



# NWCG Supplemental Food and Drink Guidance

MAY 2016

## Introduction

Wildland firefighters (WLFF) may need more nutritional energy than typically provided to them while on a fire. Duration of work shifts and variability of task warrant flexibility granted to these individuals in order to meet their nutritional needs to maintain health and performance. To do this, additional nutritional demand can be achieved by supplemental food and drink.

Multiple research studies have shown that a wildland firefighter typically consumes 3,200-4,000 Calories in a day (i.e. fire camp breakfast, lunch, and dinner). The current sack lunches typically contain 2,000 calories while Meals Ready-to-Eat (MRE's), on average, contain 1,200 Calories per meal. Based on wildland firefighter studies from MTDC/University of Montana, carbohydrates are the most effective supplemental food for the job. Eating frequently throughout the work shift will help to maintain readily available energy (for work) and maintain blood glucose levels (for decision making). In terms of calorie expenditure, average daily WLFF energy expenditure is 3,500-5,000 Calories. During operational shifts alone, WLFFs expend, on average, 1800-2600 calories, but can burn upwards of 3,500 Calories per shift. The variation in job tasking may allow for adequate caloric intake on most work shifts, however the potential demonstrated above demonstrates the need, on occasion, for supplemental energy.

## Guidelines:

There are three main categories of supplemental food/drink: solid food (bars, trail mixes, fruit, etc.), gels, and drinks/mixes. Absent a more restrictive agency policy or geographic area standard, the following supplemental foods may be provided and/or purchased under the NWCG Interagency Incident Business Management Handbook - Chapter 20, Page 13 (*Note: the medical unit may have special requests based on the need of patients.*)

## Supplemental Food

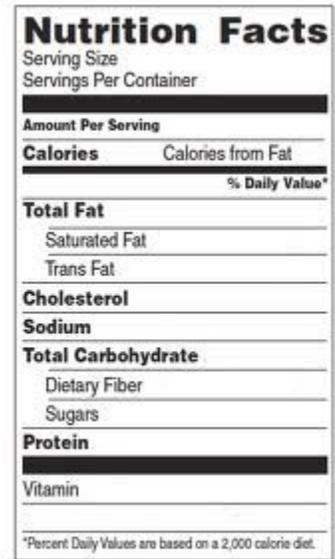
1. Supplemental food can be purchased in a liquid or solid (including powder<sup>1</sup>) format.
  - a. The goal is to have firefighters consume this in conjunction with their lunch, not as a replacement.
2. The current wildland fire lunch is designed to be eaten in small amounts throughout the work shift. The supplemental foods should fit into this feeding strategy.
3. "Energy drinks", soda, jerky products, and gum are not considered supplemental food and do not meet the standards in this policy.
4. Supplemental food or liquids cannot contain more than 100% of any recommended daily value.

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<sup>1</sup> It should be noted that using powdered supplements with carbohydrate increase the risk of bacterial growth in water bottles and will require frequent replacement.

**Solid Food Supplement Criteria (Energy Bars):**

- Solid food supplements should contain a minimum of 160 Calories with at least 25 grams of Carbohydrate.
- Carbohydrate to protein ration:  $\geq 4:1$ 
  - This is only necessary if there are any protein/amino acids in the food
- Sodium: 50-240 mg
- Bars will not provide more than 100% daily recommended intake (DRI) for vitamins and minerals
- No substances other than vitamins, minerals, carbohydrates, protein and fat.



**Solid Food Supplement Criteria (Gels):**

- Carbohydrate to Protein Ratio:  $\geq 4:1$ 
  - This is only necessary if there are any protein/amino acids in the gel
- Sodium:  $\leq 3$  mg/g weight
- Energy:  $\leq 3$  Calories/g weight
- No substances other than carbohydrate, electrolytes, protein or caffeine.

**Supplemental Liquid/Mixed Supplement Criteria:**

Reference Chart

Carbohydrate		Sodium	
Serving Size:	Desired Range (g)	Serving Size:	Desired Range (mg)
8 ounces	9-19	8 ounces	120-240
20 ounces	23-47	16 ounces	300-600

- Less than 95 Calories per 8 ounce serving
- Carbohydrate to Protein ratio:  $> 4:1$ 
  - This is only necessary if there are any protein/amino acids in the beverage
- No carbonation
- No substances other than carbohydrates, electrolytes, and protein

## Appendix I

### Example of Qualifying Supplemental Food

#### *Clif Bar (White Chocolate Macadamia Nut)*

- $\geq 160$  Calories (Sufficient)
- $\geq 25$ g of Carbohydrate (Sufficient)
- 240mg Sodium (Sufficient)
- Carbohydrate to Protein Ratio =  $(42/9) = 4.7$  (Sufficient)

#### Nutrition Facts

Energy Bars, White Chocolate Macadamia Nut 12

Cl - From Clif Bar

Serving Size 68 G (68g)

Servings Per Container 12

Amount Per Serving	
Calories 250	Calories from Fat 60
% Daily Value*	
Total Fat 7g	11%
Saturated Fat 2g	10%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 240mg	10%
Total Carbohydrates 42g	14%
Dietary Fiber 4g	16%
Sugars 21g	
Protein 9g	

### Example of Non-qualifying Supplemental Food

#### *Quaker Chewy Chocolate Chip Granola Bar*

- $\leq 160$  Calories (Non-sufficient)
- $\leq 25$ g of Carbohydrate (Non-sufficient)
- 60mg Sodium (Sufficient)
- Carbohydrate to Protein Ratio =  $(19/1) = 19$  (Sufficient)

#### Nutrition Facts

Per 1 bar (26 g)

Amount	% DV*
Calories 110	
Fat 3 g	5 %
Saturated 1 g + Trans 0 g	5 %
Cholesterol 0 mg	
Sodium 60 mg	2 %
Potassium 65 mg	2 %
Carbohydrate 19 g	6 %
Fibre 2 g	8 %
Sugars 5 g	
Sugar Alcohol 0 g	
Protein 1 g	

### Example of Qualifying Supplemental Gel

#### *GU Energy Gel*

- No Protein (Sufficient)
- Sodium =  $(60\text{mg}/32\text{g}) = 1.9$  (Sufficient)
  - $\leq 3$ mg Sodium/g weight required
- Energy =  $(100\text{Cal}/32\text{g}) \approx 3$  (Sufficient)
  - $\leq 3$  Calories/g weight required

#### Nutrition Facts

Serving Size 1 Packet (32g)

Servings Per Container 8

Amount Per Serving	
Calories 100	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 60mg	3%
Potassium 40mg	1%
Total Carbohydrate 22g	7%
Dietary Fiber 0g	0%
Sugars 7g	
Protein 0g	

### Example of Non-qualifying Supplemental Liquid

#### *Gatorade G2 Perform Grape Electrolyte Beverage*

- $\leq 95$  Calories / 8oz (Sufficient)
- No Protein (Sufficient)
- 14g Carbohydrate (Sufficient)
  - 9g to 19g of Carbohydrate required
- 110mg Sodium (Non-sufficient)

#### Nutrition Facts

Serving Size 8 fl oz (240ml)

Servings Per Container 4

Amount Per Serving	
Calories 50	
% Daily Value*	
Total Fat 0g	0%
Sodium 110mg	5%
Potassium 30mg	1%
Total Carbohydrate 14g	5%
Sugars 14g	
Protein 0g	

- 120mg – 240mg of Sodium required

## **APPENDIX II**

### **Examples of Supplemental Foods that meet NWCG Guidance**

*(List updated Feb 2016)*

Items on this list are not endorsed by NWCG or any federal agency. This list is not all encompassing, but rather some common market available products.

The list will be updated yearly if new products are available or products are no longer available.

#### **Examples of Qualifying Supplemental Foods (Bars):**

- Clif Bars
- Clif Crunch
- Gatorade Prime Fuel Bar
- Hammer Bar
- PowerBar Performance Bar
- PowerBar Performance Bar Wafer Bar
- LaraBar

#### **Examples of Qualifying Supplemental Gels:**

- Clif Athlete Series Energy Shot “Gel”
- Clif Athlete Series Engery Chews “Blocs”
- Gatorade Prime Energy Chews
- Hammer Gel Rapid Energy Fuel Hammer Perpetuem Solids (Chews)
- PowerBar Performance Energy Blasts (Chews)
- PowerBar PowerGels

#### **Examples of Qualifying Supplemental Liquids:**

- Gatorade G Series (Original, Frost, Fierce)
- Powerade

#### **Examples of Qualifying Supplemental Powders:**

- Gatorade Powder
- Hammer Heed
- Hammer Perpetuem
- PowerBar Perform

**References:**

- Deuster P., Kemmer T., Tubbs L., Zeno S., Minnick C. (2007). The Special Operations Forces Nutrition Guide. United States Special Operations Command.
- Domitrovich J., Sharkey B. (2008) Hydration Strategies for Firefighters. Missoula Technology and Development Center Tech Tip. 0851-2324-MTDC USDA Forest Service
- Domitrovich J. (2014) Wildland Firefighter Health and Safety Report #14. Missoula Technology and Development Center. 1351-2811-MTDC USDA Forest Service
- Sharkey B., Ruby B., Cox C. (2002) Feeding the Wildland Firefighter. Missoula Technology and Development Center Tech Tip. 0251-2323-MTDC USDA Forest Service
- Sharkey B., Ruby B., Gaskill S., and Cox C. (2004) Wildland Firefighter Health and Safety Report #8. Missoula Technology and Development Center. 0451-2802-MTDC