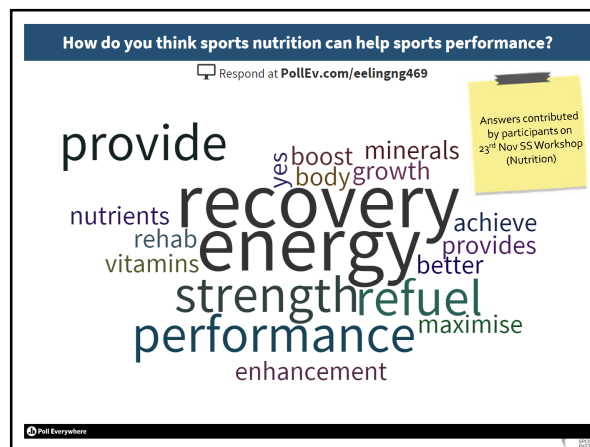
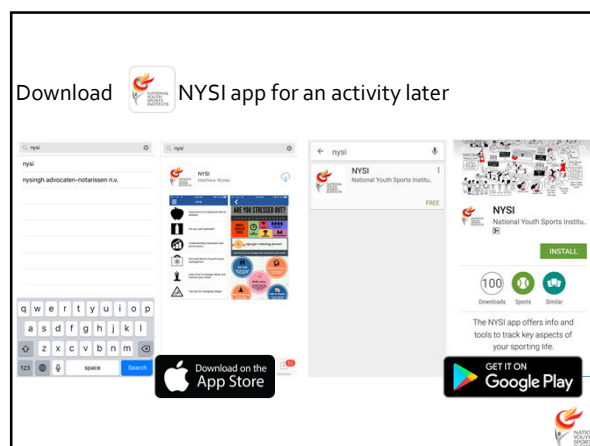
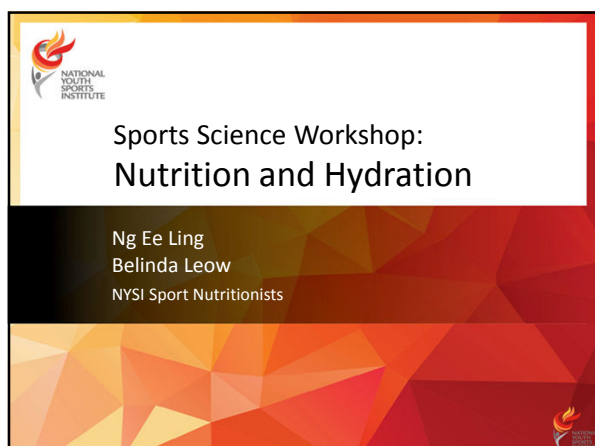




What do athletes need to eat to give them energy?

Carbohydrates

- ✓ Key source of energy for training and competition
- ✓ Help build fuel reserves, delay fatigue and improve recovery
- ✓ Helps with concentration

Contains **B vitamins** & **iron**

What do athletes need to eat to help them with the building of muscles?

We recommend

That athletes eat their normal nutrient requirements

+ extra for their training and competition

Protein contains essential amino acids to build and repair muscle cells

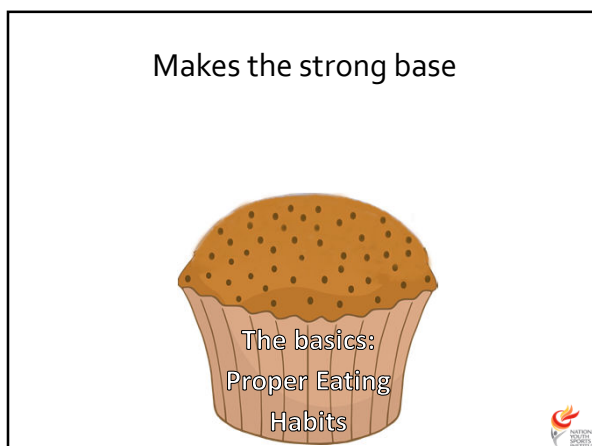
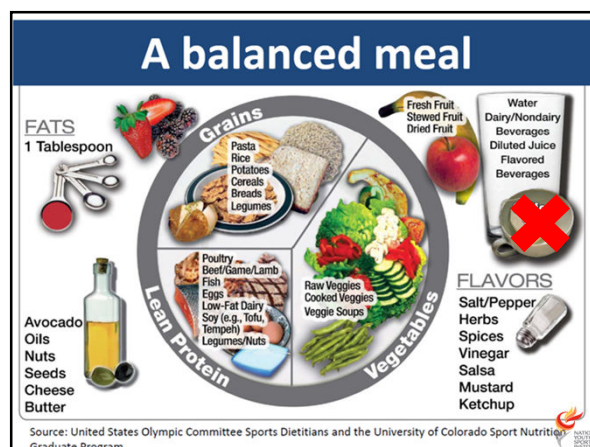
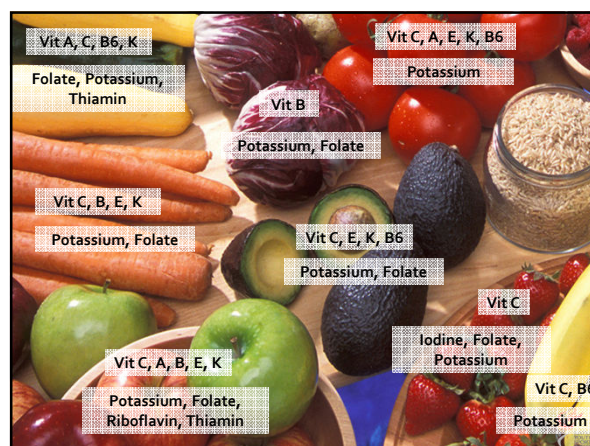
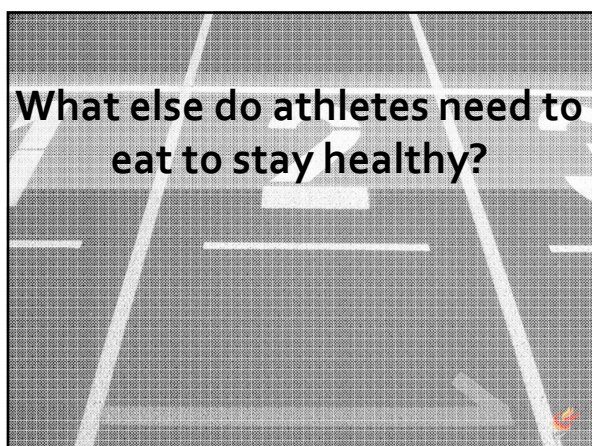
What do athletes need to eat to keep their bones strong?

We recommend

encouraging the athletes to have their low-fat milk, cheese, yogurt, calcium-fortified soymilk



1. Pritchett K, Pritchett B. Chocolate milk: a post-exercise recovery beverage for endurance sports. Med Sport Sci. 2012;59:127-34.





NYSI's Nutrition Philosophy – Food First





Dietary strategies

Dietary strategies are dependent on the purpose

- Training adaptation?
- Recovery?
- Refueling/ energy?
- and so on...



Dietary strategies

- Nutrient timing
- Hydration strategies





Nutrient timing




Definition

After training/ competition
(Also known as **Recovery**)

Definition: Meals/snacks that are consumed zero to four hours after training/competition. The best time to consume food is immediately after training/ competition.

Food/ beverages during training/ competition

Definition: beverages/food needed to sustain long periods of Training/ competition.

Before training/ competition
(Also known as **Pre-training**)

Definition: food that needs to be consumed one to four hours before training/ competition





Purpose

Training/ competition	Before	During	After
Stay hydrated	√	√	√
Replenish/ maintain energy	√	√	√
Repair Training adaptation (only applicable for training)	√	X	√



BEFORE TRAINING/ COMPETITION



Purpose

Training/ competition	Before	During	After
Stay hydrated	√	√	√
Replenish/ maintain energy	√	√	√
Repair Training adaptation (only applicable for training)	√	X	√



Nutrient required

Training/ competition	Before
Stay hydrated	Fluid
Replenish/ maintain energy	Carbohydrates, vitamin and minerals
Repair	Repairs: Protein, vitamin and minerals
Training adaptation (only applicable for training)	Training adaptation: Protein and Carbohydrates



Pre-exercise meal/ snacks

- Main meals (3 – 4 hours)



- Best to drink water while eating main meals to hydrate better.



Pre-exercise meal/ snacks

- Snacks (1- 2 hours) *



* Only when hungry/ did not fuel enough



DURING TRAINING/ COMPETITION



Purpose

Training/ competition	Before	During	After
Stay hydrated	✓	✓	✓
Replenish/ maintain energy	✓	✓	✓
Repair Training adaptation (only applicable for training)	✓	X	✓



During – Hydration

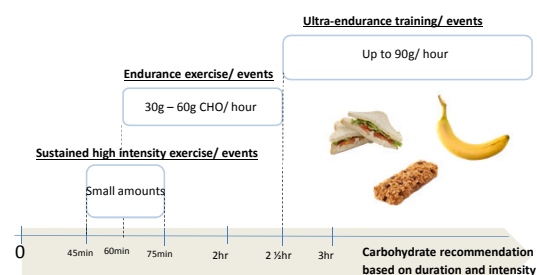


Hydration strategy

1. Check athletes' hydration status prior training and competition (See handouts)
2. Give athletes enough water breaks
3. Remind athletes to take sips of water throughout the day
4. Work with the athletes to develop a hydration plan
5. For training and competition that lasts for >90 minutes, isotonic sports drinks are recommended
6. Speak to a NYSI nutritionist if athletes are constantly dehydrated



During – Carbohydrate intakes



AFTER TRAINING/ COMPETITION



Purpose

Training/ competition	Before	During	After
Stay hydrated	✓	✓	✓
Replenish/ maintain energy	✓	✓	✓
Repair Training adaptation (only applicable for training)	✓	X	✓



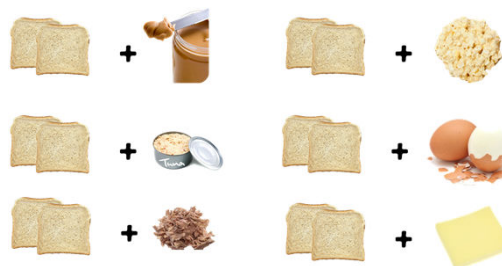
Post-exercise meal/ snacks

Window of Opportunity

Within 45 minutes post training and competition



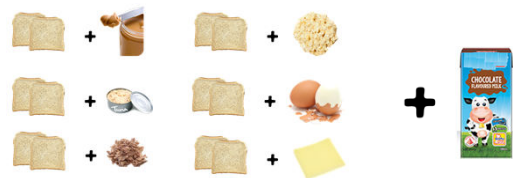
More Recovery Food Ideas



Store perishable food in a cooler bag + ice pack if left out for more than 1 hour



More Recovery Food Ideas



Store perishable food in a cooler bag + ice pack if left out for more than 1 hour



More Recovery Food Ideas



Store perishable food in a cooler bag + ice pack if left out for more than 1 hour



More Recovery Food Ideas



Store perishable food in a cooler bag + ice pack if left out for more than 1 hour



More Recovery Food Ideas



Store perishable food
(e.g. shredded chicken, egg, yogurt)
in a
Cooler bag + Ice pack
if left out for
> 1 hour!



Activity:



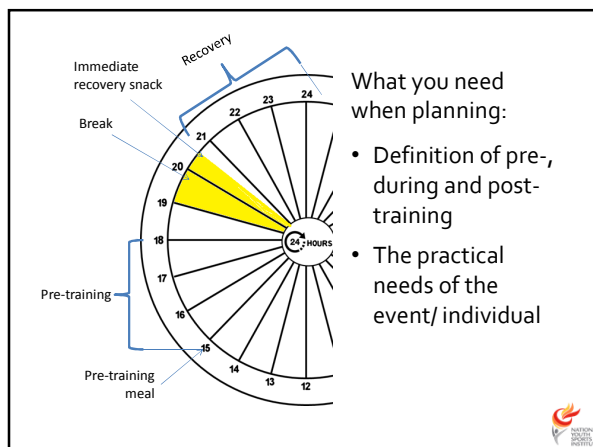
- Try to think of one competition event or training sessions within a day.
- Let's plan when meals and snacks should be consumed.



Case study: Football competition



- Competition starts at 7pm and ends at ~8:30.
- Game is played:
 - 90 min game with 45min halves
 - Half time: 15min break



Time for hydration!



NYSI Hydration Project



% Body Weight Loss

Low Intensity

Average: 0.57%

Highest: 2.51%

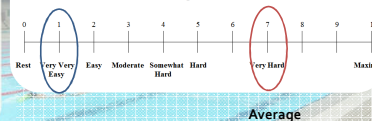
High Intensity

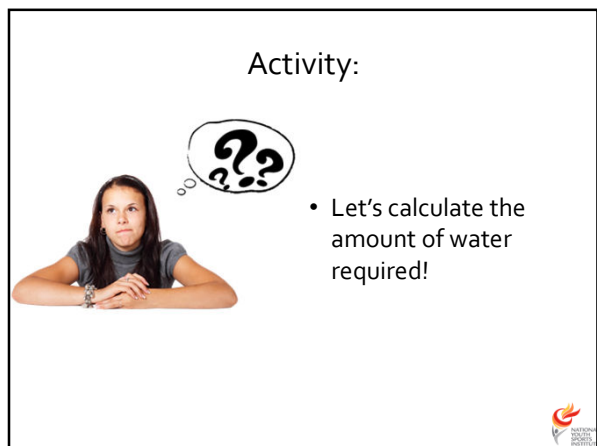
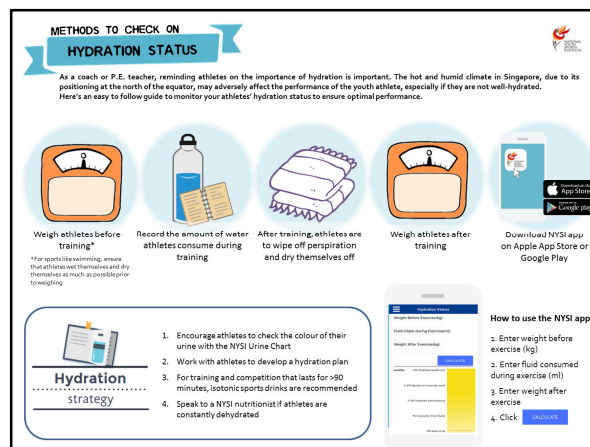
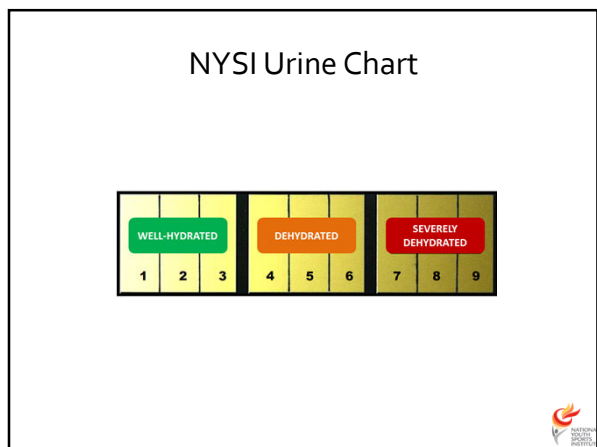
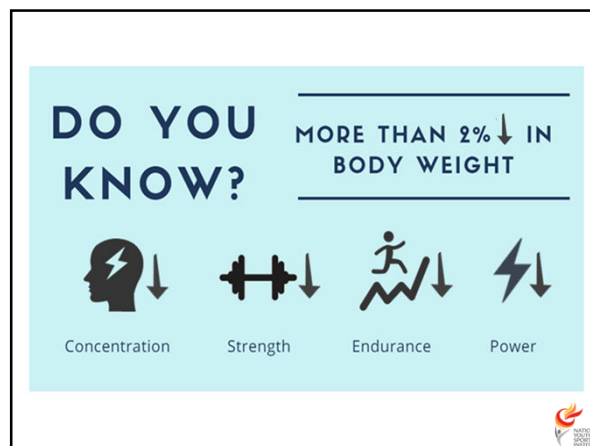
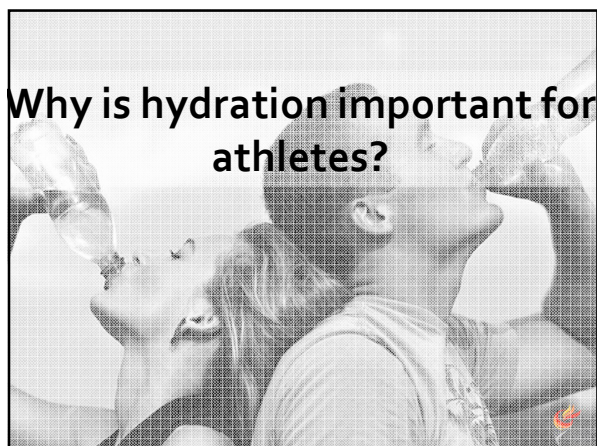
Average: 0.31%

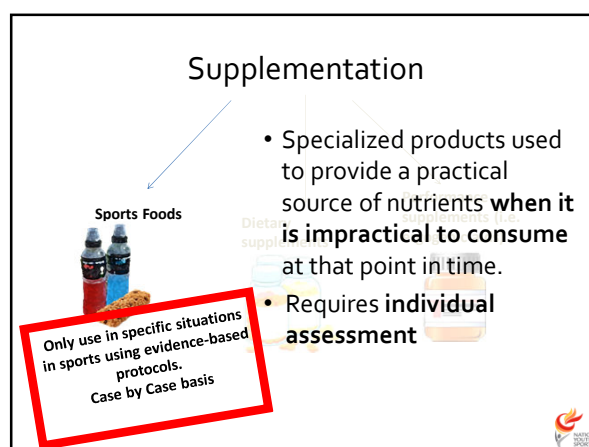
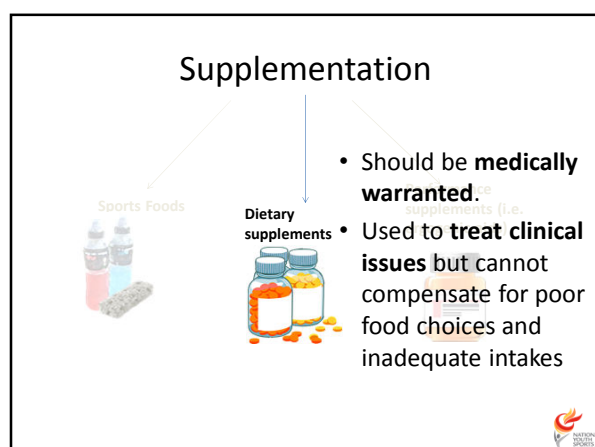
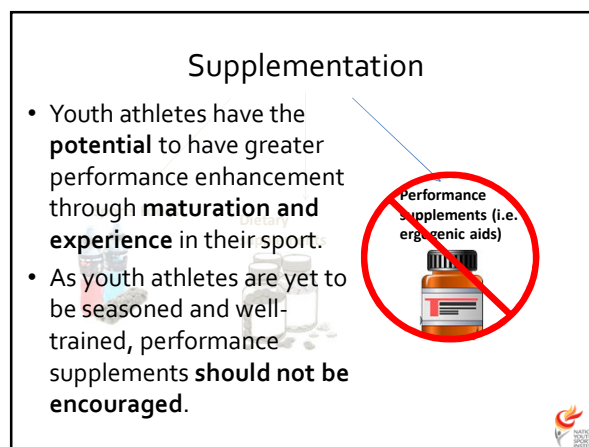
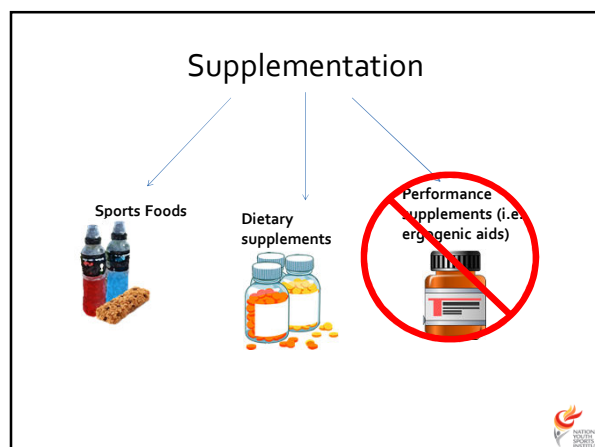
Highest: 1.40%

Ratings of Perceived Exertion (RPE) Scale

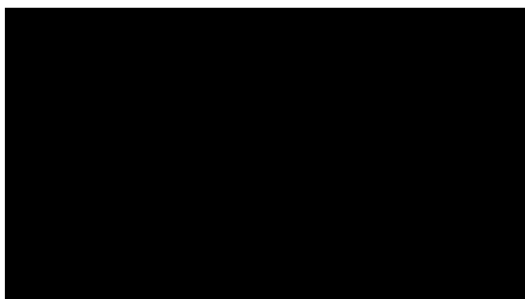
"How was your workout?"







Performance supplements



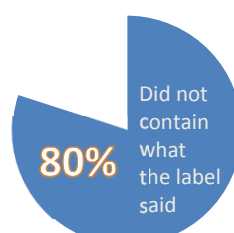
<https://youtu.be/50QBwi1ncE>



Did you know....

10 – 15% Of the dietary/ performance supplements contain prohibited substances

Quatern, S., & Stewart, S. (2015). Doping through supplement use: a review of the available empirical data. Int J Sport Nutr Exerc Metab, 25(1), 14-9.



Large % Not backed by evidence

NYTimes <http://well.blogs.nytimes.com/2015/02/03/new-york-attorney-general-targets-supplements-at-major-retailer/>



If something seems to be too good to be true, it usually is



Did you know....

10 – 15% Of the dietary/ performance supplements contain prohibited substances



Large %

Of the sports supplements have high levels of Estrogenic Disrupting Chemicals (EDC)

Piotrowski, M., Elliott, C. T., Fiskell, C., & Connolly, J. (2014). Estrogenic endocrine disruptors present in sports supplements: A risk assessment for human health. Food Chemistry, 159, 157-165.

NYTimes <http://well.blogs.nytimes.com/2015/02/03/new-york-attorney-general-targets-supplements-at-major-retailer/>



What are EDCs?

- Substances that can interfere with normal functioning of the body's endocrine system
- Endocrine system controls the way the body develops and functions
- Examples:
 - BPA
 - Dioxin
 - Lead
 - Arsenic
 - Mercury, etc...



WADA



- The WADA prohibited list is updated every year
- 2017s Prohibited list is out. Please spend the time to look at the updates – just to get familiar

<https://www.wada-ama.org/en/what-we-do/prohibited-list>



Therapeutic Use Exemptions (TUEs)



TUE Case No. _____

Therapeutic Use Exemption (TUE) APPLICATION FORM

Please complete all sections in capital letters. Applicants are required to complete sections 1, 5, 6 and 7. Physicians are required to complete sections 2, 3 and 4. All duplicate and incomplete applications will be returned and applicants will need to re-submit a new form.

1. Athlete Information	
Surname	Given Name
☐ Male ☐ Female	Date of Birth (dd/mm/yyyy)
Address	
Country	Postal Code
Telephone (PH) (H) (MPT)	
Email	

- **Carded under Sport Singapore: MUST** submit their applications at least **30 days** prior to participating in an event.
 - Recommended: submit TUEs as soon as medical condition that requires the use of prohibited substances or methods is diagnosed.



Therapeutic Use Exemptions (TUEs)



TUE Case No. _____

Therapeutic Use Exemption (TUE) APPLICATION FORM

Please complete all sections in capital letters. Applicants are required to complete sections 1, 5, 6 and 7. Physicians are required to complete sections 2, 3 and 4. All duplicate and incomplete applications will be returned and applicants will need to re-submit a new form.

1. Athlete Information	
Surname	Given Name
☐ Male ☐ Female	Date of Birth (dd/mm/yyyy)
Address	
Country	Postal Code
Telephone (PH) (H) (MPT)	
Email	

- **Uncarded Youths:** might have to give the anti-doping association the TUEs application –
 - Recommended: Get the application ready



Those that have the
privilege to know, have the
duty to act

~Albert Einstein~



Recent studies

have shown low-fat milk, especially flavoured milk is an excellent post-training beverage.



Carbohydrates: Protein
4:1

Fluids

Sodium

1. Pritchett K, Pritchett B. Chocolate milk: a post-exercise recovery beverage for endurance sports. Med Sport Sci. 2012;59:127-34.

Some of the readily available milk & calcium-fortified soymilk

✓ 4:1 or 3:1
(Carbohydrates:Protein)



Q & A



So How much does my athlete need?

Carbohydrates

- These amounts depends on the intensity, duration and environmental conditions

Activity level	Carbohydrate target
Low intensity or Skilled-based activities	3—5g /kg/ day
Moderate exercise programme (~1 hour per day)	5—7g/kg/day
Endurance programme (e.g. 1 to 3 hours per day of moderate to high intensity exercise	6—10g/kg/day
Extreme commitment (i.e. > 4—5 hours per day of moderate to high intensity exercise)	8—12g/kg/day



So How much does my athlete need?

Protein

- Take note that these estimated intakes can be generally be met through diet alone.

Group	Protein intake (g/kg/day)
Sedentary men and women	0.8-1.0
Competitive/ elite Youth athletes	~1.3 – 1.8
Youth athletes: during periods of intensified training/ reduced energy intakes	Up to 2.5



The End

