

Dietary protein and weight gain

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In Reply: The main objective of our study was to identify predictors of 30-day readmission among US patients vs those in other countries with lower readmission rates. Although country-level length of stay was an important predictor, we disagree with Dr Andraws that US patients might be receiving suboptimal treatment. By being aware that shorter length of stay may be associated with readmission among some patients, physicians can implement improved patient education and transitional care processes and better identify those higher-risk patients that may benefit from longer hospitalization.

Andraws also points out that patients in single-payer systems have prolonged wait times, particularly to see specialists. However, the evidence suggesting a benefit to early physician follow-up among patients with heart failure does not distinguish among physician types.¹ In addition, while we agree that US patients had statistically increased rates of some comorbidities, the actual differences were small. Moreover, our multivariable models adjusted for these differences among cohorts.

Dr Laut and colleagues are concerned that our data demonstrating relatively high readmission rates in Denmark are not representative of the country's true performance, in part due to the lack of generalizability of RCT data to the real world. The primary aim of our study was to compare US patients to non-US patients. While we looked at readmission rates and median length of stay across individual non-US countries to demonstrate the substantial variation in rates, some countries enrolled relatively few patients in the study. For example, Danish patients accounted for only 171 patients (3.1%) in the study. Therefore, the confidence intervals for the adjusted 30-day readmission rates for Denmark were wide and the odds of readmission among Danish patients vs US patients were not statistically different.

Laut et al also argue that RCT data are not suitable for this type of analysis given patients are highly selected and tend to have a better prognosis than real-world patients. However, as they acknowledge, this would tend to underestimate readmission rates. In addition, the APEX-AMI trial enrolled a relatively high-risk STEMI cohort intended to be treated with primary percutaneous coronary intervention.²

In addition, Laut et al argue that readmissions within the first 5 days after admission may be erroneous, representing transfer back to the patient's original hospital. However, for our primary end point, we only considered readmissions after discharge from the index hospitalization. Given the care-

ful nature of data collection in this RCT population, our results are most likely to be accurate. Unfortunately, we did not capture the reasons for nonelective postdischarge readmissions and, thus, cannot provide this information. We agree with Laut et al that noncardiac readmissions may not be a good metric to judge hospital care of STEMI patients, yet all-cause readmission rate is one of the standard metrics used by the Centers for Medicare & Medicaid Services to judge hospital acute MI performance and is reported publicly.

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Conflict of Interest Disclosures: The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Dr Lopes reported receiving payment for lectures from Bristol-Myers Squibb. Drs Kociol and Patel reported no disclosures.

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Dietary Protein and Weight Gain

To the Editor: When people overeat, diet composition should affect the amount of excess energy available for storage based on the difference in amount of adenosine triphosphate required for the initial steps of metabolism for each macronutrient. The intake of nutrients increases energy expenditure, in which the measured thermic effect is 0% to 3% for fat, 5% to 10% for carbohydrates, and 20% to 30% for proteins.¹ The higher the protein content and the lower the fat content of a diet, the lower the net availability of energy for body functions including energy storage. Thus, it is surprising that Dr Bray and colleagues² observed that protein content of the diet affected energy expenditure but not body fat storage. On the other hand, they stated that participants eating 40% more energy intake than required for weight stabilization stored 90% of the extra energy as fat when fed a low protein diet (containing 5% of energy from protein) and stored only about 50% of the excess energy as fat when fed a normal or high protein diet (containing 15% or 25% of energy from protein, respectively).

There is thus an inconsistency in the presentation of the findings of the study. When individuals overeat and 90% of the extra energy is stored as fat when fed a low protein diet and about 50% of the excess energy is stored as fat when fed a normal or high protein diet, the conclusion that dietary protein content does not affect body fat storage does not seem to follow. Total energy expenditure increased by an equivalent of about 50% of the excess intake in the participants fed a normal or high protein diet and showed no significant increase in those overfed a low protein diet.

Participants in the low protein group should have stored 5.6 kg of body fat instead of the 3.7 kg of body fat observed when overfed by 3.9 MJ/d for 56 days, while energy expenditure should not have changed. An explanation is an underestimation of energy requirement for weight maintenance in the low protein group, resulting in an overestimation of the overfeeding in this group. The explanation that higher fat intake in the low protein group reduced nutrient absorption and thus brought intake and expenditure closer together would require a fecal fat loss of more than 30 g/d. If so, one would not expect participants to get fat when the fat content of the diet is increased.³

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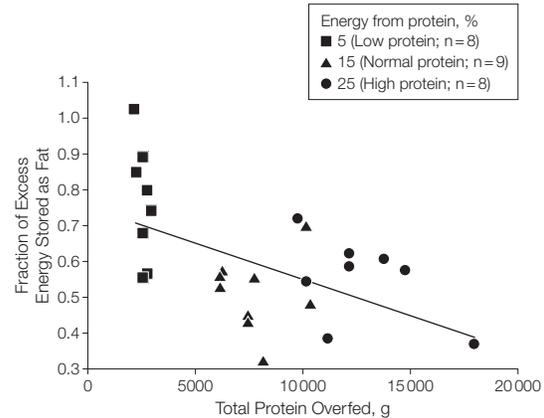
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In Reply: Dr Westerterp calculates that the individuals in our study eating the low protein diet should have gained more body fat than we reported. He thinks that differences in fecal fat loss between diets is not an adequate explanation, and we agree. He goes on to offer “an underestimation of energy requirement for weight maintenance” as a potential explanation.

To evaluate this suggestion, we first reexamined the differences between our weight-stabilized estimate of energy requirements and baseline energy expenditure, and found that they did not differ significantly between diet groups (low protein diet: -83 kcal/d [95% CI, -411 to 243 kcal/d]; normal protein diet: 177 kcal/d [95% CI, -146 to 503 kcal/d]; and high protein diet: 273 kcal/d [95% CI, -165 to 711 kcal/d]; $P=.28$), but cumulatively the low protein diet group ingested less total energy than the normal or high protein diet groups (low protein diet: 46 190 kcal [95% CI, 30 742 to 51 364 kcal]; normal protein diet: 54 819 kcal [95% CI, 47 527 to 62 111 kcal]; high protein diet: 50 666 kcal [95% CI, 43 200 to 58 131 kcal]; $P=.13$).

As noted in our study, there was no difference in the amount of body fat gained by the 3 different protein diet groups during overfeeding, although the low protein diet group stored 200 g (about 2000 kcal) more. To take these small, but not statistically significant, cumulative differences into account, we evaluated fat storage as a fraction of the total energy that was overfed. The FIGURE shows that when the protein intake was low, a higher percentage of the overfed energy (calories) was stored in fat. As the dietary protein intake increased, the fraction of the excess energy that was stored as fat declined. The low protein group stored

Figure. Energy Stored in Fat as a Fraction of Total Excess Calories



The diagonal line was created by a linear regression model.

on average 75% of excess energy as fat, the normal and high protein groups about 50%. This relationship is expressed in the following equation: fat stored/overfed energy = $0.75 - 0.0000202 \times (\text{grams of protein overfed})$ ($P < .005$). This analysis suggests that dietary protein affects nutrient partitioning of calories.

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Conflict of Interest Disclosures: The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Dr Bray reported that he has been a consultant to Abbott Laboratories and Takeda Global Research Institute; is an advisor to Medifast, Herbalife, and Global Direction in Medicine; has received royalties for the *Handbook of Obesity*; has received grants and support for travel from the US Department of Agriculture; and has received grants from the National Institutes of Health, Diabetes Prevention Program Outcomes Study, and LookAHEAD. Dr Redman and Smith reported no disclosures.

RESEARCH LETTER

2008 US Preventive Services Task Force Recommendations and Prostate Cancer Screening Rates

To the Editor: The US Preventive Services Task Force (USPSTF) recently drafted a grade D recommendation against prostate-specific antigen (PSA)-based screening for prostate cancer.¹ If this recommendation becomes final, how it will affect clinical practice remains unclear. In 2008, the USPSTF issued a grade D recommendation against PSA-based screening in men aged 75 years or older.² We evaluated changes in national screening rates before and after this recommendation.

Methods. According to federal regulations, the study was exempt from review by an institutional review board;

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