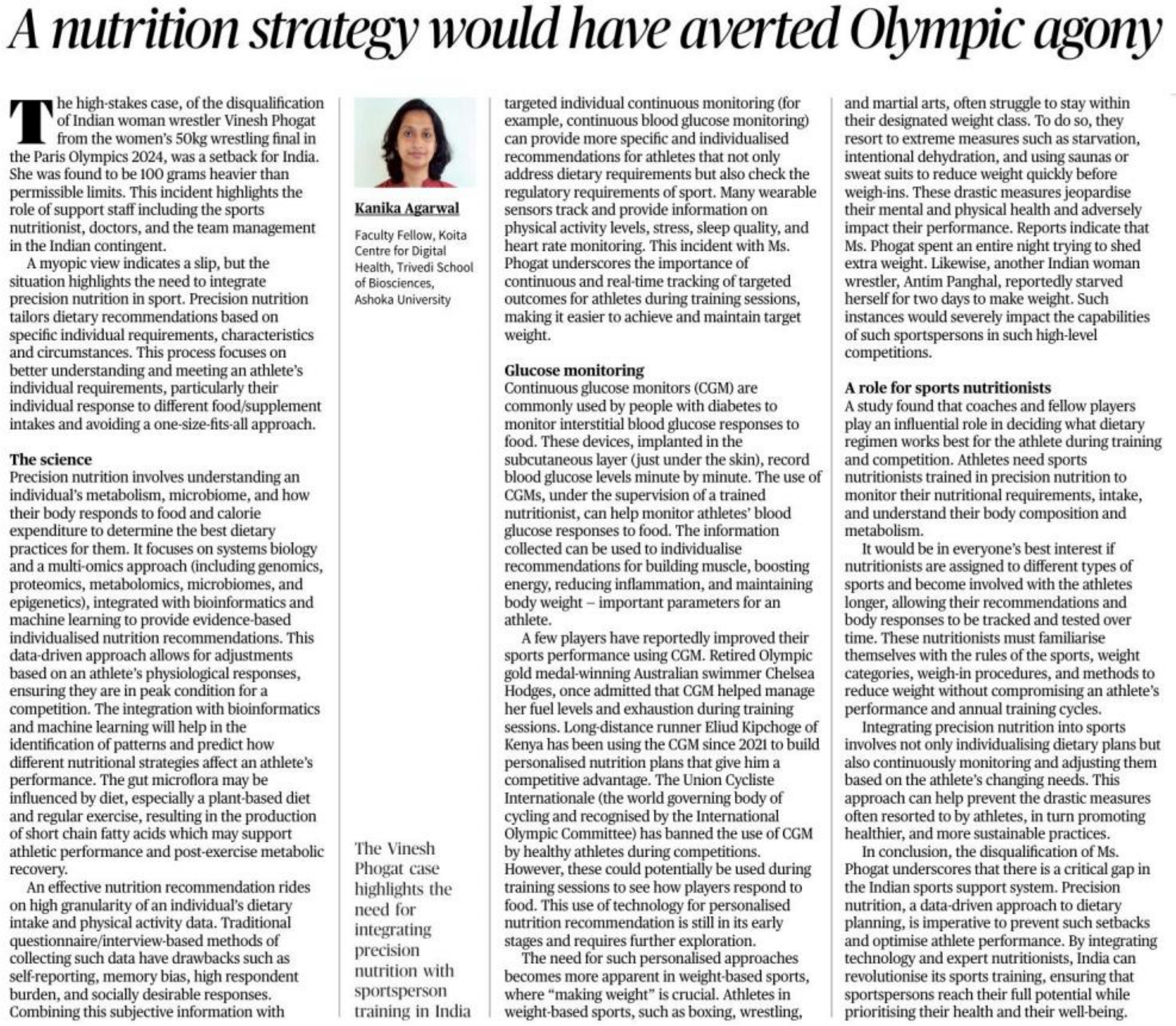

A nutrition strategy would have averted Olympic agony

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The high-stakes case, of the disqualification of Indian woman wrestler Vinesh Phogat from the women's 50kg wrestling final in the Paris Olympics 2024, was a setback for India. She was found to be 100 grams heavier than permissible limits. This incident highlights the role of support staff including the sports nutritionist, doctors, and the team management in the Indian contingent.

A myopic view indicates a slip, but the situation highlights the need to integrate precision nutrition in sport. Precision nutrition tailors dietary recommendations based on specific individual requirements, characteristics and circumstances. This process focuses on better understanding and meeting an athlete's individual requirements, particularly their individual response to different food/supplement intakes and avoiding a one-size-fits-all approach.

The science

Precision nutrition involves understanding an individual's metabolism, microbiome, and how their body responds to food and calorie expenditure to determine the best dietary practices for them. It focuses on systems biology and a multi-omics approach (including genomics, proteomics, metabolomics, microbiomes, and epigenetics), integrated with bioinformatics and machine learning to provide evidence-based individualised nutrition recommendations. This data-driven approach allows for adjustments based on an athlete's physiological responses, ensuring they are in peak condition for a competition. The integration with bioinformatics and machine learning will help in the identification of patterns and predict how different nutritional strategies affect an athlete's performance. The gut microflora may be influenced by diet, especially a plant-based diet and regular exercise, resulting in the production of short chain fatty acids which may support athletic performance and post-exercise metabolic recovery.

An effective nutrition recommendation rides on high granularity of an individual's dietary intake and physical activity data. Traditional questionnaire/interview-based methods of collecting such data have drawbacks such as self-reporting, memory bias, high respondent burden, and socially desirable responses. Combining this subjective information with targeted individual continuous monitoring (for example, continuous blood glucose monitoring) can provide more specific and individualised recommendations for athletes that not only address dietary requirements but also check the regulatory requirements of sport. Many wearable sensors track and provide information on physical activity levels, stress, sleep quality, and heart rate monitoring. This incident with Ms. Phogat underscores the importance of continuous and real-time tracking of targeted outcomes for athletes during training sessions, making it easier to achieve and maintain target weight.

The Vinesh Phogat case highlights the need for integrating precision nutrition with sportsperson training in India

Glucose monitoring

Continuous glucose monitors (CGM) are commonly used by people with diabetes to monitor interstitial blood glucose responses to food. These devices, implanted in the subcutaneous layer (just under the skin), record blood glucose levels minute by minute. The use of CGMs, under the supervision of a trained nutritionist, can help monitor athletes' blood glucose responses to food. The information collected can be used to individualise recommendations for building muscle, boosting energy, reducing inflammation, and maintaining body weight – important parameters for an athlete.

A few players have reportedly improved their sports performance using CGM. Retired Olympic gold medal-winning Australian swimmer Chelsea Hodges, once admitted that CGM helped manage her fuel levels and exhaustion during training sessions. Long-distance runner Eliud Kipchoge of Kenya has been using the CGM since 2021 to build personalised nutrition plans that give him a competitive advantage. The Union Cycliste Internationale (the world governing body of cycling and recognised by the International Olympic Committee) has banned the use of CGM by healthy athletes during competitions. However, these could potentially be used during training sessions to see how players respond to food. This use of technology for personalised nutrition recommendation is still in its early stages and requires further exploration.

The need for such personalised approaches becomes more apparent in weight-based sports, where "making weight" is crucial. Athletes in weight-based sports, such as boxing, wrestling, and martial arts, often struggle to stay within their designated weight class. To do so, they resort to extreme measures such as starvation, intentional dehydration, and using saunas or sweat suits to reduce weight quickly before weigh-ins. These drastic measures jeopardise their mental and physical health and adversely impact their performance. Reports indicate that Ms. Phogat spent an entire night trying to shed extra weight. Likewise, another Indian woman wrestler, Antim Panghal, reportedly starved herself for two days to make weight. Such instances would severely impact the capabilities of such sportspersons in such high-level competitions.

A role for sports nutritionists

A study found that coaches and fellow players play an influential role in deciding what dietary regimen works best for the athlete during training and competition. Athletes need sports nutritionists trained in precision nutrition to monitor their nutritional requirements, intake, and understand their body composition and metabolism.

It would be in everyone's best interest if nutritionists are assigned to different types of sports and become involved with the athletes longer, allowing their recommendations and body responses to be tracked and tested over time. These nutritionists must familiarise themselves with the rules of the sports, weight categories, weigh-in procedures, and methods to reduce weight without compromising an athlete's performance and annual training cycles.

Integrating precision nutrition into sports involves not only individualising dietary plans but also continuously monitoring and adjusting them based on the athlete's changing needs. This approach can help prevent the drastic measures often resorted to by athletes, in turn promoting healthier, and more sustainable practices.

In conclusion, the disqualification of Ms. Phogat underscores that there is a critical gap in the Indian sports support system. Precision nutrition, a data-driven approach to dietary planning, is imperative to prevent such setbacks and optimise athlete performance. By integrating technology and expert nutritionists, India can revolutionise its sports training, ensuring that sportspersons reach their full potential while prioritising their health and their well-being.

Question -1) Which of the following best represents the central theme of the passage?

A) The role of continuous glucose monitoring in improving athlete performance.
B) The challenges faced by Indian athletes in international competitions.
C) The importance of integrating precision nutrition in sports to avoid disqualification.
D) The impact of traditional dietary practices on athlete performance.

Question -2) Based on the passage, which of the following assumptions underlies the use of precision nutrition for athletes?

A) Athletes universally respond to food and supplements in the same way.
B) Precision nutrition can eliminate the need for athletes to monitor their weight.

C) Traditional methods of weight management are sufficient for modern athletes.
D) Tailored dietary recommendations can help avoid drastic weight management practices.

Question -3) Which of the following, if true, would most weaken the argument for the adoption of precision nutrition in sports?

A) Precision nutrition has been shown to improve athlete performance in multiple studies.
B) The cost of implementing precision nutrition is prohibitive for most sports teams.
C) Athletes can achieve similar performance improvements with traditional nutrition methods.
D) Continuous glucose monitoring is already banned in competitive sports by several governing bodies.

Question -4) What can be inferred about the use of Continuous Glucose Monitors (CGMs) during competitions, based on the passage?

A) CGMs are encouraged for use during competitions to ensure athletes are in peak condition.
B) CGMs are universally accepted in all sports competitions worldwide.
C) The use of CGMs during competitions is considered controversial and is banned by some sports governing bodies.
D) Athletes using CGMs during competitions have a distinct advantage over those who do not.

Question -5) Which of the following statements, if true, would most strengthen the case for implementing precision nutrition in weight-based sports?

A) Weight-based sports have the highest incidence of disqualifications due to weight-related issues.
B) Precision nutrition has no significant impact on athletes in non-weight-based sports.
C) The majority of athletes in weight-based sports already use precision nutrition.
D) Precision nutrition is more effective at maintaining long-term health than other methods.

Question -6) According to the passage, which of the following is a potential drawback of traditional dietary data collection methods?

A) They require too much technology.
B) They are cost-prohibitive for most athletes.
C) They rely heavily on subjective information, which may be inaccurate.
D) They provide more precise information than modern methods like CGMs.

Thank you for attempting!!!