

Nutritional Strategies for Junior Swimmers – Talk for parents

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Maturation



- Variation in timing & tempo of maturation
- Mental / intellectual and emotional changes

Junior “basic” Needs & Wants

A word cloud featuring various terms in different colors and orientations. The terms include: SLEEP, SCHOOL FLUID, ENERGY, VITAMIN E, ETHIAMIN, FAT SELENIUM, IODINE, ENJOYABLE CARBOHYDRATE, VITAMIN D, AVAILABILITY, IRON, DENTAL HEALTH, TRENDY, VITAMIN A, NORMAL, COOL ACNE, EASY, WEIGHT, PROTEIN, UNCONVENTIONAL, QUICK, FRIENDS, FOLATE, CHEAP, FIBRE, RIBOFLAVIN, ZINC, VITAMIN B12, HEIGHT, FASHION, VITAMIN C, GLYCAEMIC INDEX, and UNCONVENTIONAL. The words are arranged in a dense, overlapping pattern.

SLEEP
SCHOOL FLUID
ENERGY
VITAMIN E
ETHIAMIN
FAT SELENIUM
IODINE
ENJOYABLE CARBOHYDRATE
VITAMIN D
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GLYCAEMIC INDEX
UNCONVENTIONAL

Nutritional Strategies for Junior Swimmers



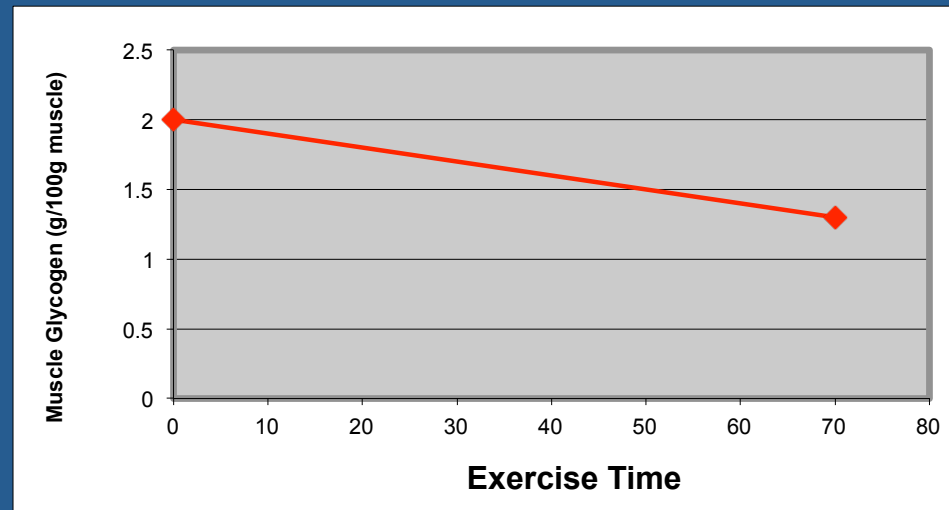
Fuel & Exercise

- Swimming
 - Focus on training
 - Endurance basis
 - Technique (stroke, starts, turn, finishing)
 - *Competition used to test & refine skills*
- On land
 - Play and Sport
 - School



Optimum Fuel

- Glycogen
 - Most important fuel for working muscles
- Exercise decreases glycogen
 - Fatigue, injury, reduction in performance

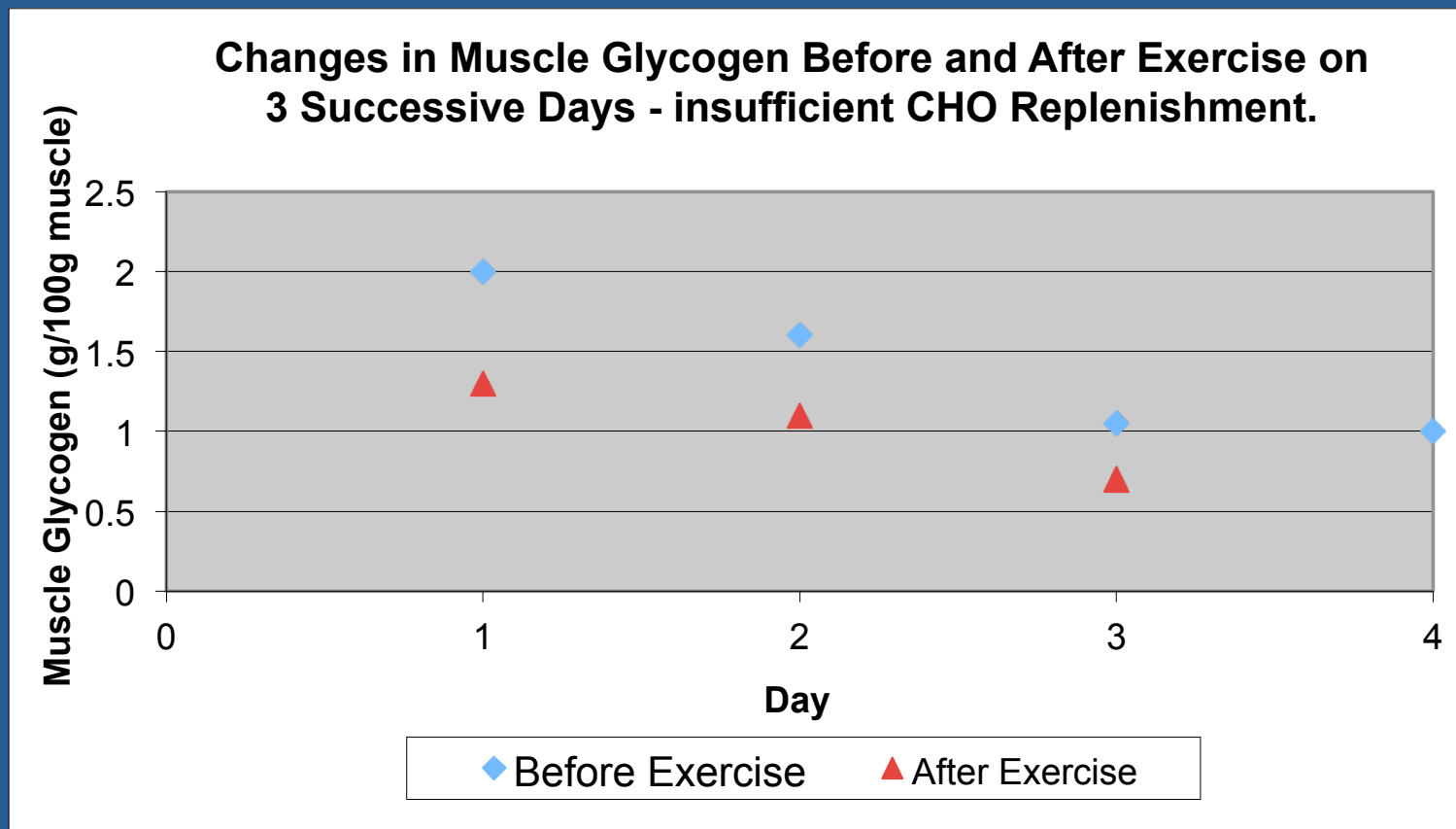


Glycogen & Carbohydrate

- Glycogen is synthesised from **Carbohydrate**
- To maintain glycogen stores need carbohydrate in the diet.
- Starchy foods (Bread, pasta, rice, noodles, cereals, potatoes)
- Concentrated in sugary foods (sweets, fruit juice, honey, sports drinks)

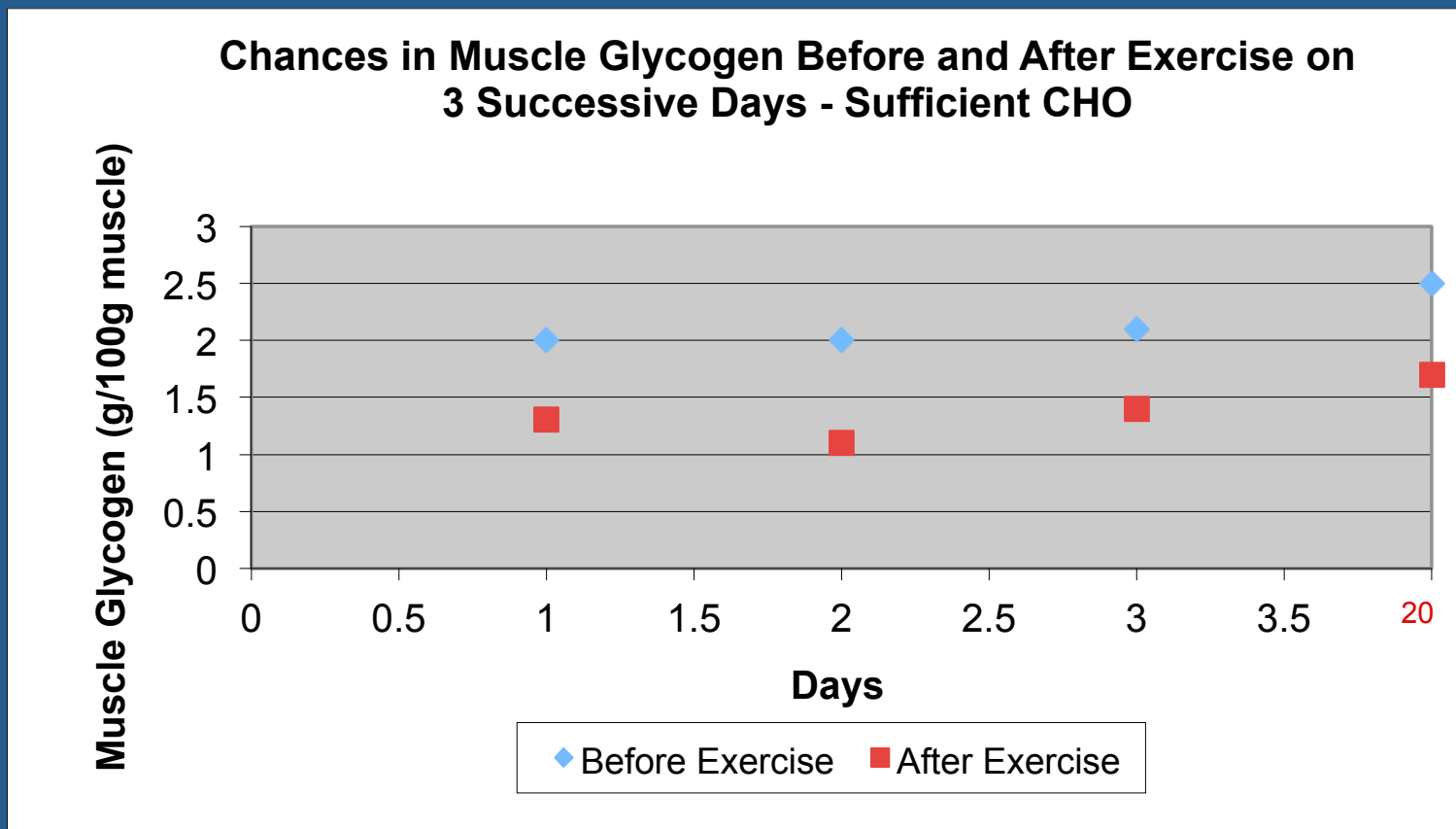
Insufficient Carbohydrate

- Unable to maintain muscle glycogen
- Reduced training gains and performance



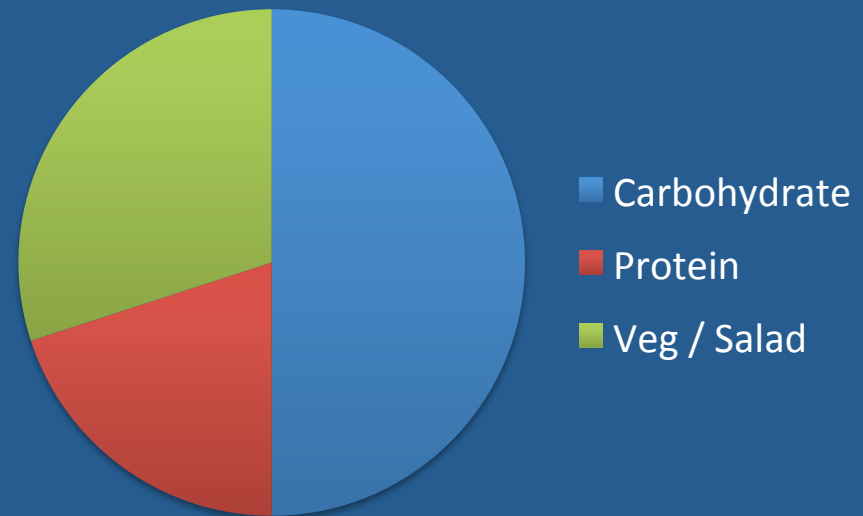
Sufficient Carbohydrate

- Training gains and improved performance
- Improved capacity to store glycogen



Achieving A High Carb Diet

- Base meals on carbohydrate foods
 - Rice, Pasta, Bread, Potatoes, Noodles, Breakfast cereals.
- Carbohydrates should take up 50-55% of the space on the plate.
- Between meals choose snacks which are carbohydrate based
 - Cereal bars, toast, crumpets, muffins
 - Fruit
 - Milk, yogurts, milkshakes



Main Meal Ideas

Half the plate should be the carbohydrate.

Chili con carne

Spaghetti bolognese

Lasagna made with lean meat with crusty bread and salad

Potato and bacon casserole

Savory chicken rice

Spicy sausage hot pot

Roast beef, chicken, pork or lamb with potatoes, rice or pasts and / or bread and any vegetable e.g. baby sweet corn, green beans, carrots

Pasta plus sauce (not creamy choices)

Stir fry chicken/ beef / pork wit vegetables and noodles

Vegetable and lentil or chicken curry with rice and chapattis

Thanks to Gill Horgan for some ideas

Packed Lunch

Some ideas of the main part of the packed lunch, add other items from the regular snack list

Sandwich fillings: Tuna and cucumber mixed with light mayo, low fat cheese and chutney, grilled bacon, lettuce and tomato, ham and tomato, egg and cress mixed with light mayo, chicken salad, low fat cheese and ,marmite, low fat cheese and grapes, honey, peanut butter and jam, banana, banana and jam.

Rice salad or pasta salad: Cooked rice or pasta mix with chopped cucumber, halved tomatoes, sweet corn and handful of cashew nuts or cubed cheese or ham or chicken. For rice mix with low fat salad dressing, for pasta salad mix with low fat yogurt

Couscous salad: Prepare couscous as per instructions, mixed with chopped cucumber, halved tomatoes, sweet corn and handful of cashew nuts or cubed cheese or ham or chicken. Mix with low fat salad dressing

Thanks to Gill Horgan for some ideas

Regular Snack Ideas

Eat these at hungry times on dry land when you are not about to get wet!

Bread sticks with hummus

Rice cakes with any topping

Pretzels

Malt loaf

Dried fruit (raisins, apricots, sultanas)

Cereal bars

Milk and Milkshakes

Breakfast cereal (eat dry in place of crisps)

Low fat yogurts and yogurt drinks

Boiled or Hard boiled egg & toast

Fruit (any!)

Jaffa cakes

Plain popcorn

Fruit scones

Plain toast / bagel with cream cheese

Scotch pancakes

Currant bun / Hot-cross bun

Keep a snack basket not a biscuit tin

Keep a snack box in the car

Drink regularly throughout the day

Get the most out of training



Carbs before exercise
Carbs during exercise
Carbs & protein in recovery

Food planned around training

Morning Swim	After School Swim	Morning & After School Swim
Pre-Swim Snack	Breakfast	Pre-Swim Snack
Swim (Drink +/- Snack)	Mid Morning Snack	Swim (Drink +/- Snack)
Recovery Snack (Breakfast)	Lunch	Recovery Snack (Breakfast)
Mid Morning Snack	Afterschool / Pre-Swim Snack	Mid Morning Snack
Lunch	Swim (Drink +/- Snack)	Lunch
After School Snack	Recovery Snack	Afterschool / Pre-Swim Snack
Evening Meal	Evening Meal	Swim (Drink +/- Snack)
Bedtime Snack*	Bedtime Snack	Recovery Snack
		Evening Meal
		Bedtime Snack*

* Bedtime snack should always be included if little taken for morning pre-swim snack

Before exercise

- Last meal based on carbohydrate (50-60%)
- If exercising >60mins* or if not eaten much at the last meal
- Top up with Carbohydrate <60mins before exercise
 - Easy to digest
 - Satisfy hunger (but not too full)
 - About 30-50g Carbohydrate
- *especially if >90mins

Suitable for Pre-Swim “on the go”

Bagel with mashed banana or honey / jam

Cereal bar or breakfast biscuits

Sandwiches/roll* fillings of jam, honey, banana, soft cheese

200-500mls low fat milkshake

4-6 Jaffa cakes

Large banana

3 handfuls of raisins, dried mango

Variety pack of cereal (eat dry)

Scotch pancakes x 2-3

Hot Cross bun / Tea cake

* Use white or 50:50 bread

- Likely also to need a drink if urine is dark in color (& not a lot of it!). Drink to thirst (slowly). Water, milk, squash, fruit juice, sports drinks. NOT energy drinks
- Find things that work for you
- You may need about this much food or more (combine 2 choices if needed)
- Make “on the go” box for in the car, in your school locker
- In **Emergency** only
 - Packet Jelly babies, boiled sweets or skittles
 - Glass Lucozade
 - 1 large Iced bun
 - Crunchie bar

Suitable for Pre-Swim “from home” ... with a little more time

Bagel topped with mashed banana or cream cheese

Breakfast cereal with milk

Toast* x 2 with honey / jam or sliced banana

Tinned fruit with jelly

Toasted tea-cake with jam

Pancakes x 2-3 with honey

Banana with helping of flavored yogurt or custard

½ - 1 tin canned fruit

2 slices malt loaf

200-500mls low fat milkshake

Also use any of the “on the go” suggestions

* Use white / 50:50 bread

- Likely also to need a drink if urine is dark in color (& not a lot of it!). Drink to thirst (slowly). Water, milk, squash, fruit juice, sports drinks. NOT energy drinks
- Find things that work for you
- You may need about this much food or more (combine 2 choices if needed)
- Make “Pre-swim” basket for in the biscuit cupboard
- In **Emergency** only
 - Packet Jelly babies, boiled sweets or skittles
 - Glass Lucozade
 - 1 large Iced bun
 - Crunchie bar

Product packaging shows Carbohydrate content

NUTRITION INFORMATION			
<input type="radio"/> Typical value per 100 g	<input type="radio"/> Per 25 g serving		
ENERGY	1594 kJ 375 kcal	399 kJ 94 kcal	
FAT	0.6 g	0.2 g	
of which saturates	0.1 g	0.03 g	
CARBOHYDRATE	87 g	22 g	
of which sugars	37 g	9.3 g	
FIBRE	2 g	0.5 g	
PROTEIN	4.5 g	1.1 g	
SALT	0.88 g	0.22 g	
VITAMINS:	(% NRV)	(% NRV)	
VITAMIN D	4.2 µg (83)	1.1 µg (21)	

Typical values	100g contains	Each bag pack (30g) contains	GDA* for an average 5-10 year old
Energy	1190kJ 280kcal	360kJ 85kcal	5% 1800kcal
Protein	2.6g	0.8g	
Carbohydrate	64.0g	19.2g	
of which sugars	56.7g	17.0g	20% 85g
Fat	0.2g	0.2g	<1% 70g
of which saturates	0.2g	trace	<1% 20g
Fibre	4.1g	1.2g	
Sodium	trace	trace	
Salt equivalent	trace	trace	<1% 4g

$22\text{g} + 19.2\text{g} = 41.2\text{g}$

Poolside during exercise (>60mins, especially if >90mins)



- Maintain a supply of carbohydrate
- About 30 – 60 g carbohydrate per hour
- Concentrated sources (sweet foods and drinks)
- Practice a strategy

Suitable Poolside snacks – per hour take one of these options

Sports drink (homemade?) X 500mls

Handful of sweets (Jelly beans, Jelly babies)

Handful tropical dried fruits (Mango)

Jaffa cakes / biscuits X 3-6

Jam / honey sandwich (white bread)
use biscuit cutters to make into
bitesizes rounds.

Banana

Fruit squeeze

- Take onto poolside
- Small sips & bites
- Take early, after first 15mins
- Sports drinks provide both fluid, salts and carbohydrates
- Sports drinks probably most helpful in sessions of 60-90mins.
- Drink to thirst (slowly)
- Get organized – make a “Poolside” basket of options ready to place in your kitbag.
- *Carbohydrate gels and energy bars may be useful for the older squad (intense training >2hrs) however remember fluid.*

Basic Sports Drink

- 300ml fruit juice (any flavour that contains approx 10g Carbohydrate per 100ml product – refer to nutritional label)
- 200ml Water
- $\frac{1}{4}$ level tsp salt (pinch)
- Place all ingredients in a sports bottle and shake well.

Recipe thanks to Ricardo Costa

Nutritional Strategies for Junior Swimmers



Recovery

- Refuel ASAP (<30mins after exercise)
- Appropriate to all those whom have exercised “hard” / hungry after training therefore for all age groups.
- Combine Carbohydrates + Protein in recovery (~30-50g carbohydrate and 20-30g protein)
- Should not replace healthy meal later on
 - If eating main meal soon (within 60mins) after training then use milk / milkshake to fill the gap.
 - If eating later have something more substantial (Milk / milkshake and banana / nuts)

Recovery snacks

Milk or milkshake 200-500mls

2-3 hardboiled eggs +buttered roll

Pasta or rice salad with ham /
chicken / egg

Breakfast cereal with milk and a low
fat yogurt

3-4 slices of toast + peanut butter

1 x can low fat rice pudding

Large packet of nuts & glass juice

Large glass of fruit juice / smoothie
and a carton of low fat yoghurt

1 x pot cottage cheese and 6-8
crackers / rice cakes

Sandwich, pitta bread or bagel with
filling of egg, tuna, ham, chicken and
glass of fruit juice

- Take ASAP after exercise <30mins
- Leave with your towel and take before / in the shower!
- Milk, low fat milkshakes have many benefits to hydration, sport recovery and growth.
- Food also helps restore hydration and salts
- Eggs are a cheap and nutritious recovery food
- Drink to thirst (slowly)
- Get organized – make a “Recovery” basket of options ready to place in your kitbag.

Zzzzzzzzzzzzzzzzzzzzz

Recovery .. Sleep

- Cell growth & recovery happens mostly when we sleep
- Ensure good quality sleep
- More sleep during growth spurts and when training increased.
 - Limit distractions to sleep
 - Allow naps
 - Allow lie ins
- Bedtime snack when training hard / growing

Bed time snack ideas

Hot chocolate

Milkshake

Milk and a banana

Handful mixed nuts and raisins

Homemade smoothie using yogurt, fruit, milk, honey

Breakfast cereal and milk (topped with nuts)

Toasted teacake and glass of milk

Canned rice pudding or custard

Toast with nut butter or hummus

Porridge topped with yogurt or chopped nuts

Nutritional First Aid

- See a sports dietitian to help
- High needs
 - Training \geq twice daily for $>$ 60 mins
 - Growing
 - Busy life on land .. Struggling to eat enough

Recovery Shake	
400mls Semi / Skimmed milk	<ul style="list-style-type: none">• Place all ingredients in a sports bottle and shake well.• Use in recovery or before bed or split 200mls recovery /200mls before bed
2 heaped TBSP skimmed milk powder	
2 heaped TBSP milkshake powder	
1 level TBSP sugar (if too sweet use glucose powder)	Provides
Pinch salt	505Kcals /26.3g Protein /97g Carbohydrate / 1.3g fat

Thanks to Ricardo Costa for the recipe

Food planned around training

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		Evening Meal
		Bedtime Snack*

* Bedtime snack should always be included if little taken for morning pre-swim snack

Trouble shooting

- Out-of-season and non training days
 - Pre-swim / recovery snacks (?bedtime snack) not needed
 - Sugar should be limited (general healthy eating)
- Dental health
 - Lots of eating occasions and use of sugar put teeth at risk
 - Good dental hygiene
 - Use dairy foods (milk and cheese, low sugar flavored milks as recovery snacks)
 - Sugar free gum (or water rinse) after snacks.

Nutritional Strategies for Junior Swimmers

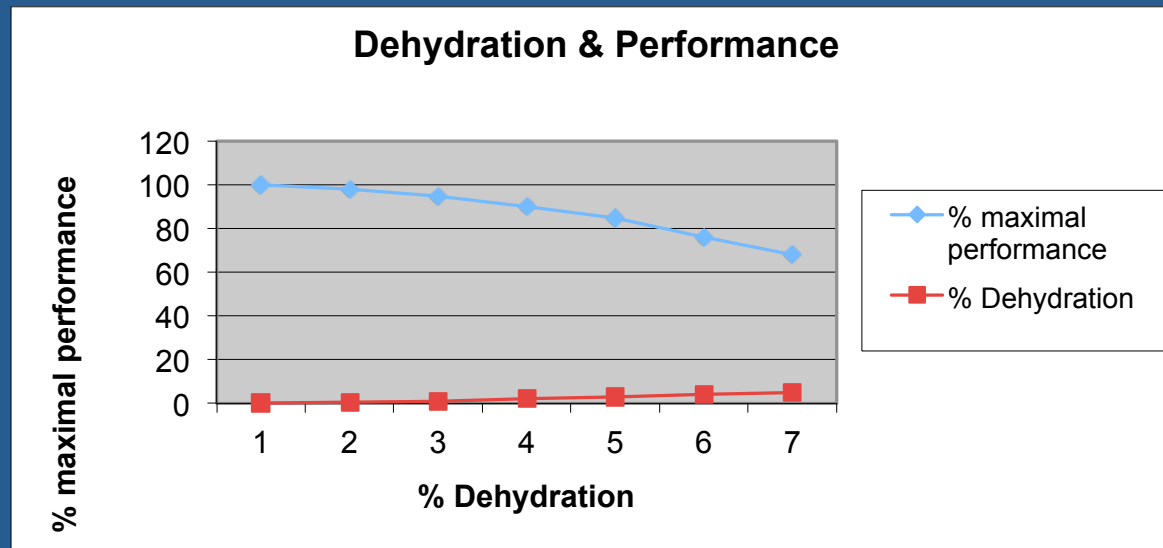


Performance declines at 2% 5% or 10%
dehydration



- Dehydration

- Heart rate increases,
- Concentration of body fluids changes (cramp)
- Performance declines



- Over-hydration

- Dilution of salts within the body
- Can be fatal

Pre-Exercise Hydration

- If taken normal meals and fluid should already be hydrated.
 - Drink with meals and at school!
 - Drink throughout the day (~2000mls) carry a water bottle
 - Plentiful urine and pale in colour!
 - Before training drink to thirst ... on school days likely to need a drink 100-500mls
 - Exercising for >1hr also have food before (salts), if this is not possible consider using sports drinks (inc homemade) (salts)

Step 1: Match the color of your urine to a color on the chart.

Step 2: Determine your level of hydration to dehydration. The lower the number, the better the result.

Step 3: If your urine color matches:



- Nos. 1, 2 or 3, you are hydrated.
- Nos. 4, 5 or 6, you are mildly to moderately dehydrated.
- No. 7 or darker, you are dehydrated.
- Athletes should consume water throughout the day. Do not wait until you are thirsty.
- To avoid dehydration, consume water and/or sports drinks before, during and after workouts or exercise. Be cautious of “energy drinks.”
- In general, 20 ounces of fluid should be replaced for every pound lost during that exercise session.
- Certain foods, medicines and vitamins may cause the color of urine to change. If these have been consumed in large amounts, this chart may be unreliable. Report all medicines, vitamins and supplements to your sports medicine staff.
- Report any symptoms of heat illness or general medical illness to your sports medicine staff as soon as possible.

Reprinted with permission. Armstrong, L.E. (2000). Performing in Extreme Environments, Human Kinetics, Champaign, IL.

References:

- Armstrong, L.E., Maresh, C.M., Castellani, J.W., Bergeron, M.F., Kenefick, R.W., LaGasse, K.E., and Riebe, D. (1994). “Urinary Indices of Hydration Status.” *Int. J. Sport Nutr.*, 4, 265-279.
- Armstrong, L.E., Herrera Soto, J.A., Hacker, F.T., Casa, D.J., Kavouras, S.A., Maresh, C.M. (1998). “Urinary indices during dehydration, exercise, and rehydration.” *Int. J. Sport Nutr.* 8: 345-355.



<http://www.ncaa.org/wps/wcm/connect/public/ncaa/ssi/resources/nutrition+resources/assessing+hydration+fact+sheet>

Exercise Hydration

- Goal to limit dehydration to <2%
- Periodically drink and recognise thirst.
 - No need to drink at every rest
 - When thirsty take a drink
 - Take drinks poolside!
- If exercising >1hr take food on board too and consider sports drinks (salts).

Hydration Post Exercise

- Slowly drink to replenish thirst
- Replace salts too
 - food + fluid
 - Milk and milkshakes remain great choices
- Monitoring
 - Pee Charts



Nutritional Strategies for Junior Swimmers



Vitamins

Energy Production	Blood (Haemoglobin)	Immune function	Bone Health	Bone Health
B Vits	Iron	Anti-oxidants	Calcium	Vitamin D
Breakfast cereals and bread	Red meat	Fruit	Milk & dairy products	Consider supplement 5-10mcg day especially between Sept to May Food sources Eggs, Oily fish, Fortified foods
Meat	Green leafy veg	Veg	Tinned fish with soft bones	
Eggs	Breakfast cereals	Nuts & seeds	Nuts / sesame seeds	
Milk & dairy products	Eggs	Tomatoes	Green leafy veg	

Nutritional Strategies for Junior Swimmers



Thanks for listening!

- Good luck
- Thanks to Adam & City of Coventry Swimming Club for the invitation.
- Thanks to Yazoo and Weetabix for generosity in providing samples
 - Great ideas and recipies see yazoo.co.uk and weetabix.co.uk
- Thanks to Adam Ruckwood & James Hickman for the insight