

# A Brief Summary of the New Prevention Guidelines

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In late 2013, the American College of Cardiology (ACC), the American Heart Association (AHA), The Obesity Society (TOS), and the American Society of Hypertension (ASH) released new clinical practice guidelines for the prevention of heart disease. These publications were initiated and initially directed by the National Heart Lung and Blood Institute (NHLBI). However, in June 2013, due to political and regulatory issues, the NHLBI withdrew its leadership and passed the responsibility for the guidelines to the ACC, AHA, TOS, and ASH (2). Five practice guidelines emerged:

- Assessment of cardiovascular risk
- Lifestyle management
- Management of overweight and obesity
- Treatment of blood cholesterol
- Management of high blood pressure (1,3,5–7)

These guidelines represent more than 275 pages of printed text. The objective of this article is to condense these guidelines, specifically for the clinical exercise physiologist. The key findings are summarized in Table 1.

Each of these guidelines confirm the well-established role of regular physical activity as an important treatment modality of hypertension, hyperlipidemia, and obesity as well as weight loss maintenance (1,6). In a mild departure from other guidelines, the prevention guidelines recommended moderate (40 to 60% peak  $\dot{V}O_2$ ) to intense (>60% peak  $\dot{V}O_2$ ) exercise three to four times per week for  $\geq 40$  min per session because this regimen was used in the clinical trials that evaluated blood pressure reduction (1). Although this is a departure from prior AHA/American College of Sports Medicine recommendations of 30 min five times per week, the net exercise dose is nearly the same: Patients should be obtaining about 150 min or more of moderate to intense physical activity or exercise each week (4). For those unable to meet this guideline, it is recommended that “some activity is better than nothing” (1).

The prevention guidelines continue to emphasize the importance of limiting the dietary intake of saturated and trans fat to improve blood cholesterol levels, as well as the

TABLE 1. Key features of the updated prevention guidelines.

- Continued importance of regular physical activity as an important treatment modality of hypertension, obesity, weight loss maintenance, and hyperlipidemia
- New emphasis on eating patterns (Mediterranean and DASH diets) in addition to limited micronutrients (saturated fat, trans fat, sodium) as the basis of a healthy diet
- Abandonment of LDL cholesterol goals
- New 10 yr risk treatment threshold of 7.5%
- Four key patient groups that require treatment with statin medications:
  - Established atherosclerotic heart disease (MI, PCI, CABG)
  - Baseline LDL  $>190$  mg·dL<sup>-1</sup> (i.e., familial hypercholesterolemia or similar disorder)
  - Patients age  $>40$  yr with diabetes
  - Patients with 10 yr risk of  $>7.5\%$
- Strong preference for high-intensity statins (rosuvastatin 20 mg or atorvastatin 80 mg) with only rare use of other (non-statin) cholesterol-lowering drugs
- New recommendation that patients age  $>60$  yr without diabetes or chronic kidney disease only need treatment when blood pressure is  $>150/90$  mm Hg
- All other patients require treatment when blood pressure is  $>140/90$  mm Hg
- Beta-blockers no longer recommended as a first-line treatment for hypertension

LDL = low-density lipoprotein

MI = myocardial infarction

PCI = percutaneous coronary intervention

CABG = coronary artery bypass graft

reduction of sodium intake as a method to improve blood pressure control (1). The guidelines additionally emphasize that dietary eating patterns, such as the Mediterranean and DASH meal plans, are equally—if not more—important than balanced micronutrient (vitamins, mineral, protein, 100% RDA, etc.) meal plans. Thus, a dietary pattern that emphasizes vegetables, fruits, and whole grains; including low-fat dairy products, poultry, fish, legumes, non-tropical

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vegetable oils, and nuts, with limits of sweets, sugar-sweetened beverages, and red meats is recommended.

The ACC/AHA introduced a new risk calculator for determining the 10 yr risk of cardiovascular death or myocardial infarction (3). This calculator replaces the prior Framingham-based calculator and has the major advantage of including race as a key determining risk factor. This new risk calculator can be found online ([http://my.americanheart.org/professional/StatementsGuidelines/PreventionGuidelines/Prevention-Guidelines\\_UCM\\_457698\\_SubHomePage.jsp](http://my.americanheart.org/professional/StatementsGuidelines/PreventionGuidelines/Prevention-Guidelines_UCM_457698_SubHomePage.jsp)). A potential criticism of this new calculator is that it may overestimate a patient's risk, which could potentially lead to the unnecessary use of medications. In the end, this controversy will probably be solved by recalibration of the risk calculator. Expect more to come on this topic.

The most significant change found in the guidelines is the newly recommended 10 yr risk cutoff of  $>7.5\%$  for treatment with statin medications (7). Previously, a patient required a 10 yr Framingham-based risk of  $>20\%$  to recommend treatment with cholesterol-lowering drugs. Consequently, many more patients will meet this new recommendation for statin medications. Using the new risk calculator, essentially all men (including those without hypertension, diabetes, or dyslipidemia or who do not smoke) who are age  $>65$  yr will be recommended to take a statin. Similarly, most otherwise healthy women  $>70$  yr will be recommended a statin regardless of their blood cholesterol level (7).

It is not entirely clear how  $7.5\%$  was chosen as the cutoff for treatment, but this aggressive step might best be explained by considering the following:

- Atherosclerotic heart and vascular disease is the most common cause of death in the United States.
- Statins effectively and substantially reduce this risk.
- Statins have an excellent (but not perfect) safety profile.
- Statins are now mostly generic and relatively inexpensive.
- Statins reduce the heart disease risk regardless of the low-density lipoprotein (LDL) cholesterol level.

Consequently, at a cutoff of  $>7.5\%$  10 yr risk, the risk-benefit ratio appears favorable for the initiation of a statin. One relatively surprising recommendation was the abandonment of goal LDL levels as a target for pharmacologic treatment (7). Previously, when diet and lifestyle were insufficient, patients were prescribed medication in order to have their LDL level  $<100$  mg·dL<sup>-1</sup> or sometimes  $<70$  mg·dL<sup>-1</sup>. This sometimes led to patients with established heart disease being prescribed either no cholesterol medication or being given three or four medications and still not reaching goals. However, as clearly pointed out by the guideline authors, no clinical trial had ever directly tested the goal LDL level as a

treatment strategy. Instead, in the statin trials, patients were given a drug or a placebo rather than an LDL goal. Furthermore, non-statin medications (e.g., niacin, fenofibrate, ezetimibe), while effective at lowering cholesterol levels, have never been convincingly shown to improve morbidity or mortality. As a result, the current evidence demonstrates that patients with heart disease have the following:

- Improved outcomes when treated with a statin versus a placebo
- Improved outcomes with a high-intensity statin versus a low-intensity statin treatment
- No mortality/morbidity benefit with other cholesterol-lowering medications

As a result, when making a treatment decision, the issue is no longer based on LDL levels but instead matching the patient risk to statin dose (7). The four key groups of patients that require statin therapy are shown in Table 1. For patients with established atherosclerotic heart disease, the preferred medications are rosuvastatin 20 mg (optional 40 mg) or atorvastatin 80 mg (optional 40 mg). Many patients participating in cardiac rehabilitation will be prescribed one of these two medications.

The hypertension guidelines (5) continue to affirm the importance of initiating or uptitrating pharmacologic treatment for hypertension when blood pressure is  $>140/90$  mm Hg. However, the guidelines relaxed the recommended blood pressure goal to  $>150/90$  mm Hg for patients age  $>60$  yr without diabetes or chronic kidney disease. Furthermore, beta-blockers are no longer considered first-line agents in the general population. Instead, these patients should be given either an angiotensin-converting enzyme inhibitor, an angiotensin receptor blocker, a calcium channel blocker, or a thiazide-like diuretic. Black patients should be preferentially treated with diuretics and calcium channel blockers. Among patients with established heart disease (such as those in cardiac rehabilitation), beta-blockers remain a critical medication and should generally be recommended.

In summary, all clinical exercise physiologists should become familiar with these guidelines and in particular the new recommendations. Furthermore, these new guidelines should be incorporated into current cardiac rehabilitation lecture series, curriculum, and handouts. Familiarity with these guidelines will also position a clinical exercise physiologist to answer patient's questions, explain treatment goals, enhance patient understanding, and increase patient medication and lifestyle adherence. When these things happen, then the main goal of these guidelines will have been met: to improve patient outcomes and overall health.

**Keywords:** guidelines, cardiovascular disease, prevention

## REFERENCES

1. Eckel RH, Jakicic JM, Ard JD, et al. 2013 AHA/ACC guideline on lifestyle management to reduce cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*; [cited 2013 Nov 12]; [Epub ahead of print].
2. Gibbons GH, Shurin SB, Mensah GA, Lauer MS. Refocusing the agenda on cardiovascular guidelines: an announcement from the National Heart, Lung, and Blood Institute. *Circulation*. 2013;128(15):1713-5.

3. Goff DC, Jr., Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*; [cited 2013 Nov 12]; [Epub ahead of print].
4. Haskell WL, Lee IM, Pate RR, et al. Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. *Circulation*. 2007;116(9):1081-93.
5. James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). *JAMA*. 2013. DOI: 10.1001/jama.2013.284427; [Epub ahead of print].
6. Jensen MD, Ryan DH, Apovian CM, et al. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Obesity Society. *Circulation*; [cited 2013 Nov 12]; [Epub ahead of print].
7. Stone NJ, Robinson J, Lichtenstein AH, et al. 2013 ACC/AHA guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*; [cited 2013 Nov 12]; [Epub ahead of print].