

Hydration and Nutrition for Swimming Performance

Stratford Sharks ASC



Who am I?

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**16 years lecturer in Sports Science at
Loughborough University**

International Volleyball Player and Coach

**2001 > Up to the Olympics
Manager of Science and Medicine World
Class Swimming British Swimming**



Do it right!

In order to be a top swimmer
you have to be prepared to 'train'
every aspect of your life.

Training

Hydration and Nutrition

Studies and Sleep



Today's Message

30 minute window

500ml per hour of training

1 litre per day

30% maximum fat



What Provides the energy for muscular activity?

- **ATP – Adenosine TriPhosphate**
- **25 mmol/kg** *drymass*
- **Sprinting requires approx**
10 mmol/kg/s *drymass*



The Fuels of Performance

CHO
4.1*

FAT
9.3*

PROTEIN
4.3*

*Kcal per gram

Not all foodstuffs have the same caloric content!



Protein

Meat, Fish, Pulses, Dairy etc..

swimmers in training require:

2g per kg-bodymass per day

*50kg x 2g = 100g



30 Minute Window

During training Carbohydrate content of muscle  falls

If you do not do the right thing stores may not recover fully by next training session!



Muscle most ready to store CHO during the **30 minutes straight after exercise.**

Thereafter rate of storage diminishes



Carbohydrate Snacks

Hot Tips

Malt Loaf

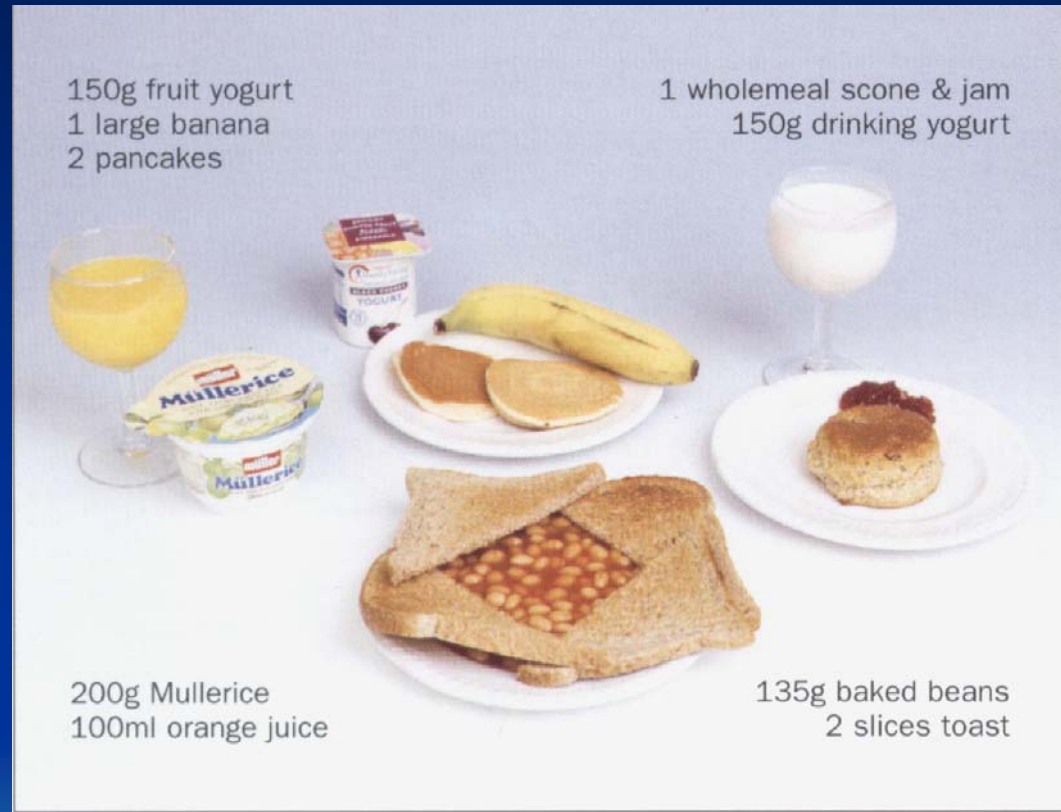
Nutrigrain

Fig Rolls

Elevenses

Bananas

Rice Cakes



Post Training Snack

Eat a 50 - 100g of CHO:

Banana, Apple, Orange **15-20g**

Muller Rice **42g**

Nutrigrain or Elevenses Bar **25-30g**

Fruit Shake/Smoothie **30-40g** per glass
(10-15g Protein)

1 Thick Jam or Honey sandwich **50g**

+ water



One for the parents: **Alcohol**

Contains 7 kcal/gram

750ml wine @ 13.5% = 101ml = 101g

= 707kcal (8 – 10 miles of running)

It is a diuretic

It causes dehydration

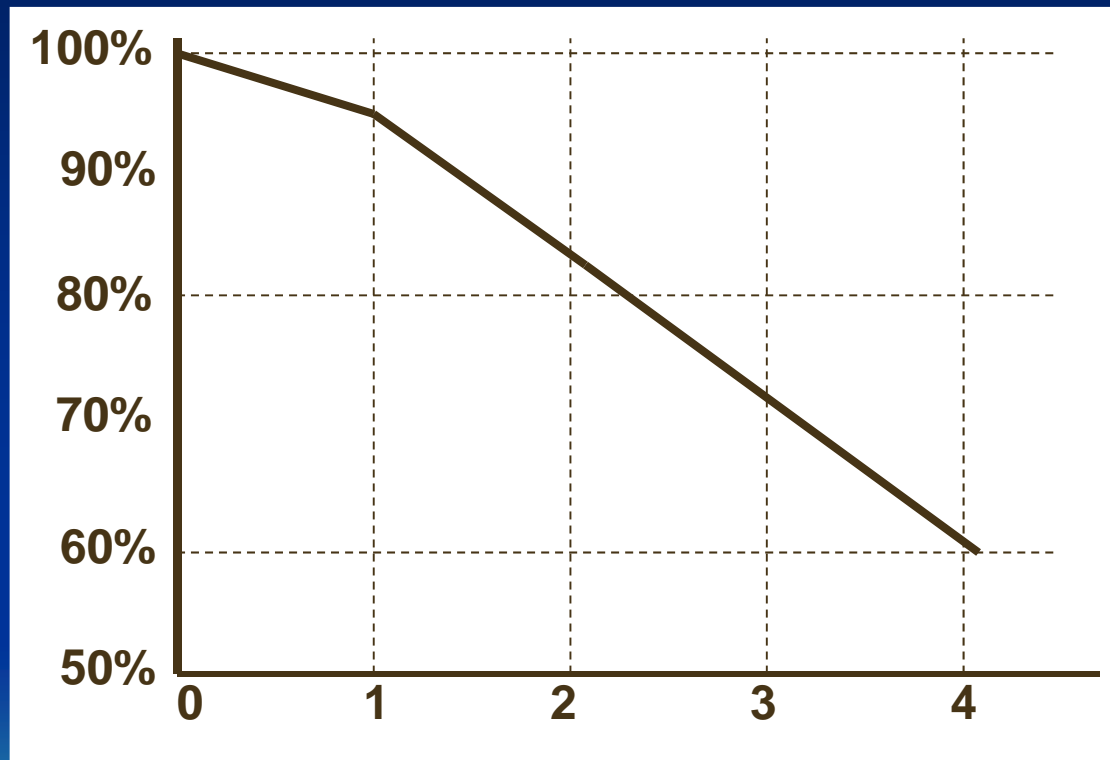
It definitely impairs performance



A kilogram of water is a litre

Relationship between fluid loss and performance

Performance
as a
percentage
of normal



Fluid loss as a percentage of body mass



The 500ml rule

Fluid loss during swimming training, through sweat, is approximately 500ml to 1 litre per hour



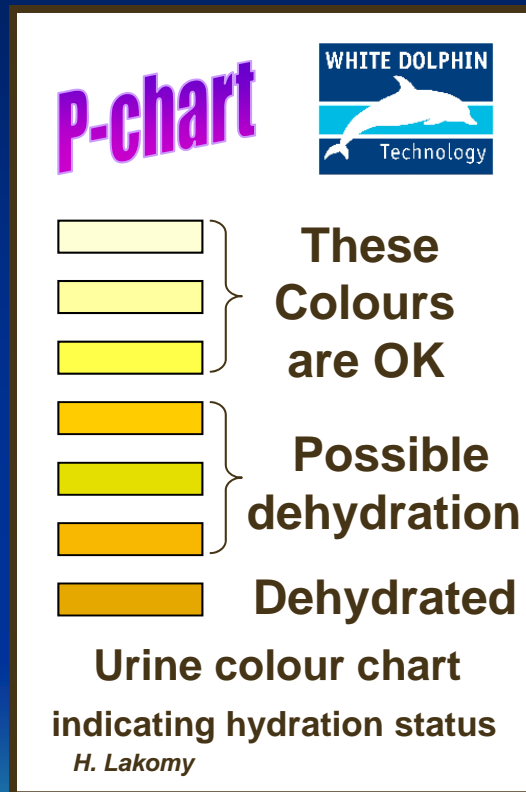
1 Litre Rule

General hydration must also be maintained.

Start the day with a 1 litre bottle of chilled water. This bottle must be empty when you go to bed – refilled – put in the fridge.



P-Chart



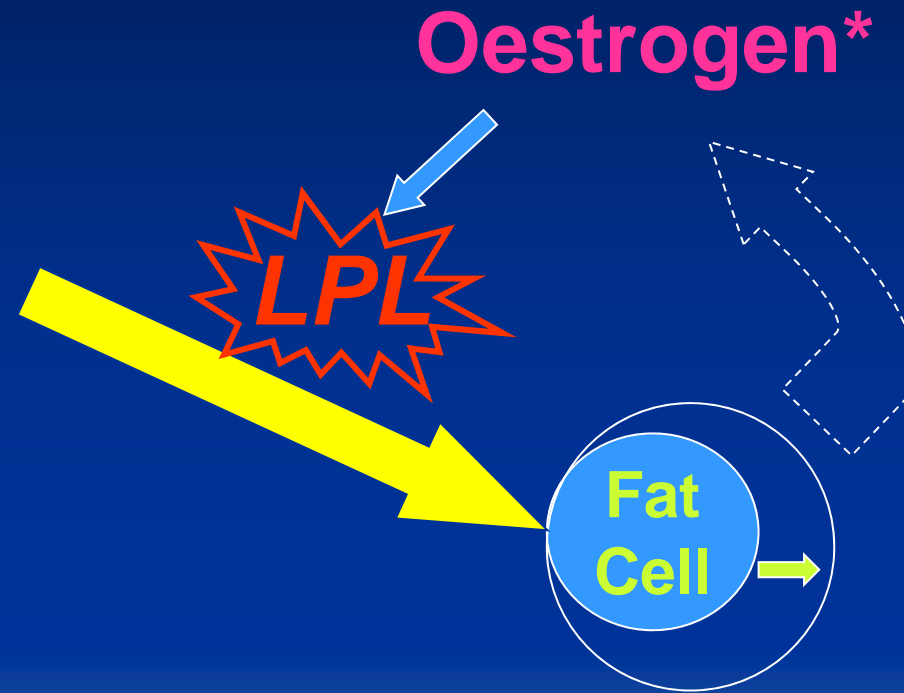
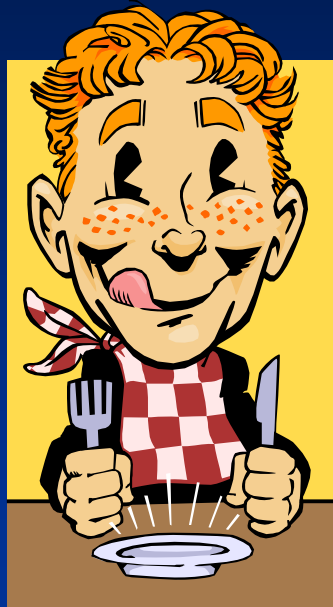
What should I drink?

During training water is fine as is a **low** concentration drink containing carbohydrate.

Avoid caffeinated and sugary drinks.



Fate of Fat



* If fat reduced to 10-15% may induce amenorrhea



Low Fat Rule

Target:

**No more than 30% fat
by calories**

Food labels fat by weight!



Food Label

	per 100g
Energy	xx kcal
Carbohydrate	xx g
Fat	xx g





The Fat Formula

Remember 1g of fat contains 9.3 kcals

= *approx. 10*

Find the grams of fat on the label

Multiply by 10

Divide this by total calories (x 100)

You have the % of fat in the food

from calories



Full Milk *"Less than 4% fat"*

Total 64kcal; 3.6g fat = 36kcal from fat
= 61% CHO = 4.8g

Semi Skimmed

Total 49kcal; 1.7g fat = 17kcal from fat
= 36% CHO = 4.9g

Skimmed

Total 35kcal; 0.1g fat = 1kcal from fat
= 3% CHO = 4.9g

Calcium content: All the same

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Examples

Jaffa Cakes

Total = 380kcal; 7.6g Fat = 81 kcal *from fat* = **20% Fat**

Fig Roll

Total = 383kcal; 8.9g Fat = 88 kcal *from fat* = **23% Fat**

McCain Oven Chips “Only 5% Fat”

Total = 164 kcal; 5.4g Fat = 54 kcal *from fat* = **33% Fat**

Pringles

Total = 136 kcal; 9.0g Fat = 90 kcal *from fat* = **66% Fat**

‘Be Good To Yourself’ Salad Cream “60% less Fat”

Total = 210 kcal; 14.0g Fat = 140 kcal *from fat* = **67% Fat**



The Big Breakfast

2 Sausages

Fried Egg

2 Slices of Bacon

Fried Bread

620 kcals

48g Fat

32g CHO

72% Fat / 21% CHO

2 Weetabix

Low Fat Milk

Sugar

1 Banana

370 kcals

4g Fat

65g CHO

10% Fat / 70% CHO



Naughty but Nice!



Supplements

- If your diet is correct no supplements required
- If multivitamins then major brands
- **Females may need to supplement with iron.**



Main Points

1 litre per day

500ml per hour

30 minute window

30% maximum fat



Thank You

