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# The Invisible Burden: Oral Health Crisis in Elite Athletes

HPX Performance Nutrition October 2025

[https://oral-health-  
nutrition.github.io/Elite\\_athletes/Practical  
\\_guide\\_sports\\_staff.html](https://oral-health-nutrition.github.io/Elite_athletes/Practical_guide_sports_staff.html)

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*"The body is your instrument in sport. If you don't take care of it, the music stops."*

— Martina Navratilova

"There is no health without oral health."

— Dr. David Satcher, U.S. Surgeon General

So what happens when elite athletes neglect the foundation of health?



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Roettger, M., Mills, S. (2018). Introduction to Sports Dentistry



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# The Perfect Storm -

## What factors put athletes at higher risk?

- Physiological
- Dietary
- Behavioural
- Economic



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# Elite athlete study- Diet and Oral Health

Sports Ireland, DCU, DDUH-TCD, UCD

## Discover Public Health

### Research

#### Digital data collection protocols and template design for an oral health survey of elite athletes in Ireland

Annie Hughes<sup>1</sup> · Michael O'Sullivan<sup>1</sup> · Lewis Winning<sup>1</sup> · Oscar Cassetti<sup>1</sup> · Aifric O'Sullivan<sup>2</sup> · Sharon Madigan<sup>3,5</sup> · Brendan Egan<sup>4</sup> · Michael Crowe<sup>1</sup>

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- 88 Irish elite athletes across 7 sports
- Advanced ICDAS assessment
- Multiple 24-hour dietary recalls
- Digital data collection protocols
- Diet, behaviour, and clinical findings

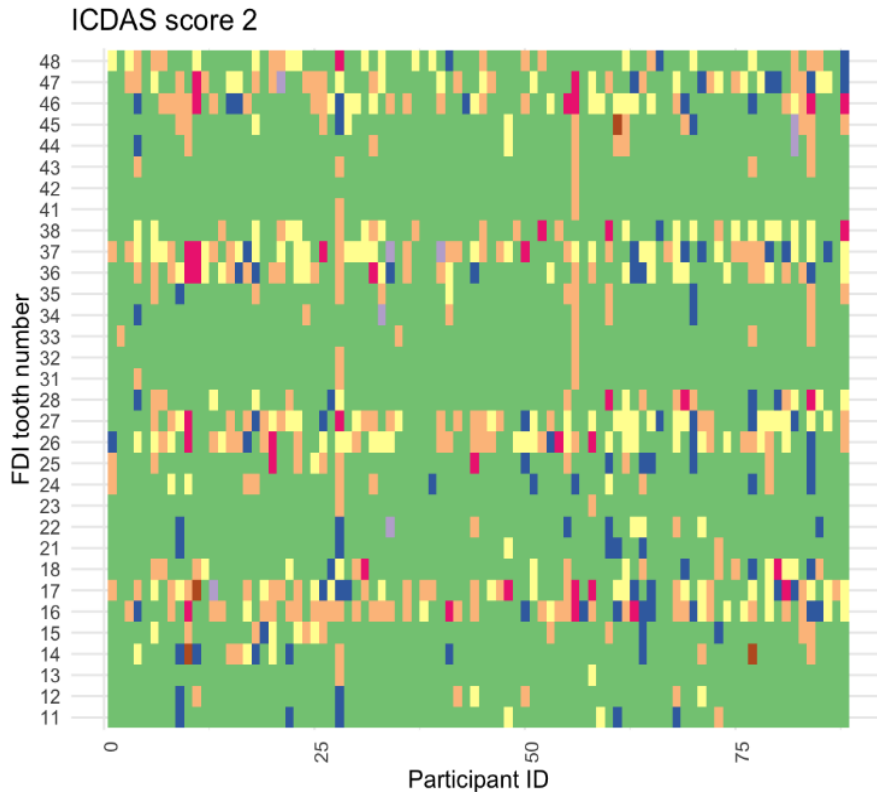


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# The Invisible Burden



- 99% have visual enamel changes (ICDAS  $\geq 2$ )

- 90% localised enamel breakdown

- 60% have underlying dentine involvement (ICDAS  $\geq 4$ )

- 28% distinct cavity



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# Case: Intercounty hurler



- Training compromised by chronic dental pain and sensitivity
- Multiple active carious lesions throughout dentition
- High consumption of energy drinks and sports bars
- Required extensive treatment: root canals, restorations, prescription fluoride, crowns, implant

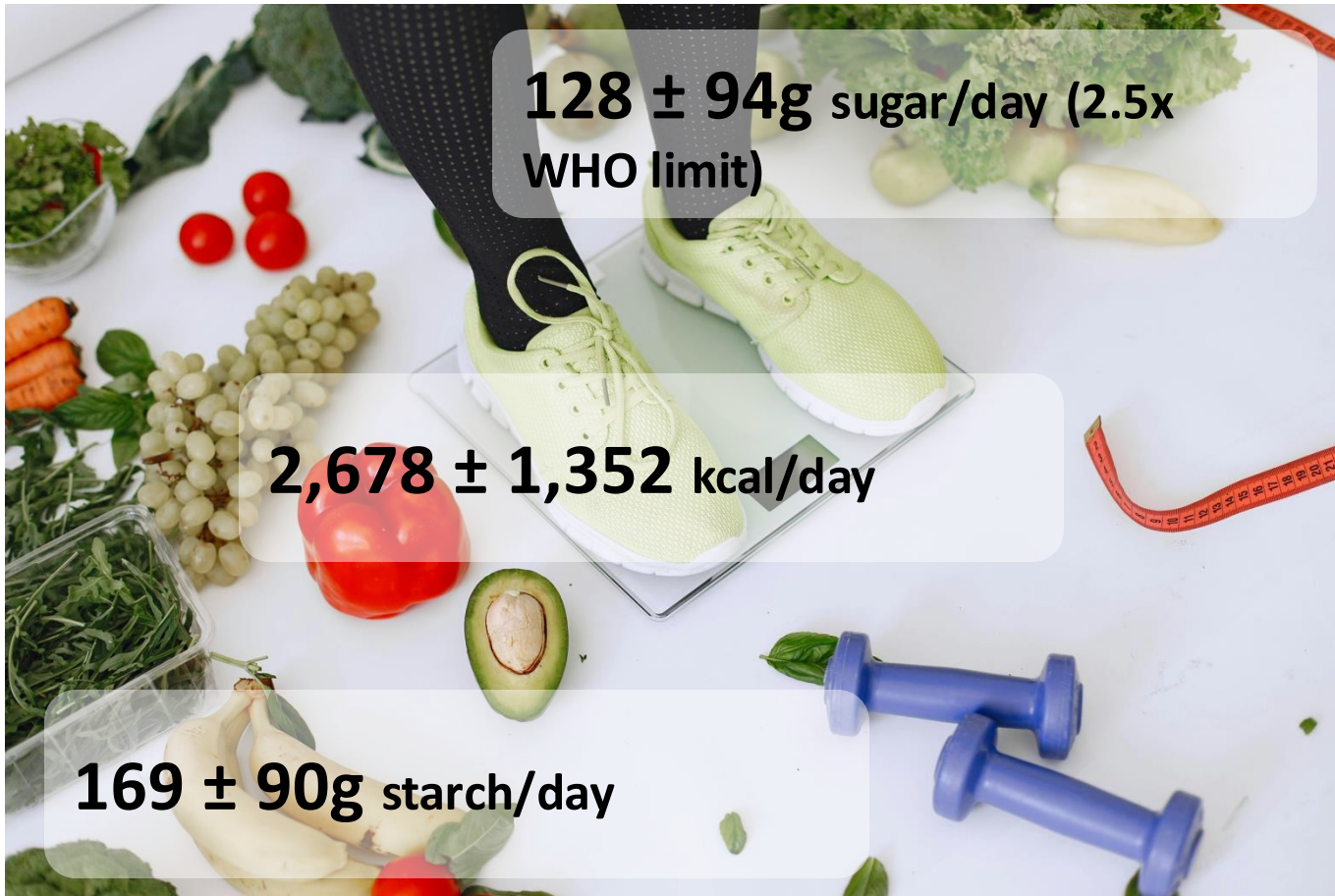


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# The Dietary Reality- Elite Athlete Intake



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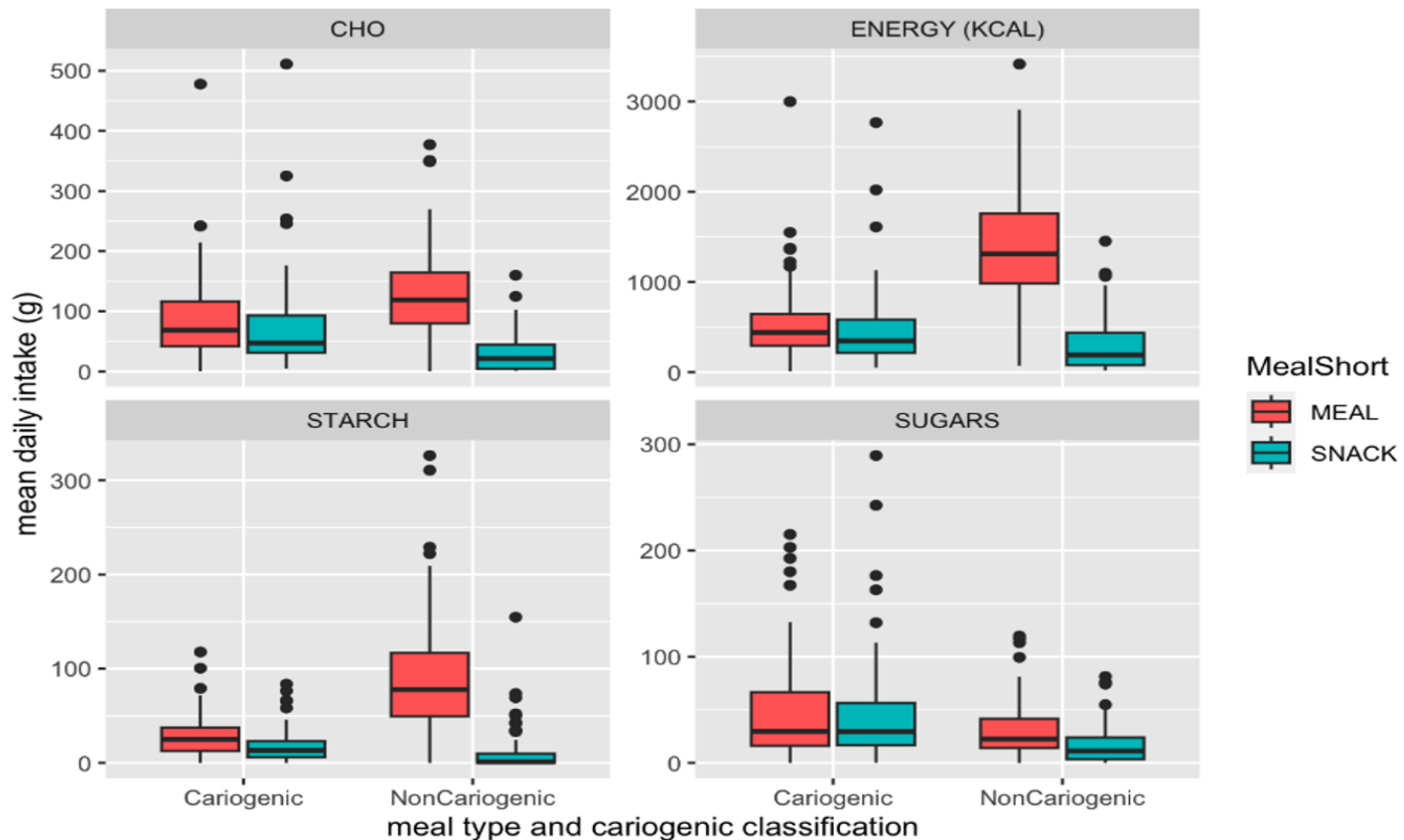


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# The Starch Surprise - Beyond Sugar

Cariogenic starch intake during snacking predicts high-caries cluster membership



Traditional sugar-focus overlooks cariogenic starch as primary predictor of high-caries cluster

# Public Health vs Performance Guidelines



## Public Health Guidelines

- Limit free sugars to <10% total energy
- Minimise between-meal snacking
- Regular dental check-ups every 6 months

## Athletic Performance Needs:

- Carbohydrates: 5-12g/kg body weight daily
- Frequent fueling during training sessions
- Rapid energy availability for performance
- Strategic timing for glycogen replenishment



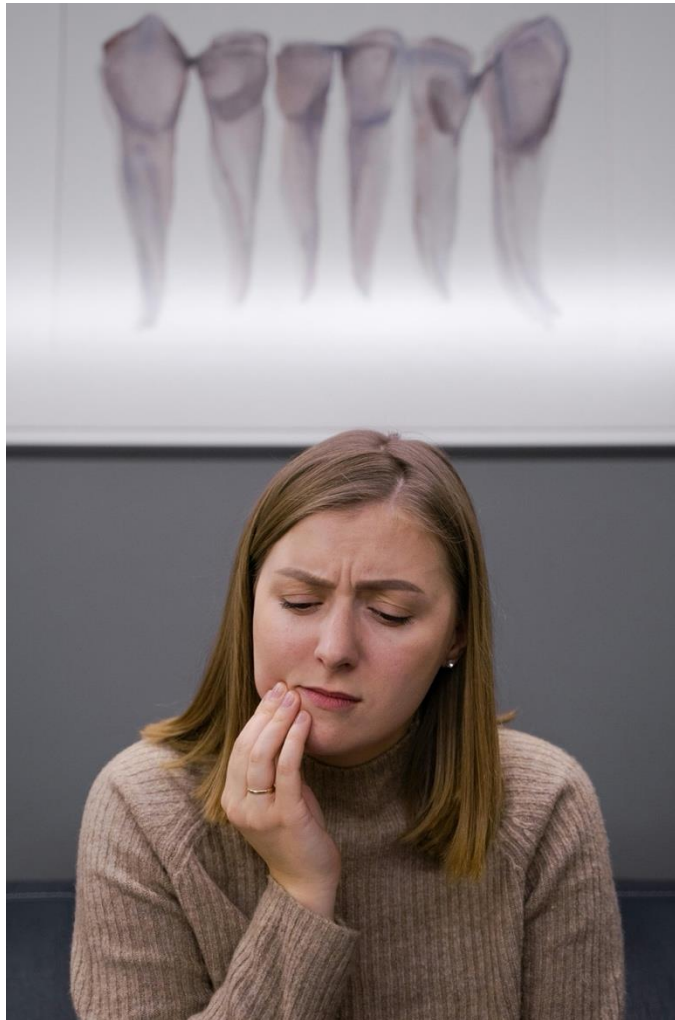
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# Warning Signs *(What Support Staff Should Watch For)*

**Tooth sensitivity  
during/after  
training**



**Visible White  
spots/brown lesions**

**Avoiding cold  
drinks**

**Bad breath  
Bleeding gums**



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# Evidence-Based Strategies

## TIMING STRATEGIES

**Consume sports nutrition during training**

**Strategic timing with meals**

**Post-training oral hygiene**

## PRODUCTS SELECTION

**Select low-acid sports drinks (pH >5.5)**

**Minimise sugar exposure frequency**

**Choose products with lower cariogenic potential**

**Xylitol-based alternatives**

## INTEGRATION PROTOCOLS

**Interdisciplinary collaboration**

**Pre-season oral health screening**

**Athlete & coach education**

**Evidence-based nutrition-oral health guidelines**



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# Healthy athletes, peak performance



**Healthy athletes achieving peak performance without compromising oral health**



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# Key Takeaways

## 1. The Problem

**90% of elite athletes have untreated dental caries**

## 2. The Insight

**Cariogenic starch timing, not just sugar quantity,  
predicts high-caries cluster membership**

## 3. The Solution

**Evidence-based interdisciplinary collaboration between  
sports nutrition and dental providers**



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# Next Steps

## Future Research Directions:

- Intervention studies testing evidence-based protocols
- Long-term oral health outcomes in elite athletes
- Targeted oral health screening

## Resources:

- **FDI** <https://www.fdiworldddental.org/sports-dentistry>
- [Practical guide sports staff](#)
- [michael.crowe@dental.tcd.ie](mailto:michael.crowe@dental.tcd.ie)



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# Practical guide for Sports Support Staff

Scan to download:

- Complete implementation protocols
- Daily oral hygiene schedules
- Product recommendations
- Warning signs checklist
- Evidence-based food choices

Download Complete Guide



<https://bit.ly/oral-health-guide>



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