

Race Warm Up

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Aims of the presentation

- To discuss the reasons a pool warm up is completed
- To Introduce the concept of a land warm up before racing
- To demonstrate different exercises that can be used for a land warm up

Why is it important ?

- Warm ups are a widely accepted practice preceding nearly all athletic events
- Prepare the athlete mentally and physically for optimum task completion – Conflicting research supporting its performance effectiveness (physiologically and performance related).
- Improved athletic performance has been attributed to increased core temperature, muscle temperature, blood flow and the additional ergogenic benefits they bring.
- Evidence is mixed on injury prevention.
- Many studies investigating warm up used poorly controlled procedures and tested different durations, intensities, modes and recovery periods

Performance benefits:

strength & Power

- Improved RFD and reaction time – starts and turns
- Increased transmission rates of nerve impulses – intra & inter muscular co-ordination
- Decreasing stiffness – improving the force velocity relationship
- Decreasing initial O₂ debt – more anaerobic power capacity for later
- Improved swim performance
- Long term conditioning benefit



Performance benefits:

Endurance

- Improved economy of movement
- Reduced O₂ debt as activity begins at an elevated level
- More efficient O₂ transportation and delivery to the working muscles due to 'Bohr shift'
- Increased initial blood flow to working muscle groups
- Precaution: ensure the intensity of the warm-up depletes muscle glycogen stores



Ideal swim warm up for competition

- Reasons for a pool warm up
 - Increase body temperature
 - Familiarise the swimmer with the environment
 - Technique work
 - Rehearse parts of the race
- Swimmers should do more and at a higher intensity than previously thought
- Age group swimmers should do between 30 and 45 min if possible
- Maximise the pool time and space available
- Establish good habitual practice in your swimmers

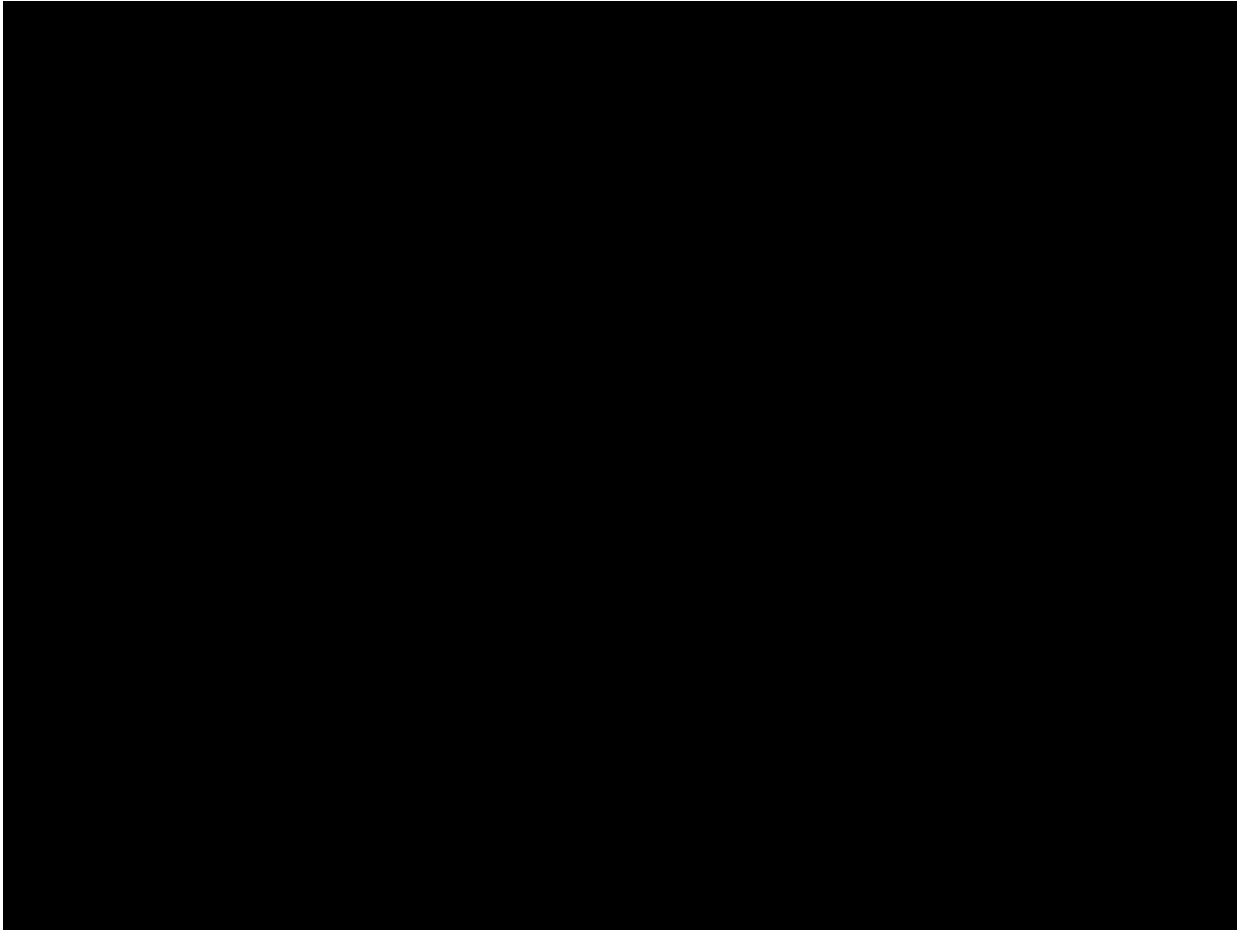


Photo courtesy of Abi Clarkson

Typical pool warm up



- Easy swimming to loosen the muscles and familiarise with the pool itself
- Reducing aerobic block [E.g. 6 x 100, 3 Descend ,3 Hold at 30 BBM]
- Drills and technique
- Pace 50's reasonable rest / easy swimming
- Some race pace sprints [E.g. practice dives and 1st 25]
- Easy swim or repeat some of the above



Issues with pool warm up

- Issue 1
- Muscle temperature
- Cool environment combined with cold water in warm up can reduce body temperature
- 1% loss in muscle temperature can result in 10% power loss
- Solution
 - Clothing
 - Activities
 - Land warm up
 - Environment

Issue 2-Warm Up Timing

- Significant delay between pool warm up and racing will reduce the benefits of a warm up
- Solution
 - Incorporate into race day routine a land based warm up
 - Ideal time for this is 20-35 minutes pre race
 - Limited equipment and space available

Basic principles of a land warm up

GENERAL

- Simple CV exercises
- To raise core temp, muscle temp, VO₂, heart rate, blood flow etc.
- Development of a performance routine
- Psychological engagement
- Low to high intensity

SPECIFIC

- Movement patterns that closely resemble swim execution
- Activation of key muscle groups involved
- Mobilisation of specific joints required for swim performance
- Stimulate neural pathways
- Improve specific ROM's

British Swimming Recommendations on Land warm up

- Swimmers should work with their coaches to make their own individual race warm ups
- Use low priority competitions to practice, reflect, change and improve the warm ups
- Typical race warm up should include
 - Pre swim land warm up
 - Swim warm up-volume and high intensity
 - Stay warm
 - Land based exercise to enhance pool warm up

Land based warm up—3 stages

- 1. Key activation work
 - Higher resistance movements to prepare the muscular system for racing
 - Great technique throughout
 - Maintain tension

Level 1	Level 2	Level 3
Kneeling push up (8)	Knees up feet down push up (8)	Full push up (8)
Zombie Squat (8)	Split Squat (6&6)	Single leg Pistol (6&6)

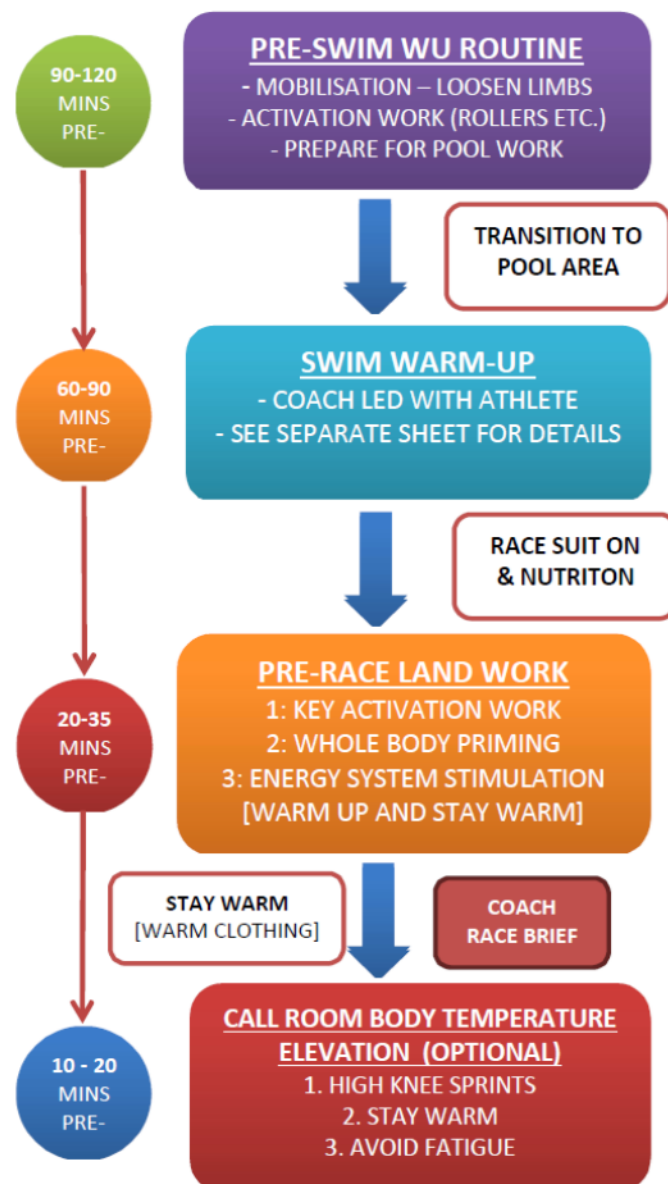
- 2. Whole body priming
 - High speed movements
 - Explosive
 - Prepare for maximal race performance

Exercises	Reps
Plyometric Push up (from knees or feet)	5 Reps
Jump Squat (reactive or countermovement)	3 reps

- 3. Energy system stimulation
 - Rapid movement to activate energy metabolism
 - Increase HR and breathing ready for activity

Either exercise	Time
Fast skipping	3 x 15 seconds, 45 secs rest
High Knee Sprinting with arms	3 x 15 seconds, 45 seconds rest

PRE-RACE LAND WORK	Muscle Priming
	Higher resistance movements selected to prepare the muscular system and whole body for racing. To be completed with emphasis on great technique and maintaining tension throughout the movements.
	Upper Body Push Pattern
	Level 1: Kneeling Push-Ups [1 x 8]
	Level 2: Knees Up, Feet Down Push-Up [1 x 8]
	Level 3: Full Push-Up [1 x 8]
	Lower Body Squat Pattern
	Level 1: Zombie Squat (arms out in front) [1 x 8]
	Level 2: Split Squat (one leg forward/back) [1 x 6+6]
	Level 3: Single Leg Pistol (leg out with support) [1 x 6+6]
	Power-Up
	High speed movements which should be completed as explosively as possible to prepare the athlete for maximal race performance
	Plyometric Push Up (From Knees or Feet) [1 x 5]
	Jump Squat (Reactive or Countermovement) [1 x 3]
	Energy System Stimulation
	Rapid movements to activate energy metabolism, increase breathing and Heart Rate ready for racing.
	High Knee Sprinting with Arms [3 x 15s On with 45s Rest] OR: Fast Skipping [3 x 15s On with 45s Rest]



Key Points of land warm up

- CV work/Ballistic action—warm up the muscle
- Raise muscle temperature and stay warm with clothing
- Do Not Fatigue the Swimmer
- Make sure adequate nutrition and suit put on before land warm up
- Can be used when swimming warm ups are
 - Short
 - Busy
 - Sub optimal
 - Over an hour between pool warm up and race

Take home message

- Swimmers should do more and at a higher intensity than previously thought
- swimmers should do between 30 and 45 min if possible
- Maximise the pool time and space available
- Establish good habitual practice in your swimmers
- Land warm up can be used as an added warm up—doesn't replace a pool warm up

Thank You

QUESTIONS

