

SN FORUM

**Sports
Nutrition
Forum**

A Newsletter for Sports and Fitness Professionals

Bring on the Pros!



The National Dairy Council teamed up with two Irish sporting heroes for the *Milk It For All It's Worth* initiative, 'Bring on the Pros'. We are delighted to introduce Rob Kearney as our new 'Milk It For All It's Worth' ambassador

while Derval O'Rourke continues her work on the campaign.

No stranger to rugby fans, Rob Kearney has represented Ireland at schoolboy, under-



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www.milkkit.ie



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Editorial

In this fifth issue of *SN Forum*, we take a look at the new 'Bring on the Pros' initiative. We are delighted to introduce Rob Kearney as our new 'Milk It For All It's Worth' ambassador while Derval O'Rourke continues her work on the campaign. Our regular contributor Ruth Wood-Martin focuses on boosting the immune system, while Dr Tom Hill devises a diet plan for an injured Gaelic football player. Rugby players, David Wallace and Kevin McLaughlin, feature in our 'Sports Star Spotlight', and we take a look at further research supporting chocolate milk as a post-exercise recovery drink.

Log onto the campaign's website www.milkkit.ie for expert nutritional advice and further details on the 'Bring on the Pros' initiative. As always, feel free to share your suggestions: info@ndc.ie

Catherine Logan

Dr Catherine Logan

Nutrition Manager, National Dairy Council



CAMPAIGN FINANCED WITH AID FROM THE EUROPEAN UNION, THE NATIONAL DAIRY COUNCIL AND THE DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE



19s, and A level rugby before being called to the senior squad for the 2008 Six Nations Championship. Described as part of the 'new order' of Irish rugby stars, Kearney is literally at the top of his game.

As our regular readers know, Derval O'Rourke is an established ambassador of the *Milk It For All It's Worth* campaign – a campaign which highlights the important role milk and dairy play as part of a balanced diet and active lifestyle. Cork native Derval O'Rourke sprung to international prominence with her 60m hurdles win in the World Indoor Athletics Championships in Moscow, 2006. Since then, she has shared the winning podium on numerous occasions and is one of Ireland's keenest hopes for the London 2012 Olympic games.

Rise to the Challenge

The 'Bring on the Pros' competition offered entrants a 'once-in-a-lifetime' chance to win a training session with Ireland and Leinster full back Rob Kearney or Irish Olympic hurdler Derval O'Rourke, while the coach spends some time on the bench!

The competition was open to secondary schools, colleges and sports clubs across the country, and was a fantastic opportunity for teams or club members to not only be trained by a sports star, but also to learn about the importance diet has as part of an exercise regime.

What was involved?

To be in with a chance to win, entrants were asked to visit the *Milk It* website www.milk.it and compete against our sports heroes in an online challenge. Could they beat Rob Kearney or Derval O'Rourke in 'The Final Sprint' or would they be pipped at the post?

Once entrants faced the Rob or Derval challenge, they offered a reason that their PE teacher, manager, or coach deserved to be given a rest for the day. The best entry won a special coaching session with one of our sports stars.

The closing date for the competition was March 2nd 2012, but there are still prizes to be won on our facebook page. Check out www.facebook.com/milkitndc where the overall winners are announced, and for access to exclusive content, videos and some fun facts on sports nutrition and milk.

Milk It!

Milk It For All It's Worth is a campaign run by The National Dairy Council in the Republic of Ireland, which aims to highlight the

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Tábhacht, Bia agus Mara

role of milk and dairy in a physically active lifestyle. Emerging research, which highlights a potential for milk in a number of aspects of sports nutrition, certainly supports this concept.

By way of example, research reported from Loughborough University highlights the effectiveness of skimmed milk as a rehydration drink after sports; in addition to research from Northumbria University highlighting a beneficial role of milk in muscle recovery from exercise-induced muscle damage. The beneficial role of milk in these areas has been attributed to the natural nutritional composition of milk.

Internationally, research is evaluating the potential of chocolate milk as a post-exercise recovery aid after endurance exercise – also revealing many positive results. And, as milk is a source of protein, which contributes to growth/maintenance of muscles, research is also investigating the role of dairy protein in muscle adaptations to exercise as well as the optimum time of consumption e.g. before or after training. The Department of Health and Children recommends that adults and children consume three servings of dairy per day as part of a balanced diet and active lifestyle. In order to achieve the increased calcium requirements during the teenage years, five servings are recommended.

Performance and Nutrition:

Ruth Wood-Martin MSc RD SEN is a Registered Dietitian and Sport and Exercise Nutritionist and currently works as the Performance Nutritionist with the Irish Rugby Football Union.

MILK IT FOR ALL IT'S WORTH

Defend yourself... boost your immune system

You can follow fancy training programmes and take all the exotic supplements you want, but if you're laid up with coughs, colds and flu (often called upper respiratory tract infections, URTIs) each winter, you're never going to reap the rewards of hard training. Athletes in regular hard training are often at higher risk of picking up minor illness and infections, especially in winter, but the good news is that with the right nutritional foundations in place, you can defend yourself.

Your immune system is a complex defence network whose job is to protect you against potentially harmful bacteria and viruses. This system has two main components:

- 1) Innate immunity – this is the 'first line of defence' and physical barriers (eg, skin and linings of lungs, nose and gut), chemical barriers (eg, stomach acid) and cellular barriers (eg, phagocytic cells) all aim to restrict invaders into the body.
- 2) Acquired immunity – this is activated if the invaders manage to breach the first line of defence. There is an army of special cells (collectively called white blood cells) that exert a large variety of defence mechanisms. Your acquired immunity will develop antibodies, which will offer protection from future similar bacterial and viral attacks.

Prolonged bouts of strenuous exercise and periods of hard training with limited recovery – as well as psychological stress, lack of sleep and inadequate nutrition – may depress the body's immune system and lead to increased risk of infection.

Key nutrients for strong immunity

An adequate dietary intake of calories, protein, essential fats and specific micronutrients including Vitamins A, C, E, B6, and B12 along with iron, zinc, copper and selenium, are all critical factors for maintaining optimum immune function. Current thinking is that athletes should invest in nutrient-rich foods, ensuring that the bulk of your diet consists of natural, wholesome foods with plenty of fresh fruits and vegetables, and the minimum of 'junk', 'fast' and processed or sugary foods. The table (right) lists some food sources of key nutrients involved in maintaining maximum immunity.

Exercise nutrition strategies

In recent years, a number of studies have shown that training regularly in a low carbohydrate state is associated with increased levels of stress hormones that lower immunity. The reason is that when carbohydrate stores are low, vigorous exercise promotes a process known as catabolism, where body tissue such as muscle is broken down in order to provide energy. Catabolism is associated with higher levels of circulating stress hormones such as adrenaline and cortisol, which have a negative effect on immunity. If you're prone to winter colds and flu, you need to try and ensure that you keep your carbohydrate levels topped up at all times, so that you're not training with depleted levels of muscle carbohydrate (glycogen). Taking in carbohydrate during lengthy exercise will also help and avoiding low carbohydrate diets will do your immune system a big favour!

Do nutrition supplements boost immunity?

The immune system is a complex one and there's no single immune-boosting bullet. However certain supplements (eg, probiotics, quercetin, multivitamins) may help boost immunity and reduce infection risk, especially in 'at-risk' athletes. These 'at risk' athletes may be those individuals that have a low intake of micronutrients (especially those mentioned above) because they restrict their food intake (perhaps in an attempt to lose weight) or follow eating patterns with restricted food variety for whatever reason. So some products might be worth considering; but remember, no amount of supplementation will make up for poor food choices.

Putting it together to support strong immunity

- Maintain good variety in food choices to give all the nutrients needed to support good immune function.
- Make sure you train in a carbohydrate-fed state.
- Be well fuelled going into training.
- Drink some carbohydrate-containing fluid during long exercise sessions.
- Include carbohydrate in your recovery plan.
- Include plenty of fruit and vegetables to give valuable antioxidants that support strong immunity.
- Eat oily fish at least twice a week.
- Include probiotic-rich foods such as bio-yogurts and probiotic-type drinks, especially during the winter months.
- Always stay well hydrated.
- Have your own drinks bottle – don't share.
- Make sure you get enough rest and recovery time.

NUTRIENT	FOOD SOURCE
Protein	Meat, poultry, fish, dairy products, pulses and legumes
Essential fats	Omega 6 and Omega 3 – all oily fish (eg salmon, trout, herring, mackerel, sardines, pilchards), wholegrains, nuts and seeds (especially flaxseed, pumpkin seeds and walnuts)
Vitamin A	Liver, eggs, milk, carrots, sweet potatoes, apricots, dark green vegetables
Vitamin C	Oranges, grapefruit, kiwi, blackcurrants, tomatoes, dark green vegetables
Vitamin E	Vegetable oils, nuts, seeds
Vitamin B₆	Poultry, white fish, eggs, milk, soybeans, oats, peanuts, walnuts
Vitamin B₁₂	Red meat, liver, fish, cheese, milk, fortified breakfast cereals
Iron	All red meats, offal (liver, kidney), fortified breakfast cereals, green leafy vegetables
Zinc	Lean meat, fish, shellfish, wholegrains, nuts and seeds
Copper	Nuts, shellfish, offal
Selenium	Wholegrain cereals, fish and shellfish, brazil nuts, meat, eggs

Sports Star Spotlight

David Wallace



David Wallace

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Typical Diet:

My typical diet I suppose varies from time to time, depending on what you want from your own body - if you want to put on weight or put on muscle or lose a bit of weight. But generally I would try to eat healthy with a bit of porridge and a bit of dairy in the morning... with yogurts, Muller Rice and some fruit. [I have] a big lunch and then try and ease off on the evening meals if I am trying to cut down a bit.

Do You Drink Milk?

I drink milk quite a bit. Obviously, it is great for your body and great for your bones growing up. I have kids as well and it is an important part of their diet. In terms of training, I do have milk in my food.

Advice for Aspiring Athletes?

I suppose my advice for aspiring athletes is that there is no substitution for hard work and to work on areas that you could maybe be weaker on, as it is always easier to work on the areas that you are good on.

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Profile

Name: David Wallace

Sport: Rugby

Position: Back row

Born: 08/07/1976

Birth Place: Limerick

Sporting Influences: My sporting influence would have been my family really. My older brothers played a variety of different sports, rugby probably the main one. My three elder brothers would have represented Ireland at some level, whether in colleges or International, and that was a huge influence on me when I was growing up.

Greatest Sporting Achievements: Well I suppose it would be mainly the Grand Slam back in 2009 and being part of that team, or perhaps one of the two Heineken Cup wins. It is hard to separate them to see which one I prefer more. I suppose they are all equally in the heart.

Training Schedule: Typical training schedule in a week would perhaps be two weights sessions, a running session and maybe two or three rugby sessions, and maybe a match at the weekend, hopefully - if you are selected!

Sports Star Spotlight

Kevin McLaughlin



Kevin McLaughlin

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Typical Diet:

My typical diet would be lots of calories, especially when I am training hard. Eating meals as often as I can [and] trying not to have more than a three-hour gap between meals...

Do You Drink Milk?

I drink milk quite a bit. Mainly in cereal and in protein shakes. I have a big bowl of porridge every morning with milk and after every session I would have whey protein and a lot of milk products.

Advice for Aspiring Athletes?

Yeah, train hard, work on your weaknesses. Don't be afraid of criticism from other people, use it to strengthen your game and watch people who are at the top of the game in your sport and learn from them. I think about staying calm, focusing on getting the basics right and let my instincts do the rest.

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Profile

Name: Kevin McLaughlin

Sport: Rugby

Position: Flanker and second row

Born: 1984

Birth Place: Dublin

Sporting Influences: Growing up, it would have been my old man! He played rugby for Monkstown for 20 odd years and then I remember the 1991 World Cup watching David Campese playing for Australia and he really inspired me to go on and play rugby - I was a centre when I was younger as well so that was a special influence for me.

Greatest Sporting Achievements: Winning the Heineken Cup with Leinster last season. It was something that we did back in 2009 but I wasn't involved with that team at the time so starting last season was a huge achievement for me.

Training Schedule: A typical training schedule for me would be going hard Monday and Tuesday in the gym and on the field. Wednesday, a day off. Hard training on Thursday again, light training and a captain's run on Friday and then a game on Saturday. Then, a day off on Sunday.

Case study: Diet plan for injured 16 year- old Gaelic football player



Dr Tom Hill, originally from Cork, is a registered nutritionist and Senior Lecturer in Food and Human Nutrition at University of Newcastle-Upon-Tyne, UK. He has worked on diet and nutrition issues with players, athletes and teams, both professional and amateur, across a range of sports including rugby, soccer, GAA, rowing and athletics. He has also published numerous research articles and book chapters on human nutrition and one of his main research interests is the role of nutrition in musculoskeletal health. He has also played rugby for University College Cork and is currently involved in coaching youth rugby. (Email: tom.hill@newcastle.ac.uk)

Case study:

Diet plan for injured 16 year-old Gaelic football player

Lisa, aged 16, is a highly competitive inter-county Gaelic Footballer at U18 level. While playing with her local club, Lisa sustained a leg fracture and as a result will be out of field training for a number of weeks. As result of her injury, she will need to use crutches for 6-8 weeks and has decided to get a lift from her mother to school daily. She is conscious that because of her reduced training schedule that her fitness may drop and her weight may go up. She knows that her diet will be critical in both helping her recovery and keeping her weight stable. Understandably feeling very down after the injury, her coach pointed out to her that she will need to maintain a positive outlook about her injury and adopt an optimistic attitude about her rehabilitation, which will commence shortly. Lisa is also busy at school with a number of exams on the horizon. She likes most foods. She weighs 9½ stone and is 5ft 6 inches.

Nutritionist recommendations

Estimated average daily energy requirements based on weight, height and a moderate activity level: 2,000 kcals/day.

General guidelines

Although Lisa's training volume will decrease over the coming weeks, she still needs adequate energy and protein intake to help the healing process and minimise muscle loss associated with immobility of her leg. Using crutches will also increase her metabolic rate. Lisa is advised of the following points in relation to her diet over the coming weeks and is initially provided with a set of meal plans tailored to her current needs.

- To include a protein-rich food at each meal and snack throughout the day to help maximise

healing and minimise muscle loss.

- Ensure a hearty breakfast daily to include porridge, toast and protein-based spread and juice.
- Include plenty of fruit and vegetables particularly greens, citrus and berry-type fruits which contain high levels of antioxidants.
- Aim to eat fish, including oily varieties, 2-3 times per week.
- Keep well hydrated daily.

Sample daily meal plan

8am: Breakfast

- 1 x 30g sachet of quick oats porridge with a teaspoon of honey and 200ml low-fat fortified milk
- Slice of toast with either peanut butter OR a boiled egg
- Glass/carton of unsweetened fruit juice (200ml)

10.30am: School snack

- Pint of low-fat fortified milk
- Apple

1.00pm: Lunch (at school)

- Chicken salad sandwich on wholegrain bread with 100g chicken, tomato, lettuce, cucumber, light mayo
- 150g mixed fruit salad including clementine/pineapple/berries

5.30pm: Dinner

- Pasta bolognese with minced steak (100g) and pasta (1½ cups cooked), peppers, carrots, peas and onions (250g)

OR

- Homemade fish pie made with salmon and cod (100g) potato (2 medium) and mixed vegetables (250g)
- Cup of tea and two plain biscuits

9.00pm

- 40g bowl of branflakes with low-fat fortified milk

Sport & Dairy

What the science says

As reported previously in *SN Forum*, numerous studies have investigated the potential role of chocolate milk in post-exercise recovery. In this issue we look at two further studies that highlight the benefits of consuming milk following endurance exercise.

Protein turnover, muscle glycogen and performance

A recent study investigated the effects of consuming a chocolate milk drink post-exercise and focused on the effects of chocolate milk consumption on markers of protein turnover, muscle glycogen and performance.

This study involved male runners who completed a 45-minute treadmill run followed by a three hour recovery period, during which participants consumed 480mL of either a fat-free chocolate milk drink or a carbohydrate-only drink.

Blood samples were collected from all participants on arrival. Muscle biopsies were performed during recovery, and additional blood samples were also collected every 15 minutes throughout recovery. This study consisted of two individual trials, separated by seven days. For the second trial the procedure was similar to the first trial with the exception of the post-exercise beverage: participants consumed the beverage they did not

consume on the first trial.

For the study duration (14 days), subjects were provided with prepared meals and snacks tailored to their individual energy needs, and refrained from the use of alcohol, nicotine and caffeine. This aimed to control elements of the participants' diet that may affect trial performance, and focus specifically on the effect of the post-exercise beverages consumed.

Results showed that after consuming the milk beverage, participants had greater muscle protein synthesis and reduced body protein breakdown following endurance exercise when compared with the carbohydrate-only drink. Furthermore, milk consumption was as effective as the carbohydrate-only drink in maintaining muscle glycogen during recovery, while performance in a subsequent exercise session was enhanced with the milk drink compared with the carbohydrate-only drink.

In conclusion, the consumption of fat-free chocolate milk following endurance exercise offers numerous benefits for recovery, and should be considered an option for post-exercise nutrition to support muscle and body protein recovery.

Lunn WR *et al.* Chocolate milk and endurance exercise recovery: protein balance, glycogen and performance. *Medicine and Science in Sports and Exercise*. 2011; doi: 10.1249/MSS.0b013e3182364162.

MILK IT
FOR ALL IT'S
WORTH**Further evidence for chocolate milk as a post-exercise recovery drink**

Earlier studies also support the study outlined on page 6. For example, Thomas *et al.* (2009) investigated the effects of three recovery drinks – chocolate milk, a carbohydrate replacement drink or a fluid replacement drink. Nine male cyclists took part in the experimental trial consisting of a glycogen-depleting exercise session, a recovery period of four hours and a further cycle to exhaustion (the endurance exercise test).

Participants arrived to the exercise laboratory in a fully rested, hydrated state. Three individual trials were completed by each cyclist as part of this study, separated by at least one week. The procedure of each trial was similar, apart from the beverage consumed during the recovery period i.e. each participant was assigned to one of the test drinks at each of the three individual trials.

Following the glycogen-depleting exercise, participants consumed their assigned drinks. Measurements such as blood lactate and body mass were taken before and after both the glycogen-depletion cycle and the cycle to exhaustion. During the cycle to exhaustion, heart rate was recorded every five minutes and pedal cadence was

measured continuously.

Results showed that time to exhaustion during the endurance capacity trial was longer with the chocolate milk (32 ± 11 min) compared to the fluid replacement drink (23 ± 8 min) and the carbohydrate replacement drink (21 ± 8 min). In short, following consumption of the chocolate milk drink, participants could cycle 51% longer than the carbohydrate replacement drink, and 43% longer than after the fluid replacement drink.

There were no differences in mood or appetite parameters measured during the recovery period following the glycogen depletion trials. However, it was observed that participants had a tendency to report higher feelings of fullness, and lower feelings of hunger, after drinking the chocolate milk, compared with the carbohydrate replacement and fluid replacement drinks. There were no other within-subject differences for any of the other variables measured such as blood lactate, body mass and heart rate.

In conclusion, this study highlighted that chocolate milk is an effective recovery aid following prolonged endurance exercise.

Thomas K *et al.* Improved endurance capacity following chocolate milk consumption compared with 2 commercially available sports drinks. 2009; *Applied Physiology, Nutrition and Metabolism* 34: 78-82.

Resources and events

Visit the National Dairy Council's new website: www.obeyyourbody.ie where you can view videos of 12 of the country's finest sportsmen and women who were deputised as 'Obey Your Body' ambassadors during a day of fun, craic and challenges at Carton House!

For updates on the NDC, follow us on **Twitter @NDC_ie**

Log onto www.milk.it to find out more about nutrition for sports and the 'Bring on the Pros' initiative.

Visit the Milk It Facebook page: www.facebook.com/milkitndc for access to exclusive content, videos and some fun facts on sports nutrition and milk.

The National Dairy Council has a collection of booklets available to download from our website www.ndc.ie/publications

For more information about upcoming *Milk It For All It's Worth* seminars and events, visit the NDC website, www.ndc.ie or contact us on (01) 290 2451.

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