



www.BokSmart.com



Rugby Nutrition:

Recovery and Muscle Reconditioning

Recovery nutrition strategies are important, not only after matches but also when training daily. You need to have a proactive recovery strategy to:

- replenish muscle and liver glycogen stores
- inhibit muscle protein breakdown
- manufacture new muscle protein and recondition damaged muscle
- support the immune system to handle the damage and challenges caused by exercise
- replace fluid and electrolytes lost in sweat
- promote adaptation which allows the body to become fitter, stronger and faster

Most of the above recovery goals demand a combination of carbohydrate and protein.



The carbohydrate to protein (ratio), and the type and timing of intake, will vary according to:

1. The **time** between training sessions.
 - a. If you train twice a day, your recovery strategies need to be more aggressive and 1.0 – 1.5 g carbohydrate/kg body weight needs to be ingested within 30 minutes after exercise and repeated again every 2 hours for 4-6 hours ^[1]; for example, if you are 90 kg player, you would require approximately 2 options selected from **List A** below.
 - b. If you are not training daily, the timing of carbohydrate intake is less important, provided you still achieve an adequate carbohydrate intake over a 24hr period.
2. If you lack appetite, choose compact carbohydrate-rich foods or replace some of the carbohydrate with protein (0.8g CHO + 0.2-0.4g protein/kg body weight (i.e. a carbohydrate: protein ratio of 4:1). Refer to **List A**
3. Your **body composition** goals
 - a. If you want to build and recondition your muscles, it is important to include 15 -25g high quality protein (leucine-rich) in the first hour.
 - b. Achieving a carbohydrate: protein ratio of 2:1 will prevent muscle breakdown (refer to **List B**).
 - c. If you have a low energy budget (i.e. you need to lose weight) watch out for sugar-rich highly calorific or fattening options.
 - d. Choose yoghurt (rich in protein, carbohydrate and calcium) rather than a high carbohydrate drink which only supplies carbohydrate. ^[2]

Many nutrients, including carbohydrate are involved with immune function.

A varied diet, focusing on real nutritious food to supply these essential nutrients should therefore be encouraged.

Fluid replaces sweat losses and can provide nutrients and electrolytes. Beverages and snacks should contain sodium to help with rapid recovery, stimulation of thirst and fluid retention. Fluid also promotes saliva important for immune function. Alcohol should be avoided in the post-recovery period. [3] Players should be encouraged to take food, drinks and recovery snacks along to training so they are readily available after training. It is a good idea to involve the team management and players in organizing recovery strategies for the team.

<p>LIST A: Post-exercise recovery snacks that provide ~50g of carbohydrate + 10-20g high-quality protein (i.e. provide essential amino acids). Ratio CHO: Protein = 4:1</p>	<p>LIST B: Post-exercise recovery snacks that provide ~50g of carbohydrate + 20 - 30g, high-quality, protein (i.e. provide essential amino acids). Ratio CHO: Protein = 2:1</p>
<ul style="list-style-type: none"> • 1 ½ cups cereal + 250 ml low fat/fat-free milk • 2 slices bread OR 6 Provita OR 4 rice cakes + 60 g lean cold meat or chicken or low fat cheese or 2 eggs + 1 fruit • 250 ml low fat fruit yoghurt OR 350 ml drinking yoghurt OR 350 ml flavoured milk • 750 ml sports drink + 20 g lean biltong • 340 ml maas + 15 ml peanut butter • 500 ml low fat milk + 2 bananas • 10 Super C's or 10 jelly babies or 2 cereal bars + 30 g lean biltong 	<ul style="list-style-type: none"> • 1 ½ cups cereal + 250 ml low fat/fat-free milk + 70 ml skim milk powder/45 g nuts • 2 slices bread OR 6 Provita OR 4 rice cakes + 60 g lean cold meat/chicken/ low fat cheese + 1 egg + 1 fruit • 250 ml low fat fruit yoghurt OR 350 ml drinking yoghurt OR 350 ml flavoured milk + 45 g nuts • 750 ml sports drinks + 40 g lean biltong • 340 ml maas + 30 ml peanut butter • 500 ml low fat milk + 2 bananas + 30 ml peanut butter • 10 Super C's or 10 jelly babies or 2 cereal bars + 60 g lean biltong

For more information on *Rugby Nutrition*, go to the BokSmart website www.BokSmart.com or go to the following link: <http://boksmart.sarugby.co.za/content/eating-and-drinking-right>

Document Compiled by Shelly Meltzer RD(SA), Shelly Meltzer & Associates

REFERENCES

1. Potgieter S. Sport nutrition: A review of the latest guidelines for exercise and sport nutrition from the American College of Sport Nutrition, the International Olympic Committee and the International Society for Sports Nutrition. *S Afr J Clin Nutr* 2013; 26(1): 6-16.
2. Van Loon L. Nutritional modulation of muscle reconditioning. 18-20. Sport Nutrition Conference London/Oxford 2012; 18-20.
3. Recovery nutrition:
http://www.ausport.gov.au/ais/nutrition/factsheets/competition_and_training/recovery_nutrition