Background: Despite surging interest in taxation as a policy to address poor food choice, US research directly examining the association of food prices with individual intake is scarce.

Methods: This 20-year longitudinal study included 12,123 respondent days from 5,115 participants in the Coronary Artery Risk Development in Young Adults (CARDIA) Study. Associations between food price, dietary intake, overall energy intake, weight, and homeostatic model assessment insulin resistance (HOMA-IR) scores were assessed using conditional log-log and linear regression models.

Results: The real price (inflated to 2006 US dollars) of soda and pizza decreased over time; the price of whole milk increased. A 10% increase in the price of soda or pizza was associated with a −7.12% (95% confidence interval [CI], −63.50 to −10.71) or −11.5% (95% CI, −17.50 to −5.50) change in energy from these foods, respectively. A $1.00 increase in soda price was also associated with lower daily energy intake (−124 [95% CI, −198 to −30] kcal), lower weight (−1.05 [95% CI, −1.80 to −0.31] kg), and lower HOMA-IR score (0.42 [95% CI, −0.60 to −0.23]); similar trends were observed for pizza. A $1.00 increase in the price of both soda and pizza was associated with greater changes in total energy intake (−181.49 [95% CI, −247.79 to −115.18] kcal), body weight (−1.65 [95% CI, −2.34 to 0.96] kg), and HOMA-IR (−0.45 [95% CI, −0.59 to −0.31]).

Conclusion: Policies aimed at altering the price of soda or away-from-home pizza may be effective mechanisms to steer US adults toward a more healthful diet and help reduce long-term weight gain or insulin levels over time.

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Although price policies, such as taxation, are beginning to be used as a means of addressing obesity, diabetes, and other nutrition-related health concerns, minimal research has been done to study how these price changes would have an impact on health outcomes. To date, this research has focused on broad ecological relationships, were conducted as small-scale experiments or used cross-sectional data rather than examining the direct effects of price on food and beverage intake over a long period.

To compensate for food environments where healthful foods (ie, fresh fruits and vegetables) tend to cost more, public health professionals and politicians have suggested that foods high in calories, saturated fat, or added sugar be subject to added taxes and/or that healthier foods be subsidized. Such manipulation of food prices has been a mainstay of global agricultural and food policy, used as a means to increase availability of animal foods and basic commodities, but it has not been readily used as a mechanism to promote public health and chronic disease prevention efforts.

To properly examine the total health effect of price changes, it is necessary to examine direct and indirect effects of price changes on dietary intake. This includes (1) the direct price elasticity of demand, defined as the measure of responsiveness in the quantity demanded for a commodity as a result of change in price of that same commodity, and (2) indirect effects on complements and substitutes, namely other foods for which consumption might be affected by price changes of a given food. For example, one could examine changes in consumption of fruit juice or milk in response to changes in the price of soft drinks.
Using directly measured individual-level consumption and health-outcome data linked with community price data (specific to each individual’s time-varying residential location at the time dietary data were collected), we investigated the secular trends in selected food and beverage prices and their association with consumption (price elasticity of demand), total energy intake, weight, and homeostasis model assessment of insulin resistance (HOMA-IR) score over a 20-year period in the Coronary Artery Risk Development in Young Adults (CARDIA) Study.

**METHODS**

### STUDY POPULATION

The CARDIA Study is a multicenter, longitudinal study of the determinants and evolution of cardiovascular disease risk in black and white young adults. The CARDIA participants were drawn from 1 of 4 US cities, with recruitment procedures designed to create a balanced representation of age, sex, ethnicity, and education group in each location. The baseline survey was completed by 5113 young adults, aged 18 to 30 years. Follow-up examinations were conducted at 5, 7, 10, 15, and 20 years after baseline, with retention rates of 91%, 86%, 81%, 79%, 74%, and 72%, respectively. Data from examination years 0 (1985-1986), 7 (1992-1993), and 20 (2005-2006) were used for this study, since these are the years in which dietary data were collected. Detailed descriptions of the sampling plan and cohort characteristics are described elsewhere.23-25

### FOOD PRICES

Food price data were compiled by the Council for Community and Economic Research (C2ER, formerly known as the American Chamber of Commerce Research Association).25 From the available price data, we selected the following beverage and food variables based on comparability with individual-level food consumption data in the CARDIA Study: soft drink (2-L bottle of soda), whole milk (one-half gallon [1.9 L]), hamburger (one-quarter pound [0.113 kg] burger, purchased away-from-home), and pizza (12-13 in [29.4-33.0 cm] cheese, thin crust purchased away from home). We also include a selection of prices of hypothesized complementary and replacement foods and beverages: beer (6 pack, 12-fl oz [360-mL] bottles), wine (1.5-L bottle), coffee (1-lb [0.45-kg] can of ground coffee), bananas (1 lb), steak (1 lb, US Department of Agriculture [USDA] choice), parmesan cheese (8 oz [224 g], grated), and fried chicken (pieces, thigh and drumstick, purchased away from home). To account for inflation, we used the consumer price index (CPI)24 of year 2006, third quarter (CPI=100%) as the home. To account for inflation, we used the consumer price index (CPI)24 of year 2006, third quarter (CPI=100%) as the baseline to inflate the nominal values for all prices to 2006 dollars. We linked price data to CARDIA Study respondents temporally (based on the year and quarter of CARDIA Study examination dates) and spatially (based on the respondent’s residential location at each time point). A more detailed description of price data and our imputation strategy is provided in the eAppendix (http://www.archinternmed.com).

### DIETARY ASSESSMENT

Usual dietary intake was assessed using the CARDIA Study diet history followed by a comprehensive quantitative food frequency questionnaire. The CARDIA diet history is a valid and reliable26 interviewer-administered questionnaire.26 We used 2 beverage and 2 away-from-home food categories: whole milk (fluid milk only—not powdered, evaporated, or condensed or fluid milk used in recipes), soft drinks (sweetened), hamburgers (sandwich or fast food), and pizza (frozen or restaurant).

### ANTHROPOMETRICS AND INSULIN RESISTANCE

Measured height (nearest 0.5 cm) and weight (nearest 0.1 kg) were collected by trained technicians. Fasting insulin and glucose levels were obtained by venous blood draw. Glucose was measured using hexokinase coupled to glucose-6-phosphate dehydrogenase. The HOMA-IR score, a measure of insulin resistance, was calculated as:

\[
\text{HOMA-IR} = \frac{\text{fasting insulin} \times \text{fasting glucose}}{22.5}
\]

Higher scores are indicative of increased insulin sensitivity.

### COVARIATES

At each examination period, self-reported information on sociodemographic and selected health behaviors was collected using standardized questionnaires, including age, education (completed elementary school, ≤3 years of high school, 4 years of high school, ≤3 years of college, or ≥4 years of college), income (low [<$25 000], middle [$25 000 to <$50 000], and high [$≥$50 000]), and family structure (married, single, married with children, and single with children). Physical activity (in exercise units per week) was assessed using the CARDIA Study physical activity questionnaire.28 All models also adjusted for the cost of living. A detailed description of cost of living data is provided in the eAppendix.

### STATISTICAL ANALYSIS

All analyses were completed in Stata version 10 statistical software (StataCorp, College Station, Texas). Descriptive statistics of beverage prices, energy (measured in kilocalories) per person and per consumer from each food group, and percentage consuming each food group were compared across the 3 examination periods, with statistical significance set at the P < .05 level (2-tailed test).

For analysis of price elasticity (the ratio of a percentage change in consumption to percentage change in price), we used 2-step marginal effect models in which the resulting estimates are weighted means of the association between changes in price with changes in consumption. These models first estimate the association between price change on the probability of consuming a food or beverage (step 1) and then the association between price change and the quantity consumed among consumers (step 2).29 Models were clustered on the individual (to correct standard errors for multiple observations and possible differences in variance), and estimates and standard errors were generated using 1000 replications.30 We tested and did not find a statistically significant interaction between logged price values and income or logged price values and time (likelihood ratio test, P > .10). A more detailed description of the 2-step marginal effect method is available in the eAppendix.

We examined own-price and cross-price elasticities. Own-price elasticity is defined as the percentage change in consumption associated with a percentage change in price. Cross-price elasticity is the percentage change in consumption of the first good associated with a percentage change in the price of a second good; their inclusion is necessary for proper evaluation of the total effect of changes in food price on diet and health. For example, to fully understand how change in soda price is associated with change in total energy, we need to also under-
stand how the change in soda price is associated with change in intake of whole milk (a potential substitute) or pizza (a potential complement).

Finally, we examined the association between daily total energy intake, body weight, and HOMA-IR with price using pooled ordinary least square regression models, clustered on the individual. For each model, the continuous food and beverage prices, in 2006 US dollars, for a 2-L bottle of soda (“soda”), a one-half gallon of whole milk (“whole milk”), a one-quarter pound hamburger purchased at a fast food restaurant (“burger”), and a 13-in cheese pizza, regular crust, purchased away from home (“pizza”).

### RESULTS

In all models, participants’ observations were excluded if price data were incomplete (n = 3 observations) or the participant was pregnant (n = 69 observations). This resulted in a final sample size for all marginal effect estimates of n = 12 123 observations. In the HOMA-IR model, participants were further excluded if they were taking antidiabetic medication (n = 182 observations), resulting in final sample sizes for the longitudinal repeated measures regression models of n = 12 007 (for kilocalories), n = 11 972 (for weight), and n = 10 218 (for HOMA-IR score) observations.

### EXCLUSIONS

In all models, participants’ observations were excluded if price data were incomplete (n = 3 observations) or the participant was pregnant (n = 69 observations). This resulted in a final sample size for all marginal effect estimates of n = 12 123 observations. In the HOMA-IR model, participants were further excluded if they were taking antidiabetic medication (n = 182 observations), resulting in final sample sizes for the longitudinal repeated measures regression models of n = 12 007 (for kilocalories), n = 11 972 (for weight), and n = 10 218 (for HOMA-IR score) observations.

### Table 1. Descriptive Statistics for Price and Energy Consumption From Selected Food and Beverage Groups at Examination Years 0, 7, and 20 of the Coronary Artery Risk Development in Young Adults (CARDIA) Study

<table>
<thead>
<tr>
<th>Food/Beverage</th>
<th>Year 0</th>
<th>Year 7</th>
<th>Year 20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soda</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price, mean (SD), $</td>
<td>5115 2.71 (0.31)</td>
<td>5115 1.69 (0.17)</td>
<td>5115 1.42 (0.24)</td>
</tr>
<tr>
<td>Daily energy per person, mean (SE), kcalb</td>
<td>3943 100 (20)</td>
<td>3943 97 (22)</td>
<td>3943 64 (20)</td>
</tr>
<tr>
<td>Percentage consuming, mean (SE), %</td>
<td>3143 76.0 (7.8)</td>
<td>3143 66.7 (7.3)</td>
<td>3143 48.5 (8.4)</td>
</tr>
<tr>
<td>Daily energy per consumer, mean (SE), kcalc</td>
<td>3880 130 (13)</td>
<td>2591 143 (17)</td>
<td>1521 129 (19)</td>
</tr>
<tr>
<td><strong>Whole milk</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price, mean (SD), $</td>
<td>5115 2.00 (0.18)</td>
<td>5115 2.04 (0.12)</td>
<td>5115 2.24 (0.25)</td>
</tr>
<tr>
<td>Daily energy per person, mean (SE), kcalb</td>
<td>3943 100 (48)</td>
<td>3943 34 (16)</td>
<td>3943 16 (8)</td>
</tr>
<tr>
<td>Percentage consuming, mean (SE), %</td>
<td>3143 46.6 (7.8)</td>
<td>3143 25.8 (3.8)</td>
<td>3143 15.3 (2.3)</td>
</tr>
<tr>
<td>Daily energy per consumer, mean (SE), kcalc</td>
<td>2376 204 (69)</td>
<td>1002 129 (33)</td>
<td>481 101 (39)</td>
</tr>
<tr>
<td><strong>Burger</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price, mean (SD), $</td>
<td>5115 2.50 (0.18)</td>
<td>5115 2.65 (0.26)</td>
<td>5115 2.67 (0.22)</td>
</tr>
<tr>
<td>Daily energy per person, mean (SE), kcalb</td>
<td>3943 59 (25)</td>
<td>3943 49 (22)</td>
<td>3943 55 (21)</td>
</tr>
<tr>
<td>Percentage consuming, mean (SE), %</td>
<td>3143 52.1 (7.1)</td>
<td>3143 57.1 (7.7)</td>
<td>3143 57.1 (8.9)</td>
</tr>
<tr>
<td>Daily energy per consumer, mean (SE), kcalc</td>
<td>2660 110 (35)</td>
<td>2218 82 (27)</td>
<td>1792 57 (19)</td>
</tr>
<tr>
<td><strong>Pizza</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price, mean (SD), $</td>
<td>5115 13.48 (0.79)</td>
<td>5115 12.91 (1.23)</td>
<td>5115 10.80 (0.90)</td>
</tr>
<tr>
<td>Daily energy per person, mean (SE), kcalb</td>
<td>3943 95 (35)</td>
<td>3943 90 (32)</td>
<td>3943 48 (14)</td>
</tr>
<tr>
<td>Percentage consuming, mean (SE), %</td>
<td>3143 84.4 (1.8)</td>
<td>3143 84.6 (2.5)</td>
<td>3143 80.6 (3.0)</td>
</tr>
<tr>
<td>Daily energy per consumer, mean (SE), kcalc</td>
<td>4310 112 (39)</td>
<td>3285 105 (36)</td>
<td>2530 60 (16)</td>
</tr>
</tbody>
</table>

aPercentage consuming, per person, and per consumer estimates are age and sex adjusted and rounded to the nearest whole kilocalorie. Price data are real prices, in 2006 US dollars, for a 2-L bottle of soda (“soda”), a one-half gallon of whole milk (“whole milk”), a one-quarter pound hamburger purchased at a fast food restaurant (“burger”), and a 13-in cheese pizza, regular crust, purchased away from home (“pizza”).
b“Per consumer” estimates apply only to those individuals who consumed the food or beverage.
c“Per person” estimates apply to the entire sample and are derived from intake data of both consumers and nonconsumers of the specific food or beverage.
Cross-price elasticities tended to be smaller than own-price elasticities. For example, a 10% increase in the price of pizza was associated with a mean (SE) 3.11% (0.85)-lb (1.05 [0.38]-kg) lower weight (P = .01) (cross-price elasticity; Table 3) compared with increasing the price of just 1 of these foods. Price was also associated with total energy intake, body weight, and HOMA-IR scores (Figure 1). A $1.00 increase in the price of soda was associated with a mean (SE) of 124 (38) fewer total daily kilocalories (P = .001), a 2.34 (0.85)-lb (1.05 [0.38]-kg) lower weight (P = .006), and a 0.42 (0.10) lower HOMA-IR score (improved insulin resistance) (P < .001). The associations between price and the 3 outcomes were consistent (ie, the 3 dependent variables were in the same direction) for both away-from-home hamburgers and pizza, although the estimates only reached statistical significance for pizza.

Because of their strong cross-price elasticities, we also estimated the additive association of changing the price of soda, pizza, or soda and pizza on total daily energy intake, body weight, and HOMA-IR. A $1.00 increase in the price of both soda and pizza was associated with an additively greater change in total energy intake compared with increasing the price of just 1 of these foods. For example, increasing the price of soda or pizza alone resulted in a mean (SE) of 124 (38) (P = .001) and 58 (19) (P = .002) fewer total daily kilocalories, while a $1.00 increase in the price of both soda and pizza resulted in a mean (SE) of 181 (34) (P < .001) fewer total daily kilocalories. Similar patterns were observed for body weight and HOMA-IR scores (Figure 2).

### Table 2. Estimated Model Coefficients of the Association Between Price, the Probability of Consumption, and the Amount Consumed Among Consumers

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Probability</td>
<td>Probability With 10% Increase in Price</td>
<td>No.</td>
</tr>
<tr>
<td>Soda</td>
<td>0.66 (0.18)</td>
<td>0.64 (0.18)</td>
</tr>
<tr>
<td>Whole milk</td>
<td>0.32 (0.22)</td>
<td>0.32 (0.22)</td>
</tr>
<tr>
<td>Burger</td>
<td>0.55 (0.55)</td>
<td>0.55 (0.13)</td>
</tr>
<tr>
<td>Pizza</td>
<td>0.84 (0.09)</td>
<td>0.78 (0.10)</td>
</tr>
</tbody>
</table>

### Table 3. Price Elasticity of Percentage Change in Energy From Foods Associated With a 10% Change in the Price

<table>
<thead>
<tr>
<th>10% Increase in the Price</th>
<th>Soda</th>
<th>Whole Milk</th>
<th>Burger</th>
<th>Pizza</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda</td>
<td>-7.12 (1.83)b</td>
<td>4.11 (3.02)</td>
<td>-4.21 (2.61)</td>
<td>9.95 (3.95)b</td>
</tr>
<tr>
<td>Whole milk</td>
<td>-0.38 (1.85)</td>
<td>2.38 (2.24)</td>
<td>2.98 (2.56)</td>
<td>6.87 (3.72)</td>
</tr>
<tr>
<td>Burger</td>
<td>2.95 (1.74)</td>
<td>-0.39 (2.87)</td>
<td>2.03 (2.50)</td>
<td>-6.07 (3.72)</td>
</tr>
<tr>
<td>Pizza</td>
<td>3.11 (1.42)b</td>
<td>-1.71 (2.46)</td>
<td>1.47 (1.97)</td>
<td>-11.50 (3.06)b</td>
</tr>
</tbody>
</table>

### References

1. Cross-price elasticities were estimated using 1000 replications (n=12 123 observations). Specific food and beverage models also adjusted for the following covariates (these estimates are not shown): “soda,” logged price of wine; “whole milk,” logged price of coffee; “burger,” logged price of fried chicken, parmesan cheese, and steak; and “pizza,” logged price of fried chicken.

2. Estimates are statistically significantly different from zero (P < .05).

### Comments

Price manipulations on unhealthful foods and beverages have been proposed as a potential mechanism for improving the diet and health outcomes of Americans. While some argue that there is little evidence...
such a tax would improve health or have a positive impact on obesity rates. To our knowledge, no research has examined the direct and indirect total effects of such taxes on energy intake and subsequent changes in weight and other metabolic outcomes. Similar taxation policies have proven a successful means of effectively reducing adult and teenage smoking.33,34

Our results provide stronger evidence to support the potential health benefits of taxing selected foods and beverages. We report that an increase in the price of soda and pizza is associated with a significant decrease in daily energy intake from these foods. Price increases in soda and pizza were also associated with significant declines in overall daily energy intake, lower weight, and lower HOMA-IR scores over the 20-year study period. Furthermore, we report declines in the real (inflation-adjusted) prices of soda and away-from-home foods (foods that are commonly associated with increased caloric consumption and adverse health outcomes).35-39

Using our price elasticities and the sample’s mean daily energy, body weight, and HOMA-IR values, we estimate that an 18% tax, which is the level that was unsuccessfully proposed by the state of New York and is considered by others as a minimal tax, would result in a roughly 56-kcal decline in daily total energy intake among young to middle-aged adults (18 [proposed tax] × −0.1116978 [estimated elasticity] × 2811.9 kcal [mean daily kilocalories in our sample]). At the population level, declines of 56 kcal per day would be associated with a reduction of...
roughly 5 lb (2.25 kg) per person per year and significant reductions in the risks of most obesity-related chronic diseases. With respect to smoking, price elasticities were typically higher for children, teenagers, and elderly persons. If this is also true for beverages, the overall impact of this tax on all its citizens might be greater than that found herein among adults aged 20 to 54 years.

Our results are in the same direction as those reported elsewhere. In France and Italy, demand elasticity was negative and relatively small for fluid milk. Similar in direction but of greater magnitude, Barquera et al reported that 10% price increases were associated with a decline of roughly 7 and 23 kcal/d from whole milk and soda, respectively, in a sample of Mexican adolescents and adults. The difference in magnitude of effects between the US and Mexican sample may indicate that US adults are less price sensitive; however, a direct comparison is not possible owing to differences in dietary methodology (direct weighing and recipe collection vs food frequency questionnaire) and study design (cross-sectional vs longitudinal).

While there are many strengths as a result of using the CARDIA data, our analysis is limited by its focus on a small number of food and beverage groups. Additional and important substitution and complementary foods and beverages may exist and should be examined in future studies. The relationship between price and consumption of “healthful” food items (ie, raw fruits and vegetables) should also be examined; our price data did not allow for evaluation of these relationships. Furthermore, we were not able to capture the full range of substitutability for the foods and beverages examined (ie, using low-fat or skim milk if the price of whole milk increases or choosing another fast food sandwich if hamburger prices rise), and thus we might have failed to take into account important explanations for our outcomes. Ideally, a full set of prices and food groups would have been used and the association between price and overall health would have been examined with the demand approach frequently used by economists, the Almost Ideal Demand System. Finally, it is possible that some of these paired changes, ie, the price and consumption of soda, are parallel trends over time, which are associated with other unobserved factors and are not necessarily causally related. However, given that over a fifth of our sample experienced increased soft drink price, this is unlikely.

In our sample, income did not modify the relationship between price and consumption. Deeper exploration of the interactions between food price and income may be crucial in other samples. Finally, this study has limited generalizability to non-US and younger populations. However, adolescents have been observed to be much more responsive to price changes in cigarettes than adults. We expect the relationship for price changes in foods and beverages to be similar.

Despite these limitations, to our knowledge, ours is the first dietary behavior study in the United States to examine both the direct effects of a price change on intake of a particular food (own-price elasticity) and the indirect effects on substitutes and complementary foods (cross-price elasticities). Furthermore, by doing this over a long-term period, we adjust for individual heterogeneity and are able to draw conclusions about how an individual’s dietary behaviors would respond to changes in food price over a 20-year period. Finally, our findings highlight the substantial disparities between the fields of smoking and dietary behavior research; while there are extensive data sets on tobacco price and smoking behavior, there is a palpable scarcity of comparable data sets related to food price and dietary intake in the United States.

In conclusion, our findings suggest that national, state, or local policies to alter the price of less healthful foods and beverages may be one possible mechanism for steering US adults toward a more healthful diet. While such policies will not solve the obesity epidemic in its entirety and may face considerable opposition from food manufacturers and sellers, they could prove an important strategy to address overconsumption, help reduce energy intake, and potentially aid in weight loss and reduced rates of diabetes among US adults.

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Author Contributions: Drs Duffey and Popkin had full access to all of the data in the study and take full responsibility for the integrity of the data and the accuracy of the analysis. Study concept and design: Duffey, Gordon-Larsen, Guilkey, and Popkin. Acquisition of data: Jacobs and Popkin. Analysis and interpretation of data: Duffey, Gordon-Larsen, Shikany, Guilkey, Jacobs, and Popkin. Drafting of the manuscript: Duffey. Critical revision of the manuscript for important intellectual content: Gordon-Larsen, Shikany, Guilkey, Jacobs, and Popkin. Statistical analysis: Duffey, Gordon-Larsen, Guilkey, and Jacobs. Obtained funding: Duffey, Gordon-Larsen, Jacobs, and Popkin. Administrative, technical, and material support: Gordon-Larsen and Popkin. Study supervision: Gordon-Larsen, Jacobs, and Popkin.

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REFERENCES

ized, only 20,938 were included in the analyses), the final result—that an automated telephone outreach with speech recognition (ATO) intervention failed to increase rates of colorectal cancer (CRC) screening—contributes to the evidence base on effective vs ineffective screening improvement interventions.

Extant literature supports the importance of patient-physician communication to patient adherence with CRC screening. It is not surprising that telehealth outreach using live human contact plus reminders was successful at improving rates of CRC screening while ATO without reminders was not. The findings of the study by Simon et al, therefore, concur with the cumulative evidence base and underscore that the method of patient-centric care delivery matters.

In this context, it is also important to highlight sex differences in CRC screening. Although Simon et al did not analyze their data in this way, sex differences, which we and others reported in observational studies (Table), might provide insight into novel approaches to CRC screening improvement strategies.

Evidence to date would suggest that we are still far from understanding the key determinants of successful screening strategies for CRC. In this era of personalized medicine, subanalysis should be a minimum requirement before we decide to adopt or reject affordable interventions that have the potential to save lives.

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Table. Selected Studies Showing Sex-Specific Differences in Colorectal Cancer Screening

<table>
<thead>
<tr>
<th>Study Outcome</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of CRC screening</td>
<td>Greater percentage of men vs women attended9</td>
</tr>
<tr>
<td>Up-to-date with CRC screening</td>
<td>Women less likely than men to be up-to-date with screening8</td>
</tr>
<tr>
<td></td>
<td>In men, being up-to-date with screening did not differ across demographic characteristics5</td>
</tr>
<tr>
<td></td>
<td>In women, a greater proportion who were up-to-date with screening were aged 65-74 years and had incomes above $75,0006</td>
</tr>
<tr>
<td>Use of diagnostic colonic procedures</td>
<td>Men were more likely to use colonoscopy; women were more likely to use barium enema and sigmoidoscopy6</td>
</tr>
<tr>
<td>Adherence to CRC screening referral</td>
<td>Greater adherence found among men given their preferred screening modality and among women with prior CRC screening9</td>
</tr>
<tr>
<td>Use of flexible sigmoidoscopy</td>
<td>A smaller proportion of women vs men underwent flexible sigmoidoscopy for screening and diagnostic indications4</td>
</tr>
<tr>
<td>FOBT vs endoscopy</td>
<td>A greater proportion of women vs men used FOBT in the prior year and lifetime; a greater proportion of men underwent repeated endoscopy6</td>
</tr>
</tbody>
</table>

Abbreviations: CRC, colorectal cancer; FOBT, fecal occult blood test.


Correction

Error in Text. In the Original Investigation titled “Food Price and Diet and Health Outcomes: 20 Years of the CARDIA Study” by Duffey et al, published in the March 8 issue of the Archives (2010;170(5):420-426), an error occurred in the first sentence of the third paragraph of the Comment section on page 424. The sentence should have read as follows: “Using our price elasticities and the sample’s mean daily energy, body weight, and HOMA-IR values, we estimate that an 18% tax, which is the level that was unsuccessfully proposed by the state of New York and is considered by others as a minimal tax, would result in a roughly 104-kcal decline in daily total energy intake among young to middle-aged adults and reductions of 2 pounds per year.”