Available online at www.sciencedirect.com

SCIENCE DIRECT®

Nutrition Research 25 (2005) 209–212

NUTRITION RESEARCH

www.elsevier.com/locate/nutres

Communication

Adherence to low-fat diets: fat intake during a self-monitoring period

Martin Atkins, Janice B. Depper, Kathleen M. Poore, Nora M. DiLaura, Zora Djuric*,[1]

Barbara Ann Karmanos Cancer Institute, Wayne State University, 110 East Warren Avenue, Detroit, MI 48201

Received 26 January 2004; revised 18 October 2004; accepted 25 October 2004

Abstract

Consistency of meeting dietary goals is important in dietary intervention studies. In this study, healthy women participating in a 12-week dietary intervention study (N = 36) were taught how to follow a low-fat diet by daily monitoring of fat intake in grams. The goal fat intake was 15% of energy from fat. Dietary intakes from the week 7 self-monitoring records and the week 8 4-day food records were analyzed using the Nutrition Data System nutrient analysis software. Fat intake calculated from 4-day food records kept during week 8 was 31.3 g/d, and this was slightly above the goal of 27.6 g/d. The self-tally of fat intake during self-monitoring was slightly lower at 26.7 g/d. Nutrient analysis of the self-monitoring food records, however, indicated a mean fat intake of 35 g/d, which was significantly higher than the goal intake and the intake by self-tally. The underestimation of fat intake by 8.3 g/d using self-tally is a sizable percentage of the goal intake, and this has implications for dietary counseling strategies.

Keywords: Dietary intervention; Low-fat; Self-monitoring; Adherence

1. Introduction

Low-fat diets have been investigated in a variety of research settings including those with weight loss and cancer prevention goals. A low-fat diet can be achieved by several methods

* Corresponding author. Tel.: +1 734 615 6210; fax +1 734 647 9817.

E-mail address: zoralong@umich.edu (Z. Djuric).

[1] Department of Family Medicine, University of Michigan, Cancer and Geriatrics Center, Ann Arbor, MI 48109-0930, USA.

0271-5317/$ – see front matter © 2005 Elsevier Inc. All rights reserved.
doi:10.1016/j.nutres.2004.10.009

including exchange list diets and menu planning, but perhaps a more precise way to control fat intake is to record grams of fat eaten each day. One such method is the Low-Fat Eating Plan [1]. With this method, a fat gram goal is calculated based on baseline energy intakes. Grams of fat eaten each day are tallied in a self-monitoring booklet.

The aim of this study was to compare fat intakes from self-monitoring records with those from 4-day food records. The data were obtained from a 12-week dietary intervention trial that aimed to examine the effects of low-fat and low-energy diets on markers of cancer risk in blood samples [2]. Subjects randomized to the low-fat diets followed a modified Low-Fat Eating Plan. Booklets for self-monitoring of food eaten were kept daily, and a 4-day food record was kept for provision of the study dietary data once every 4 weeks. We examined how accurate self-tally of fat intake is and how fat intake differs when subjects are self-monitoring intake vs when they are keeping 4-day food records.

2. Methods and materials

Subjects recruited for the study were healthy, premenopausal women at least 12 lb above optimal body weight but less than 150% of optimal body weight, as reported previously [2]. The women were randomized into control, low-fat (15% of energy from fat), low-energy (25% reduction from baseline while keeping percent fat from energy the same), or combination low-fat/low-energy diets (15% of energy from fat, 25% reduction in energy from baseline intake). There were biweekly visits with a registered dietitian for individualized dietary counseling, and this involved review of self-monitoring booklets. A total of 88 women completed the 12-week study.

For this report of fat intakes, the 36 women who completed 12 weeks of study on either the low-fat or low-fat/low-energy arm were included because both groups were counseled for restriction of fat intake using the Low-Fat Eating Plan. Subjects were asked to count food group exchanges for control of energy intakes [3]. To control fat intake more closely, subjects also counted grams of fat in food that they consumed daily. These tallies were kept in self-monitoring booklets ("Keeping Score" booklets) that had goal intakes listed on each page and blank lines for food eaten, exchanges, and their content of fat in grams. The grams of fat in each food eaten were estimated by study subjects using food labels and a Fat Gram Counter booklet (4th edition, Nutrition Coordinating Center, University of Minnesota, Minneapolis, Minn; based on Food Database 9A, Nutrient Database version 24). Subjects were asked to total food group exchanges and fat grams daily and to compare them with the goal intakes. At baseline and 4, 8, and 12 weeks, subjects kept 4-day food records, and the data from these were used as the "official" dietary data for the study. The forms for the 4-day food records included instructions on how to provide details of food eaten but did not refer to goal intakes, nor did they have columns for the tally of fat grams and food group exchanges. Subjects did not keep self-monitoring records on days that 4-day food records were kept.

Subjects had just started meeting their dietary goals at the 4-week time point [2]. During week 12, some deterioration of subject motivation was noted by the dietitians. A decline in dietary adherence can occur at the end of a research study [4]. The coefficient of variation for fat intakes was lowest at 8 weeks. We therefore analyzed the 4-day food records from the 8-week time point (kept on Tuesday, Thursday, Friday, and Sunday) and the same days