

SN FORUM

**Sports
Nutrition
Forum**

A Publication for Health, Sports and Fitness Professionals



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EXPERT PANEL DISCUSSES NUTRITION FOR SPORT



Expert panel at the NDC Annual Conference were (L-R): Professor Niall Moyna; Professor Luc van Loon; Rob Kearney; and Dr Catherine Logan.

Attendees at the National Dairy Council's (NDC) Annual Conference were informed how research and innovation can help to open more doors for the Irish dairy sector, drawing on the example of dietary protein.

As part of the conference, rugby professional Rob Kearney; Professor Luc van Loon, Professor of Physiology of Exercise at Maastricht's University Medical Centre; and Dr Catherine Logan, Nutrition Manager of the NDC, took part in a panel discussion. They explored modern applications of dairy in sports nutrition and healthy ageing, with Professor Niall Moyna, Director for the Centre of Preventative Medicine at Dublin City University, chairing the discussion.

"What we eat and drink fuels us, can affect our health in the short term and long term and can affect performance. The growing interest in the science of sports nutrition is based on the recognition that performance is affected by how you fuel your body," explained Professor Moyna.

Professor Luc van Loon said that, with athletes approaching their limits with respect to training volume and intensity,

good nutritional practice becomes even more important. This has renewed the interest among athletes, coaches, and exercise physiologists in the role of nutrition on the skeletal muscle adaptive response to exercise training.

"A single bout of exercise stimulates both muscle protein synthesis and, to a lesser extent, muscle protein breakdown. However, post-exercise protein balance will remain negative in the absence of food intake. Dietary protein ingestion stimulates skeletal muscle protein synthesis, inhibits protein breakdown and, as such, stimulates muscle protein accretion following resistance as well as endurance-type exercise. This will lead to a greater skeletal muscle adaptive response to each successive exercise bout, resulting in more effective muscle reconditioning," said Professor van Loon.

The NDC Annual Conference took place during National Dairy Week (12th -18th May 2014), which was a week-long celebration of the natural goodness of Irish dairy. See www.ndc.ie/news for more information.

Editorial

Welcome to the latest edition of *SN Forum*. In this issue, we highlight comments from an expert panel at the National Dairy Council's Annual Conference as they discuss nutrition for sport, with a particular focus on the role of dietary protein. We also hear from our regular contributor, Ruth Wood-Martin, who advises on nutritional considerations for athletes travelling for training camps/competition, and we highlight research showing a benefit of a whey protein beverage for body composition. Natalya Coyle, Irish modern pentathlete who finished ninth in the London 2012 Olympic Games, joins us in the 'Sports Star Spotlight' and reveals her intense multi-sports training schedule.

Visit www.ndc.ie to keep up to date with our latest news and events; you can find us on Facebook at **NDCIreland** and follow us on Twitter **@NDC_ie**

We hope you enjoy reading this issue and we would be delighted to hear any comments or suggestions; please contact us at nutrition@ndc.ie

Caroline O'Donovan

Caroline O'Donovan
Nutritionist, The National Dairy Council

Sport & Dairy

What
the
science
says

Whey protein demonstrates an increase in lean body mass

Protein is recognised for its role in contributing to the growth and maintenance of muscle mass. But does the source of protein affect its ability to carry out this important role?

A recent study compared the ability of a whey, a soy and a carbohydrate supplement to promote an increase in lean body (muscle) mass. Sixty-three male and female participants, aged 18-35 years, were randomised into three groups to receive either one of the three supplements for the duration of the trial.

Participants completed a supervised resistance-training programme (96 workout sessions) over approximately nine months. Body mass, body composition and maximal strength were measured at baseline (before the trial began) and after 32, 64 and 96 sessions.

Participants were allowed to take part in recreational sports and activities for the study duration, but avoided intense training outside the study so as not to influence the results. The training programme was designed to develop the muscles of the whole body, rather than a focus on one specific area and included exercises such as bench presses, bicep curls, abdominal exercises and squats. Blood samples were also taken at baseline and at the end of the 96 sessions to measure plasma amino acid response.

The participants recorded their food intake for five days every six weeks of the study duration; these records were reviewed with dietitians and participants were weighed weekly. The carbohydrate, whey and protein supplements were provided in identical individual packets, with instructions to mix with 240mL of water and consume with breakfast on non-training days and immediately after exercise on training days.

Results showed that, although increases in total body mass were not different between groups, gains in lean body mass were significantly greater in the whey group (average of 3.3kg gain), whereas less of a gain was shown in the soy group (average of 1.8kg gain) and carbohydrate group (average of 2.3kg gain). Lean body mass increase in the whey protein group showed a superior effect, which was demonstrated after three months and was sustained throughout the nine months of training.

The amino acid, leucine, is recognised as an important factor in promoting muscle growth and discouraging muscle breakdown. Fasting levels of the amino acid, leucine, were significantly increased in the whey group and remained unchanged in the soy and carbohydrate group. Leucine levels in the whey group increased more than two-fold after consuming the supplement post-exercise.

This study demonstrated that daily supplementation with ~20g whey protein during resistance training was an effective strategy for increasing gains in lean body mass in young, healthy untrained men and women. These results also indicated that protein quality is an important determinant of lean body mass responses to resistance training.

Volek JS et al. Whey protein supplementation during resistance training augments lean body mass. *Journal of the American College of Nutrition*. 2013; 32: 122-135.

Performance and Nutrition: Nutrition Challenges of Travel

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 (IRFU).

Travel is a way of life for many athletes, due to the need to train or compete away from home. Whether you're travelling overseas or spending a couple of hours in a car, bus or train, your aim is to arrive ready to perform at your best. Travel of any length can be disruptive to your usual eating patterns, so it's wise for you to be prepared for the travel itself, as well as spending time in an unfamiliar location.

Short-distance travel

- Be organised and bring your own food with you so you don't have to rely on poor nutrition quality roadside cafés for your food. The table below should give you some ideas of portable snacks. Otherwise, do a bit of research into where you could eat en route for a nutritious stop-over.
- Don't forget to pack a bottle of water, or other fluid of your choice, to stay well hydrated.
- Take care not to eat more than you need; travelling can be boring so avoid snacking continuously.
- Especially during summer months, pack your food in a cooler bag to keep it safe and tasty.
- Remember to pack for your recovery for the return journey.

Nutritious 'on the move' snacks and fluids
Pots of wholegrain breakfast cereal
Low-fat milk in handy sized cartons
Tubs of yogurt or drinking yogurt
Sandwiches and rolls with protein and salad fillings
Salad bowls with added chicken or cheese
Rice crackers, wholegrain crispbreads, cereal bars
Decanted tinned products, e.g. fish, baked beans
Pots of rice pudding and custard
Fresh and dried fruit and nut mixes

Long-distance travel

1 Plan ahead

- Investigate food availability and choices at your destination before you leave home. Finding out what food outlets are close by will be useful for local shopping and checking the location of nearby restaurants will save time when you get there. Competition organisers may be able to provide useful information on what to expect.
- If you use supplements at home, bring a supply with you – this way you will know they are a safe supply.
- Contact the catering organisers at your destination to let them know of any special dietary needs you might have.

2 Eat and drink well on the move

- Aeroplane meals are not always athlete friendly. Take a supply of suitable snacks to top up the meals provided.
- Long hours of travel can upset your digestive system. To minimise constipation, drink plenty of fluids and eat fibre-rich foods.
- The humidity in an aircraft is around 10-15%, which means that moisture is evaporated from your body. Ask for extra fluids on long flights, and fill up your drinks bottle before you leave the plane.

- Avoid drinking too many caffeinated drinks (e.g. cola and coffee) on long flights as this may affect your ability to sleep.
- When moving to a new time zone, adopt eating patterns that suit your destination as soon as your trip starts. This will help to adapt your body clock.

3 Be wary of food and water supply

- Even in safe-sounding destinations, you are exposing yourself to a new set of 'bugs' and new routines of personal and food hygiene.
- In high-risk environments, stick to food produced in good hotels or restaurants. Avoid eating food from local stalls and markets, however tempting it is to have an 'authentic cultural experience'.
- If you are concerned about the water supply, stick to bottled water.
- Adopt a strict routine of hand washing to help prevent getting routine infections.

4 Make good choices in restaurants and takeaway outlets

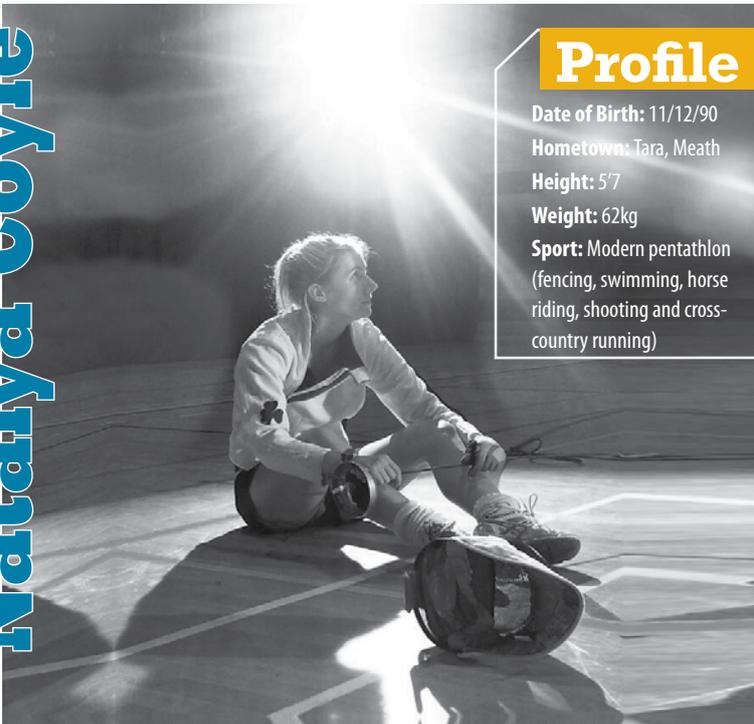
- Try to plan ahead with your restaurant choices. Most venues have menus available online, which can help you decide whether the meal options are suitable for your needs.
- When eating out keep these points in mind:
 - * Top up your glass regularly with water.
 - * Avoid dishes with deep fried ingredients or rich sauces and dressings.
 - * If you have high fuel needs, choose meals that focus on carbohydrates such as rice, potatoes and pasta.
 - * Order sides of vegetables or salad if they don't come with the meal.
 - * Desserts are not mandatory! Keep your overall nutrition goals in mind.
- Be smart if you are eating in athlete dining halls. Do a circuit to assess what is available and make your choices based on your nutrition requirements – don't just pile everything on your plate because it is available!

5 Self catering

- Take a selection of your favourite recipes with you – if you are sharing with fellow athletes, you may take it in turns to cook.
- Locate the local supermarkets and check opening hours.
- Pack your own supply of foods that you 'can't live without' – often some of these will not be available in foreign countries. First, check what you are allowed to bring into the country you are travelling to.

Travelling to train or compete should be an exciting experience. The fun side of travelling is immersing yourself in a different culture and being prepared will allow you to tap into the best of what will be on offer.

Sports Star Spotlight Natalya Coyle



Profile

Date of Birth: 11/12/90
Hometown: Tara, Meath
Height: 5'7
Weight: 62kg
Sport: Modern pentathlon (fencing, swimming, horse riding, shooting and cross-country running)

Favourite meal

Anything to do with pasta! I also love home cooked meals by my mum. Nothing better!

Do you drink milk?

Milk is essential in my diet! I often have a milk/yogurt-based smoothie as part of breakfast. I also have chocolate milk after a hard training session. At various times throughout the day, I would also consume fortified milk.

The importance of nutritional science

I find that sometimes people get really bogged down with a new diet fad or a super food of the moment, but I believe that if you maintain a healthy diet most of the time you can have the odd cheat day or night. It's more realistic to have a break now and then and it will help you keep on the right path.

What is your routine before a game?

The day before a competition I will spend some time writing out what I want to achieve - how I want to fence, what moves I will use and things to focus on. This helps prepare me for the day ahead and keeps my nerves at bay!

What do you like to do in your free time away from modern pentathlon?

I like to chill out by going out for meals, to the cinema or hanging with my friends.

Where do you see yourself five years from now?

Hopefully with another Olympics under my belt and my college degree finished.

Advice for aspiring athletes

Listen to your coach and support team. They will try and steer you to greatness and be your biggest advocate when times are tough. ”

“ Sporting influence

My dad is one of my main inspirations as he has experienced lots of ups, as well as major downs. However, he continues to be a hardworking, motivated person who lives life to the full.

How did you become involved in modern pentathlon?

When I was younger I started competing in the Pony Club tetrathlon (running, swimming, shooting and horse riding). I started out at the bottom but trained hard and went on to win the national title. A friend then introduced me to fencing which made up the fifth sport for modern pentathlon.

Best thing about modern pentathlon

The variety. I love being able to do different sports; it makes training and competing interesting and exciting.

Greatest sporting achievement

Coming ninth in the London 2012 Olympics, after going in ranked 29th.

Training schedule

I train around 25 hours a week which includes: five runs; four swims; three fencing sparring sessions; three fencing lessons; three shooting sessions; two gym sessions; and one horse riding lesson. I also get regular physiotherapy to keep me together!

Typical diet

Because I train so much, I have to make sure I take in enough calories to support my intense training schedule; I consume about 3000-4000 calories a day. I also have to ensure I have a balanced diet with enough nutrients, and I try to keep away from processed foods.

Information Booklets

The National Dairy Council are developing two new information booklets that will be available, free to download, at www.ndc.ie/publications from September 2014.

NUTRITION FOR ADULTS

This booklet, aimed at adults, provides practical guidance on topics such as: achieving a healthy, balanced diet; dairy nutrition; bone health; body weight; and the importance of keeping active.

NUTRITION FOR CHILDREN (AGED 5 YEARS AND OLDER)

This booklet provides information for parents and guardians of children aged five years and older on topics such as: healthy eating; keeping active; body weight; bone health; and dental health.

Contact us...

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