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“Smart” Coaching to Promote Physical Activity, Diet Change, and Cardiovascular Health

Janna Stephens, RN, BSN [Doctoral Student],

Johns Hopkins University School of Nursing, Baltimore, Maryland

Jerilyn K. Allen, RN, ScD, FAHA, FAAN [M Adelaide Nutting Professor and Associate Dean for Research], and

Johns Hopkins University School of Nursing, Baltimore, Maryland

Cheryl R. Dennison Himmelfarb, RN, ANP, PhD, FAHA, FAAN [Associate Professor]

Department of Health Systems and Outcomes, Johns Hopkins University School of Nursing, Division of Health Sciences Informatics, Johns Hopkins University School of Medicine, Baltimore, Maryland

Cardiovascular disease (CVD) is the leading cause of death in the United States. A major contributor to CVD is the growing epidemic of overweight and obesity. Among adults in the United States, the prevalence of overweight and obesity, defined as having a body mass index (BMI) greater than 25 kg/m², was 68.0% in 2007–2008.¹ Research has shown that obesity, defined as a BMI greater than 30 kg/m², is significantly associated with excess mortality among adults. Therefore, the high rate of obesity (33.8%) in the US adult population is alarming to health care professionals.^{1,2} These alarming rates are also reflected in the child and adolescent populations. An adolescent or child is defined as obese if he/she is above the 95th percentile on the sex-specific BMI growth charts.³ The prevalence of obesity in children and adolescents aged 2 to 19 years is estimated at 16.9% in the United States.³ Poor dietary habits and lack of physical activity are the major contributors to the overweight and obesity epidemic in adults, children, and adolescents. Health care professionals across the country are urging patients and families to modify their dietary and physical activity patterns and behaviors. Even modest sustained changes in these behaviors have been shown to be beneficial in reducing CVD morbidity and mortality.⁴

The use of the Internet and mobile devices has exploded in the United States. As of June 2010, it was estimated that 77.4% of Americans were using the Internet, a growth rate of 146.3% from 2000–2010.⁵ Also, the use of smart-phones has increased in the United States, with up to 42% of Americans owning a smartphone as of December 2009.⁵ Because of a rise in use of the Internet and mobile devices including smartphones in the United States, approaches to promote and support physical activity and diet change are increasingly available through Web sites and the use of smartphone technology. A smart-phone is a device that functions as a mobile telephone with text messaging function but also allows users to download applications and have access to a handheld computer anytime, anywhere.⁵ There are an estimated 400 000 smartphone applications, with more than 10 000 targeting diet and weight loss.⁶ Many of these applications are available for free or a nominal charge. In general, these Web sites and mobile applications offer calorie tracking, weight tracking,

helpful reminders to log calories or weight, blogs and support, and friendly competitions with other users.

Research has shown that the use of the Internet has many advantages for both patients and health care providers.⁵ Research has been conducted on the effectiveness of Web-based interventions in the modification of dietary and physical behaviors and weight loss. In a systematic review of Web-based weight management programs for children and adolescents, it was reported that 6 of 8 trials demonstrated clinically meaningful effects on outcomes such as weight loss, BMI, physical activity, and dietary fat intake.⁷ A similar review was conducted in adults and concluded that these types of programs can have a significant effect on weight loss but that more research is needed to determine which components of Web-based interventions are essential to enhancing weight loss.⁸ Limited research has been conducted on the use of smartphone applications in reducing weight and increasing physical activity. However, a study conducted in Korea examined the use of a smartphone application and found a significant decrease in fat mass, weight, and BMI in users.⁹ Despite the limited but promising evidence, many health care professionals are not using these resources for themselves or their patients.

These programs can provide user-friendly guidance and ongoing, real-time support for our patients in their challenging efforts to modify their diet and physical activity. It is important as health care providers that we assess a patient's access to the Internet and the type of mobile telephone device before suggesting this type of program. Importantly, many of our patients are finding and using these types of Internet-based and mobile programs and may ask for our advice on which programs are best or may elect to share their data with us for feedback on ways to evaluate or improve their lifestyle modification efforts. Although there are far too many of these programs to review all, we describe several below as an introduction to the purpose and capabilities of this type of technology.

The American Heart Association offers a free 12-week Internet program called BetterU (http://www.goredforwomen.org/BetterU/program_overview.aspx).¹⁰ This is an Internet nutrition and fitness program designed to create a healthier user and to "make over the heart."¹⁰ Each week of the program is designed with a specific focus area, for example, week 2 of the program is titled "Reduce Your Risk Factors" and teaches users about the risk factors of heart disease and what they should be asking their health care provider.¹⁰ The Web site includes healthy recipes, a forum to connect with other users, short- and long-term goal setting, and daily tips from physical activity and nutrition experts. This program allows users to identify barriers to success with their specific weekly goals. If you have a patient who is using or plans to use this Web site, it may be helpful to discuss potential barriers to specific goals and help him/her identify strategies to successfully manage these challenges. The Web site provides a journal where users reflect on successes and obstacles and general thoughts on the week. Lastly, the Web site provides users with weekly quizzes that test their knowledge on heart disease and related factors. The user can review the quizzes and use the information to improve their lifestyle and make healthier choices.

The "Lose it!" program (<http://www.loseit.com>) is one of many programs that offer both a smart-phone application version and a Web site version.¹¹ The two can be linked to one another or used independently. Lose It! offers many benefits to users: the ability to complete a personalized weight-loss plan, calorie and nutrient calculating for the day and week, physical activity tracking, connections to friends to share goals and progress, online forums, personalized reminders, connections to Twitter and Facebook, e-mail reports sent daily or weekly, and visual tracking of weight and BMI. The food tracking database is extensive and offers a variety of foods as well as numerous restaurant menus, which makes tracking when dining out more convenient for the user. A user must have an iPhone to use the telephone

application, but any person with Internet access can use the Web site version of the program. A very similar program is the Calories Counter & Diet Tracker program created by MyFitnessPal.¹² This program has the largest food database of any iPhone calorie counter, syncs with a Web site version, allows users to diet with friends, has a database of more than 350 exercises that include both cardio and strength training, and allows users to create goals and see visual reports of progress. Both of these programs are very highly rated by users and have success testimonials.^{11,12}

If a patient is more interested in physical activity and fitness rather than diet, the Calorie Tracker by Livestrong (<http://Livestrong.com>) is an application that focuses on fitness first and diet second.¹³ This smartphone application, which is compatible with both iPhone and BlackBerry, has the largest database of fitness activities.⁶ This application can be used in conjunction with the Livestrong Web site, which provides calorie tracking, fitness tracking, workout routines, group support, and expert question and answer.¹³ This Web site is unique in that it provides information on weight loss for children and adolescents. There is an entire section where users can explore nutrition and fitness for children, and this includes tips for healthy eating, family meal ideas, information on cholesterol levels in children, and many other resources that users with families might find helpful.¹³ This could be a great application and Web site combination for an entire family who wishes to change their diet and fitness behaviors.

There are more in-depth programs that are available that may require more counseling from the health care provider and also require the user to be more technologically savvy. Although these programs likely require the health care provider to spend more time counseling and require more initial input from the patient, they offer some useful benefits that other programs do not have. DailyBurn (<http://dailyburn.com>) is a program that is available via smart-phone application and through the Internet.¹⁴ This program allows the user to pick his/her individual goal from a list ranging from weight loss to endurance to more athletic and also allows for a choice of diet type. From there, the user is given recommended calories for the day and also recommended levels of carbohydrates, fat, and proteins. Two key features of this program are its ability to track sleeping patterns and update calories based on amount of physical activity completed through-out the day. The program also offers multiple workout schedules that provide specific workout routines and allow the user to decide their own workout schedule. The program also allows for friendly competition between users on the site.

Another program that offers a mobile application as well as an interactive Web site is Weight Watchers (<http://www.weightwatchers.com/index.aspx>).¹⁵ There is a fee charged for this program; however, the user has access to the many tools and support systems that Weight Watchers offers. This program is based on the “four pillars of healthy weight loss,” which include eat smarter, move more, get support, and helpful habits.¹⁵ Members have access to the public meetings that take place in their local community and a large online community of people who share similar goals. Rather than tracking calories, users can track points through the Web site or mobile application. The number of points allowed per day is determined for each individual user, and the points are assigned to foods based on the total fat, carbohydrate, dietary fiber, and protein in the food.¹² Weight Watchers provides healthy recipes and tips for dining out. Also, users can track their physical activity throughout the day and gain more points as they exercise more.

Cardiovascular nurses should be encouraged to ask patients and families about the use of Web sites and smartphone applications to aid in the reduction of cardiovascular risk factors. Many patients may be unaware of available programs or may lack the knowledge needed to access programs and begin using them. Cardiovascular nurses can provide suggestions for

appropriate Web sites and applications and teach patients how to properly use these resources. It is important that the patient has a health care provider who can recommend appropriate weight goals and fitness goals, along with recommendations to meet appropriate nutritional requirements.⁴ By aiding patients in the use of this technology, we can help them identify and overcome barriers to weight loss and physical inactivity, promote healthy eating, identify support groups, and identify useful information and resources related to their cardiovascular health.

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