Sport and Exercise Nutritionists' Perceptions of Food Safety Risks Among Athletes

Ginnie Winter[1]*, Ellen W. Evans[1], Olivia Busby[2] and Elizabeth C. Redmond[1]

[1]ZERO2FIVE Food Industry Centre, Food and Drink Research Unit, Cardiff Metropolitan University, Wales, UK.
[2]Sport Wales, Sophia Gardens, Cardiff, Wales, UK.
*Corresponding author: gwinter@cardiffmet.ac.uk

Introduction

Although regular moderate exercise is associated with reduced incidence of infection, continuous, prolonged and high intensity training or strenuous exercise causes temporary post-exercise immune dysfunction,[1] known as the "open window" of susceptibility. This can lead to an increased susceptibility to infection.[2] Additional factors that impact immune function, such as exposure to new pathogens during foreign travel, lack of sleep and mental stress, can further increase risks.[3] Consequently, athletes may be at an increased risk of foodborne illnesses for a number of reasons.

Gastrointestinal infections can be troublesome and debilitating to athletes.[4] The incidence of foodborne infection at sporting events, has had a significant effect on the performance of several individual athletes and teams.[5] Subsequently, practices such as good hygiene are essential in preventing illness; in sports, it is fundamental to maintaining team effectiveness and to assist athletes in avoiding the adverse effects of illness.[6]

The recommended food safety practices to reduce the risk of foodborne illness relate to five key areas, (cleaning, cross-contamination, cooking, refrigeration and safe choices, including the adherence of use-by dates).[7] Although all are of importance to reduce the risk of foodborne infection among athletes, there is a need to explore the specific food safety risks that exist among athletes due to the unique relationship with food and the consumption habits adopted during training and competing to maximise nutrition.

Purpose

The purpose of the study was to identify sports nutritionists perceptions of athletes' food preparation practices and food-consumption habits that may increase risks associated with foodborne illness.

Methods

Data collection: Sports nutritionists (n=23) working with elite-athletes, participated in a series of focus groups (n=3). Each group discussion followed a structured route and included perceptions of food preparation/consumption associated with key scenarios (home/training/traveling and competing away from home).

Ethical Approval: Approval was obtained from the Health Care and Food, Ethics Panel at Cardiff Metropolitan University.

Results

The role of the Performance Nutritionist

The role of sports nutritionists to inform athletes of potential food safety risks and to enable adoption and implementation of risk-reducing behaviours were discussed.

The role of sports nutritionists was predominantly nutrition and performance related, the delivery of food safety information would not be the focus of sessions, but as indicated in Figure 1, food safety information would reportedly be delivered alongside food preparation mentoring sessions with athletes.

> *"If you're lucky enough to be on a camp or a competition with them then you can […] go and check the kitchen, go and see what the food is like being prepared and things like that. But if you're not able to go, that's where education of the athletes is key and they need to know what to look out for, what the learning signs are."*

> *"We often develop the themes of the session with the coach, to say 'well what things are you seeing, you know, in your athletes. What would you like to see improved? Or what areas should we focus on from a performance angle?'"*

Figure 1. Role of the Performance Nutritionist with athletes.

In discussions regarding methods utilised to deliver information to athletes, it was identified a variety of approaches may be adopted by sports nutritionists to provide athletes with information.

As indicated in Figure 2, the methods of delivering food safety advice vary greatly depending on the sport, age and level of the athlete and often involve working with the coaches. The relationship between athletes and coaches was identified as being very important and may be a route to disseminate food safety advice in the future.

> *"[With] some of the sports it might just be focusing more on the coaches than the actual young athletes themselves because we know that the coach is such a big player."*

> *"[There's] the whole recipe side of it, and we sometimes deliver that […] practically with them so we would do practical food cooking sessions, whether that's in the athletes houses because sometimes you've got groups of athletes based in a house."*

> *"I guess quite a lot of food preparation and food information would be very practical so we might be in a supermarket with athletes making selections with them or informing them around a selection of food."*

Figure 2. Performance Nutritionist methods of information delivery to athletes.

Food safety during training

Potential food safety risks arising from the unique relationship of athletes with food were explored. Performance Nutritionist reported having observed food related practices of concern, particularly when visiting shared athlete houses (Figure 3).

> *"There have been times when I've gone into athlete houses and I've seen things that I would consider a risk.."*

> *"You know, we very often see some of the food safety practices that athletes employ, you know whether it be the positioning of items in the fridge or something like that, will not be what we perceive […] adhering to standard."*

Figure 3. Performance Nutritionist food safety experiences with athletes.

Potential food safety risks from advanced preparation, cooking, prolonged storage and uncontrolled storage temperatures were discussed and raised points of concern relating to limited awareness of the need to ensure safe storage practices during training. Access to appropriate refrigeration/re-heating facilities when training were identified and were reported to have been addressed.

It was discussed that the attitudes of athletes towards the importance of food safety may prevent athletes implementing recommended food safety practices. For example, even when refrigeration facilities are available, athletes are failing to use them (Figure 4).

> *"We actually have done things like secure a fridge at training venues such as a swimming pool where it's a hot environment. Yet they still might not put their milk in the fridge because it's a little bit further for them to walk. So therefore maybe it isn't a priority for them."*

> *"I think also its once the food is cooked then what to do with it. Around whether that's freezing it, or how to store it, how long these cooked foods should be stored for, I think that's an area."*

> *"I think it's only if they've got ill from it that it becomes a concern, if it's affected them. I think they don't, just from my experiences what I've seen, feel it's a risk until its happened.*

> *"You know you quite often see them, they bring a packed lunch in they wouldn't necessarily go 'oh, can I put this in the fridge', you know, the packed lunch stays in their bag."*

Figure 4. Performance Nutritionist experiences of athletes food safety attitudes and behaviours during training.

Food safety when travelling overseas

Access to appropriate food preparation and storage facilities when athletes are travelling, particularly abroad, for competitions were identified as potentially problematic situations that may increase the risk of foodborne illness.

While travelling for competing at events abroad, independence in food choices and language differences were identified as potential barriers to ensuring food safety.

As indicated in Figure 5, the Performance Nutritionist that participated in the focus groups had first hand experience of athletes succumbing to foodborne illness whilst travelling overseas to compete.

Participants also shared the food safety advice that they would give athletes when travelling abroad. It was identified that the food safety culture of events would be dependent on the profile and funding of the event, food safety mechanisms may not exist in smaller events.

> *"Something that I try to instil in the athletes is just make sure that if cold food is meant to be served cold then it actually is. And vice versa, if it's meant to be hot then it actually is hot."*

> *"I'm not the only one, but I've seen an athlete who didn't maybe fully check the food that he was eating while at an airport and actually got food poisoning from that."*

> *"Its unfamiliar foods, unfamiliar location, venues, countries, [so I think] the risk that they're taking will be the highest. And also again because of access to things like fridges, or ability to reheat food if they've purchased something at a motorway service station and then they're going to compete."*

> *"I know that in the sports that I work in [food poisoning] is the number one risk in my sport because I know its going to be a budget hotel, there's going to be probably a minimum of 400 athletes in one hotel from various countries and its not uncommon [to think] in a buffet scenario 'right are we even going to risk eating at the hotel "*

> *"At the other end of the scale is when [athletes] go to a major games there will be quite a lot of food safety behind the major multisport games would have a huge company behind them that has a lot of food safety measures in place."*

Figure 5. Performance Nutritionist food safety experiences with athletes when travelling overseas to compete.

Significance of study

Completion of the study has identified the potential role sports nutritionists can play to reduce the risk of foodborne infection among athletes. The study has determined that two key areas of risk have emerged that require further exploration with athletes which relate to:

- Food preparation, storage and consumption practices during training
- Food safety awareness when travelling to overseas competitions

The study identified potential food safety malpractices unique to athletes which may increase the risk of foodborne illness. Consequently there is a need for research to determine the food safety knowledge, attitudes, perceptions and self-reported practices of athletes.

The study has also identified the importance of sport coaches in influencing athlete behaviour, consequently given the relationship between athletes and coaches, there is a need to explore the perceptions of coaches regarding foodborne illness and the importance of food safety.

Furthermore there is an identified need to explore the food safety training and education available to facilitate the delivery of food safety advice and information to athletes via Performance Nutritionists.

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