

HealthConnections

Nutrition and the Sporting Life— It's Time to Play

With the exception of elite athletes whose life's work is to work out, most people would say they exercise to improve their quality of life—to be functionally fit and to perform everyday activities such as carrying groceries, lifting luggage or keeping up with kids/grandkids. Terms for “sport” in the dictionary include frolic, recreate and play. This issue of *Health Connections* describes how health professionals can help motivate clients to select activities that fit their lifestyle and apply sports nutrition concepts to optimize their efforts.

Background

Changes in transportation, automation and technology have resulted in consumers now spending fewer calories performing tasks of everyday life, underscoring the need for increased planned physical activity particularly for weight management. A [study](#) of a nationally representative sample of US mothers discovered that over the past 45 years they reallocated activity expended doing housework, child care, laundry, food preparation, post-meal cleanup and exercise to sedentary behavior—time spent in a vehicle and using screen-based media. This reallocation resulted in a decrease in physical activity of 11 to 21 hours a week and a decrease in physical energy expenditure of 177 to 225 kcal/day.

According to the [Centers for Disease Control and Prevention](#), less than half (48 percent) of adults meet the [2008 Physical Activity Guidelines for Americans](#). Studies using accelerometry-based technology rather than questionnaires suggest we are quite sedentary; [one study reported](#) that obese women get about one hour of exercise



per year, and obese men get under 4 hours. Since a [study of middle-aged adults](#) found that nutrition and physical exercise habits reported at baseline affected the fitness of participants almost 2 decades later, it is important to encourage clients to acquire positive habits at an early age, preferably during childhood.

Dietary Guidelines, Physical Activity and Sedentary Behavior

The [2010 Dietary Guidelines for Americans](#) was the first edition to recommend consumers increase physical activity, reduce time spent in sedentary behaviors and incorporate the Physical Activity Guidelines that adults get at least 150 minutes of cardiorespiratory moderate-intensity exercise per week, with 2 to 3 days per week of resistance exercise. Emphasis is now on the effect of “too much sitting,” which differs from too little exercise. Even those who meet the

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150-hours/week recommendation for physical activity may sit too much, for instance active couch potatoes who run before work or during lunch break but sit the rest of the day. Physical activity does not cancel the negative effects of too much sitting, which impairs the ability to remove fat from the bloodstream and plaque from arteries.

Nutrient Teamwork

Most clients can prepare for and optimize participation in different types of physical activity by selecting a variety of

Sidebar

Protein, Supplements and Elite Athletes

- Muscle growth requires combining exercise and diet—particularly eating about 20 to 25 g of high-quality protein by itself or with a carbohydrate (to help restore muscle glycogen and enable protein to go toward preserving lean body mass) immediately after exercise. Whey protein and the branched-chain amino acid leucine in dairy foods support muscle metabolism and protein synthesis.
- **Protein needs** of both endurance athletes (runners, bikers, swimmers) and power athletes (speed/sprinters and strength/weightlifters) range from 1.2 to 1.7 g/kg/day, with strength athletes needing the higher range. This is 84 to 119 g of protein a day for a 143-lb male athlete and 66 to 94 g for a 121-lb female athlete. Although higher than the requirement for less active individuals, this amount of protein can generally be met without supplements. See [Beyond Muscle: Protein's Powerful Package of Benefits](#) for health benefits of higher-protein diets, including improved satiety important for weight management, glucose control and prevention of muscle loss with age.
- Elite athletes looking for an edge might turn to dietary supplements and nutritional products to improve performance, but while these products are prevalent and highly promoted, the validity of claims and scientific evidence suggest that few improve performance, and some may be harmful, banned or illegal. Refer to information from the [Office of Dietary Supplements](#).

foods from all food groups to supply nutrients and sufficient calories with special attention to hydration. Use the [USDA Food Patterns](#) at various calorie levels based on age, gender, body size and level of activity of clients.

- Water and hydrating fluids are critical to replace water lost from sweat and increased respiration to prevent muscle cramping and fatigue, as well as more serious risks of heat exhaustion and heat stroke. Clients should drink before, during and after activity.
- For recreational athletes participating in short-term, low-intensity activity, water is sufficient for rehydration. For more intense activity, drinks providing carbohydrates and electrolytes are suggested to replace fluid and salts lost in sweat. For longer-duration activity (>2 hours), beverages should contain some protein as well to help with muscle recovery. Studies support milk as a rehydration and recovery beverage. Low-fat chocolate milk has the needed **4:1 carbohydrate-to-protein ratio** found in commercial recovery beverages, along with fluid, electrolytes and calcium for strong bones ... and is considerably cheaper.
- Carbohydrates, the primary fuel for exercising muscle, are also needed to maximize muscle glycogen storage, which is depleted after about 2 hours of exercise. If muscle glycogen is not replenished chronic fatigue can set in. Since the ability to sustain prolonged vigorous activity is related to muscle glycogen stores, a **high-carbohydrate diet** (about 70 percent of calories) for 2 to 3 days before such activity can be beneficial for endurance athletes (long-distance runners, cross-country skiers, cyclists). Complex carbohydrates are preferred because of their dietary fiber and nutrient density.
- Protein helps repair and strengthen muscle tissue, and a varied diet based on the USDA Food Patterns provides sufficient protein as caloric intake increases. Protein supplements are not usually necessary (see Sidebar).
- Vitamins and minerals are generally provided in sufficient amounts from the diet. Thiamin, riboflavin and niacin help the body use the energy in foods but there is little support that taking more than obtained from a variety of foods will improve performance. In some cases, taking supplements can be harmful (see Sidebar).

In summary, encourage clients to combine nutritious food choices with daily routine and recreational physical activity that is enjoyable and sustainable.

Interview

Marlia Braun, PhD, RDN, CSSD,
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How can health professionals help clients stay active?

Common obstacles such as time, access, dollars, stress and expectations can be overcome—but they require creative solutions and greatly depend on clients' stage of readiness. Staying active requires commitment. Be client-centered and get their buy-in by asking what they like to do, what they can afford to do and the time of day they anticipate accomplishing these activities. Then develop a customized exercise plan based on what you assess they can do physically.

Clients may expect exercise to be a quick fix but measurable results are not necessarily seen on a daily basis. Remind clients that they are investing in their future and target advice and programs that resonate with their goals. For example, maintaining quality of life is important for those nearing retirement. Link staying active now to their ability to be active in the future. Do they want to travel without needing assistance? Exercise may lower their medical and prescription costs enabling them to spend hard-earned retirement savings on enjoyable activities.

What are some common misperceptions among athletes regarding their diet?

I've worked with firefighters, police, military, correction officers and "average" athletes who hit the treadmill a few times during the week and the golf course on the weekend. Often they think exercise allows them to eat what they want and provides some immunity to chronic disease.

Clients read about the need for sufficient calories to prepare for and recover from a workout. These recommendations can be confusing—distinctions are somewhat blurry since recommendations often do not consider body weight nor gender and are usually based on high-intensity physical activity for a definite period of time. Everyone has a different threshold of tolerance, and clients may misinterpret recommendations if they have an

unrealistic idea of just how active they are. Active couch potatoes may spend 2 hours at the gym—but that may include socializing and showering. Clients exercising to lose weight may be eating more calories than they expend in the workout. On the other hand, young, very active females may not consume sufficient calories to support their activities particularly if they struggle with weight and appearance related to their sport. Still others may not even realize how many calories they are expending, especially if they work out several times a day.

Runners, cyclists, swimmers and endurance athletes all differ in their needs and how they use fuel. Rather than any specific approach, individualize recommendations on what and when to eat. Recommendations do not need to focus solely on commercial sports products as other foods and beverages work and the entire diet is important for performance.

How would you like to see physical activity and nutrition addressed in the 2015 Dietary Guidelines for Americans?

I agree with the American College of Sports Medicine that exercise is medicine, as no single drug can lower blood pressure, cholesterol, cancer risk and depression and improve cognition and bone health. Improvements in health don't happen just with diet or just with exercise. Research demonstrates that both are needed to improve health, particularly the metabolic profile. Not recognizing the significance of exercise in conjunction with diet is ignoring the literature.

While research continues, there is not a gold standard. There is, however, a need for health professionals to help clients develop a long-term approach to both staying active and eating well that will help them reach their goals.

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Practice Points

- Provide tips for clients. Emphasize that daily activities count—taking the stairs instead of the elevator and riding an exercise bike while watching the news. To avoid “too much sitting,” encourage pacing or standing while talking on the phone; walking to, rather than e-mailing, the colleague in the next cubicle; walking the sidelines while watching children at sports; and standing/stretching/doing yoga while watching TV.
- Customize **physical activity recommendations** according to your clients’ needs: short episodes of activity that gradually increase in length for those previously inactive, aerobic activities for those interested in heart health and strength and weight training to boost metabolism for those seeking to manage weight. Stretching, flexibility and balance activities can help reduce the risk of falls in older adults.
- Clarify that being active isn’t license to disregard calories or nutrient quality. Clients may have an unrealistic idea of just how many calories exercise burns—probably fewer than they think. Many people have the notion that exercise allows for another helping at dinner or a snack in front of the TV, which can easily compensate for the calories expended during the workout.
- Remind clients that dietary supplements and nutritional products promoted to enhance performance do not substitute for good nutrition, years of training and genetics.

