

# What Is the Appropriate Distribution of Macronutrients for a Patient with Diabetes?

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**W**HILE THE EFFECTIVENESS of medical nutrition therapy (MNT) in the management of diabetes has been well established, the ideal macronutrient distribution to improve glycemic control has been in question for many years. The American Diabetes Association established guidelines in 2001 stating that there was not one specific mix of macronutrients for all people with diabetes. A recent article published in *Diabetes Care* (1) reviewed the scientific literature from 2001 to 2010 regarding this question. The researchers reviewed almost 100 studies that discussed the kind and amount of carbohydrates, fat, protein, and specific foods and overall eating patterns that would have a possible impact on glycemic control. The authors noted how difficult it was to get a true picture of the effects of the macronutrients on glycemic control since many factors can influence the results. Variability in study methodology, including measurement of dietary intake, retention rates, and confounding by weight loss, limits comparisons as to how macronutrient distribution independent of weight loss affects outcomes of interest. In the article, the authors defined the terms “conventional” or “traditional” macronutrient distribution as 55% to 65% carbohydrate, less than or equal to 30% fat, and 10% to 20% protein (1). It is interesting to note that research studies have shown people with diabetes typically consume only 45% of total calories from carbohydrates (1). Although in many instances there were not statistically significant differences between dietary approaches, im-

provements were often seen from baseline to follow-up in both intervention groups, supporting the idea that several different macronutrient distributions may lead to improvement in glycemic control (1).

The American Diabetes Association Clinical Practice Recommendations 2012 (2) recommend that the macronutrient distribution in diabetes management may be adjusted to meet the metabolic goals and individual preferences of the person with diabetes. In addition, monitoring carbohydrate intake, whether by carbohydrate counting, choices, or experience-based estimation, remains a key strategy in achieving glycemic control. Saturated fat intake should be <7% of total calories. Reducing intake of *trans* fat lowers low-density lipoprotein cholesterol and increases high-density lipoprotein cholesterol; therefore, intake of *trans* fat should be minimized.

The Academy’s Evidence Analysis Library states that “the registered dietitian should encourage consumption of macronutrients based on the Dietary Reference Intakes (DRI) for healthy adults. Research does not support any ideal percentage of energy from macronutrients for persons with diabetes” (3). It is up to the registered dietitian to evaluate each patient and set a plan that would provide optimal nutritional intake and help control diabetes complications.

## References

1. Wheeler ML, Dunbar SA, Jaacks LM, et al. Macronutrients, food groups, and eating patterns in the management of diabetes: A systematic review of the literature, 2010. *Diabetes Care*. 2012;35(2):434-445. <http://care.diabetesjournals.org/content/35/2/434.full>. Accessed February 13, 2012.
2. American Diabetes Association. Clinical practice recommendations. *Diabetes Care*. 2012;35(suppl 1):S1-S110. [http://care.diabetesjournals.org/content/35/Supplement\\_1](http://care.diabetesjournals.org/content/35/Supplement_1). Accessed February 13, 2012.
3. Diabetes Mellitus Type 1 & 2 Evidence-Based Nutrition Practice Guideline. Academy of Nutrition and Dietetics Evidence Analysis Library Web site. <http://www.andevidencelibrary.com/topic.cfm?cat=3251>. Accessed February 13, 2012.

## Academy of Nutrition and Dietetics Resources

Evidence Analysis Library; Evidence Based Practice Guideline: Diabetes Mellitus Toolkit <https://www.adaevidencelibrary.com/store.cfm?category=1>

For a complete list of diabetes resources visit [www.eatright.org/diabpubs](http://www.eatright.org/diabpubs).

## Additional Resources

1. American Diabetes Association <http://www.diabetes.org/>
2. National Diabetes Education Program (NDEP) <http://ndep.nih.gov/>
3. National Diabetes Information Clearinghouse (NDIC) <http://diabetes.niddk.nih.gov/>

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