

## Creating the Right Environment

By Andrew Holtz

The general recommendation for most people is to try to engage in 30 minutes of physical activity on most days, says William Dietz, MD, PhD, Director of the Division of Nutrition and Physical Activity of the Centers for Disease Control and Prevention.

"The most important thing, though, is that more is better. If you have a patient who is doing nothing, just getting them moving should be the first goal. For somebody who is sedentary, getting them to 30 minutes a day is going to take some time, so the first task is to get them to five or 10 minutes, and then move on from there."

That recommendation doesn't necessarily mean patients should be told to sign up with a personal trainer at a gym. Indeed, the common perception of exercise as something that has to be put on the daily planner, separate from other activities, can be a barrier to increasing the amount of physical activity.

"We try to distinguish between 'physical activity' and 'exercise,' because the term exercise connotes uncomfortable, sweaty, repetitive activity, which needs to occur in a specific setting. Well, that's not necessarily available to people," Dr. Dietz notes.

"In the area of cancer, you have



William Dietz, MD, PhD

patients who are particularly motivated. They are likely to be very responsive to what their physician has recommended."

But as every physician knows, simply writing a prescription does not guarantee that the patient will take the medicine. When it comes to a prescription for more physical activity, Dr. Dietz says one of the biggest barriers to action is the world we've created around us.

"We've engineered physical activity out of lives in so many ways, with TV remotes and cars to do the simplest

errands and garage door openers and lawnmowers that you sit on and electric can openers. We need to begin re-engineering our environment so that it's easy for people to be physically active as part of their everyday life. The stairwell is one of those opportunities."

### StairWELL

The CDC has tackled stairwell design as part of its efforts to look at ways to engineer activity back into our lives. Using their own building in a typical suburban Atlanta office park as a test site, researchers placed sensors to record when someone entered the stairwell. "We then set out to make the stairwells the nicest part of the building," Dr. Dietz explained.

However, a fresh coat of paint, new carpeting, and even scenic murals at each landing weren't enough to boost traffic.

So then they placed signs at the elevators displaying prompts including, 'Use the stairs for your health,' 'No waiting, one door over,' and 'If you walk up the stairs you use 15 calories, if you ride the elevator, you use 1.' Stairwell use rose 8%, but then returned to baseline within three months as the novelty wore off.

So the experimenters tried to keep the stairwell experience fresh, by

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adding satellite radio music with an ever-changing playlist.

"You can choose the genre of music and change it, so that you can have hip-hop for a week and country for a week and then classical for a week. It's really pretty neat, and at a fairly modest price," Dr. Dietz said. "And usage again went up 8%, but stayed up, because the music was constantly changing.

"We don't believe that if you use stairwells, that that's all you need to do; but it showed us that this was a relatively inexpensive way, that didn't require special equipment or clothing, that enabled people to get physical  
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## Smoking

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not necessarily with pharmacologic and behavioral tools to help the patient quit."

### AHRQ

The federal Agency for Healthcare Research and Quality (AHRQ) disseminates clinical practice guidelines on smoking cessation, accessible at [www.ahrq.gov/clinic/smokesum.htm](http://www.ahrq.gov/clinic/smokesum.htm).

Dr. Gritz also says a new generation of cancer researchers is paying more attention to the benefits of smoking cessation for cancer patients.

"Oncologists, now that the adverse effects of smoking are being documented in treatment outcome trials, are also becoming more convinced that it is an important part of treatment; not just an adjunct, but a part of treatment," she said.

Some physicians have been reluctant to press smoking cessation, because they didn't want to rob patients of a pleasure, even one as destructive as tobacco.

However, Dr. Gritz says cessation can be portrayed as something positive: "You say, 'Now that we have this threat to your health, there is something you can do right now that is going to help

you through your treatment, and hopefully prolong your life. And it is probably something you have wanted to do for a long time and have tried to do.'

"What you are doing is motivating and encouraging the individual with positive supportive language," she explained. "You are empowering them to make another quit effort. You are

giving them the personal reasons it is very important for them. You are offering them tools to help them quit, whether it's professional counseling or pharmacologic support, like a patch or an antidepressant that works for quitting smoking. Finally, you are making them feel that they are part of their own treatment, and hopefully, cure."

## Beyond the Individual Patient

Clinicians also need to look beyond the individual patient to include the whole family, both because continued smoking by a spouse or other member of the household will make it more difficult for the patient to quit, and because the cancer diagnosis may motivate other smokers in the family to try quitting.

Dr. Lazev says these family issues may be something new for oncologists.

"It is somewhat unfamiliar to a lot of physicians; however, there is a growing focus on involving families in every aspect of patient care, so as physicians become more used to family members advocating for the patient and asking questions and being involved in the treatment, they can also then turn to the family members and give them something very powerful that they can be doing to contribute," she says.

Dr. Gritz and her colleagues note that helping cancer patients to quit smoking isn't always easy, and the first attempt often won't succeed. Nevertheless, Dr. Gritz says, even after a tumor has already appeared, taking action against the chronic, relapsing, addictive behavior is imperative.

"It's time the clinicians shaped up. They can't just ignore it. They can't just palm it off on someone else. It is as important as the primary medical treatment."

### Core Components of Skill-Training Interventions

<b>Self-Monitoring</b>	The systematic observation and recording of behavior.
<b>Stimulus Control</b>	Eliminating or minimizing environmental cues for the behavior that are identified through self-monitoring.
<b>Cognitive Restructuring</b>	The systematic identification and alteration of distorted thoughts and beliefs that may undermine behavior change efforts.
<b>Goal Setting</b>	Setting specific, quantifiable, and reasonable goals. Focus is on setting both short-term (i.e., 1 to 2 weeks) and long-term (i.e., 6 months) goals.
<b>Problem Solving</b>	Used to identify and cope with high-risk situations that may lead to relapse. The problem solving method for coping with high-risk situations involves: (1) specifying a situation; (2) generating several possible strategies for coping with it; (3) evaluating the possible coping strategies; (4) planning and implementing the best coping strategy(ies); (5) evaluating the effectiveness of the chosen strategy; and (6) reevaluating and selecting another solution if necessary.
<b>Social Support</b>	Seeking support from others and informing others of the types of support desired.

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## Dr. Dietz

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activity as part of their everyday life," he continued.

"Not a huge effect, but significant and sustained. And it's consistent with our view about the kinds of policy or environmental changes that we need to achieve."

### Be More Aware

Dr. Dietz says physicians should be more aware of the environments in which their patients live. "A physician who is trying to encourage a patient to be physically active needs to know whether the resources exist to support that activity," he said.

"For example, in many parts of Atlanta you can't walk, because there are no sidewalks."

Not far from his CDC office, Dr. Dietz says there is a six-lane highway cutting through a neighborhood with

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many Mexican-American residents. Many of those residents are used to doing a lot of walking, he notes, but Buford Highway can be hazardous to pedestrians.

"Every year there are a number of pedestrian fatalities on that highway. So a health professional who is seeing a patient who lives near Buford Highway, and tells them they need to walk to the store or to the restaurant or whatever, is actually recommending a fairly dangerous practice for those patients," Dr. Dietz notes.

"Clearly, when you are making recommendations about behavior change in any context, you need to be aware of how feasible it is for your patient to implement that recommendation."


Dr. Dietz recognizes that changing the physical environment is not something an individual physician can easily tackle. He suggests health care providers organize through hospitals, medical groups, and other large institutions to press for improvements in their communities.

Even the office park housing the

CDC's Division of Nutrition and Physical Activity contains barriers to healthy habits. Dr. Dietz says he can look out his window to a nearby building where some of his CDC colleagues work.

"To get there from here, I have to cross a parking lot and an intersection which has a total of six lanes of traffic, including turn lanes designed to allow cars to make the turn at 20 to 25 miles an hour. That's not an intersection that encourages pedestrians."

The CDC is trying to improve its own working environment, he remarked.

"We are now exploring how to re-engineer this intersection so that it's safer for people to walk. And then we are going to promote walking between these two buildings. I can't tell you how many people drive between these two buildings, which to me is the most ridiculous thing in the world, but there's good reason to do it—those people are safer in their cars than I am walking." 

## Ongoing Research: Physical Activity Interventions & Cancer

The NCI's Office of Cancer Survivorship is funding research into the effects of physical activity and exercise interventions on people after a cancer diagnosis. As the program's Web site states, "The growing population of cancer survivors, and the documented adverse physiologic and psychosocial sequelae of cancer and its treatment, present an opportunity to examine the potential impact of physical activity on prevention or control of late and long-term sequelae of survivorship, co-morbidities, and cancer recurrence." (Available at <http://dccps.nci.nih.gov/ocs/survivorship/index.html>)

More than a dozen research projects are underway. Several are looking at the effects of physical activity on quality of life; but beyond documenting ways to help cancer patients feel better, some of the projects are looking for evidence that physical activity could affect the course of the disease or reduce the risk of recurrence.

The list of current research projects includes:

■ **Behavioral Correlates of Recurrence in Breast Cancer, Principal Investigator Bette J. Caan, DrPH, Kaiser Foundation Research Institute, Oakland, Calif.**

Can lifestyle affect recurrence rates of breast cancer? Researchers are following a group of breast cancer patients after treatment and measuring a variety of behavioral risk factors. "The primary hypotheses to be examined are whether women who have diets rich in plant sources, stable weights, and high levels of physical activity have lower rates of recurrence compared with women who have diets low in plant sources, sub-

stantial weight gains, and low levels of physical activity. Each of these behavioral factors will be examined individually and in combination with each other," according to the research abstract.

■ **Weight Loss in Obese Breast Cancer Survivors, Principal Investigator Zora Djuric, PhD, Wayne State University, Detroit**

Obesity is associated with poor prognosis in breast cancer patients, but could weight loss improve the outlook? This study is an outgrowth of research into the effectiveness of weight loss programs for breast cancer survivors.

"As a secondary aim, we propose to analyze the blood samples collected for markers of cancer risk which are expected to be affected by weight loss: oxidative DNA damage, insulin-like growth factor 1 (IGF-1), and IGF-binding protein 3. The extent of changes in these markers will be compared with other plasma measures that are known to be affected by weight loss: leptin, glucose, lipids and triglyceride levels. This study should be useful to determine whether certain psychosocial factors are associated with extent of weight loss, and in turn whether weight loss is associated with changes in selected markers of breast cancer risk," according to the research abstract.

■ **Exercise Intervention in Colorectal Polyp Patients, Principal Investigator Anne M. Mctiernan, MD, PhD, Fred Hutchinson Cancer Research Center, Seattle**

Observational studies have also reported a link between physical activity and colon cancer risk, so the next question is whether exercise alter colon cancer risk. This study enrolls

colon polyp patients in an exercise program and monitors markers of colon cancer risk.

"We propose a randomized controlled clinical trial of a one-year moderate aerobic/strength training exercise intervention in adenomatous colon polyp patients (100 men, 100 women). We hypothesize that polyp patients in an exercise intervention will experience significant biological effects on colorectal epithelium, specifically Ki67 indices of proliferation, bax and bc1-2 markers of apoptosis, and prostaglandin concentrations (PGE2 and PGF2cc)," according to the research abstract.

■ **Home Based Moderate Exercise for Breast Cancer Patients, Principal Investigator Bernardine M. Pinto, PhD, Miriam Hospital, Providence, RI**

This study examines the feasibility and effects of a home-based exercise program for early-stage breast cancer patients (Stages 0, I, and II diagnosed within the past two years) who have completed surgery and adjuvant therapy.

"By evaluating the effects of a home-based exercise program on quality of life and mood in cancer survivors, this study can serve as a precursor to examining the long-term effects of exercise on quality of life and cancer recurrence. This study also raises the intriguing possibility of elucidating the physiological effects of exercise on hormonal and immune mechanisms involved in breast cancer," according to the research abstract.

■ **Breast Cancer Survivors: Exercise and Raloxifene, Principal Investigator Anna L. Schwartz, PhD, Oregon Health & Science University**

Another test of a home-based exercise program for breast cancer survivors aims to find ways to reduce the risk of osteoporosis. This placebo-controlled trial compares the effects of physical activity, raloxifene, and a combination of both exercise and medication.

"Four factors place breast cancer survivors at high risk for muscle, bone, and cardiovascular complications: inactivity, menopause (especially premature menopause), chemotherapy and catabolic steroids. Results of this study may reduce the morbidity, mortality and health care costs of these common, long-term complications that confront breast cancer survivors," according to the research abstract.

■ **Cardiac Risk Factors in Pediatric Cancer Survivors, Principal Investigator Steven E. Lipshultz, MD, University of Rochester (NY)**

This study focuses on the cardiac side effects of cancer treatments in children, with the aim of helping these young cancer survivors manage their overall health long after cancer therapy has ended.

"Although subclinical cardiac abnormalities are common and often progressive in long-term survivors of childhood cancer who have been treated with anthracycline chemotherapy or mediastinal irradiation, a comprehensive assessment of risk factors for premature symptomatic cardiovascular disease has never been performed... This should enable more rational recommendations for preventive cardiology in long-term survivors to be made and to standardize care and management for this population," according to the research abstract.