



**National
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Rugby Grub - Issue [9]

The REAL Cause of Cramping



Muscle cramps are painful, sustained involuntary contractions of the muscles that can occur in many people, including both athletes & non-athletes, young & old, during pregnancy & as a consequence of specific medical conditions or medications used in their treatment. Amongst athletes, the most common form of cramping is known as exercise associated muscle cramps (EAMC), characterised by cramping of specific muscles during or soon after exercise. For rugby athletes, it's one of the most common conditions requiring medical attention during a game, often resulting in the athlete having to be substituted off the field. Given this, prevention is key.

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- **Guru Goss...** Got a question, forward it to us at...
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What causes EAMC

A number of mechanisms have been proposed as the cause of EAMC, including dehydration, electrolyte imbalances & exercise in hot conditions. While each sounds good in theory, none are backed up by research. Despite this, an emerging market of sports supplements proclaimed to help prevent muscle cramps are promoted widely within the sports supplement industry. What we do know is that EAMC are associated with fatigue, somewhat explaining why cramping tends to be more prevalent during trial matches & games at the start of the season when rugby athletes are still developing their game fitness. Cramping is also more common in the hotter, more humid pre-season training months.

Preventing EAMC

Given that the onset of a muscle cramp during a game can result in an early shower, is there anything you can do to help prevent a future cramp? Given that cramps can be a consequence of several factors, it's also important to explore the range of issues that can be at play. Use the following tips to help minimise your potential of experiencing cramps during the season ahead.

**Take Home Tip...**

While several theories are proposed to cause exercise associated muscle cramps (including dehydration and electrolyte imbalances), few of these are supported by science. What we do know is that cramps always tend to occur when an athlete fatigues. Minimise the fatigue & you'll reduce the potential of developing a game ending cramp.

The REAL Cause of Cramping...

Tips for reducing the potential of cramping...

1. Incorporate some game intensity work into your training program, it's key to developing game fitness.
2. Start exercise well hydrated, making use of chilled sports drinks to keep fatigue at bay. Your muscles are most sensitive to carbohydrate ingestion during exercise, reducing fatigue associated with fuel availability. Chilled drinks & ice slushies are able to better maintain body temperature, further reducing fatigue.
3. Check in with your doctor & physio to explore any underlying medical causes of cramping. They may also have some other strategies to help prevent EAMC.
4. Stretch vulnerable muscles (typically lower body amongst rugby athletes) on a regular basis, helping you to reset muscle reflexes.

Other treatment options

Magnesium supplements are widely advocated for the prevention of EAMC, with several sports supplement companies including magnesium in many of their products. This has presumably emerged based on research in the mid 90's showing benefit from magnesium supplementation among pregnant females experiencing night-time cramps. To date there is no evidence supporting the use of magnesium for the prevention of EAMC. Given this, rugby athletes are best to focus on strategies with the potential of reducing the incidence of EAMC.

High electrolyte solutions, rich in sodium or salt, have also been proposed as a method of combating EAMC. While there is some anecdotal evidence suggesting benefit from this strategy, research backing this approach up is limited to whole body cramping, which likely has a different reason for onset compared to the muscle specific cramping that occurs during or soon after exercise.

If a cramp does develop during training or a game, passive stretching of the affected muscles is key. Preliminary research recently published suggests there may be some benefit from more novel strategies in the treatment of a cramp that presents during a game, including hyperventilation (deep, frequent breaths at a rate of 20-30 breaths per minute) & the consumption of pickle or gherkin juice (approx 1 ml/ kg body mass). While follow up research needs to be undertaken, these strategies could at least be trialed amongst athletes vulnerable to cramping. However the key remains with preventing cramps if you don't like the thought of an early shower come game day. For most athletes, that means working hard throughout the pre-season.



Summer Salads

In The November 2011 edition of Rugby Grub we explored ways of revitalising the summer salad. With the continued heat wave across the country we thought it timely to provide some more salad ideas. The raw beetroot salad in particular is so quick & easy yet so, so tasty. Please give this recipe a go, you won't be disappointed. However, please remember to wear an apron when working with beetroot & wash your chopping board & hands afterwards or you'll get beetroot juice everywhere.

Crunchy Beetroot Salad with Apple & Feta

Ingredients (serves 4)

- 4 good-sized beetroots, scrubbed, peeled & then grated (hand held or in food processor)
- 2 ripe apples (or you could use pears), peeled & then grated (hand held or in food processor)
- 1 x lemon oil dressing (2 Tbsp lemon juice, 2 Tbsp oil)
- Sea salt & freshly ground black pepper
- 200g reduced feta cheese
- Small bunch of fresh mint, smallest leaves picked
- Optional... a large handful of sunflower seeds

Method

1. In a large bowl, dress the grated beetroot & apple in a little of the lemon oil dressing & season with salt & pepper.
2. Taste to check that the flavours are balanced & add a little more lemon juice to check the sweetness of the apples & beetroot if needed.
3. Crumble the feta over the salad & sprinkle over the baby mint leaves & the sunflower seeds if you're using them.

Moroccan Couscous Salad

Ingredients (serves 4-6)

- 250ml (1 cup) chicken stock
- 190g (1 cup) couscous
- 2 tsp olive oil or oil spray
- 1 red onion, halved, thinly sliced
- 1 garlic clove, crushed
- 1 tsp ground cumin
- 1/4 tsp ground cinnamon
- 1/4 tsp ground turmeric
- 2 large (about 280g) ripe tomatoes, finely chopped
- 1 x 400g can chickpeas, rinsed, drained
- 1/5 cup firmly packed coarsely chopped fresh coriander
- 2 tbs fresh lemon juice
- Freshly ground black pepper

Method

1. Place stock in a medium saucepan & bring to the boil over high heat. Remove from heat. Add couscous & stir with a fork until combined. Cover & set aside for 5 minutes or until all the liquid is absorbed. Stir with a fork to separate grains.
2. Meanwhile, heat oil in a non-stick frying pan over medium heat. Add the onion & cook, stirring, for 2-3 minutes or until onion softens. Add garlic, cumin, cinnamon & turmeric & cook, stirring, for 30 seconds or until fragrant. Add the tomato & chickpeas & cook, stirring, for 1-2 minutes or until heated through. Remove from heat.
3. Add onion mixture, coriander & lemon juice to the couscous & toss to combine. Taste & season with pepper. Serve with herbed chicken breast.

Want some inspiration? Check out the Taste website for a huge range (>21000) of recipes... Taste.com.au



Research Ramblings – Novel Cramping Solutions

The Science...

Treatment for exercise associated muscle cramps experienced during a game such as stretching may not be sufficient to prevent further cramping, often resulting in the athlete having to be substituted off. Given this, prevention of cramping through enhanced fitness, regular stretching & optimisation of diet is the best strategy to ward off fatigue & the subsequent risk of experiencing a cramp. Recent research suggests a few novel strategies for resolving cramping on the field. Ingestion of pickle juice (1 ml/ kg body mass of the juice gherkins are sold in) has been shown to decrease the duration of cramping, the reason for this is unknown. Another strategy documented in the literature to help resolve cramping is the use of deliberate hyperventilation (deep frequent breaths, approximately 20–30/minute).

Take Home Message...

Exercise associated muscle cramps can abruptly end your game time. While the use of pickle juice & deliberate hyperventilation are interesting options for treating cramps, the focus should remain with prevention...train hard, eat smart & recover. Watch this space as more information becomes available on these & other strategies to help manage cramps.

Miller et al. Reflex inhibition of electrically induced muscle cramps in hypohydrated humans. Medicine & Science in Sport & Exercise 42;953-961, 2010.

Murphy & Murphy. Hyperventilation as a simple cure for severe exercise assoc muscle cramping. Pain Med 12;987, 2011.

Diner Directory - McDonalds

Each month we 'don our favourite caraff' & impersonate Matt Preston (Food critic, Master Chef) by reviewing the food on offer at some of our most widely available eateries. This month, we play ball with the big boys & review what's on offer at McDonald's restaurants. While McDonalds has traditionally been seen as fast food (read: fat food) heaven, they too are making an effort to improve the nutritional value of what's on offer by reducing salt, introducing low saturated fat oils & providing grilled options. Check out the range of menu items below, including their nutritional value & our ranking using a simple light system... **Green = good choice** **Orange = occasional choice** **Red = poor choice**

| Menu Item | Energy (kJ) | Carbs (g) | Protein (g) | Fat (g) | Rating |
|------------------------------------|-------------|-----------|-------------|---------|--------|
| Seared Chicken Classic Salad | 710 | 4 | 26 | 5 | ● |
| Mini Seared Chicken Snack Wrap | 870 | 21 | 13 | 8 | ● |
| Chicken McNuggets (6 pack) | 1160 | 14 | 16 | 18 | ● |
| Cheeseburger | 1190 | 26 | 15 | 12 | ● |
| Filet-O-Fish | 1270 | 31 | 13 | 13 | ● |
| Seared Chicken Tandoori Wrap ✓ | 1340 | 33 | 26 | 7 | ● |
| Seared Chicken Sweet Chilli Wrap ✓ | 1520 | 38 | 24 | 11 | ● |
| Fries (medium) | 1540 | 41 | 4 | 20 | ● |
| Classic Seared Chicken Burger | 1630 | 42 | 28 | 12 | ● |
| McChicken | 1710 | 37 | 20 | 19 | ● |
| Crispy Chicken Sweet Chilli Wrap ✓ | 1940 | 48 | 23 | 18 | ● |
| Big Mac | 2060 | 35 | 25 | 27 | ● |
| Crispy Chicken Deluxe Burger | 2500 | 53 | 32 | 28 | ● |
| Mighty Angus | 2870 | 47 | 43 | 36 | ● |

✓ National Heart Foundation tick approved

It seems that even at fast food restaurants like McDonalds, healthier choices can be made but be careful what you have with your burger or wrap. A medium serve of fries adds 4 teaspoons of fat while a medium soft drink has 7 teaspoons of sugar. **Recent regulatory changes are making it easier to make informed decisions about the foods you select. Any standard food outlet with 50 or more stores nationally is now required to display the kilojoule content of foods on their menu. While the kilojoule content of a food is just one aspect to consider in assessing a foods overall nutritional value, the above ratings suggest it's the lower energy foods at fast food outlets that are better choices.**

Want more information on the nutritional value of the wider McDonalds range...

<http://mcdonalds.com.au/sites/mcdonalds.com.au/files/images/Ingredient-allergen-nutrition-coremenu-15-12->



What's He Eating...

Each month we take a closer look at what Australia's best rugby athletes do with their diet to help support their rugby. This month we head west & chat with Western Force Captain, Nathan Sharpe.

1. What's the most important nutrition tip you've been given during your rugby career?

Match your energy input with your energy output... on heavy loading days, I allow my serves of fuel foods to increase. Also if I choose to have a few beers, don't let this be an excuse for letting my guard down & compromise my food intake, especially given how important what I eat is for promoting recovery.

2. How has your eating & drinking changed since you were playing rugby at school?

I focused much more on carb rich food when I was younger, & lacked protein in my diet. This had a drastic influence on my body composition. Tough to do because I love Italian foods! Now, I take a more balanced approach, not over-emphasising any one nutrient. I adjust my carb intake according to my training load while also focusing on getting a small hit of protein rich food at each meal & snack. The carbs are there when I need them but not at the expense of the protein. The small hits of protein throughout the day has helped me lay down some quality muscle & supported recovery while also keeping me fuller, which I think has meant I've found it easier to stay leaner.

3. Favourite breakfast during training day?

Three poached eggs on multigrain toast & 4 Weet-Bix with skim milk & yoghurt.

ED NOTE: Solid breaky, providing plenty of quality protein (eggs, milk & yoghurt) plus carbs (Weet-Bix, toast & yoghurt).

4. Favourite lunch during training day?

Chicken, avocado & tomato sandwiches on multigrain. Or sushi.

ED NOTE: Solid lunch, providing valuable amounts of quality protein (chicken) & carbs (grain bread or rice from sushi). On lower training volume days, or non-training days, Nathan should focus on sandwiches, adding extra salad veggies to make them more filling. This way, he may only get through 1-2 sandwiches instead of the 2-3 he may have on a big training day.

5. Favourite dinner during training?

Meat & salad or veggies.

ED NOTE: If Nathan has a big training day tomorrow, he's best advised to include some starchy veggies as part of his dinner (potato, sweet potato, corn). Only concern for those who just take meat & low energy veggies at dinner is that it may leave you searching for dessert with a ferocious appetite. A small serve of carbs can help keep that hunger at bay.

6. Favourite post-training snack?

Sushi for sure, it's a great hit of carbs & protein, plus the soy sauce is rich in salt, something I've learnt is important to include after training, especially during summer when sweat losses are large. I'm a big sweater.

7. What's your favourite meal on the run (i.e. when eating outside the home)?

Again, as I like simple food, I'll always chase down some sushi or a freshly made sandwich. These are great choices nutritionally as well & I can find them almost anywhere.

8. If you were really trying to impress a woman with a home cooked meal, what would you whip up?

I don't even know where to begin here...

9. Favourite pre-game meal?

I love the 24 hours before the game because I indulge in my favourite food... spaghetti bolognese! I'll stay focused on the task at hand though, ensuring I concentrate on the pasta, with a smaller serve of bolognese sauce. Yum!

10. Water or sports drink during a game?

I Stick to water, but will demolish sports drinks post game.

ED NOTE: Taking carbs during a game is key. If you don't like sports drinks, use a water chaser after each time you take a sip or trial sports gels instead.

