

# PROTEIN



## Why Protein is Important for Female Distance Runners

Aerobic exercise can increase muscle protein synthesis (MPS), although to a lesser degree than resistance exercise. High intensity/high volume resistance exercise can stimulate MPS for at least **2 days** afterwards whereas aerobic exercise increases MPS for only **2 to 3 hours** afterwards.

Additionally, from a caloric standpoint, aerobic exercise generally burns more calories than resistance exercise and so it is important that energy needs are met after aerobic exercise to ensure that dietary protein is being used for MPS and not being oxidized to meet energy needs.

## Minimum Daily Protein Requirements

The RDA for protein for adults is 0.8 g/kg/day. Recommendations for protein intakes for healthy athletes range from 1.2 to 1.7 g/kg/day and at least 12 to 15% of total energy.

Type of Training	Protein Recommendation, g/kg/day	Example of Total Daily Protein Intake
Endurance	1.2 - 1.4	84-98g for 70kg (154-lb) endurance athlete
Resistance	1.6 - 1.7	146-155g for 91kg (200-lb) strength athlete

## Post-Exercise/Recovery Protein Recommendations

Eating post-exercise is important for positive net protein balance and eliciting an adaptation (muscle hypertrophy, strength, increases in oxidation capacity). **Data suggests that consuming high-quality protein within the first 2 hours after training is fundamental to maximizing MPS;** however, the post exercise "window of anabolic opportunity" is at least 24 hours after exercise.

## Protein-Rich, Nutrient-Dense Foods for Female Athletes

Animal Sources	Plant Sources
2 eggs	1 ½ cup soy milk
1 ½ cup reduced-fat milk	¾ cup beans or lentils
1 oz reduced-fat cheese	4 oz tofu
1 cup low-fat fruit yogurt	2 cups cooked pasta
½ cup cottage cheese	3 cups cooked rice
1-2 oz lean beef	3 cups whole grain cereal
2 oz chicken	4 slices whole grain bread
2 oz grilled fish or packaged tuna/salmon	2 oz nuts

Each serving provides ~10-15 grams of protein.

## References

- Beals, K.A. (2013). *Nutrition and the Female Athlete: From Research to Practice*. Boca Raton, FL: CRC Press.
- National Research Council (2005). *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)*. Washington, DC: The National Academies Press.
- Rosenbloom, C.A. & Coleman, E.J. (2012). *Sports Nutrition: A Practice Manual for Professionals*, (5th ed.). Academy of Nutrition and Dietetics.