



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDÉAL DÉADACH
OLLSCOILE ÁTHA CLIATH

The Invisible Burden: Oral Health Crisis in Elite Athletes

HPX Performance Nutrition October 2025



Michael Crowe BDentSc, PhD
Associate Professor Food Science, Nutrition and Oral Health

<https://bit.ly/hpx-slides-2025>

"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?



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH



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



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

The Perfect Storm - What factors put athletes at higher risk?

- Physiological
- Dietary
- Behavioural
- Economic



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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 Hughes¹ · Michael O'Sullivan¹ · Lewis Winning¹ · Oscar Cassetti¹ · Aifric O'Sullivan² · Sharon Madigan^{3,5} · Brendan Egan⁴ · Michael Crowe¹

Received: 20 March 2024 / Accepted: 23 September 2024



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

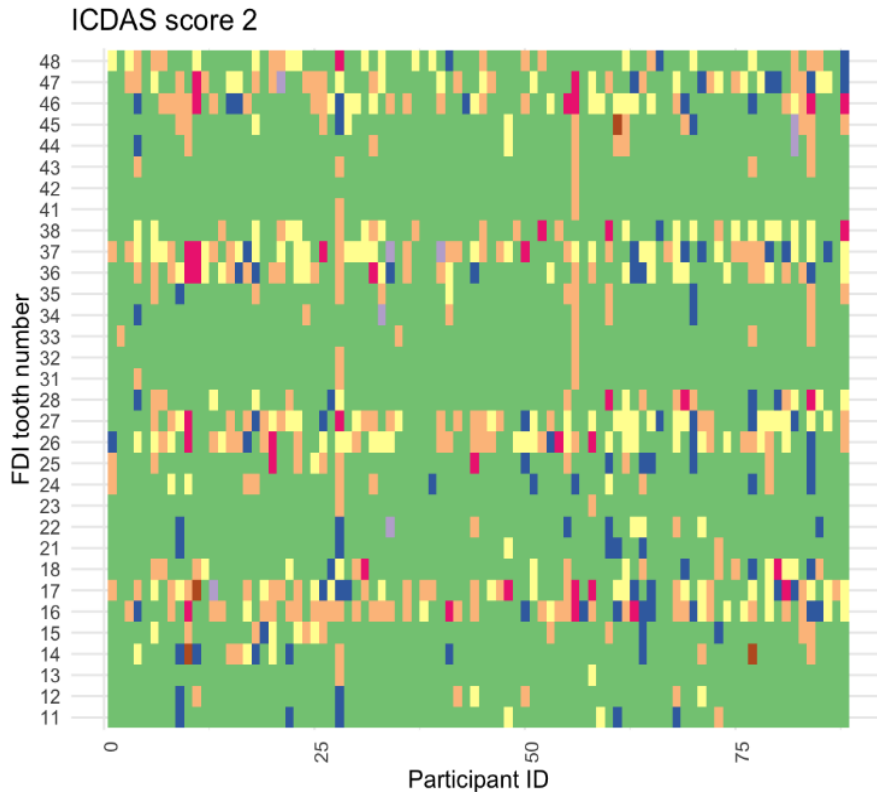


Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

The Invisible Burden



- 99% have visual enamel changes (ICDAS ≥ 2)

- 90% localised enamel breakdown

- 60% have underlying dentine involvement (ICDAS ≥ 4)

- 28% distinct cavity



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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

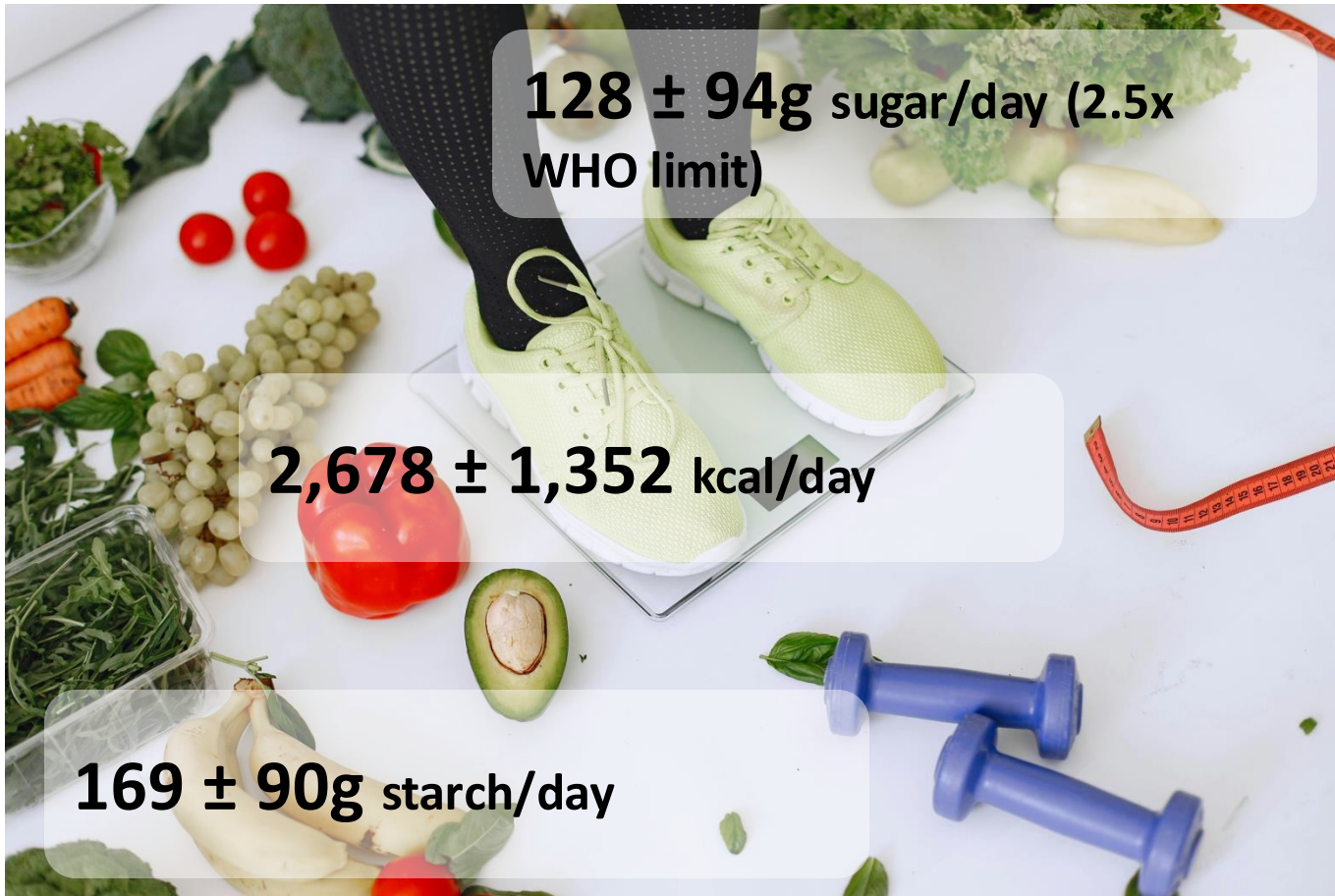


Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

The Dietary Reality- Elite Athlete Intake



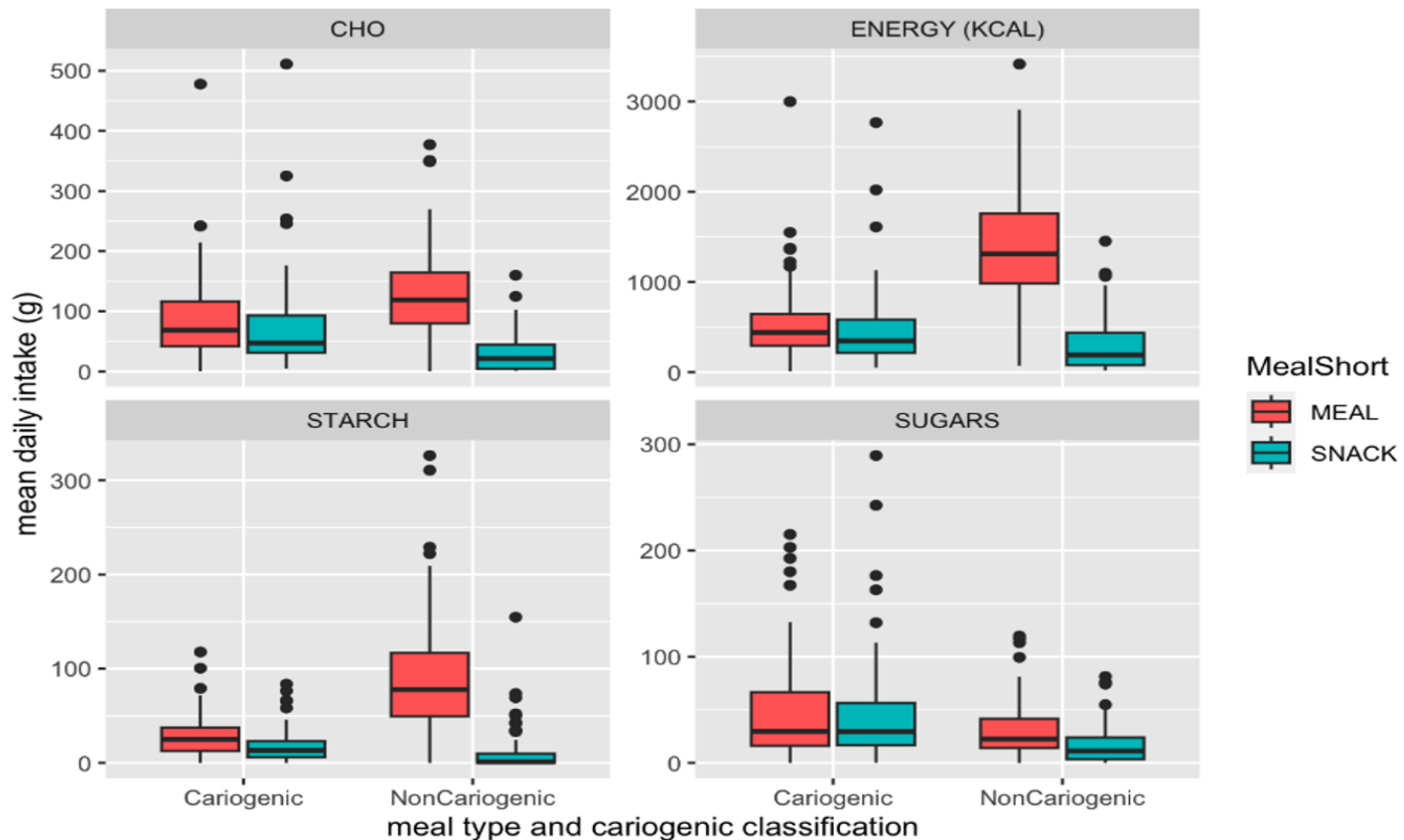
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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



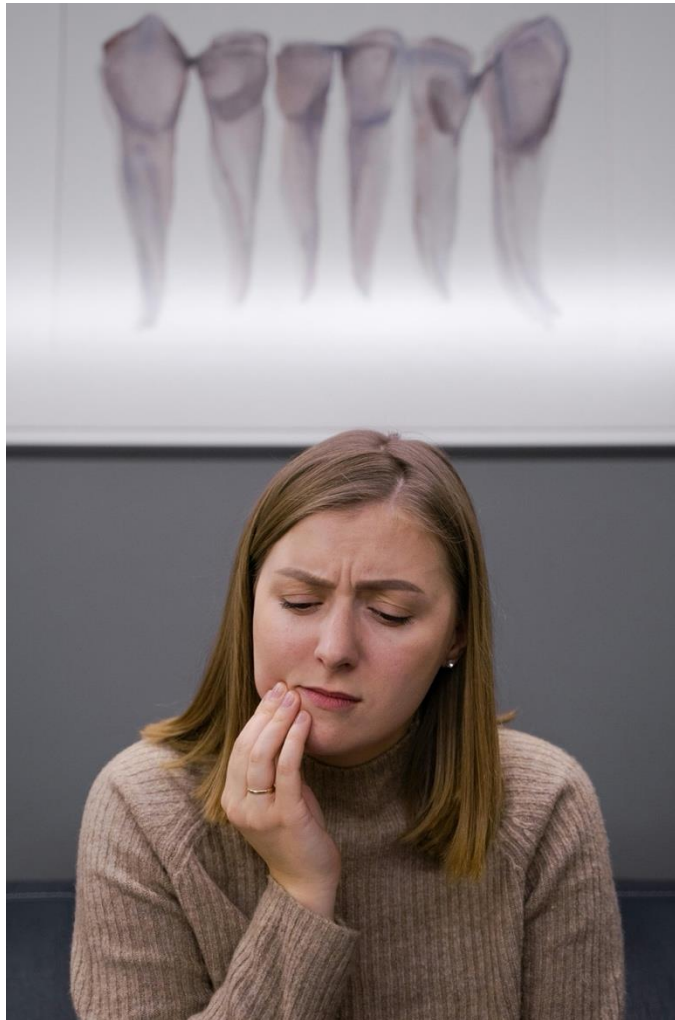
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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**



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDEÁL DEADACH
OLLSCOILE ÁTHA CLIATH

Healthy athletes, peak performance



Healthy athletes achieving peak performance without compromising oral health



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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**



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



**DUBLIN DENTAL
UNIVERSITY HOSPITAL**
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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](#)
- <https://bit.ly/hpx-slides-2025>

□ michael.crowe@dental.tcd.ie



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH

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-staff-guide>



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



DUBLIN DENTAL
UNIVERSITY HOSPITAL
OSPIDEÁL DEÁDACH
OLLSCOILE ÁTHA CLIATH