

SPORTS NUTRITION TRANSLATING SCIENCE INTO APPLIED PRACTICE

Sports nutrition is evolving rapidly. With the incorporation of molecular biology into sports nutrition, we are now entering an era described as “*periodised nutrition*” to enhance sporting performance. This is best demonstrated when looking at our current understanding of carbohydrates and the athlete

Researchers now understand that what may be best for one scenario, may be detrimental in another. Carbohydrates were once viewed as *sine qua non* for all aspects of athletic training and performance, but research over the last decade has highlighted that deliberate restriction of carbohydrates prior to and during exercise can enhance aspects of exercise adaptations, most notably increases in the master regulator of mitochondrial biogenesis PGC1 α .^{1,2}

Restriction of carbohydrate prior to exercise has been shown to increase lipid oxidation which, in the long term, could result in favorable changes in players' body composition.³ The message that has become most confused is the unquestionable fact that when it comes to high-intensity exercise performance, carbohydrates are still king⁴ and without them premature fatigue and suboptimal match-day performance are inevitable.

However, performance during carbohydrate-restricted sessions could be compromised and the athlete could be more susceptible to picking up infections. Therefore, it is essential that sports nutrition consultants have a solid grounding in exercise metabolism to translate the modern research in practice. It is only with this understanding that a periodised nutritional approach can be implemented into training and competition.

QUESTIONING CARBOHYDRATES

There are many questions that remain unanswered with regards to carbohydrates and the athlete. This is

one of the research areas currently being investigated by the sport nutrition group at Liverpool John Moore University (LJMU), headed by Dr James Morton and myself.

The team at LJMU provide sports nutrition consultancy to some of the UK's biggest sporting organisations including Team Sky, England Rugby, Liverpool FC, several Super League Rugby Clubs and the English Institute of Sport while also conducting molecular research in an attempt to bridge the gaps between science and practice.

We now know that carbohydrate restriction in a laboratory model can enhance mitochondrial biogenesis, but we are still unsure as to how this translates into enhanced exercise performance and we still do not know the optimal way to periodise this approach. The research is likely to suggest that not only should day-by-day nutrition be periodised but even meal-by-meal, with plans based upon the athlete's individual needs, their time of the season and weekly training schedules.

Until the research is complete and guidelines updated, the best advice for sports teams is to work alongside SENr practitioners who not only understand the research but have the knowledge to translate this message. This is an exciting era for sports nutrition – the key challenge without a doubt being how we translate all of this excellent science into practice, ultimately helping athletes achieve their maximum potential. ●

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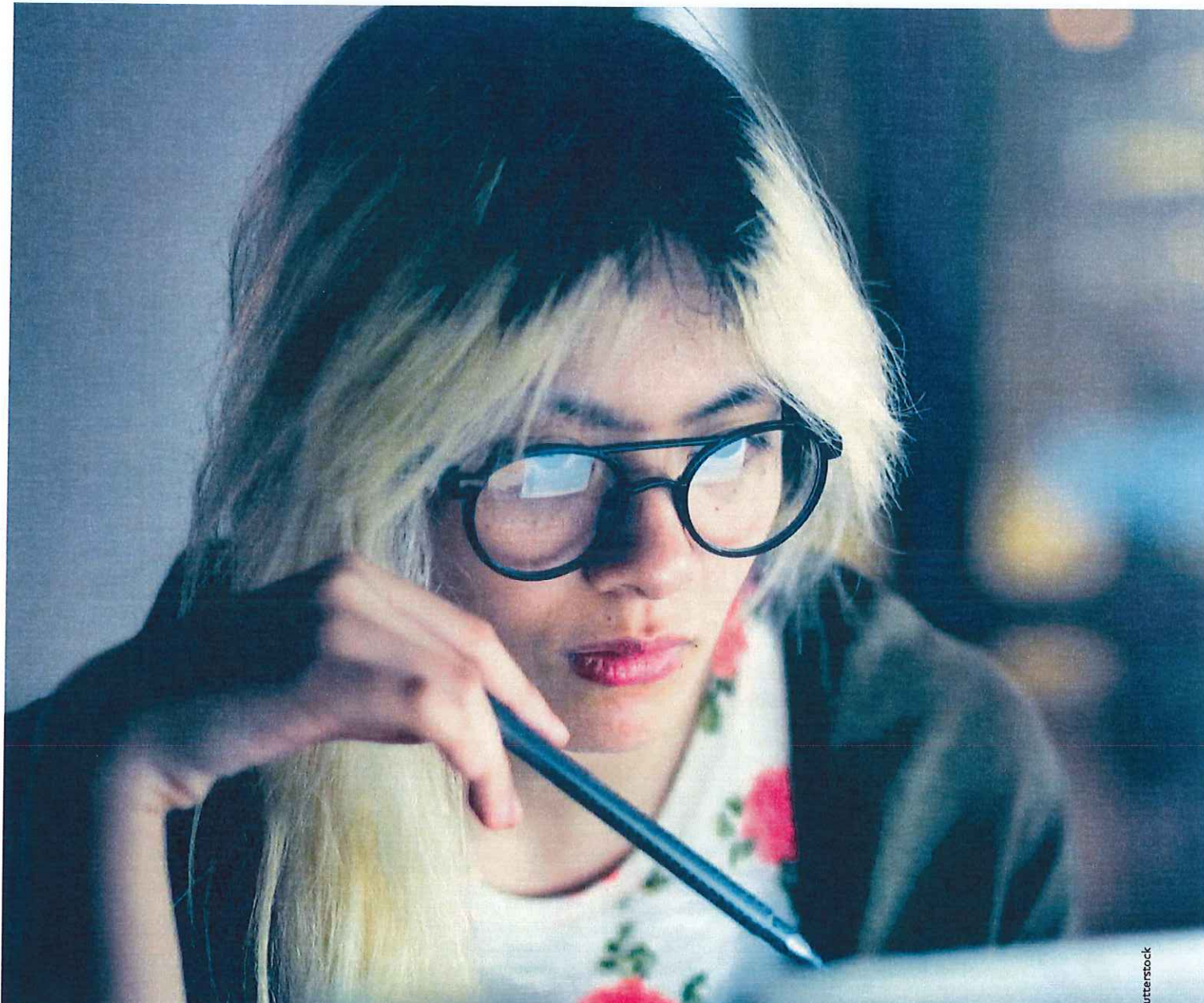


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