

SN FORUM

**Sports
Nutrition
Forum**

A Newsletter for Sports and Fitness Professionals

MAKING A RACKET!



Pictured at the NDC & Badminton Ireland Milk It For All It's Worth Seminar were (L-R): Chloe Magee, Irish Olympic Badminton Player; Dr Tom Hill, Senior Lecturer in Nutrition, Newcastle University; Caroline O'Donovan, National Dairy Council; and Daniel Magee, Irish National Badminton Coach.

Badminton coaches attend nutrition seminar

The National Dairy Council (NDC), in conjunction with Badminton Ireland, held a sports nutrition seminar for coaches at the Marino Institute of Education, Dublin (July 13, 2012) as part of the *Milk It For All It's Worth* Campaign.

Dr Tom Hill, Senior Lecturer in Nutrition at Newcastle University, delivered the session to an audience of over 30 badminton coaches, and explained that because badminton demands aerobic stamina, speed and precision, agility, explosive strength, and good motor coordination – proper nutrition should be a key priority. Dr Hill also stressed that the competition format in badminton means that players face important issues

such as uncertain gaps between games, travel and eating times, and the overall length of the day. Therefore, adequate planning for optimal nutrition is essential. The NDC interest is fuelled by the growing body of scientific research showing milk can play a very positive role in a number of aspects of sports nutrition.

Research is pointing to an interesting role for milk and milk products within sports nutrition. For example, research reported from Loughborough University highlights the effectiveness of skimmed milk as a re-hydration drink after sports; while research from Northumbria University highlights the beneficial role of milk and milk based products in recovery from exercise-induced muscle damage.



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Editorial

In this issue of *SN Forum* we hear from Scott Evans and Chloe Magee, who did Ireland proud at the London 2012 Olympic Games, as well as our regular contributors, Ruth Wood-Martin and Dr Tom Hill. International rugby professional, Rob Kearney, features in our 'Sports Star Spotlight', and we take a look at research highlighting the benefits of milk in aerobic and resistance exercise.

Log on to www.milk.it to find out more about nutrition for sports and to enter our competition.

Visit the Milk It Facebook page:

www.facebook.com/milkitndc for access to exclusive videos and fun facts on sports nutrition and milk. If you have any comments or suggestions, contact us at info@ndc.ie. You can follow NDC updates on Twitter @NDC_ie

Caroline O'Donovan

Caroline O'Donovan
Nutritionist, National Dairy Council



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THE EUROPEAN UNION, THE NATIONAL
DAIRY COUNCIL AND THE DEPARTMENT
OF AGRICULTURE, FOOD AND THE MARINE



SCOTT EVANS

Scott Evans is Ireland's number one Men's Singles Badminton player and became the first Irishman ever to compete in badminton at Olympic level at the Beijing Summer Olympics 2008. Scott is currently living and training in Denmark under the watchful eye of former Danish great and world number one, Jim Laugesen.



For further information on Scott Evans, visit:

- www.scottevansireland.com
- Facebook: www.facebook.com/ScottEvansBadminton
- Twitter: @Scott_Evans1

Date of Birth:	26/09/1987
Birth Place:	Dublin
Sporting Influences:	I have too many influences to mention, but a few would be my brother Lee, Peter Gade, Jim Laugesen.
How Did You Become Involved in Badminton?	I got involved in badminton through my mum and dad. They both played when they were younger.
Best Thing About Playing Badminton:	Getting to do something I love every day.
Greatest Sporting Achievement:	National Irish Champion 7 times in a row, Olympics 2008 and 2012.
How Did Your Training Schedule Change in The Run-Up to The 2012 Olympic Games?	I focused a lot on my physical side, weight training and biking to build up a very strong base. I also focused a lot on my game and tactics.
Training Schedule:	I train every morning on court from 9-11am, 5 days a week. Monday, Wednesday, Friday and Saturday I will do physical training, which consists of biking and weights. Tuesday and Thursday will consist of another on-court session.
The Importance of Nutritional Science:	I think it is one of the most important things in sports. I have only just come onto the scene with nutrition and nutritional science, as I never had the resources before. It has already made a huge difference to my lifestyle and my career.
Thoughts Before a Game:	Too many! It depends a lot on the tournament, what match I am going to play and my opponent.
Advice For Aspiring Athletes:	To be grateful and respect everything you have. To enjoy your sport and take it seriously at the same time. Learn from every situation.

CHLOE MAGEE

Chloe is Ireland's top Ladies Singles player. She trains each week in the Badminton Ireland High Performance system, based in Dublin. Chloe is very proud to be a double Olympian, competing in both Beijing and London Games.



Follow Chloe Magee on Twitter:

- Twitter: @chloenmagee

Date of Birth:	29/11/1988
Birth Place:	Letterkenny, Co. Donegal
Sporting Influences:	My family
How Did You Become Involved in Badminton?	My Dad used to take me along to the local club when I was younger. It all started from there!
Best Thing About Playing Badminton:	The speed and excitement of the game.
Greatest Sporting Achievement:	Competing at two Olympic Games and winning the Lithuanian mixed and singles title in 2011.
How Did Your Training Schedule Change in The Run-Up to The 2012 Olympic Games?	We had a few long endurance phases just after Olympic qualification and only one tournament in 3 months, which is quite unusual in a normal year!
Training Schedule:	I train 6 days a week, 5 times on court in the morning times, 2 gym sessions and either 2 or 3 running sessions, depending on how I'm feeling.
Do You Drink Milk?	I drink quite a lot of milk. I would use quite a bit in my recovery after training.
The Importance of Nutritional Science:	I think it's so important to know how vital nutrition is to get the best out of your training. Sometimes a small diet change can help you train better and longer.
Thoughts Before a Game:	If I give my best performance out here, that's all I can do. The results will take care of themselves.
Advice For Aspiring Athletes:	There is only one way to success - hard work!

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.

Nutrition Supplements – are they worth considering?

With the massive increase in sports nutrition products in recent years, the lure of pills and powders to help athletes gain a competitive edge is greater than ever. But do they fulfil their promises? Many do not, and athletes should think long and hard about issues of effectiveness, safety and cost before embarking on taking them.

What are nutrition supplements?

Dietary supplements, nutritional ergogenic aids, sports supplements – these are some of the terms used to describe the range of products that make up the sports supplement industry. There is not a single definition of what constitutes a nutrition supplement, but in sport, they are often understood to include such things as sports drinks, energy bars and meal replacements, protein and recovery powders, and products that claim to have a direct work enhancing effect on performance such as creatine and caffeine. These are just examples – the supplement industry is a multi-million dollar one, with thousands of products for sale across the counter and through the internet.

Why do athletes take nutrition supplements?

Simply put, athletes want 'the edge' over their competitors and many feel that nutrition supplements will give them

this. The big question is: can supplements give that edge?

Are there nutrition supplements worth considering?

The questions you need to ask yourself are:

- Is there evidence that it will provide any benefit in your sport? The needs of strength athletes are different from those of endurance athletes.
- Is there any evidence of adverse health effects?
- Does it contain any substance that may lead to a positive drugs test (if you are liable to be tested)?

Nutrition supplements are often categorised according to their function or claim. Table 1 gives you an overview of common nutrition supplements on the market, and whether they are likely to work or not. Remember, every athlete's response is different.

Nutrition supplements and anti-doping

Nutrition supplements often hit the headlines when it comes to anti-doping. While it is recognised that some sports foods and supplements may play a small but significant role in helping some athletes to achieve their peak performance, the downside is that the sports supplement industry is poorly regulated. As a consequence, some supplement companies

have poor manufacturing practices that result in products containing ingredients that are not listed on the label, either by intentional addition or cross-contamination in the production process. You need to be assured that this doesn't mean that you end up taking something that will result in a positive doping offence, if you are liable to be tested.

The choice to use, and the responsibility of using, sports supplements lies with you, the athlete. The World Anti-Doping Agency (WADA) clearly states the legal clause 'strict liability', which means that you are responsible for any and all substances that may appear in your urine or blood in a doping test. You need to weigh up the costs, risks and benefits of taking any supplement: if there is little benefit and a big risk, it's just not worth it. How do you know if a supplement is safe to take? Simply put, you don't. The best you can do is to ask the manufacturer for assurances about their manufacturing processes and whether their products have been tested for the presence of banned substances. Any smart athlete will do this.

Finally, you should keep in mind that supplement use does not compensate for ignoring the fundamentals of appropriate nutrition in everyday eating and drinking practices to support performance. Remember – if it sounds too good to be true, it probably is!

Fact sheets on common nutrition supplements are available to download from the Irish Institute of Sport's website in the Athlete Zone: www.instituteofsport.ie/Institute_Of_Sport/Athlete_Zone/Sports_Nutrition_Supplements

Table 1: Nutritional Supplements

FUNCTION/CLAIM	SUPPLEMENT	PROBABLY WORKS	MAY WORK	DOESN'T WORK
INCREASES STRENGTH AND POWER	Creatine	✓		
	Protein + Amino Acids		✓	
	HMB		✓	
	Trace Elements eg Boron/Chromium			✓
	Herbals eg Tribulus Terrestris			✓
PROMOTES ENERGY SUPPLY	Carbohydrate	✓		
	Bicarbonate/β alanine	✓		
	Creatine	✓		
	Carnitine			✓
PROMOTES WEIGHT LOSS	Carnitine			✓
	Conjugated Linoleic Acid (CLA)		✓	
PROMOTES JOINT HEALTH	Fish Oils		✓	
	Glucosamine		✓	
CENTRAL NERVOUS SYSTEM EFFECTS	Caffeine	✓		
PROMOTES IMMUNE FUNCTION	Carbohydrate	✓		
	Anti-oxidant nutrients		✓	
	Glutamine		✓	
	Probiotics		✓	

KEY POINTS

- Ensure you are eating and drinking properly to support your training and competition.
- If you have been diagnosed with a nutrient deficiency (eg iron), then follow medical advice.
- Some supplements may have potential benefit – get advice from a qualified sports nutritionist before you start anything.
- Weigh up the costs, benefits and risks before taking any supplement.
- Seek assurances from companies about their quality control of supplement manufacture.
- Don't use supplements where nutrient needs can be met by normal foods.
- If you are under 18 years of age, you should not use supplements unless medically advised.

Sports Star Spotlight

Rob Kearney



Rob Kearney, International rugby player, pictured with Zoë Kavanagh, CEO of the NDC.

Profile

Date of Birth: 26/03/1986

Birth Place: Dublin, Ireland

Height: 1.85m (6' 1")

Weight: 95 kg (15st, 0lb)

Sport: Rugby: Wing/Full Back

At the age of 26, Rob Kearney has played 119 times for Leinster and has 38 caps for Ireland. Rob made his RBS 6 Nations debut against Italy in February 2008 and went on to win caps in each of the games. A great 2008/2009 season led to a regular starting position for Rob at full back for both Leinster and Ireland where he helped Ireland secure their first Grand Slam in 61 years and Leinster win their first Heineken Cup in the club's history. In 2009, Rob also got a place in the 2009 Lions squad. A knee injury in November 2010 forced him to miss the remainder of the season. Following his recovery, Rob was included in Ireland's 2011 World Cup Squad, and in 2012, he was awarded the IRUPA Supporters Player of the Year and Player's Player of the Year. In May 2012, Rob was awarded the title 'European Player of the Year'.

“Sports Influences:

My family, school coaches and sporting heroes such as Simon Geoghegan, Roger Federer and Tiger Woods.

How Did You Become Involved in Rugby?

I started from a young age: I was maybe 6 or 7 years old. My older brother and my dad played a lot of rugby and were involved in a local rugby club. I went to a boarding school in Kildare, which was pretty heavily influenced in rugby and it was really there where I played on a daily basis.

Best Thing About Playing Rugby:

I suppose winning – this season was a very good one for us. You play it for enjoyment and all of that of course, but you get much more enjoyment when you win! Sometimes when you lose, it's not so enjoyable so the focus is winning.

Greatest Sporting Achievement:

Probably in 2009 – it was just an incredible year. We won the Grand Slam, we won our first Heineken Cup, and then I got the opportunity to go on tour with the British and Irish Lyons, which was a big moment too. That whole season was just jam-packed with good personal and collective achievements.

Training Schedule:

The start of the week is always a little bit more intense because, towards the end of the week, we try and minimise our load to stay as fresh as possible for the game at the weekend.

A typical day would be a pitch session in the morning, maybe a couple of hours of video work and then you would either do speed or weights in the afternoon.

Typical Diet:

It varies on a week-to-week basis. At the end of the week, closer to the game, it would be much more carbohydrate loading for energy. Earlier in the week, it's more a high protein diet, less carbohydrates.

For Breakfast:

I'm a bad breakfast eater, even though it's the most important meal of the day! If I can get two poached eggs, with some bacon on toast that would be pretty good, and then on other days I would have porridge made on milk.

Favourite Meal:

It is hard to beat a good steak and chips with a pint of milk.

Why Do You Drink Milk?

I love milk. It's good for the bones and I've always liked the taste of it. It's something that I enjoy. I probably do an unusual thing with milk – I always have it in a pint glass with ice because it tastes great when it's really cold.

The Importance of Nutritional Science:

The way sport is nowadays, especially sport in Ireland, the best teams are only separated by small percentages. Your diet and nutritional science is where you can get the edge on the opposition, so you can't underestimate the importance of it at all.

Thoughts Before a Game:

Everyone is pretty different: some guys like to get psyched up. I generally like to stay a little bit chilled – I don't enjoy getting too nervous. Doing it for so long now, I suppose I don't really have too many thoughts, it all just becomes pretty instinctive. You just need to make sure you're well prepared mentally and physically.

Advice for Aspiring Athletes:

I suppose enjoyment – you need to enjoy it. If you're not enjoying it, invariably, you're never going to excel at something. You do need to train hard to reap the rewards, and you need to dream too.

”

Case study: Competition preparation diet for an elite badminton 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)

Eighteen year-old Gillian is preparing for the Irish International Badminton Championships, in Dublin this December. This is Gillian's most important competition to date where she will be pitted against some of the world's top players. In her effort to maximise the effectiveness of her preparations she has sought the help of a sports nutritionist. The initial meeting with the sports nutritionist revealed Gillian to be a fussy eater. She dislikes some foods, particularly green vegetables, citrus fruits, and fish (although she will eat fish coated in breadcrumbs). Gillian rarely eats red meat but does consume poultry 1-2 times a week. In the past, she has followed a vegetarian diet and has had anaemia, although a recent blood test revealed normal blood nutritional and biochemical indices. The importance of ensuring a high carbohydrate, nutrient-rich diet was emphasised. She realised that she will need to plan her meals accordingly and make the appropriate provision when food shopping. In preparation for her competition, she trains for 3-4 hours per day, five days per week with two rest days interspersed during the week (both with active recovery sessions usually lasting one hour). Her five-days per week training schedule usually involves two on-court programmes and either a gym, kick-power, inclined treadmill run or resistance training session on her local beach. Gillian weighs 57kg and is 5'6" tall.

Nutritionist recommendations

Approximate estimated daily energy requirements for training days based on weight, height and training schedule as described above = 3,200 kcals/day [consisting of 68% carbohydrate (520g); 12% protein (96g) and 20% fat (70g)].

Nutritionist's advice to ensure an adequate intake of fruit, vegetables and iron containing foods:

- Try and make a fruit smoothie daily incorporating banana, a few strawberries, a little fruit juice and some low-fat natural yogurt.
- Try some homemade vegetable soup with low-fat sour cream.
- Maintain the use of fortified breakfast cereal (or porridge) to help contribute to iron intake. Also include eggs, spinach, beans and lentils in the diet to help with iron intake.
- Aim for lean chicken and/or poultry 2-3 times per week.

Sample daily menu

(3,200kcal) based on food preferences:

7.00am:

- 2 weetabix with skimmed milk
- Banana
- ½ pint of diluted cordial

Morning badminton session: 8-9am: Follow usual fluid recommendations pre, during and post training.

9.00am (post-training snack):

- Pint of chocolate flavoured milk

10.00am:

- 2-egg omelette with mushrooms
- 3 slices of multigrain toast with low-fat spread and honey
- Apple
- Pint of diluted cordial

Treadmill run or gym session: 12.30-1.30pm: Follow-usual fluid recommendations pre, during and post training.

1.30pm (post-training snack):

- Fruit smoothie with 1 banana, 4-5 strawberries, 100ml fruit juice and a small pot of natural yogurt.

2.00pm:

- Cous-cous (1 cup cooked) and feta cheese (3oz) with diced carrot and raisins
- Pint of diluted cordial

5.00pm (pre-training snack):

- 50g cereal bar and an isotonic drink

Evening badminton session: 6pm-7.30pm: Follow-usual fluid recommendations pre, during and post training.

7.30pm:

- Chicken or turkey stir fry with a medium sized breast fillet (5oz), olive oil, peppers and onions, and either 85g (3oz) wholegrain noodles or rice
- ½ sachet of ready to eat black bean sauce
- 2 scoops low-fat vanilla ice cream

10.30pm: Bed

Sport & Dairy

What the science says

Milk: research shows benefits for aerobic and resistance exercise

Milk – benefits for aerobic exercise

During aerobic exercise, the body supplies muscles with oxygen so that they can function. As the demand for oxygen rises, so does heart rate and the rate of respiration. Aerobic activities include walking, running, dancing, swimming or cycling.

A recent study investigated the effect of consuming either chocolate milk, a carbohydrate drink, or a placebo drink on training adaptations following an aerobic exercise programme. The chocolate milk and carbohydrate drink were equal in terms of calorie and fat content; the placebo was an artificially flavoured and artificially sweetened drink resembling the carbohydrate beverage in taste and appearance, but contained no calories.

Thirty-two males and females (16 males and 16 females), aged 18-35 years, took part in this study which involved a cycling training programme. Participants cycled for 60 minutes per day, five days per week for 4.5 weeks. Immediately following each session, they were provided with one dose of their allocated supplement (either chocolate milk, the carbohydrate drink, or placebo drink) and drank this in the laboratory. Subjects were then instructed to drink a second dose one hour later, and not to consume anything other than water, until

one hour after ingesting the second dose. The quantity of the drinks provided to each participant was calculated according to body weight ranges.

VO₂ max refers to 'maximal oxygen uptake' and is one factor that can determine an athlete's capacity to perform sustained aerobic exercise. All three groups showed an increase in VO₂ max over the 4.5-week training period. However, the change in VO₂ max was significantly greater in the chocolate milk group compared to the carbohydrate and placebo groups. The average increase in absolute VO₂ max for the chocolate milk group was 12.5% higher than baseline levels, which was a two-fold improvement over the increase found in the other two groups.

Another important finding from this study was that body composition improvements were significantly greater in the chocolate milk group than the carbohydrate group. The chocolate milk group lost more fat mass and gained more lean mass.

It was concluded that chocolate milk is effective for post-exercise recovery, inducing positive increases in aerobic training adaptations and improvements in body composition.

Ferguson-Stegall L *et al.* Aerobic exercise training adaptations are increased by postexercise carbohydrate-protein supplementation. *J Nutr Metab.* 2011; doi:1155/2011/623182.

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B2

calcium

Milk – benefits for resistance exercise

Resistance exercise is a form of strength training where each effort is performed against a specific opposing force which is generated by being pushed, squeezed, stretched or bent. During these exercises, muscle fibres are broken down and the fibres are then repaired by the body to help the muscles grow stronger. A net muscle protein balance is needed for a gradual increase in muscle mass.

A study investigated the effect of consuming milk or a soy beverage on whole-body and muscle protein turnover after a bout of resistance exercise. Eight healthy men who regularly engaged in resistance training (four days per week) were recruited for the study, which consisted of two phases, separated by one week.

For each trial, subjects performed a single leg workout consisting of leg presses, hamstring curls and knee extensions. Following these exercises, subjects consumed their allocated drink: 500mL of non-fat milk or 500mL of a soy-protein beverage (both drinks contained equal protein, energy and macronutrient contents). For the second trial - which took place one week after the initial trial - subjects followed the same protocol, except that their other leg was used to perform the resistance exercises and they received the

alternative beverage after exercise.

Ingestion of either the milk and soy drinks resulted in a positive net protein balance. However, a greater net balance and a more positive nitrogen balance over the 3 hours post exercise were observed after the milk consumption, compared with soy consumption. The fractional synthesis rate (a measure of protein turnover) in muscle was 34% greater following the milk drink than after the soy drink, indicating greater rates of muscle protein synthesis.

It is suggested that differences in the digestion rate of milk and soy protein affected amino acid patterns and uptake, resulting in a difference in the rate of protein synthesis.

It was concluded that milk-based proteins promote a more rapid lean mass accrual than soy-based proteins when consumed following resistance exercise. The researchers also suggest that this ability of milk-protein consumption after resistance exercise may be particularly valuable to those with compromised muscle function.

Wilkinson SB *et al.* Consumption of fluid skim milk promotes greater muscle protein accretion after resistance exercise than does consumption of an isonitrogenous and isoenergetic soy-protein beverage. *Am J Clin Nutr.* 2007; 85:1031-40.

Resources and events

Log on to www.milk.it to find out more about nutrition for sports, enter our monthly competition, or play fun games.

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

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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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