

Detailed Study Notes: Episode 455

Jill Joyce, PhD – Improving the Diets of Tactical Populations

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Introduction to this Episode

The term 'tactical populations' has been applied to those working in law enforcement, fire, first responders, and military. In addition to the importance of their work, the work they do itself presents some challenges for health and nutrition.

Even though such individuals make up a significant number of the population and their work plays a crucial role in society, there is currently very little research on fire and law enforcement nutrition. Most research is on the prevalence of disease and occupational risk factors and related pathophysiology. Lifestyle research, descriptive and interventions, is way behind.

Dr. Jill Joyce is the co-director of the OSU Tactical Fitness and Nutrition Lab at Oklahoma State University. She does research looking at real-world interventions in these populations, particularly firefighters, in an attempt to improve their diets and health.

In this episode, we look at both the theoretical and pragmatic realities of improving diet and health in firefighters and some other tactical populations.

Tactical Populations

The term “tactical athlete” seems to have originated from the strength and conditioning community, where it is used to identify “personnel in law enforcement, military, and rescue professions who require unique physical training strategies aimed at optimizing occupational physical performance” ([Scofield & Kardouni, 2015](#)).

In the article by Scofield & Kardouni they give rationale for the use of the term ‘athlete’ on the basis that *“Tactical professionals working in military, law enforcement, firefighting, and rescue professions require expertise in their occupational skills concomitant with general physical preparedness (GPP), which enables them to perform physically demanding occupational tasks while mitigating injury.”*

Development of the Tactical Athlete



Source: [The Tactical Athlete, Strength & Conditioning Journal37\(4\):2-7, August 2015.](#)

Therefore the term “tactical populations” can be more widely used to refer to those working in law enforcement, military, and rescue professions.

Firefighting & First Responders - Health

Much of Dr. Joyce's current work is with firefighters. The job demands of firefighters can be physically demanding and variable from shift to shift.

Large numbers of firefighters and first responders face important health risks:

- Irregular patterns of physical activity
- Hypercaloric diets are common
- Increasing rates of obesity, CVD, and other associated comorbidities
 - Estimates suggest that up to 70-75% of career and volunteer firefighters live with overweight or obesity ([Sergi et al., 2021](#)).

Occupational-specific tasks of firefighting can commonly yield heart rate values between 84% - 100% of maximum heart rate, as well as working at intensities between 60% - 97% VO₂max, as per:

- [Sothmann et al., J Occup Med. 1992 Aug;34\(8\):797-800.](#)
- [Williams-Bell et al., Med Sci Sports Exerc. 2009 Mar;41\(3\):653-62.](#)
- [Lemon & Hermiston, J Occup Med. 1977 Aug;19\(8\):558-62.](#)

Job-specific Health Issues:

- Firefighters engage in high-stress activities, for example, active fire suppression.
- However, these are often in between extended periods of low physical activity.
- Given the nature of the work, and the lifestyle habits of people in Western populations, there is an elevated risk of heart attack, particularly on the job ([Drew-Nord et al., 2009](#)).
 - Heart attacks are the leading cause of mortality (~45% of on-duty deaths and 30% of deaths overall) ([Gonzalez et al., 2022](#)).
- Increased BMI increases the risk of CVD events, whether an event occurs at work or outside of it ([Eastlake et al., 2015](#)).

Nutrition Considerations:

Energy

- The calorie needs of firefighters are difficult to know ahead of time, due to their typical work tasks: a) being difficult to quantify in terms of energy expenditure, and b) the uncertainty about what tasks will occur on a shift.
- The impact of what PPE is used, what loads will be carried, and environmental stressors (i.e. heat exposure), will all also impact energy expenditure.

Dietary Changes

- Dr. Nutrition practitioners are advised to focus efforts on healthy eating habits and strategies to support long-term health while simultaneously optimizing occupational performance.
- In a US survey, it was found that the firefighters surveyed more commonly used Paleo (~9%) and low-carbohydrate diets (~8%) rather than low-fat (~4%) or the Mediterranean Diet (1%) ([Yang et al., 2015](#)).
- Currently, intervention approaches using firefighters populations are limited.

Doing Research in this Area: Challenges & Methods

- Dr. Joyce has examined strategies such as:
 - Implementing wellness policies
 - Setting up supportive food environments
 - Encouraging healthier food systems
 - Using community resources to offer evidence-based nutrition classes
- Pragmatically there have been challenges in getting the firefighter participants to complete surveys and questionnaires. So a variety of methods have to be considered.
- Dr. Joyce discussed how they use Photovoice, a data collection method used in qualitative studies
 - First introduced as a data collection method by Wang & Burris, 1997: [Photovoice: concept, methodology, and use for participatory needs assessment](#)
 - Participants can record several issues in their society by cameras, and they can play roles as potential facilitators to make a difference in their society.

Making Change in Practice

- This requires having people buy into the process, both first responders and heads of departments.
- One of the key aspects is changing the food environment, both within the station and at home.
- It often requires the family to be taken into account, as much of the daily intake is prepared or consumed at home.

Shifting Culture

- Dr. Joyce discussed the central importance of changing the culture within fire departments and law enforcement departments if there is to be meaningful change.
 - Note: For more discussion on culture change within a team sport environment check out [episode 306 with Daniel Davey](#).

“You see that with the food environment and with the food being cooked is there's this sense of like traditional firehouse food culture or food environment and it's comfort food.”

It “goes along those lines of that traditional firehouse food culture and tactical groups tend to be they really cherish tradition and the history of what they do a lot. So breaking that is quite difficult. There's a lot more behind it than civilian food culture. There's like this deeper emotional attachment to it, this deeper camaraderie attached to it.”

“And that's part of the reason why I often assess the readiness of the department to change because if the culture's not there to support you... there're all these cards that need to be stacked in the right way for you to make a change. And that's one giant element that could be against you. I could get you to change. I can educate the crap out of you. But if the culture, the environment, the people around you, aren't gonna support you, you're gonna drop it tomorrow.”

“That’s something that we assess and with some of the interventions I've been working on, my goal is to try and see a shift in that culture. But I don't wanna come in like a wrecking ball, I need to gain support of the whole group. They need to respect me. They need to see me as one of them almost, or at least an extension of them. And then I can shift that culture a little bit.”