

MAXIMIZE YOUR TRAINING EFFORTS

The right blend of nutrients will help you get the most out of your training sessions.

Fundamentals for Optimal Recovery

Eating the right ratios of carbohydrates and protein helps to repair damaged muscles and tissues caused by exercise, speed recovery, and provide sufficient energy to the brain and body.

Energy stores

- Glycogen: storage form of carbohydrate
 - Replenishing glycogen stores boosts energy recovery and facilitates tissue repair
 - Low glycogen replenishment increases fatigue and injury risk
 - Recovery is an all-day process, it can take anywhere from 24-48 hours to replace depleted glycogen stores

Protein

- 20-30 grams of high-quality protein should be consumed approximately every 3-4 hours to stimulate tissue repair and muscle growth
 - Including protein and carbohydrates to within 30-60 minutes of waking drives body to anabolic (building) state
 - During exercise you are breaking down muscle. Post-exercise you must "flip the switch" to promote muscle building

Fluids

- During exercise, 1 pound of sweat lost is equal to 16 oz fluid that needs to be replaced
- Use sport drinks during exercise >60 minutes, they are not needed or intended for after

THINK IN 3'S

Timing

- 1) Pre-workout
- 2) Mid-workout
- 3) Post-workout

Composition

- 1) Carbohydrates
- 2) Protein
- 3) Fluid

PRE-WORKOUT

- 30-90 min before training
- Carbohydrate: 30-60 grams
- Low-fat, low protein, low fiber
- Listen to your body & gut
- Try different foods and see what works for you

MID-WORKOUT

- <45 min = not necessary
- 45-75 min = sports drink or sport food as tolerated
- Endurance training >90 min = 30-60 grams per hour

POST-WORKOUT 30-45 min after exercise

- Carbohydrates: consume half your body weight in grams of carbs. *example: you weigh 150lbs (150/2 = 75 grams of carbohydrates)*
- Protein: 20-30 grams of protein
- If your appetite is low after exercise, try liquid food options (*protein smoothie*)

Top off the Tank: Pre-workout Snack Ideas 30-90 minute pre-exercise (if exercising >60-90 minutes). May not be necessary for exercise <45 min

- Toast (or a bagel) with jam
- Banana
- Cereal with low-fat milk
- Oatmeal with raisins
- Granola bar
- Fruit smoothie (1 banana, ½ cup berries, ½ cup low-fat milk or yogurt) and ice cubes.
- Pita with hummus

Recovery: Post-workout Snack Ideas 30-60 minutes post exercise

- Low-fat chocolate milk
- Fruit and yogurt smoothie
- Graham crackers with peanut butter and low-fat milk
- Greek yogurt with fruit
- Apple or banana with nut butter and low-fat milk
- Trail mix (nuts, dried fruit) and a sports drink

Recovery Meal Examples Aim to consume a meal within 2 hours after exercise

Build a strong diet: Try to include at least three to five food groups at each meal. Always include a protein source.

Food Group	Meal 1	Meal 2	Meal 3
Vegetable	V8 Juice	Lettuce/Tomato	Tomato sauce
Protein	Walnuts	Turkey	Turkey meatballs
Grain	Oatmeal	Whole-wheat wrap	Pasta
Fruit	Apple	Avocado	Fruit salad
Dairy	Low-fat milk	Low-fat yogurt	Low-fat cheese

KNOW YOUR SUPPLEMENTS

You cannot out-supplement a bad diet: you cannot gain muscle by drinking numerous protein shakes, and you can't keep weight off by popping a "fat burning" pill. A well-designed nutrition plan will safely supply energy and nutrients to fuel your body effectively. While there may be some benefits to taking certain dietary supplements, they will not negate a poor diet. First you need to be eating well and exercising regularly, and then you can look for the little "extra."

Recognize the Risk

- **Innocent before proven guilty:** Supplement companies are not required to prove the safety, effectiveness, or purity of their product. Before removing a product from the market, the FDA must prove the supplement is dangerous.
- **More is not always better:** Using more than the recommended dose may result in negative health effects like increases in blood pressure and heart rate irregularities.
- **Too good to be true usually means it is:** "Red-flag" terms include: energizer, fat burner, metabolic booster, proprietary ingredients, testosterone booster

Common Pre-Workout Dietary Supplements

SUPPLEMENT	CLAIM	RISK	EFFECTIVENESS	FOOD EQUIVALENT
Synephrine, Guarana, Caffeine (stimulants)	Increase energy, stamina, alertness	Gastrointestinal (GI) distress, increased nervousness/anxiety	Effective as central nervous system stimulant, improving endurance performance and high intensity activities lasting up to 20 minutes	Coffee, tea, chocolate
Nitric Oxide, L-arginine	Improves stamina, enhances anaerobic recovery	GI distress, bloating, cramping	Effectiveness unknown. Preliminary results suggest it may increase muscle strength, but not size.	Meat, dairy, nuts, beets
Creatine Monohydrate	Increases muscle repair efficiency and muscular strength	GI distress, bloating, cramps, temporary weight gain due to increased lean body mass or total body water	Effective for increasing lean body mass performing repeated high-intensity, short duration (<30 second) exercise bouts. (3-5 grams/day, 1 month prior to competition)	Meat, fish, poultry

Common Recovery (Post-Workout) Supplements

SUPPLEMENT	CLAIM	RISK	EFFECTIVENESS	FOOD EQUIVALENT
Amino acids / Protein Powders	Enhances muscle repair	Possible contamination. Seems to be safe for those without kidney or liver disease.	Effective source of protein. Whey protein may be more effective than casein for increasing muscle size and strength	Meat, fish, poultry, eggs, nuts, dairy, beans, tofu
Multi-vitamins / Antioxidants	Neutralizes oxidative damage from training	Seems to be safe. Potential to consume high doses.	Effective to increase nutrient intake to a degree, which can help reverse nutrient deficiencies. Not likely to improve performance or prevent chronic disease in those without nutrient deficiencies.	Fresh fruits and vegetables

Ingredients In Supplements With Minimal Research Supporting Use

Arginine, L-Arginine AKG, Agmatine Sulfate, BCAA's, Citrulline Malate, D-Aspartic Acid, Glutamine, L-Carnitine, Kre-Alkalyn, Creatine Hydrochloride, Creatine Ethyl Ester, Creatine Magnesium, Di-Creatine Malate

Guidelines for Evaluating Dietary Supplements

- **Is the supplement safe?**
 - Check the Food and Drug Administration (FDA) website (www.fda.gov) for recalls, withdrawals, and safety alerts
- **Is the supplement effective?**
 - Are the claims physiologically plausible?

What's the Bottom Line?

Food First: Nutrition from food is always the best line of defense to meet your health and wellness goals. Supplements are a last resort to complement already sound nutrition plans that include lean protein, whole grains, fruits and vegetables, low-fat dairy and healthy fats.

Current research lacks support for the claim extra vitamins are needed after exhaustive exercise. Vitamins and minerals alone provide no energy value and are not used up during exercise, they are recycled.

Eating a turkey sandwich, contains more essential amino acids at a lower price than a bottle of amino acid supplements.

**All individuals respond differently to supplements. Make sure the brand is reputable and tested.*