PRECISION NUTRITION - SCIENCE

News: *Vinesh Phogat, an Indian wrestler, was disqualified from the women's 50kg wrestling final at the Paris Olympics 2024. She was found to be 100 grams over the permissible weight limit.*

What's in the news?

1. This incident highlighted a gap in the Indian sports support system.
2. Vinesh reportedly spent an entire night trying to shed the extra weight.
3. Similar extreme measures were taken by another Indian wrestler, Antim Panghal, who starved herself for two days to make weight.
4. This situation underscores the importance of precision nutrition and continuous monitoring to avoid such setbacks.

- 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.

Why is Precision Nutrition Important in Sports?

- **Tailored Dietary Plans**: Precision nutrition creates dietary plans based on an athlete's specific needs, avoiding a one-size-fits-all approach.
- **Data-Driven Approach**: It uses systems biology and multi-omics (genomics, proteomics, metabolomics) combined with bioinformatics to make personalized recommendations.
- **Continuous Monitoring**: Wearable sensors and **Continuous Glucose Monitors (CGMs)** help track athletes' responses to food and adjust diets accordingly.
- **Preventive Measures**: Athletes in weight-based sports, like wrestling, struggle to maintain weight; precision nutrition helps avoid extreme weight-loss methods like starvation and dehydration.
- **Real-World Examples**: Olympian Eliud Kipchoge uses CGMs to enhance his performance, demonstrating how precision nutrition provides a competitive edge.

- **Health and Performance**: It ensures athletes maintain peak condition, preventing disqualifications, as seen with Vinesh Phogat at the Paris Olympics 2024.
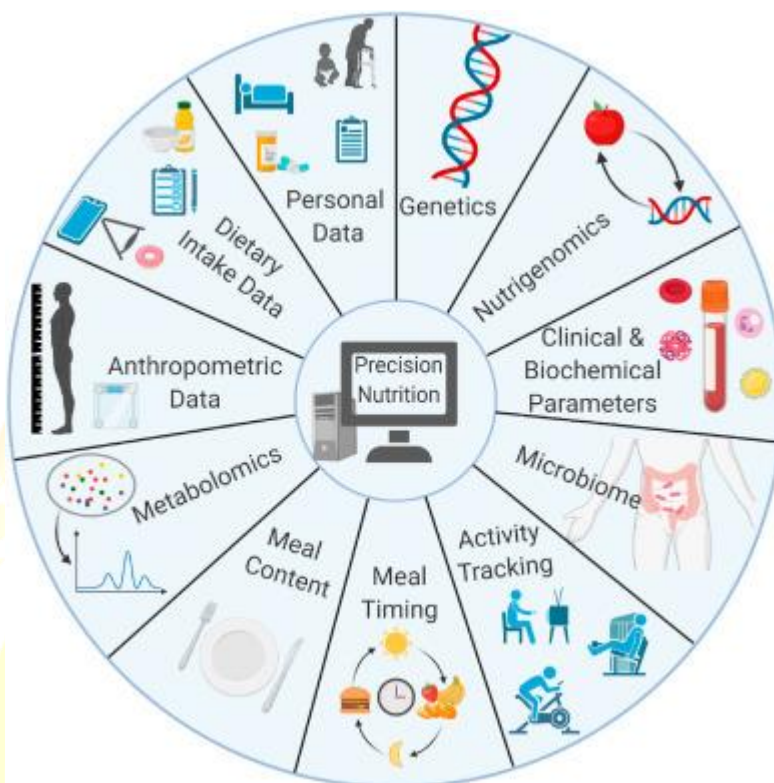
How Can Technology Help?

- **Glucose Monitoring:** Continuous Glucose Monitors (CGMs) track blood glucose responses to food in real-time. For instance, Olympic swimmer Chelsea Hodges used CGMs to manage energy levels during training.
- **Data-Driven Decisions:** The use of systems biology and multi-omics approaches provides evidence-based nutrition recommendations, enhancing athlete performance and health.

What Role Do Sports Nutritionists Play?

- **Expertise in Precision Nutrition:** Nutritionists trained in precision nutrition use data-driven approaches, integrating genomics and metabolomics, to provide evidence-based recommendations.
- **Support in Weight-Based Sports:** Nutritionists ensure athletes stay within weight categories without compromising performance, using safe and effective methods.

The disqualification of Vinesh Phogat at the Paris Olympics underscores the need for better nutrition strategies in sports. Precision nutrition, supported by technology like continuous glucose monitors (CGM), can significantly improve athletes' performance. Although the **Union Cycliste Internationale** bans CGM use in competitions, their potential in training shows promising benefits. As this technology is still developing, further exploration could enhance its effectiveness and integration in sports.

Source: https://www.thehindu.com/opinion/op-ed/a-nutrition-strategy-would-have-averted-olympic-agony/article68513443.ece