

Sundays Well Swim Club

Preparation for Performance
Sednie McGrath MSc

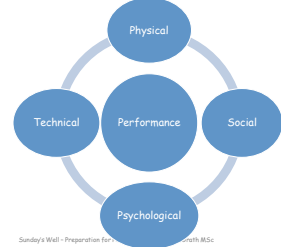
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Key Topics

- Factors that influence performance
- Nutrition
- Hydration
- Rest & Recovery
- Adaptation to training - self monitoring
- Questions

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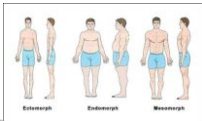
Factors that influence performance



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Factors that influence performance

- **Physical**
 - State Characteristics
 - » Aerobic & Anaerobic capacities, strength & power, Body composition, Flexibility - long-term adaptation to training
 - » Nutritional & hydration status - short-term.
 - Trait Characteristics
 - » Somatotype, Structure of Joints & Levers



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Factors that influence performance

- **Social**
 - Family
 - Peer Group
 - Relationship with coach
 - Relationship with club members



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Factors that influence performance

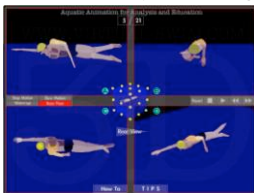
- **Psychological**
 - Personality
 - Motivation
 - Confidence
 - Stress & Anxiety (state & trait)
 - Opposition



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Factors that influence performance

- **Technical (& Tactical)**
 - Biomechanical Efficiency & Streamlining



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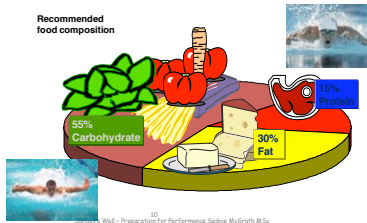
Nutrition

- What you Eat
- How much you eat
- When you Eat



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Balanced Diet



The Food Pyramid



Top Food with low glycemic index to prevent hunger pangs	
low glycemic index:	high glycemic Index:
fruits	shortbread
cereals without sugar	flakes and cereals with sugar
dry fruits	honey/sugar
wholemeal bread	white bread, bun, bapal
wholemeal or sprouted	crisps/salts
vegetables, salad	fried potatoes
nuts	chips, taco-chips
parboiled rice	white rice
brown or basmati rice	instant rice
noodles	french fries
legumes	corn starch
fruit vegetable juice	cola/limonade
juice 3 or 4x	energy drinks
plain yoghurt	icecream

Plan Your Day - "graze" Regularly!!

Breakfast

- (Pre-Training Smoothie)
- Mid-Morning Snack

Lunch

- Mid-Afternoon (Pre-Training) Snack

Dinner

- Evening Snack



Everyday Nutrition

Breakfast	Lunch	Dinner	Snacks
<ul style="list-style-type: none"> *Cereal – porridge/meusli/ wheat/ale. *Bread – Brown with honey *Fruit & Low Fat Yoghurt *Fruit Juice 	<ul style="list-style-type: none"> *Sandwich/Wrap – ham/chicken/lean beef *Pasta Salad bowl – mix with tuna, chicken or lean ham *2-3 pieces of fruit *Juice/Water 	<ul style="list-style-type: none"> *Soup (lentil/vegetable) *Potato/Rice/Pasta *Meat/poultry/fish *mix with tuna, chicken or lean ham *2-3 vegetables *Glass of milk 	<ul style="list-style-type: none"> *Rice cakes *Fruit – smoothies *Yoghurt *Popcorn *Cereal Bar
*Scrambled eggs, beans & toast.			

What happens when we train?

- Our bodies burn glycogen releasing glucose into the muscles for energy
- Our supplies only last for 60-90min during moderate intensity; 45-60min during very high-intensity sessions.
- To train and compete we need to "fuel" up with carbohydrates (CHO)
- Low levels of glycogen cause sore muscles, tiredness, dizzy, nausea, mood disturbances
- If you are constantly training "running on empty" Your body signals a breakdown in muscle (protein) to release glucose = you lose your swimming power!

Nutritional factors associated with fatigue or a decline in performance

- Low muscle glycogen
- Low blood glucose
- Dehydration
- Low blood sodium
- Stomach upset

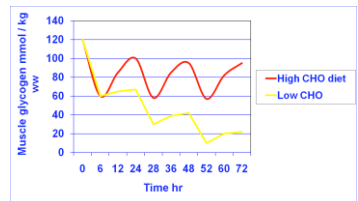


Glycogen depletion results in

- Fatigue
- Decreased strength
- Poor concentration
- Poor technique
- Increased injury risk



High carbohydrate diet promotes daily recovery of muscle fuel stores



Nutrition for Competition

- It's what you eat 1-3 days before that counts
- Increase low GI CHO portion sizes slightly
- Increase fluid intake slightly
- Get plenty of rest & sleep



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Pre training/Competition

- Plenty of low GI carbohydrates
- Low in fat
- Not too much protein: both can cause stomach upset
- Make sure you have familiar foods
- Hydration!!!

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Pre training/Competition cont

Immediately before

- ✓ Fruit
- ✓ Energy bar/cereal bar
- ✓ Low fat fruit yoghurt
- ✓ Jellies (experiment before competition day)
- ✓ Plenty of water



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Nutrition for Competition

- Healthy Snacks
 - Cereal bars
 - Rice cakes
 - Fruit
- Avoid foods that contain fat on competition days/weekends as they take too long to digest.



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Gala day

- Preview the race schedules & plan your day
- Always have a large breakfast
- Plenty of water
- Have a light snack an hour before (cereal bar/few pieces of dried fruit)
- Once your body is well warmed up you can start taking (very small amounts) of a sports drink - sips = 150ml of isotonic drink.

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Nutrition for recovery

Muscle changes post exercise

- After exercise, hormonal and metabolic changes occur in the muscle.
- This sets the muscle up to repair, regenerate and recover as quick as possible
- This increased sensitivity is short lived
- **Time is crucial**
- Need to get the right nutrients in quickly

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RECOVERY

- AIM
 - Replenish muscle glycogen levels ASAP
 - Replace protein
 - Rehydrate
- NB WINDOW OF OPPORTUNITY
 - Ideally within 30 minutes
 - Muscles have improved regeneration abilities for 24 - 48 hours post exercise.
 - Poor diet in this period delays muscle repair and glycogen regeneration



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Recovery

- PLAN
 - Take in 1g CHO per kg AS SOON AS POSSIBLE after exercise
 - Have a sports drink/dioralyte or other source of CHO
 - Have some protein; small amount of nuts, low fat yoghurt
 - Within 2 hours of exercise need to have a low GI, low fat meal with a protein food such as meat or fish.
 - Glycogen stores need to be replenished for 24-48 hours after exercise

NB HYDRATION: water is fine if taking CHO as food

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Re-fueling ideas

Carbohydrate rich snacks

- 3-5 Weetabix (35-60g carbs)
- 1½ cups cornflakes (60g carbs)
- 1 cup rice (180g carbs)
- 2 medium bananas (50g carbs)
- 1 medium potatoes (120g carbs)
- 1 bottle (500mls) Lucozade Sport (32g carbs)



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Nutrition for Recovery - Post Training

- The quicker you eat/drink after training the quicker you recover.

Immediately after training/race (<30min)	Within 2 hours
Bananas, sports drink, dried fruits, cereal bar, LF yoghurt, fresh fruit smoothie	Protein and Low GI foods (complex CHO) Cereal (weetabix/porridge/meusli) Nuts, LF yoghurt, smoothie Chicken/tuna pasta salad, Potato/rice

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Summary

	GENERAL	BEFORE EXERCISE At least 1 hour	DURING At regular intervals	AFTER As soon as possible
Carb.	5-7g/kg/day 4-6 meals/snacks per day	1g/kg Low GI	30-60g/hour High GI	1g/kg Mixture of High & low
Prot.	1.5 - 2.0g/kg/day			1g/kg
Fat	<30% total calorie intake	Low fat		
Fluid	50-60 ml/kg/day	125-250 ml 15-30 minutes before	125-250 ml every 20 minutes	Replenish fluid losses. Check urine color

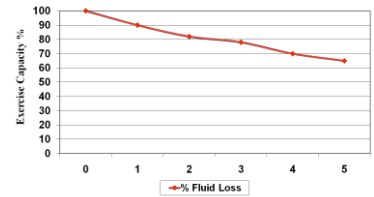
Sample Meals

Pre-training Meal	During Training	Post-Training Meal	Snacks
Cereal (weetabix)	Sports Drink (>1.5h)	Chicken & mixed veg stir fry with noodles	Popcorn
Wholemeal Toast with honey		Tuna pasta bake	Fruit
Fruit Juice		Baked potato with beans/low fat cheese/chilli	Dried fruit & nuts
Fruit (small banana/grapes)		Smoothie & fruit	Cereal bars

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Hydration

Effect of Dehydration on Performance



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Hydration

Am I Hydrated? Urine Color Chart

This urine color chart is a simple tool you can use to assess if you are drinking enough fluids throughout day to stay hydrated.

If your urine matches the colors numbered 1, 2, or 3 you are hydrated.

If your urine matches the colors numbered 4 through 8 you are dehydrated and need to drink for more fluid.

Be Aware! If you are using single color supplements or electrolyte supplements, then if the electrolyte supplements can change the color of your urine for the next 24 hours (bright yellow or clear).

If you are using a urine equipment, you may need to check your hydration status using another method like a urine color chart.

Source: NCC (National Clinical Body Weight Ltd)

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Fluids

Pre-Training	During Training	Post Training
•Water •Cordial (squash) •Fruit Juice (1-2hours before)	•Isotonic Drink (>1.5h) •Cordial •Water	•Sports Drink •Water & Fruit/Cereal Bar •Fruit Juice •Skim Milk •AVOID CARBONATED DRINKS - ALWAYS!

Performance Issues - Self Monitoring

- Record Body Weight every morning after first urination
- Record Resting Heart Rate every morning (H/R monitor beside bed)
- Record hours slept
- Record volume (m) and intensity of sessions.
- Record Heart-rate before going to sleep.

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Keep a training Diary

SEPTEMBER 2009
4 Sun
Training diary form for a swimmer, including sections for: Meeting Dates, Weight, Height, Age, Sleep, Diet; Training Log (Date, Time, Distance, Time, Comments, Notes); Training Frequency (Swimming, Running, etc.); and a weekly calendar grid.

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Questions?

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