

**Tempe Fire Department Policies and Procedures**  
**Behavioral Component**  
**Nutrition**  
**112.04C**  
**Rev 5-11-10**

**PURPOSE**

The demands on firefighters are great. While the stress from these demands can never be eliminated, one can prepare the body to cope with them in an efficient manner. One way to prepare the body for stressors is to practice proper nutrition. Keeping in mind that diet and nutrition are sometimes very personal choices, there are some guidelines that can be followed to ensure firefighters are eating a healthy and nutritious diet.

**POLICY**

This policy will provide basic guidelines and suggestions for nutrition as it relates to firefighters. Ideally, a complete diet and nutrition plan would involve your personal physician and/or a dietician.

The body requires three main macronutrients -- proteins, fats and carbohydrates. No proper diet should eliminate any of the macronutrients. A common myth in dieting is to go "low fat," but this compromises the ability of the body to assimilate the fat soluble vitamins. Eliminating carbohydrates will decrease glycogen stores, which are the fuel the muscles need while exercising.

In very general terms, the body is a machine that runs on energy in the form of the three macronutrients. If energy in is more than energy expended the result is weight gain. For example, eating an extra 100 calories per day will result in nearly one pound of weight gain per month. (One pound = 3,500 calories.)

There are numerous methods available to calculate the number of calories one needs per day. Because of the different body types, levels of activity, stress levels, etc., there is no one way that can be universally applied determine this number. Without consulting a professional, experimenting will be the best way to figure your daily calorie needs. No diet should allow for more than two pounds of fat loss per week. Any more than this and muscle will be burned – thus decreasing the body's metabolism and efficiency.

Once the amount of calories one burns in a day are calculated, only then is it possible to determine the right amount of food necessary to maintain, gain or lose weight. A typical breakdown of macronutrients is 40% carbohydrates, 30% fats and 30% protein. Slight variations in these numbers should not be of much concern providing the amount of calories consumed is within the target range. Protein requirements are generally calculated at .6 to .8 grams/pound of body weight. Those routinely lifting heavy weights can up this amount as the body requires. To maintain one's metabolism and regulate hormonal levels, it is ideal to eat five to six meals per day. This is the concept behind the glycemic index and regulation of blood sugar levels. Never skip breakfast and do not work out on an empty stomach. A light meal before training provides fuel for the body. Training on an empty stomach encourages the body to burn muscle for fuel. A post-workout meal should include protein as well as carbohydrates, and should be ingested within 60 minutes of completion. This is the best time to ingest simple carbohydrates as well, as the body is best able to assimilate them after vigorous exercise. All other carbohydrates in the diet should be complex carbohydrates, consisting of such items as brown rice, whole grains, fibrous vegetables, and whole wheat breads. Carbohydrates to be avoided include all processed grains, simple sugars (high-fructose corn syrup, for example) and juices.

Proteins can be supplied through lean meats (skinless chicken, sirloin, top/bottom round, and fish) or protein shakes. Fats should be of the “good” variety and not from trans-fats like margarine. Good fat sources include fish oil, flax seed oil, avocados, coconut oil, and nuts of nearly all varieties. A gram of protein equals 4 calories, as does a gram of carbohydrates, while one gram of fat provides 9 calories. Use these numbers to calculate total calorie intake in order to maintain or lose weight.

Portion control is one of the major pitfalls we face in the fire service. Four to six ounces of lean meat per meal will provide adequate protein. A typical serving of brown rice is  $\frac{3}{4}$  cup and provides 150 calories. As referenced above, adding one extra serving of rice (or similar carbohydrate) per day can add over one pound of body weight per month should it be above one’s daily requirements. Sodas average 140 calories per 12 ounce can and just one a day adds nearly  $1\frac{1}{4}$  pound each month or 14 pounds per year.

In addition to eliminating soda from one’s diet, it is important to understand the need for good snacks that don’t provide a lot of calories but are excellent sources of bulk, which will make one feel full. Nearly all vegetables are an excellent snack source, especially green vegetables. Low glycemic fruits include apples, cherries, bananas, oranges and kiwis. Do not confuse low glycemic with low calorie. A large banana, for example, may have up to 170 calories. In contrast, the same amount of carrots has only 60 calories, while an equal amount of broccoli just 50. Nearly all of the above referenced snacks can be conveniently carried on the fire apparatus. Additionally, if it is necessary to eat out while on duty consider shopping for fresh food at the grocery store versus opting for fast food.

Cooking techniques can also decrease the amount of calories ingested. Fried foods are almost always calorie dense. Consider baking, simmering or sautéing instead. Any fat source that occurs naturally as a solid should be avoided. That includes lard and margarines. Olive oil is one of the healthiest and most flavorful oils to use in cooking and salad dressings. Remember, however, that each gram contains nine calories, so even the good fats should be used in moderation.

Perhaps the most difficult hurdle we face in the fire station is overcoming the tradition of large portions, unhealthy foods and chow funds. Everyone can set an example in this regard by focusing on healthy meals and portion control and encouraging those members on special diets. Slowing down while eating has also been shown to reduce the amount of food (calories) consumed. This is likely due to the fact that studies have shown it may take up to 20 minutes for the brain to register satiety. Allowing the brain to receive the message that the body is full can prevent overeating. Additionally, putting off a second serving for 20 minutes may provide the body time to decide it has had enough.

Resources available for members include the Mayo Clinic website, which offers a variety of healthy meals broken down by category (special diets, course, preparation, etc.). It can be found at <http://www.mayoclinic.com/health/healthy-recipes/RecipeIndex>.

The City’s Wellness Program provides general nutritional information. Direct requests to Courtney Long at X- 8260 or email at [wellness.tempe.gov](mailto:wellness.tempe.gov).

**The City of Tempe also provides holistic nutritional counseling via the Employee Assistance Program. That service is administered through American Whole Health at (877) 243-3009.**