

Behavioral Counseling to Promote a Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults Without Cardiovascular Risk Factors

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE Adults who adhere to national guidelines for a healthful diet and physical activity have lower rates of cardiovascular morbidity and mortality than those who do not. All persons, regardless of their risk status for cardiovascular disease (CVD), can gain health benefits from healthy eating behaviors and appropriate physical activity.

OBJECTIVE To update the 2012 US Preventive Services Task Force (USPSTF) recommendation on behavioral counseling to promote a healthful diet and physical activity for cardiovascular disease prevention among adults without obesity who do not have cardiovascular risk factors (hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes).

EVIDENCE REVIEW The USPSTF reviewed the evidence on whether primary care–relevant counseling interventions to promote a healthful diet, physical activity, or both improve health outcomes, intermediate outcomes associated with CVD, or dietary or physical activity behaviors in adults; interventions to reduce sedentary behaviors; and the harms of behavioral counseling interventions.

FINDINGS Counseling interventions result in improvements in healthful behaviors and small but potentially important improvements in intermediate outcomes, including reductions in blood pressure and low-density lipoprotein cholesterol levels and improvements in measures of adiposity. The overall magnitude of benefit related to these interventions is positive but small. The potential harms are at most small, leading the USPSTF to conclude that these interventions have a small net benefit for adults without obesity who do not have CVD risk factors.

CONCLUSIONS AND RECOMMENDATION The USPSTF recommends that primary care professionals individualize the decision to offer or refer adults without obesity who do not have hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes to behavioral counseling to promote a healthful diet and physical activity. Existing evidence indicates a positive but small benefit of behavioral counseling for the prevention of CVD in this population. Persons who are interested and ready to make behavioral changes may be most likely to benefit from behavioral counseling. (C recommendation)

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- [← Editorial page 130](#)
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The US Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific clinical preventive services for patients without obvious related signs or symptoms.

It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.

Summary of Recommendation and Evidence

The USPSTF recommends that primary care professionals individualize the decision to offer or refer adults without obesity who do not have hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes to behavioral counseling to promote a healthful diet and physical activity. Existing evidence indicates a positive but small benefit of behavioral counseling for the prevention of cardiovascular disease (CVD) in this population. Persons who are interested and ready to make behavioral changes may be most likely to benefit from behavioral counseling (C recommendation) (Figure 1).

See the "Useful Resources" section for more information on how this recommendation fits into the USPSTF's suite of recommendations on CVD prevention.

Rationale

Importance

Cardiovascular disease, which includes myocardial infarction and stroke, is the leading cause of death in the United States.¹ Adults who adhere to national guidelines for a healthful diet and physical activity have lower rates of cardiovascular morbidity and mortality than those who do not. All persons, regardless of their CVD risk status, can gain health benefits from healthy eating behaviors and appropriate physical activity.²

Benefits of Behavioral Counseling Interventions

The USPSTF found adequate evidence that behavioral counseling interventions provide at least a small benefit for reduction of CVD risk in adults without obesity who do not have the common risk factors for CVD (hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes). Behavioral counseling interventions have been found to improve healthful behaviors, including beneficial effects on fruit and vegetable consumption, total daily caloric intake, salt intake, and physical activity levels. Behavioral counseling interventions led to improvements in systolic and diastolic blood pressure levels, low-density lipoprotein cholesterol (LDL-C) levels, body mass index (BMI), and waist circumference that persisted over 6 to 12 months. The USPSTF found inadequate direct evidence that behavioral counseling interventions lead to a reduction in mortality or CVD rates.

Harms of Behavioral Counseling Interventions

The USPSTF found adequate evidence that the harms of behavioral counseling interventions are small to none. Among 14 trials of behavioral interventions that reported on adverse events, none reported any serious adverse events.

USPSTF Assessment

The USPSTF concludes with moderate certainty that behavioral counseling interventions to promote a healthful diet and physical activity have a small net benefit in adults without obesity who do not have specific common risk factors for CVD (hypertension, dyslipidemia, abnormal blood glucose levels, and diabetes).

Although the correlation among healthful diet, physical activity, and CVD incidence is strong, existing evidence indicates that the health benefit of behavioral counseling to promote a healthful diet and physical activity among adults without obesity who do not have these specific CVD risk factors is small.

Clinical Considerations

Patient Population Under Consideration

This recommendation applies to adults 18 years or older who are of normal weight or overweight, with a BMI between 18.5 and 30 (calculated as weight in kilograms divided by the square of height in meters) (Figure 2). It does not apply to persons who have known CVD risk factors (hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes) or persons with obesity or who are underweight.

Behavioral Counseling Interventions

The USPSTF reviewed 88 trials with more than 120 distinct interventions focused on promoting a healthful diet, physical activity, or both. Dietary messages documented in the interventions typically focused on general heart-healthy eating patterns (increased consumption of fruits, vegetables, fiber, and whole grains; decreased consumption of salt, fat, and red and processed meats).^{3,4} This guidance is generally consistent with major dietary recommendations, including the US Department of Health and Human Services' 2015-2020 Dietary Guidelines for Americans.⁵ Similarly, national guidelines suggest that US adults should perform at least 150 minutes of moderate-intensity or at least 75 minutes of vigorous-intensity physical activity per week, or an equivalent combination of moderate- and vigorous-intensity physical activity, and also should perform strengthening activities at least twice per week.⁶ Physical activity messages used in the reviewed interventions emphasized gradually increasing aerobic activities to recommended levels, with many studies emphasizing walking.³

Interventions categorized as low intensity included print- or web-based materials with tailored feedback and tools for behavior change, ranging from 1-time mailings to monthly mailings over 3 years. Medium- and high-intensity interventions commonly included face-to-face individual or group counseling or both, with telephone, email, and text message follow-up. These more intensive interventions ranged in duration from 4 weeks to 6 years, with the active intervention period often lasting for 6 months. Interventions were delivered by primary care clinicians, health educators, behavioral health specialists, nutritionists or dietitians, exercise specialists, and lay coaches. Behavioral change techniques included

Figure 1. US Preventive Services Task Force (USPSTF) Grades and Levels of Certainty

| What the USPSTF Grades Mean and Suggestions for Practice | | |
|--|--|---|
| Grade | Definition | Suggestions for Practice |
| A | The USPSTF recommends the service. There is high certainty that the net benefit is substantial. | Offer or provide this service. |
| B | The USPSTF recommends the service. There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial. | Offer or provide this service. |
| C | The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small. | Offer or provide this service for selected patients depending on individual circumstances. |
| D | The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. | Discourage the use of this service. |
| I statement | The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. | Read the Clinical Considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms. |

| USPSTF Levels of Certainty Regarding Net Benefit | |
|---|---|
| Level of Certainty | Description |
| High | The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies. |
| Moderate | The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as the number, size, or quality of individual studies. inconsistency of findings across individual studies. limited generalizability of findings to routine primary care practice. lack of coherence in the chain of evidence. As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion. |
| Low | The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of the limited number or size of studies. important flaws in study design or methods. inconsistency of findings across individual studies. gaps in the chain of evidence. findings not generalizable to routine primary care practice. lack of information on important health outcomes. More information may allow estimation of effects on health outcomes. |
| The USPSTF defines certainty as “likelihood that the USPSTF assessment of the net benefit of a preventive service is correct.” The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service. | |

goal setting and planning, monitoring and feedback, motivational interviewing, addressing barriers to change, increasing social support, and general education and advice. Adherence to all interventions was relatively high; adherence to high-intensity interventions was generally lower than for less-intensive interventions. Overall, there appeared to be a dose-response effect, with higher-intensity interventions demonstrating greater and statistically significant benefits. However, this dose-response effect was not seen for interventions targeting physical activity only, among which some low-intensity interventions demonstrated benefit.³

Additional Approaches to Prevention

The USPSTF recognizes the important contributions of public health approaches to improving diet, increasing physical activity

levels, and preventing CVD. The Community Preventive Services Task Force recommends several community-based interventions to promote physical activity, including community-wide campaigns, social support interventions, school-based physical education, and environmental and policy approaches. It also recommends programs promoting healthful diet and physical activity for persons at increased risk for type 2 diabetes on the basis of strong evidence of the effectiveness of these programs in reducing the incidence of new-onset diabetes.⁷

Useful Resources

The USPSTF has evaluated the evidence on several aspects of CVD prevention in adults with and without common risk factors, including behavioral counseling interventions to promote a healthful diet

Figure 2. Clinical Summary: Behavioral Counseling to Promote a Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults Without Cardiovascular Risk Factors

| | |
|---------------------------------------|---|
| Population | Adults without obesity who do not have known CVD risk factors |
| Recommendation | Individualize the decision to offer or refer adults to behavioral counseling to promote a healthful diet and physical activity. Grade: C |
| Risk Assessment | Adults who adhere to national guidelines for a healthful diet and physical activity have lower rates of cardiovascular morbidity and mortality than those who do not. All persons, regardless of their CVD risk status, can gain health benefits from healthy eating behaviors and appropriate physical activity. |
| Interventions | Dietary counseling interventions typically focused on general heart-healthy eating patterns (increased consumption of fruits, vegetables, fiber, and whole grains; decreased consumption of salt, fat, and red and processed meats). Physical activity interventions emphasized gradually increasing aerobic activities to recommended levels, with many studies emphasizing walking. Interventions categorized as low intensity included print- or web-based materials with tailored feedback and tools for behavior change, ranging from 1-time mailings to monthly mailings over 3 years. Medium- and high-intensity interventions commonly included face-to-face individual or group counseling or both, with telephone, email, and text message follow-up. |
| Balance of Benefits and Harms | The USPSTF concludes with moderate certainty that behavioral counseling interventions to promote a healthful diet and physical activity have a small net benefit in adults without obesity who do not have specific common risk factors for CVD (hypertension, dyslipidemia, abnormal blood glucose levels, and diabetes). |
| Other Relevant USPSTF Recommendations | The USPSTF has recommendations on several aspects of CVD prevention in adults with and without common risk factors, including behavioral counseling interventions to promote a healthful diet and physical activity for CVD prevention in adults with cardiovascular risk factors, screening for and management of obesity in adults, screening for abnormal blood glucose levels and type 2 diabetes mellitus, screening for high blood pressure, use of statin medications in persons at risk for CVD, screening and counseling for tobacco smoking cessation, and aspirin use for CVD primary prevention. These recommendations are available on the USPSTF website (https://www.uspreventiveservicestaskforce.org). |

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to <https://www.uspreventiveservicestaskforce.org>.



CVD indicates cardiovascular disease; USPSTF, US Preventive Services Task Force.

and physical activity for CVD prevention in adults with cardiovascular risk factors,⁸ screening for and management of obesity in adults,⁹ and screening for abnormal blood glucose levels and type 2 diabetes mellitus.¹⁰

In other recommendation statements, the USPSTF had recommended screening for high blood pressure,¹¹ use of statin medications in persons at risk for CVD,¹² screening and counseling for tobacco smoking cessation,¹³ and aspirin use in certain persons for CVD primary prevention.¹⁴

In addition, the US Department of Health and Human Services has published national dietary and physical activity guidelines for Americans.^{5,6}

Other Considerations

Although the evidence review that supports this recommendation did not exclude studies that enrolled persons who were overweight or had obesity, the USPSTF had previously commissioned a separate evidence review focused on screening for and management of obesity in adults.¹⁵ Based on that review, the USPSTF recommended offering or referring adults with obesity to intensive, multicomponent behavioral interventions (B recommendation).⁹

To highlight this benefit, the USPSTF decided to exclude persons with obesity from the current recommendation.

In a separate recommendation statement, the USPSTF recommended offering or referring adults to intensive behavioral counseling interventions to promote a healthful diet and physical activity if they are overweight and have hypertension, dyslipidemia, or other CVD risk factors.⁸ The USPSTF recognizes that persons with hypertension or dyslipidemia who are not overweight or do not have obesity are likely to receive at least as great a benefit from behavioral counseling as adults without these risk factors. The USPSTF therefore suggests that health care professionals also consider offering or referring adults who are not overweight or do not have obesity but who have hypertension, dyslipidemia, or both to behavioral counseling on an individual basis.

Research Needs and Gaps

The USPSTF found very limited evidence on the effect of behavioral interventions to reduce sedentary behaviors. Given the link between sedentary behaviors and cardiovascular risk, this is an important area for future research. Continued research on individually tailored, computer-based interventions that can be delivered via the internet, social media, and text messaging is needed. Novel research methods should be applied to

Table. Summary of Related USPSTF Recommendations

| Risk Factors | Normal Weight (BMI 18.5 to <25) ^a | Overweight (BMI 25 to <30) ^a | Obese (BMI ≥30) ^a |
|---|--|--|---|
| No hypertension, dyslipidemia, or abnormal blood glucose levels | Individualize the decision to provide or refer to behavioral counseling ^b | Individualize the decision to provide or refer to behavioral counseling ^b | Provide or refer to intensive behavioral counseling ⁹ |
| Hypertension, dyslipidemia, or both | Individualize the decision to provide or refer to behavioral counseling ^c | Provide or refer to intensive behavioral counseling ⁸ | Provide or refer to intensive behavioral counseling ^{8,9} |
| Abnormal blood glucose levels or diabetes | Provide or refer to intensive behavioral counseling ^d | Provide or refer to intensive behavioral counseling ^{8,10} | Provide or refer to intensive behavioral counseling ⁸⁻¹⁰ |

Abbreviations: BMI, body mass index; USPSTF, US Preventive Services Task Force.

^a BMI calculated as weight in kilograms divided by the square of height in meters.

^b From this recommendation statement.

^c From the "Other Considerations" section of this recommendation statement.

^d The USPSTF recommends screening for abnormal blood glucose levels as part

of cardiovascular risk assessment in adults aged 40 to 70 years who are overweight or have obesity. Patients with certain risk factors (family history of diabetes, personal history of gestational diabetes or polycystic ovarian syndrome, or being a member of certain racial/ethnic groups [African Americans, American Indians or Alaskan Natives, Asian Americans, Hispanics or Latinos, or Native Hawaiians or Pacific Islanders]) may also be at increased risk of diabetes at a younger age or at a lower BMI and should be considered for screening.¹⁰

understand longer-term health effects of behavioral interventions and to improve understanding of the association between changes in behaviors, changes in intermediate risk factors, and improvements in health outcomes.

Discussion

Burden of Disease

Cardiovascular disease is the leading cause of death for men and women in the United States.¹ Despite overall reductions in death from heart disease and stroke over the past few decades, approximately 2200 persons in the United States die of CVD each day.¹⁶ Among adults 50 years and older in 2012, fewer than 40% were performing the recommended amount of physical activity (150 minutes per week of moderate activity or at least 75 minutes of vigorous activity), and fewer than 2% met criteria for an ideal diet. While nearly 50% of adults aged 20 to 49 years were meeting physical activity guidelines, even fewer (1.3% vs 1.8%) were meeting dietary guidelines.¹⁶ By not eating a healthful diet and being physically active, US adults without obesity who do not have CVD risk factors (hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes) increase their risk for developing these risk factors and for developing CVD.

Scope of Review

The evidence review for this recommendation addressed whether primary care–relevant counseling interventions to promote a healthful diet, physical activity, or both improve health outcomes, intermediate outcomes associated with CVD, or dietary or physical activity behaviors in adults. Because the focus of this recommendation is adults without known CVD risk factors, the evidence review excluded studies that targeted persons with known CVD, hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes. Included intervention studies could enroll persons who were overweight or had obesity, but studies focusing solely on weight loss (and not healthful eating, being physically active, or both) were excluded. These types of interventions have been included in evidence reviews supporting other USPSTF recommendations (see the "Useful Resources" section and the Table). All of the included studies reported at least 1 health outcome (ie, morbidity or mortality), intermediate CVD outcome (ie, systolic blood pressure or lipid level),

or behavioral outcome (ie, amount of physical activity per week or fruit and vegetable consumption).³ All included interventions were judged to be either feasible for delivery in a primary care setting or referable from a primary care setting to community resources. Interventions that focused on supervised exercise or controlled diets were not included.

The evidence review also examined interventions to reduce sedentary behavior, as well as the harms of behavioral counseling interventions.

Effectiveness of Behavioral Counseling Interventions

The evidence review included 88 trials (involving 121 190 individuals and 121 distinct intervention groups).³ Interventions that targeted both a healthful diet and physical activity were evaluated in 23 trials, healthful diet only was evaluated in 24 trials, and physical activity only was evaluated in 44 trials. Of the 121 trial intervention groups, 40 were categorized as low intensity (solely print materials or ≤30 minutes of contact time), 55 as medium intensity (31 minutes to 6 hours of contact time), and 26 as high intensity (>6 hours of contact time).

Patient Health Outcomes

The USPSTF considered 4 trials (involving 51 356 individuals) that reported on mortality,¹⁷⁻²⁰ all of which focused exclusively on promoting a healthful diet. Healthful diets were associated with reduced saturated fat, sodium, and total caloric energy intake and increased intake of fruits, vegetables, and fiber. Few deaths occurred in these trials, and no significant effect was seen in all-cause or CVD-related mortality. Three of these trials also reported on cardiovascular events.¹⁸⁻²⁰ One large trial found no significant difference in major coronary heart disease events,²⁰ while the other 2 trials showed a significant decrease in myocardial infarctions, strokes, and revascularization over 10 to 15 years of follow-up (hazard ratio, 0.70 [95% CI, 0.53 to 0.94]). The results, however, were not statistically significant when revascularization was removed from the outcome measure.^{18,19}

Ten studies examined the effect of behavioral interventions on health-related quality of life. Seven of these studies exclusively targeted increasing physical activity levels. Overall, these behavioral interventions appeared to improve self-reported measures of health-related quality of life, although the effect was not consistent across the 36-Item Short-Form Health Survey subscales.³

Intermediate Health Outcomes

The USPSTF considered 34 trials, involving more than 75 000 persons, that reported on intermediate outcomes such as blood pressure level, LDL-C level, and BMI.³ Most of the interventions in these trials were categorized as medium or high intensity. When all good- and fair-quality intervention trials were pooled, they demonstrated statistically significant improvements in systolic blood pressure level (−1.26 mm Hg [95% CI, −1.77 to −0.75]), diastolic blood pressure level (−0.49 mm Hg [95% CI, −0.82 to −0.16]), LDL-C level (−2.58 mg/dL [95% CI, −4.30 to −0.85]), total cholesterol level (−2.85 mg/dL [95% CI, −4.95 to −0.75]), and adiposity measures such as BMI (−0.41 [95% CI, −0.62 to −0.19]), weight (−1.04 kg [95% CI, −1.56 to −0.51]), and waist circumference (1.19 cm [95% CI, −1.79 to −0.59]).³ There was no evidence of an association between behavioral counseling interventions and improvements in levels of high-density lipoprotein cholesterol, triglycerides, or fasting glucose when the interventions were pooled. Among the intermediate outcomes showing a positive association, dose-response effects were seen, with increasing intervention intensity associated with greater improvement in intermediate outcomes. There was limited evidence for effects lasting beyond 12 months.

Health Behavior Outcomes

The USPSTF reviewed 86 trials, involving more than 115 000 persons, that reported on behavioral outcomes such as fruit and vegetable consumption, salt intake, and minutes per week of physical activity.³ Almost all trials used self-reported measures for behavioral outcomes. Although substantial statistical heterogeneity prevented pooled analysis, in general, healthful diet interventions were associated with reduced saturated fat, sodium, and total caloric energy intake and increased fruit and vegetable and fiber intake. Physical activity interventions resulted in an increase of approximately 35 minutes of physical activity per week and 32% higher odds of meeting recommended physical activity guidelines.³ Studies that limited enrollment to persons who did not meet physical activity guidelines at baseline had greater increases in physical activity levels compared with studies that included persons who were already active at baseline.³

Among the 32 trials reporting both intermediate and behavioral outcomes, concordant changes were generally seen in behavioral outcomes when positive findings were seen in intermediate outcomes.³ For example, trials that found significant improvements in blood pressure levels generally also found significant reductions in measures of sodium intake. Studies that found reductions in waist circumference also reported increased physical activity levels. Several studies demonstrated improvements in behavioral outcomes but did not find concordant improvements in intermediate outcomes.

The USPSTF found 4 trials that reported on measures of sedentary behavior.³ Although there were some small but significant effects, the results were not consistent.

Potential Harms of Behavioral Counseling Interventions

Of the 88 trials reviewed by the USPSTF, 14 specifically reported on adverse events.³ No trials reported any serious adverse events related to the counseling intervention. Eight trials reported on the incidence of important patient events, including falls, injuries, and cardiovascular events. Seven trials found no difference between intervention and control groups. One trial in women aged 40 to 74

years reported more injuries among intervention participants over 24 months of follow-up (19% vs 14%; $P = .03$). This trial also reported more falls in the intervention group (37% vs 29%; $P < .001$).²¹ Four other trials reporting falls, 2 in older adults and 2 in general primary care populations, found no difference between intervention and control groups over 12 months of follow-up.

Estimate of Magnitude of Net Benefit

The USPSTF assessed the overall effectiveness of behavioral counseling interventions to promote a healthful diet and physical activity to be positive but small. Counseling interventions result in improvements in healthful behaviors and small but potentially important improvements in intermediate outcomes, including reductions in blood pressure and LDL-C levels and improvements in measures of adiposity. Noting the concordance between behavioral and intermediate outcomes and the apparent dose-response effect of behavioral interventions on intermediate and behavioral outcomes, the USPSTF concluded that the evidence is adequate to establish the benefits of behavioral counseling interventions. The USPSTF concluded that the overall magnitude of benefit related to these interventions for persons without obesity who do not have hypertension, dyslipidemia, abnormal blood glucose levels, or diabetes is positive but small. The potential harms are at most small, leading the USPSTF to conclude that these interventions have a small net benefit for this population.

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF website from November 29, 2016, to January 2, 2017. A small number of comments were received, and all were reviewed by the USPSTF. A few respondents encouraged the USPSTF to issue separate recommendations for behavioral counseling interventions to promote a healthful diet and interventions to promote physical activity. Other respondents felt that the evidence base was different for the 2 types of behavioral counseling interventions and suggested that the USPSTF assign separate and different grades. The USPSTF carefully reviewed the evidence on interventions that promoted a healthful diet only, those that promoted physical activity only, and those that promoted both. The USPSTF recognizes that the evidence base for these interventions varies, and although the evidence for behavior change was greater for interventions focusing on physical activity, there were no meaningful differences in intermediate or overall health outcomes. After reviewing the evidence, the USPSTF reaffirmed its conclusion that there is a positive but small benefit of behavioral counseling interventions to promote a healthful diet, physical activity, or both in persons who do not have CVD risk factors. Patients and health care professionals can decide together, based on patient interest and the availability of local resources, whether a focus on a healthful diet, physical activity, or both is most appropriate. Several comments agreed with the USPSTF's inclusion of language reinforcing the established benefits of healthful lifestyle behaviors and encouraged better definition of the nature of behavioral counseling interventions. The USPSTF retained its emphasis that all patients can gain health benefits from a healthful diet and appropriate physical activity and added language defining both. The USPSTF also clarified that the recommended behavioral counseling interventions are more intensive than just general promotion of a healthful diet and physical activity.

Update of Previous USPSTF Recommendation

This is an update of the 2012 USPSTF recommendation.²² In 2012, the USPSTF recommended that primary care professionals selectively provide or refer patients who do not have hypertension, dyslipidemia, diabetes, or CVD to behavioral counseling to promote a healthful diet and physical activity rather than incorporating counseling into the routine care of all adults. The current recommendation is based on a new systematic evidence review that included 50 trials from the previous review and an additional 38 new trials. The current recommendation is similar to the previous recommendation. Given the recent publication of recommendations focused on behavioral counseling in adults at higher risk for CVD,⁸ adults with obesity,⁹ and adults with abnormal blood glucose levels or diabetes,¹⁰ the current recommendation focuses on persons without these risk factors.

Recommendations of Others

In 2010, the American Heart Association²³ recommended that clinicians use counseling interventions to promote a healthful diet and physical activity that include a combination of 2 or more of the following strategies: setting specific, proximal goals; providing feedback on progress; providing strategies for self-monitoring; establishing a plan for frequency and duration of follow-up; using motivational interviews; and building self-efficacy. The recommendations suggest that intervention support should be offered to all patients. Previous statements by the American Academy of Family Physicians²⁴ about behavioral counseling to promote a healthful diet and physical activity have been consistent with those of the USPSTF. The American College of Physicians does not currently have a clinical recommendation on behavioral counseling to promote a healthful diet or physical activity in adults.

ARTICLE INFORMATION

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REFERENCES

- Centers for Disease Control and Prevention, National Center for Health Statistics. Leading causes of death, 2015. <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>. Accessed May 1, 2017.
- Ford ES, Bergmann MM, Boeing H, Li C, Capewell S. Healthy lifestyle behaviors and all-cause mortality among adults in the United States. *Prev Med*. 2012;55(1):23-27.
- Patnode CD, Evans CV, Senger CA, Redmond N, Lin JS. *Behavioral Counseling to Promote a Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults Without Known Cardiovascular Disease Risk Factors: An Updated Systematic Review for the US Preventive Services Task Force*. Evidence Synthesis No. 152. Rockville, MD: Agency for

Healthcare Research and Quality; 2017. AHRQ publication 15-05222-EF-1.

4. Patnode CD, Evans CV, Senger CA, Redmond N, Lin JS. Behavioral counseling to promote a healthful diet and physical activity for cardiovascular disease prevention in adults without known cardiovascular disease risk factors: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. doi:10.1001/jama.2017.3303

5. US Department of Health and Human Services and US Department of Agriculture. 2015-2020 dietary guidelines for Americans, eighth edition. <https://health.gov/dietaryguidelines/2015/guidelines/>. 2015. Accessed May 1, 2017.

6. US Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans*. Washington, DC: US Department of Health and Human Services; 2008. ODPHP publication U0036.

7. Community Preventive Services Task Force. Diabetes: combined diet and physical activity promotion programs to prevent type 2 diabetes among people at increased risk. <https://www.thecommunityguide.org/findings/diabetes-combined-diet-and-physical-activity-promotion-programs-prevent-type-2-diabetes>. 2014. Accessed May 1, 2017.

8. LeFevre ML; U.S. Preventive Services Task Force. Behavioral counseling to promote a healthful diet and physical activity for cardiovascular disease prevention in adults with cardiovascular risk factors: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med*. 2014;161(8):587-593.

9. Moyer VA; U.S. Preventive Services Task Force. Screening for and management of obesity in adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2012;157(5):373-378.

10. Siu AL; U.S. Preventive Services Task Force. Screening for abnormal blood glucose and type 2 diabetes mellitus: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2015;163(11):861-868.

11. Siu AL; U.S. Preventive Services Task Force. Screening for high blood pressure in adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2015;163(10):778-786.

12. Bibbins-Domingo K, Grossman DC, Curry SJ, et al; US Preventive Services Task Force. Statin use for the primary prevention of cardiovascular disease in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2016;316(19):1997-2007.
13. Siu AL; U.S. Preventive Services Task Force. Behavioral and pharmacotherapy interventions for tobacco smoking cessation in adults, including pregnant women: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2015;163(8):622-634.
14. Bibbins-Domingo K; U.S. Preventive Services Task Force. Aspirin use for the primary prevention of cardiovascular disease and colorectal cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2016;164(12):836-845.
15. LeBlanc E, O'Connor E, Whitlock EP, Patnode C, Kapka T. *Screening for and Management of Obesity and Overweight in Adults. Evidence Synthesis No. 89*. Rockville, MD: Agency for Healthcare Research and Quality; 2011. AHRQ publication 11-05159-EF-1.
16. Mozaffarian D, Benjamin EJ, Go AS, et al; Writing Group Members; American Heart Association Statistics Committee; Stroke Statistics Subcommittee. Heart disease and stroke statistics—2016 update: a report from the American Heart Association. *Circulation*. 2016;133(4):e38-e360.
17. Hypertension Prevention Trial Research Group. The Hypertension Prevention Trial: three-year effects of dietary changes on blood pressure. *Arch Intern Med*. 1990;150(1):153-162.
18. Whelton PK, Appel L, Charleston J, et al. The effects of nonpharmacologic interventions on blood pressure of persons with high normal levels: results of the Trials of Hypertension Prevention, phase I. *JAMA*. 1992;267(9):1213-1220.
19. Trials of Hypertension Prevention Collaborative Research Group. Effects of weight loss and sodium reduction intervention on blood pressure and hypertension incidence in overweight people with high-normal blood pressure: the Trials of Hypertension Prevention, phase II. *Arch Intern Med*. 1997;157(6):657-667.
20. Tinker LF, Bonds DE, Margolis KL, et al; Women's Health Initiative. Low-fat dietary pattern and risk of treated diabetes mellitus in postmenopausal women: the Women's Health Initiative randomized controlled dietary modification trial. *Arch Intern Med*. 2008;168(14):1500-1511.
21. Lawton BA, Rose SB, Elley CR, Dowell AC, Fenton A, Moyes SA. Exercise on prescription for women aged 40-74 recruited through primary care: two year randomised controlled trial. *BMJ*. 2008;337:a2509.
22. Moyer VA; U.S. Preventive Services Task Force. Behavioral counseling interventions to promote a healthful diet and physical activity for cardiovascular disease prevention in adults: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2012;157(5):367-371.
23. Artinian NT, Fletcher GF, Mozaffarian D, et al; American Heart Association Prevention Committee of the Council on Cardiovascular Nursing. Interventions to promote physical activity and dietary lifestyle changes for cardiovascular risk factor reduction in adults: a scientific statement from the American Heart Association. *Circulation*. 2010;122(4):406-441.
24. American Academy of Family Physicians. Clinical preventive service recommendation: healthful diet and physical activity to prevent cardiovascular disease (CVD). <http://www.aafp.org/patient-care/clinical-recommendations/all/diet-cvd.html>. 2012. Accessed May 1, 2017.