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5100 WISCONSIN AVENUE, N.W. • SUITE 400  
 WASHINGTON, DC 20016  
 T: (202) 686-2210 • F: (202) 686-2216  
 PCRM@PCRM.ORG • WWW.PCRM.ORG

## Scientific Studies Weigh in on the Dairy Debate

### *Dairy Products Do Not Facilitate Weight Loss*

The dairy industry has invested heavily in an advertising campaign based on the claim that the use of dairy products will facilitate weight loss. The body of scientific evidence contradicts this claim.

Since 1989, 19 human clinical studies have assessed the effects of dairy products on bodyweight.<sup>1-18</sup> (ref 16 contains 2 studies) Of these, two showed weight gain in the dairy-treated groups,<sup>2,11</sup> and 14 showed no effect.<sup>1,3-10,12-16</sup> Only three studies—all conducted by Michael Zemel, Ph.D., at the University of Tennessee and funded by the dairy industry—appeared to show that increased dairy consumption coupled with restricted calorie intake facilitated weight loss.<sup>16-18</sup> Clinical trials using calcium supplements, rather than dairy products, also contradict this claim.

Of 22 trials that have assessed the effects of calcium supplements on body weight,<sup>7,13,17,19-37</sup> 20 showed no effect. The other two, one a substudy by Dr. Zemel and the other a study conducted by Robert Recker, M.D., of Creighton University (both funded by the dairy industry), showed greater weight loss with the calcium-supplement treatment.<sup>17,35</sup>

In some of these studies, the researchers asked participants to cut their calorie intake while also consuming dairy products. Other studies were conducted with no calorie restriction. In neither case does evidence favor an effect of dairy products on body weight. Both types of studies are described below:

**Dairy products with no calorie restriction:** In 12 clinical trials participants were asked to consume dairy products, but were not asked to cut overall calories.<sup>1-2,4-8,10-13,16</sup> None of these studies showed any weight-loss effect. Two showed an increase in body weight in the dairy groups, compared to the non-dairy groups,<sup>2,11</sup> while 11 showed no difference in body weight or body fat.<sup>1,4-8,10,12-13,16</sup>

One of these studies, reported in 2005, is particularly noteworthy because it mirrors the experience of consumers seeking to follow the dairy industry’s weight-loss advice.<sup>8</sup> Researchers at Purdue University asked a group of women to add dairy products to their diets and, at the same time, to reduce their consumption of nondairy foods, which is essentially what many of the dairy industry’s weight-loss advertisements recommend. Participants were assigned to one of three groups: (1) a group that maintained its usual diet, (2) a medium-dairy group, or (3) a high-dairy group. After one year, the high-dairy group gained slightly more weight and body fat than the medium-dairy and usual-diet groups. None of the groups lost weight.<sup>8</sup>

**Dairy products with calorie restriction:** Seven studies tested the effects on body weight of dairy products used along with a calorie restriction.<sup>3,9,14-18</sup> Of these, four showed no effect.<sup>3,9,14,15</sup> Three (all conducted by Dr. Zemel and funded by the dairy industry) showed weight loss.<sup>16-18</sup>

- In a six-month study at the University of Vermont, 44 participants were assigned to either a high- or low-dairy diet along with a daily energy restriction of 500 calories. There was no significant difference between the groups in either body weight or body fat.<sup>9</sup>
- In a 2004 study conducted in Australia, 50 overweight adults began calorie-restricted diets that were either high in dairy products or low in dairy products. The study found no weight-loss advantage for the high-dairy group.<sup>3</sup>
- In a multi-center trial including the University of Tennessee, Purdue University, and the USDA, 105 subjects were divided into three groups—high-dairy, calcium-supplemented, or low-dairy—and asked to maintain these diets for 12 weeks along with a calorie-restricted diet. For the 68 participants who completed the study, there was no significant difference in weight loss among the groups.<sup>15</sup>
- In a 48-week trial at the Mayo Clinic, with 62 obese completers, participants were asked to do moderate exercise four times a week for at least 30 minutes and were assigned to one of three calorie-restricted diets: 1) high-dairy (4 servings/day), 2) medium-dairy (2 servings/day), or 3) high-dairy (4 servings/day) and higher fiber. Neither high-dairy diet resulted in greater weight loss than was seen with the medium-dairy diet.<sup>14</sup>

The other three small clinical studies, all conducted by Dr. Zemel, found that higher dairy product consumption coupled with dieting resulted in greater weight and fat loss.<sup>16-18</sup> Unfortunately, the study reports omit key information. All three did not report baseline calorie consumption or the extent to which participants actually reduced their calories, making it impossible to discount the most likely reason for weight or fat loss: a reduction in calories, rather than the consumption of dairy products.

- In 2004, Zemel and colleagues reported on the weight lost over 24 weeks by 32 obese individuals assigned to three different calorie-restricted diets: low-dairy, high-dairy, and high-calcium (from a supplement pill). All participants were instructed to eat 500 calories a day fewer than usual. Average weight and fat loss for the high-dairy group was significantly greater than average weight loss in the calcium-supplemented and low-dairy groups.<sup>17</sup>
- In the second study, conducted over 12 weeks, 34 obese adults were assigned to either a weight-loss diet that included three servings of yogurt or to a diet that was generally similar, but without the added yogurt. The experimental group lost slightly more weight than the control group.<sup>18</sup>
- In a third study, 29 obese African American adults were instructed to reduce calorie intake by 500 kcal per day and were assigned to a low-dairy (<1 serving/day) or high-dairy treatment group (3 servings/day) for 24 weeks. Average weight loss reported for the high-dairy group was significantly greater than for the low-dairy group.<sup>16</sup>

**Testing calorie restrictions along with calcium supplements, rather than dairy products:** As noted in the preceding section, Dr. Zemel's 2004 study included one group taking a calcium supplement pill, in addition to a 500-calorie reduction in daily food intake. These participants reportedly lost more weight than those not using the supplement.<sup>17</sup> Two other studies, however, tested the effect of calcium supplements, along with a calorie restriction on body weight.<sup>24,36</sup> Neither showed a significant effect:

- In a three-month trial at the Obesity Research Center in Copenhagen, 62 women on a reduced-calorie formula diet received either a calcium supplement or no supplement for three months. There was no significant difference in weight loss between the groups.<sup>24</sup>
- In a 25-week weight-loss program conducted by researchers from Rutgers and Columbia Universities, 100 women received either a calcium supplement or a placebo pill. The calcium supplement did not significantly affect the amount of weight or fat lost.<sup>36</sup>

Taken together, these scientific studies show that the addition of dairy products to the diet—with or without a calorie restriction—does not reliably result in weight loss. It is as likely to cause weight gain as weight loss, and the vast majority of studies show no effect at all on body weight.

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