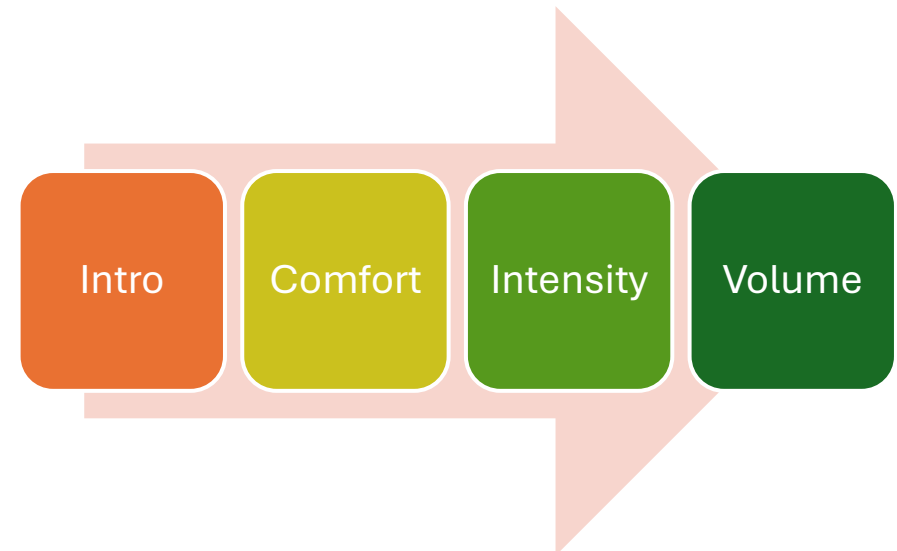
6-Minute Run Assessment Example

- MAS pace = $925 / 360$ seconds (6mins) = **2.5m/s**

Use this pace to design sessions

Designing MAS Session

- Default information:
 - Run for 1 minute, rest for 1 minute.
 - 8-12 reps
 - Run at 95-105% MAS pace
- Over the weeks..
 - Never change all variable at once:



Session progression (using 2.5m/s pace)

Week	Reps	%MA S	Pace (m/s)	Dist / 60 s run (m)	Session Distance (m)	Focus	Coaching Intent	Coaching Cues
1	8	95%	2.3	138	1104	Introduction	Learn, pace, finish	Even pace; Finish Strong, not fast

This is slow but remember:

1. It is aerobic (therefore slow)
2. This is individualised – Based on the player's pace
3. There are lots of reps – Need energy to complete over 1.1km of running
4. We don't wish to scare them off training – Hence introduction

Session progression (using 2.5m/s pace)

Week	Reps	%MA S	Pace (m/s)	Dist / 60 s run (m)	Session Distance (m)	Focus	Coaching Intent	Coaching Cues
1	8	95%	2.3	138	1104	Introduction	Learn, pace, finish	Even pace; Finish Strong, not fast
2	9	95%	2.3	138	1242	Comfort	Slight overload (albeit vol,)-still comfortable	Even pace; Finish Strong, not fast
3	9	100%	2.5	150	1350	Intensity step	Now working MAS	Keep technique clean
4	10	100%	2.5	150	1500	Volume step	Raising aerobic ceiling	Breath heavy by rep 5/6; Earn the rest
5	10	105%	2.6	156	1560	Intensity (MAS speed)	Fatigue resistance	Dig in on final reps
6	11	105%	2.6	156	1716	Volume	Aerobic stress	Dig in on final reps
7	12	105%	2.6	156	1872	Volume	Maximal aerobic stress	Pace may drop slightly (acceptable)

Week 1: 8 mins running (16 min session) at 95% (1104m)

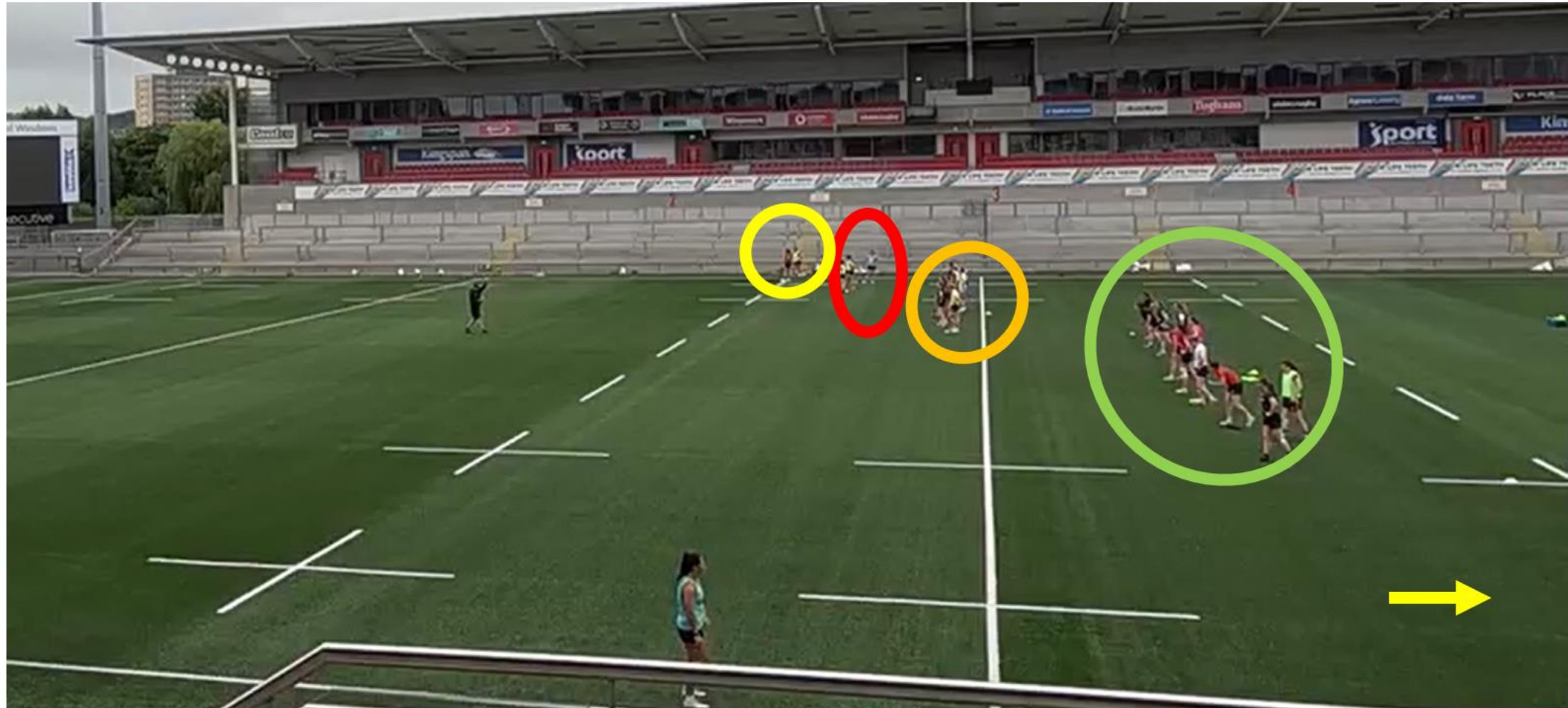
Week 7: 12 mins running (24 min session) at 105% (1872m)

NB Twice the assessment duration at 5% faster pace

Group players

- Variety of player at various paces
- Group players of similar ability
 - If players struggle, drop them down a group
 - If finding it too easy – step them up a group

Group players



Group players



Session Format Suggestion

- Warm-up

- (include primal movements & injury prevention tools)
 - Re: last two workshops
- Build with hops, jumps, accel & brake
- Finish with 4 x 40m max speed sprints or agility drills

Then:

- Rugby session covers all **repeat efforts**
- Finish with MAS runs

Done in 15 mins

MAS Training Key Points

- Test for pace
- Use pace %age table to direct weekly session change
- Group players of similar ability





Did you complete the reg form
(in chat box)?

Questions...



?