



**IGNITE PERFORMANCE
NUTRITION**

A close-up photograph of a firefighter's gear. In the foreground, a pair of tan, heavy-duty leather fire gloves is visible. Behind them, a blue fire jacket with reflective yellow and silver stripes is partially shown. A large, clear orange plastic water bottle with a red handle is also visible, resting on the gear. The background is a blurred, warm-toned surface, possibly a fire truck or a fire station.

FUELING THE FIRE SERVICE

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REGISTERED DIETITIAN

Ignite Performance Nutrition

MASTERS IN SPORTS NUTRITION AND

HEALTH PROMOTION


FIREFIGHTER SPOUSE



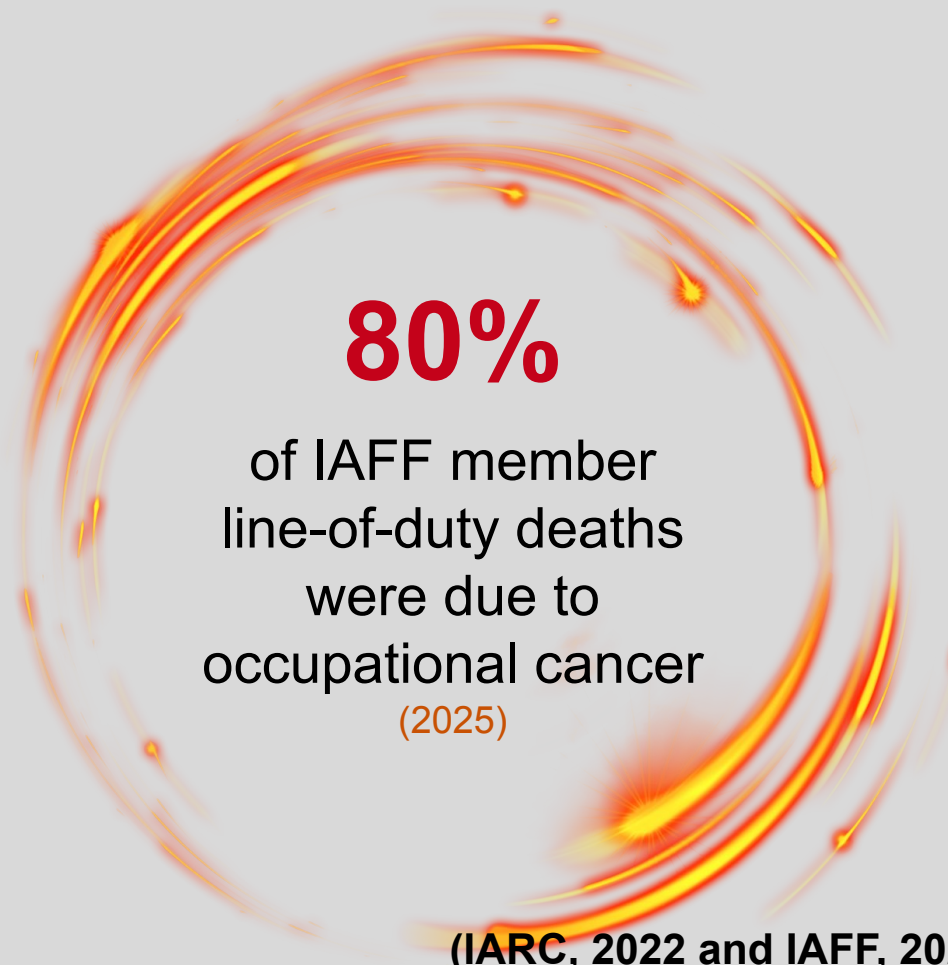
The image shows the silhouettes of four firefighters in full protective gear, including helmets and air tanks, standing in a line against a bright, orange, smoky background. The firefighter on the far right is holding a fire hose. The text "HEALTH SIZEUP" is overlaid in the center in a bold, white, sans-serif font.

HEALTH SIZEUP

OCCUPATIONAL CANCER



IARC reclassified the occupational exposure as a firefighter as a **Group 1 carcinogen**



80%
of IAFF member
line-of-duty deaths
were due to
occupational cancer
(2025)

(IARC, 2022 and IAFF, 2025)



OCCUPATIONAL CANCER

9%

increase in cancer
diagnosis compared
to the general population

14%

increase in
cancer-related deaths
compared to the
general population

(Daniels et al. 2014)



CARDIOVASCULAR DISEASE

sudden cardiac deaths
accounted for

45 to 50%

on duty deaths over
past 40 years

73-88%

of firefighters are
overweight or obese,
increasing CVD
risk by 1.5-6.6x

(Gonzalez, 2024 and NVFC, 2011)



MENTAL HEALTH

30%

of first responders develop
behavioral health
conditions like depression
and PTSD

> 100

firefighters and
EMS die by
suicide each year
since 2017

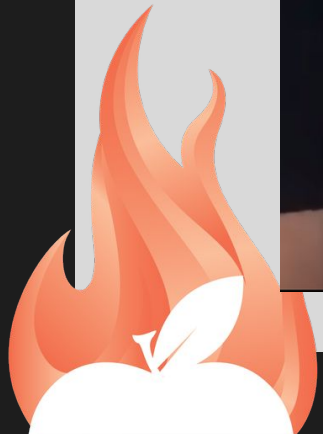
(Abbot et al., 2015 and Ruderman White Paper, updated 2022)



FIREFIGHTER FOOD PYRAMID



Introducing The New Pyramid



THE FIGHT IS ON...

This job already asks a lot from you

Nutrition can either help or hinder....

Don't wait for a "PAIN POINT" to start making change

Perfection isn't necessary. Black and white recommendations aren't sustainable

Maximize your pension and retirement - you have earned it!



The image features the silhouettes of four firefighters in full protective gear, including helmets and oxygen tanks. They are positioned in a line, facing away from the camera towards a bright, hazy background of smoke and fire. The firefighter on the far right is holding a fire hose that curves across the lower right portion of the frame. The overall color palette is dominated by warm, golden-brown and orange tones, creating a dramatic and intense atmosphere. The text 'STRATEGIES AND TACTICS' is overlaid in the center in a bold, white, sans-serif font.

STRATEGIES AND TACTICS

PHYSICAL AND MENTAL HEALTH MATTER

NUTRITION

HYDRATION

SLEEP/REST

MOVEMENT



NUTRITION CHALLENGES FOR FIREFIGHTERS



LACK OF TIME

- More grab-and-go foods, fad diets, quick fixes
- Less fruits and vegetables
- Poor hydration habits
- Under-fueling → ↑ hunger, cravings, overeating



LACK OF ENERGY

- Increased reliance on caffeine
- Decline in food quality and decision-making
- Reduced control around food
- Negative impact on mental health
- Decreased on and off-the-job performance



NUTRITION FUNDAMENTALS

Provides energy and calories

CARBOHYDRATES

- Primary source of energy
- *Whole grains, fruits and vegetables*
- Type and timing matter

PROTEIN

- Recovery and repair
- *Animal products (poultry, beef, fish, dairy, eggs)*
- Minimize highly processed meats

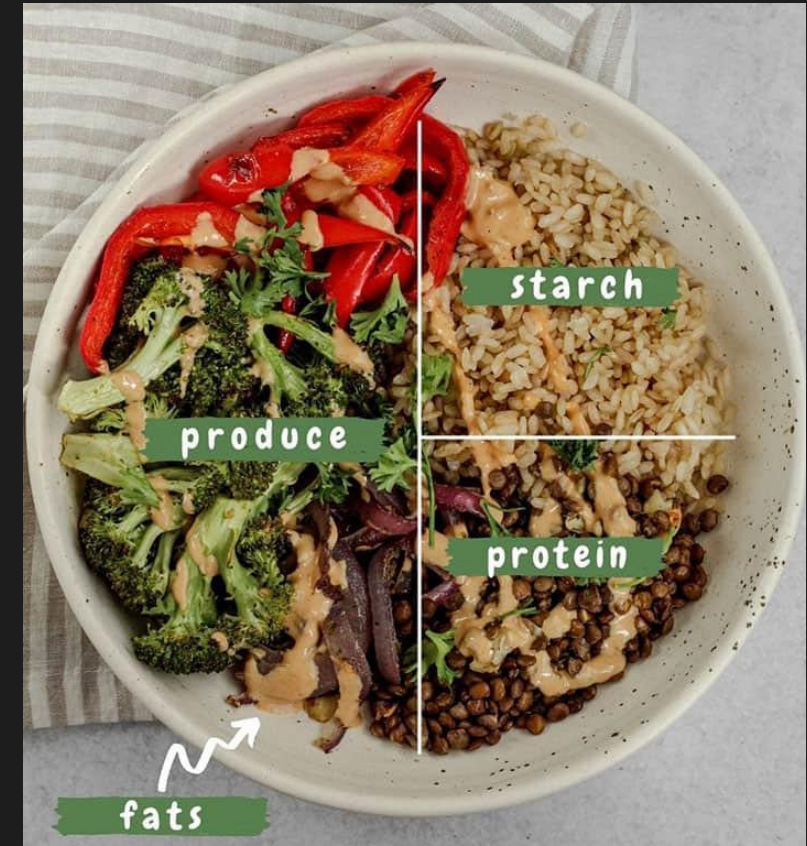
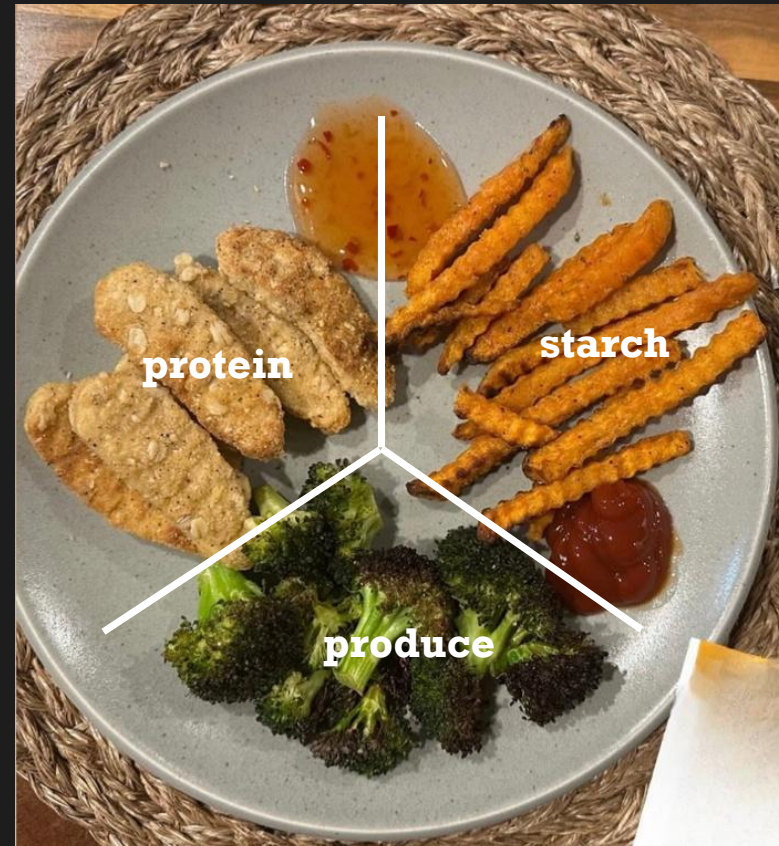
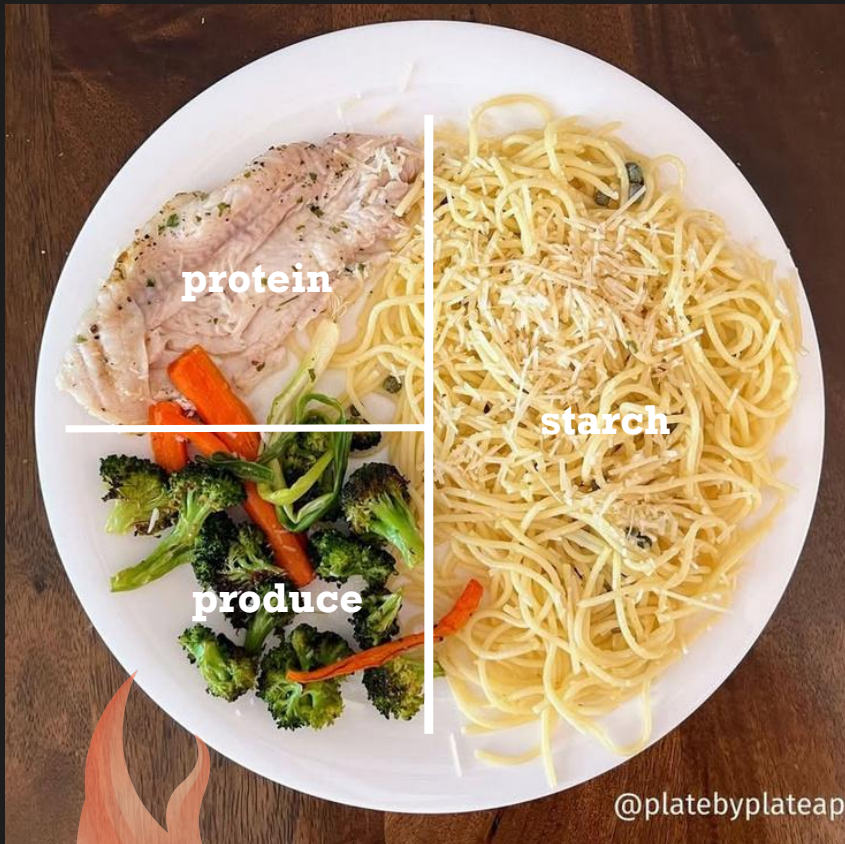
FAT

- Helps with nutrient absorption
- *Fatty fish, nuts/seeds, avocado, olive oil*
- Essential FA/Omega-3

Amount of each can vary based on personal goals, training intensities, dietary preferences, medical conditions, etc.



MEAL EXAMPLES



Fire Suppression Call
Intense Training or operations/exercise
Weight gain

Moderate Activity Day
Weight maintenance

Rest Day/Weekend/Holiday
Weight loss

THE REALITY....



DIETARY FIBER

INDIGESTIBLE CARBOHYDRATE

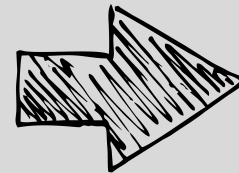
- *Helps keep you full, adds bulk*

PROMOTES WEIGHT MANAGEMENT

SUPPORTS HEALTHY DIGESTIVE SYSTEM

- *Body's natural detoxification process*

INCREASES MICRONUTRIENT, ANTIOXIDANT,
AND PHYTOCHEMICAL INTAKE



↓ CVD AND CANCER RISK

DAILY GOAL

MEN

38G PER DAY

WOMEN

25G PER DAY

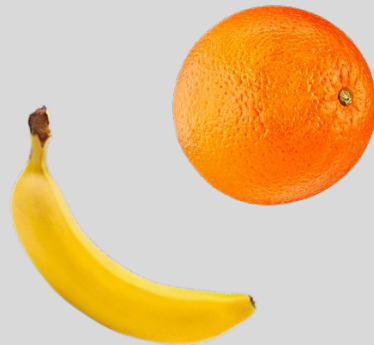


30G OF FIBER ON SHIFT...

SOLUBLE

helps lower cholesterol and blood glucose

(ex: oats, citrus fruit, apples, legumes, avocado)



INSOLUBLE

supports regularity of digestive system

(ex: brown rice, flax/chia seed, nuts & seeds, beans, root vegetables)



SIMPLE, CHEAP, AND CONVENIENT...



Bagged salad or coleslaw mixes, frozen or canned fruits and vegetables



BETWEEN MEALS

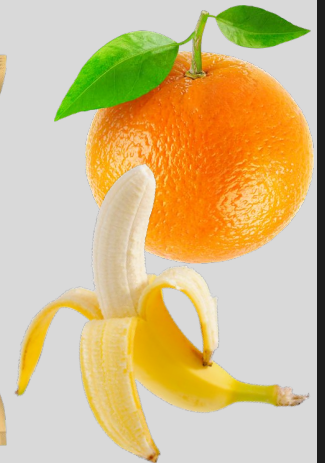


FOCUS ON PROTEIN AND FIBER

provides sustainable energy



PRE-DRILL, INTENSE CALL, OR WORKOUT



FOCUS ON SIMPLE CARBOHYDRATES

provides usable/immediate energy



INTERMITTENT FASTING



WHAT?

*Time restricted eating
(fasting/eating) window
of
16:8 or 14:10*



BENEFIT?

*2022 study in FF
showed cardiometabolic
health benefits
↓ VLDL and QOL measures
↓ A1C and BP with CM risk*



CONCERNS?

*Unreliable
Inconsistent
Increase in "feasting"
Compromises energy
levels*



STRATEGIES?

*Start slow and off shift
Progress fasting
windows overnight to
build tolerance*



TAKE-AWAYS

It depends....



MEDITERRANEAN DIET



WHAT?

Plant-forward diet emphasizing fruit, veggies, whole grains, legumes, nuts/seeds, and oil. Main protein sources come from fish, seafood, poultry, eggs, dairy



BENEFIT?

*↑ HDL and ↓ LDL in FF
Combining with exercise leads to greater heart health benefits*



CONCERNS?

*Right for your family?
Right for your lifestyle?
Financially accessible?*



STRATEGIES?

*Begin with adding a F/V with every meal
Prioritize lean protein over red meat
Keep healthy snacks on hand*



TAKEAWAYS

Most evidenced-based with positive health and cardiometabolic health outcomes



SUPPLEMENTS

SUPPLEMENT CONSIDERATIONS:

- *Food first approach is best*
- *Supplement to address nutrient deficiencies or fill gaps in diet*
- *Shouldn't add logistical burden*
- *Supplements are NOT regulated by the FDA*

LOOK FOR THESE

THIRD PARTY CERTIFICATIONS:



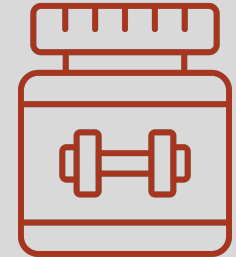
CREATINE MONOHYDRATE

COMBINATION OF 3 AMINO ACIDS: GLYCINE, ARGININE, AND METHIONINE

- *Naturally synthesize about 1g per day*
- *Diet (meat, fish, eggs, milk) at 1-2g per day*

BENEFITS:

- *Improves strength, power, and work capacity*
- *Facilitates muscle repair and recovery*
- *Emerging evidence of increased cognitive function (reduced mental fatigue) especially when sleep deprived.*



DOSAGE?

Loading Phase	5g of 4x/day (20g total) for 5-7 days
Maintenance	3-5g per day
Consider	0.1g per kg of body weight



OMEGA-3 FATTY ACID

Primary food sources

- *Fatty fish such as salmon, tuna, herring, and mackerel*
- *Recommended 2+ servings (3.5oz) per week for CVD benefits*

Benefits

- *Reducing chronic inflammation, oxidative stress and delayed onset muscle soreness*
- *Improvements in cardiovascular markers (heart rate)*
- *May support improved sleep quality*

Optimal Omega-3 Index Range = 8-12%

- *Average tactical athlete range: 3.18%*

DOSAGE?

1000-2000 MG/D

dose dependent on diet and supplement type



PROTEIN SUPPLEMENTATION

BENEFITS OF PROTEIN

- *Supports muscle and connective tissue recovery*
- *Supports appetite regulation (supporting LMM)*

WHY SUPPLEMENT?

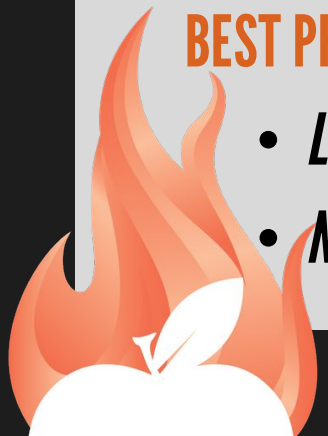
- *Convenient*
- *Supports meeting daily goals (1.4–2.0 g/kg/day)*

BEST PRACTICES

- *Limit 1-2 servings per day*
- *Not a meal replacement*



WHAT TYPE?



TAKE AWAY

DON'T AIM FOR PERFECTION

80/20 RULE

FIND BALANCE & START SLOW

MODIFY HABITS THAT ALIGN WITH GOALS AND VALUES

BE SELF AWARE

IT'S YOUR GREATEST ASSET

COLOR? NEVER HEARD OF HER

PLANTS = COLOR ON YOUR PLATE



FIREFIGHTERS AND DEHYDRATION

You wouldn't skip your gear – so don't skip your fluids.

*MENTAL/COGNITIVE
FATIGUE*

LOW ENERGY

*DIZZINESS/
LIGHTHEADEDNESS*

HEADACHES

*DRY
MOUTH*



DEHYDRATION - AN OVERLOOKED FIREGROUND HAZARD

- 9/10 firefighters show up to planned fire suppression drill dehydrated
- Dehydration compounds quickly
 - *3 lbs of additional fluid lost*
- Dehydration further increases CVD strain
 - *Heart works harder*
 - *Heart rate increases*
 - *Core body temperature increases*
- Impaired cognitive function
 - *Slower decision making increasing risk of injury*

200 LB FIREFIGHTER	
1%	2 LB
2%	4 LB
3%	6 LB
4%	8 LB



GENERAL HYDRATION RECOMMENDATIONS

FLUID GOALS?	
WOMEN	91 OZ/DAY <i>(or 2.7 L or 11.5 cups)</i>
MEN	125 OZ/DAY <i>(or 3.7 L, or 15.5 cups, or 1 gallon)</i>



**Certain foods can
count too!**



**Caffeine counts!
But still keep it under 400 mg/d**



REHYDRATION DURING FIRE SUPPRESSION

SWEAT LOSS DURING BURNS



EXERCISE

8-16 oz per hour

Moderate-high exertion

May have AC

Sweat wicking clothing



FIREGROUND

40 oz (1.2 L) per 30 minutes

High exertion

Extreme heat

Heavy clothing that holds heat to the body (no sweat evap)

Arrive dehydrated



1L OF SWEAT

460-1840 mg sodium

710-2840 mg chloride

160-390 mg potassium

0-36 mg magnesium

0-120 mg calcium

LOSE WATER 3-5X FASTER

Source: Megan Lautz of RescueRD



ELECTROLYTE SOLUTIONS

WHAT SHOULD I DRINK?

EXERCISE/TRAINING IN HEAT > 60M
FIRE SUPPRESSION EVENT



Rapid Rehydration
High Sodium/Mod Sugar
CONCENTRATION MATTERS!

EXERCISE/TRAINING IN HEAT > 60M



Glycogen Replenishment
Moderate Sodium
High Sugar (30+g)

SUPER SALTY SWEATER/
LOW CARB DIET



Rehydrate but less speed
High Sodium
Zero Sugar

NO-TO-LOW ACTIVITY/REST DAYS
EMT SHIFT IN HEAT



Humid but low activity
(re: EMS shifts)
Low Sodium/High Potassium

REHAB TRUCK



Grab Gatorade first (before coffee or water)

Grab salty snack (pretzels, salted nuts, crackers) or applesauce pouch

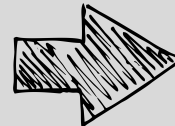
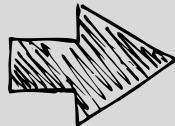
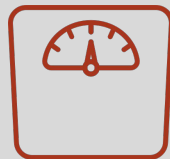
Continue rehydration/refueling when you return to the station



GENERAL REHYDRATION RECOMMENDATIONS

INDIVIDUAL SWEAT RATE CALCULATION

- **Weigh in:** Before exercise/training, with minimal clothing
- **Weigh out:** After exercise/ training
- Weigh in - weigh out = pounds lost
- **THE FIX:** For every 1 lb lost, drink 16-20 oz of fluid within 2 hours



FLUID REPLACEMENT STRATEGY

1 LB	16-20 OZ
1.5 LB	24-30 OZ
2 LB	32-40 OZ
2.5 LB	40-50 OZ
3 LB	48-60 OZ
3.5 LB	56-70 OZ



EXERCISE REHYDRATION RECOMMENDATIONS

REHYDRATION ORS PROTOCOL

Compare your urine color to these categories to determine your rehydration needs



Pre-Hyponatremia

Possible over hydration

Have a salty snack

Limit further fluids



Well Hydrated

No strict protocol needed

1 ORS packet (16 oz total)

can be beneficial



Minimal Dehydration

1 ORS packet (16 oz)

prior to training



Significant Dehydration

1 ORS packet immediately

+ 1 more in 30 mins

(32 oz total)



Serious Dehydration

Hold out of training!

1 ORS packet immediately

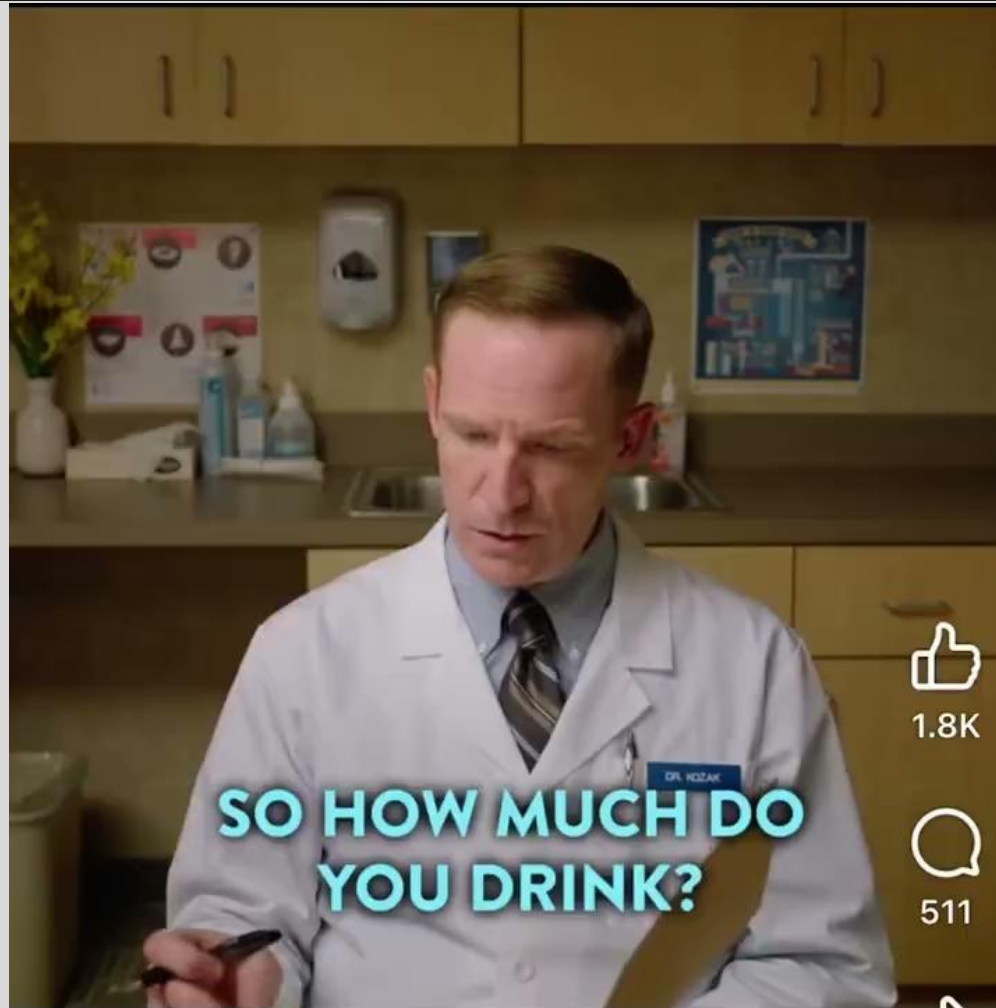
+ 1 in 30 mins

+ 1-2 more packets after

Protocol developed by Fernando Monte's with LAFD



ALCOHOL



ALCOHOL



ALCOHOL

SERVING SIZES



DRINKING HABITS

1 SERVING =

12oz of beer

5oz of wine

1.5 oz of liquor (80 proof)

MODERATE

MEN < 2 drinks p/d

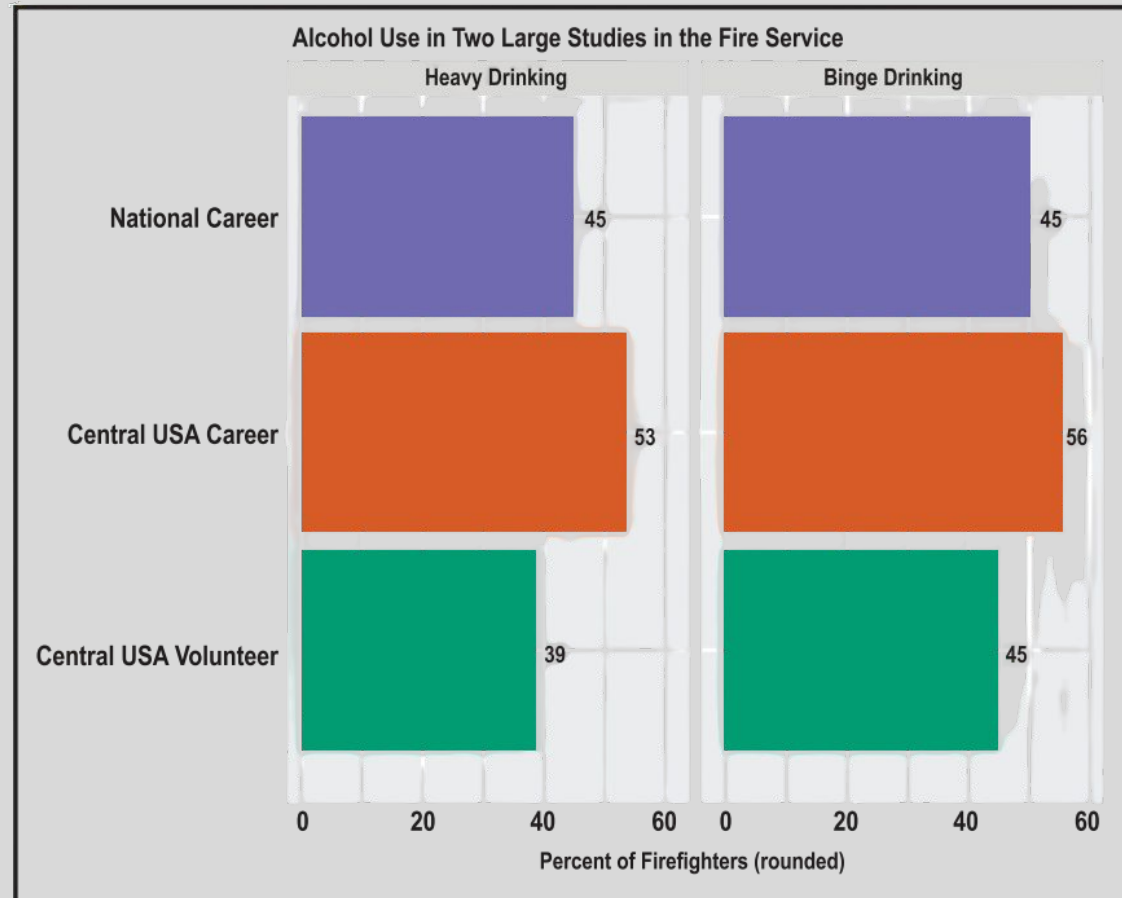
WOMEN < 1 drinks p/d

BINGE DRINKING

MEN > 5 drinks in 2 hrs

WOMEN > 4 drinks in 2 hrs

Alcohol Use in Two Large Studies in the Fire Service



ALCOHOL RISKS

Cardiovascular Disease and other Metabolic Health Risks

- Binge drinking considerably increases the risk of cardiovascular disease
- Strong correlation between alcohol consumption and weight gain

Cancer

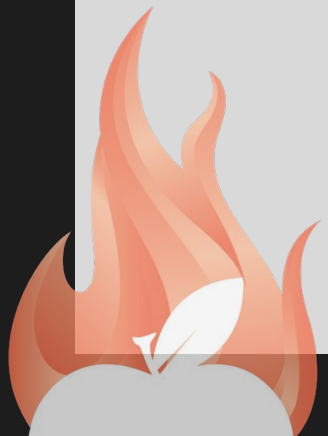
Risk of Cancer from FF vs. Alcohol

Type of Cancer	Increased Risk from Firefighting	Increased Risk from ~3.5 Drinks of Alcohol/Day
Oral/Buccal/Pharynx	40% ¹	83% ¹⁰
Esophageal	39% ¹ – 59% ⁵	123% ¹⁰
Liver	30% ¹	54% ¹¹
Colon	14% ³ – 21% ²	25% ¹²

www.science2station.org

Sleep

- Alcohol may help you fall asleep faster, but tolerance reduces its effect over time
- Alcohol suppresses melatonin by 20%
- Alcohol reduces REM sleep
- Lighter sleep/more frequent awakenings
- Can compound breathing problems



ALCOHOL STRATEGIES

1

**Start with non-alcoholic beverage to quench thirst,
then alternative with water, mocktail, or other non-alcoholic beverage**

2

Plan ahead and portion control with focus on minimizing total consumption

3

Eat before and during drinking activities

4

When choosing to drink, consider following moderate guidelines



CAFFEINE: TOOL OR LIABILITY?

Can ↑ alertness, ↓ fatigue, and improve concentration

**SPOILER
ALERT**

- Limit caffeine to <400 mg per day
- < 200mg per day with certain medical conditions



- Consumption >300mg at one time can compound the effects of dehydration
- Limit caffeine 3-10 hours prior to bed



CAFFEINE



1 cup/8 oz =
~ 50mg



1 cup/8 oz =
~ 100mg



20oz bottle =
~ 57-90mg



12oz cans =
~100-115 mg



16oz can =
140 mg



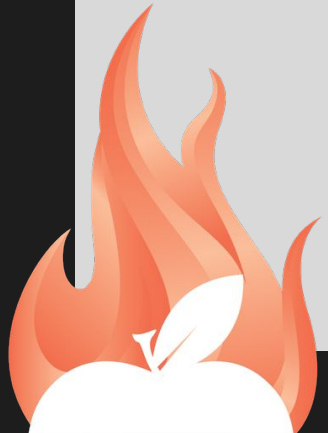
12oz can =
200 mg



16oz can =
300 mg



1 scoop =
300 mg



CAFFEINE: TOOL OR TRAP?

CAFFEINE = SHORT TERM ENERGY

DISRUPTED SLEEP

RELIANCE/TOLERANCE
INCREASES

FATIGUED

POOR FOOD CHOICES/
INADEQUATE INTAKE

INCREASES MENTAL AND PHYSICAL STRESS



CAFFEINE DOESN'T GIVE YOU ENERGY

Strategies to support low energy

- **Prioritize sleep when able**
- **Don't skip meals and snacks**
- **Include carbohydrates with every meal**
- **Prioritize adequate hydration**

**USE CAFFEINE
WITH INTENTION
AND WITH PURPOSE**



SLEEP



37-70%

of firefighters
suffer from a
sleep disorder

Khoshakhlagh, et al. 2023

- Decreased mental and physical health
- Decreased immune function
- Impacts metabolic function
- Increases CVD risk by increasing BP
- Correlated with higher BMI
- Correlated with musculoskeletal disorders
- Increase risk of on the job injury/accident
- Lapse of judgement/increased mistakes on job and off



SLEEP STRATEGIES



20 MIN NAP

- Keep under 30 minutes
- Helps boost alertness without entering deep sleep
- Best around midday for quick reset



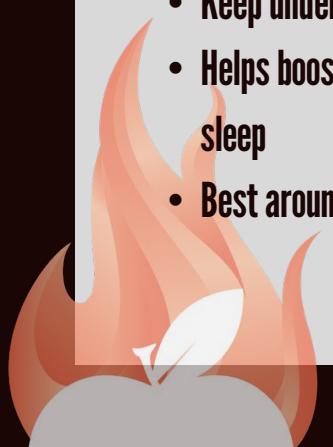
20 MIN NAP + 200mg CAFFEINE

- Drink 12 oz (or 100-200mg of caffeine) before a nap
- Combines the waking effects of caffeine plus restorative aspects of napping
- Not recommended for naps exceeding 20 minutes



90 MIN NAP

- Best planned in 90 minute increments
- Allows for a complete sleep cycle
- Best not to plan this type of nap later in the day to impact night sleep



PHYSICAL FITNESS



Consistent aerobic and muscular fitness

(Aim for 30m of moderate-intense exercise most days)

Weight maintenance

Health benefits:

- Decreased cardiometabolic risk (re: CVD, diabetes, obesity)
- Stress/cortisol management
- Strengthens immune function



Reduce risk of injury





RESOURCE DEBRIEFING

ANNUAL PHYSICALS

Dr. Hamrock's Firefighter pre-physical prep guide

FIREFIGHTER PRE-PHYSICAL (PREP) GUIDE			
Cancer Type	Signs & Symptoms		Workup
Skin	"ABCDE" Skin Lesion Criteria: <ul style="list-style-type: none"> o Asymmetry o Border irregularities o Color variation (within the same region) 		<ul style="list-style-type: none"> o Diameter 6mm or larger o Enlargement or change in shape, color or symptoms May require dermatology referral
Respiratory system: throat, airways and lung	<ul style="list-style-type: none"> o Chronic cough and sputum o Dyspnea (shortness of breath) o Chest pain 		<ul style="list-style-type: none"> o Weight loss o Hemoptysis (coughing up blood) o Hoarseness or chronic pharyngitis May require chest CT scan and ENT or pulmonary consult
Blood: leukemia, lymphoma and multiple myeloma	<ul style="list-style-type: none"> o Bleeding o Fatigue o Easy bruising o Pale color o Dyspnea 	<ul style="list-style-type: none"> o Fever or night sweats o Weight loss o Itching o Large nodes o Bone pain 	<ul style="list-style-type: none"> o Chronic infections o Poor wound healing o Brittle nails Complete labs sets; hematology referral may be required
Gastrointestinal (GI) system: mouth, liver, esophagus, colon and pancreas	<ul style="list-style-type: none"> o Bloody or dark stools o Abdominal pain o Change in bowel habits (pencil thin or loose stools or constipation) 	<ul style="list-style-type: none"> o Vomiting o Fatigue o Pain or difficulty with swallowing o Jaundice o Early satiety o Weight loss 	GI referral, colonoscopy, and imaging studies may be required
Genito-urinary: kidneys, bladder, prostate, testicles for males; and uterine and ovarian for females	<ul style="list-style-type: none"> o Hematuria (blood in urine) o Urinary frequency, urgency or slow stream o Abdominal mass/pain o Painless testicle mass 	Females: <ul style="list-style-type: none"> o Pelvic pain or bloating o Abnormal gyn bleeding 	May need urinalysis, biomarkers, PSA testing, cystoscopy, imaging, urology referral, gynecology referral

IAFC Provider's Guide to Firefighter Medical Evaluations

Provider's Guide to **FIREFIGHTER MEDICAL EVALUATIONS**

Firefighting is a uniquely stressful and dangerous job that requires working in unpredictable and often toxic environments. Due to the demands, firefighters are at increased risk for job-related **CANCER**, **MENTAL HEALTH CONCERNS**, and **CARDIOVASCULAR EVENTS**.

While the USPSTF recommendations should be used as a baseline, they are designed for the general population and not an occupational group with increased risk. Providers should be aware of the unique exposures and consider this in conjunction with personal and family risk factors when weighing timing and frequency of screenings.

CARDIOVASCULAR DISEASE (CVD)

Sudden cardiac events account for ~50% of acute duty-related death among firefighters primarily by myocardial infarction or cardiac arrest.¹

Consider thoroughly screening and aggressively treating CVD risk factors. An ASCVD risk score can help identify firefighters who may need to initiate treatment for hypertension or dyslipidemia. Expert Panel Recommendation: Based on risk factors, evaluate firefighters for coronary heart disease (CHD) and structural heart changes, specifically consider:²

Coronary Artery Calcium (CAC) Scan at age 40 yrs., or earlier based on clinical judgment and risk profile

Screening for structural heart disease including left ventricular hypertrophy, cardiac chamber enlargement, valvular abnormalities, or diastolic/systolic dysfunction using screening echocardiography in the presence of hypertension, obesity, Metabolic Syndrome or sleep apnea

A large-scale autopsy review found approximately 80% of firefighters who suffered a sudden cardiac event had evidence of both coronary heart disease (>50% occlusion) and a structurally enlarged heart. Only about 20% of autopsies had evidence of an intracoronary thrombus, suggesting ischemic heart disease and resultant complications may be responsible for a large percentage of cardiac line of duty deaths.³

FIREFIGHTERS AS TACTICAL ATHLETES

Cardiovascular
Extreme physical work, >70 lb of gear, strain on cardiovascular system

Hematological
Dehydration (decreased plasma volume), hemoconcentration

Thermoregulatory
Elevated core temperature, dehydration, heat stress

Respiratory
Increased breathing rate and oxygen consumption

Metabolic
Oxygen cost (extreme physical work), increased lactate, fatigue

Immune/Endocrine
Increased leukocytes and hormones

Nervous
Sympathetic surge, increased adrenaline

Muscular
Increased oxygen use and heat production

Psychological
Repeated exposures to trauma, sleep disruption, increased mental and behavioral health concerns



Click here bit.ly/3yX8lfa or Scan the QR code for Screening Tools, Resources & More



SCREENINGS/RESOURCES

- Department health screenings
- Cancer screenings
- Lab work
- Insurance reimbursement/benefits
 - Fitness Programs/reimbursement
 - Wellness benefits
 - Most health insurances cover 1:1 nutrition counseling at no cost to you!
 - Mental Health benefits



INTERNATIONAL
ASSOCIATION OF
FIRE FIGHTERS



DetecTogether



THANK YOU!

IGNITE PERFORMANCE NUTRITION

www.igniteperformancenutrition.com



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