

Clinical Applications

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Making sense out of the conflicting guidelines on health and weight

Americans are becoming increasingly confused and frustrated with seemingly contradictory messages about their health. Headlines in newspapers, articles in magazines, and programs on television cite new health guidelines that seem to be coming out faster than they can be understood, much less adopted. Standards are changing for what we are told is: normal blood pressure or desirable body weight, the proper composition of the food pyramid, the effectiveness of the Adkins Diet, and even the safety of estrogen replacement therapy.

One recent guideline that has caused some ongoing debate is the report from the Institute of Medicine¹ (IOM) that recommends "...60 minutes of daily moderate intensity physical activity in order for Americans to prevent weight gain and to accrue additional, weight-independent health benefits of physical activity". The IOM report was released in September 2002 and was followed by a response from the American College of Sports Medicine² (ACSM) in November 2002 that expressed concern about the conflict between the 30 minute daily goal from the ACSM and Surgeon General, versus the new 60 minute goal of the IOM. To add to the confusion, the ACSM's own 2001 Position Stand³ on weight loss and prevention of weight gain recommends "...that overweight adults progress gradually to 200-300 min of exercise per week (~ 45 min/day) or >2000 kcal.wk⁻¹ in order to obtain optimal long-term benefits." And most recently in May 2003, yet another organization, the International Association for the Study of Obesity⁴ (IASO) stated that: "There is compelling evidence that prevention of weight regain in formerly obese individuals requires 60-90 minutes of moderate intensity activity or lesser amounts of vigorous intensity activity". So what is it: 30, 45, 60, or 90 minutes of daily activity? That question will be the focus of this column.

ACSM Response to the IOM Report.

The ACSM, in responding to the IOM report, said that "Focus on 60 minutes per day may cause Americans to be confused" regarding the validity of the earlier 30 minutes per day exercise guidelines and that it "...has the potential to dissuade the most sedentary from initiating a pattern of moderate physical activity that would be a healthy lifestyle change, and could lead to additional increases in total physical activity". The ACSM echoes the fears of others who are concerned that telling the public to now increase physical activity from 30 minutes/day to 60 to 90 minutes/day, will have a negative impact on the overall message. Clearly these organizations are at odds, but it should be pointed out that the IASO is an international association that is focused on the study of obesity, not fitness, yet they have raised the bar even higher to 60 to 90 minutes. So how do we make sense out of what may appear to be divergent recommendations?

The IOM Report:

To understand the debate, we should first examine key points of the IOM statement on physical activity¹:

"As identified previously by other groups (Surgeon General Report, 1996), some benefits can be achieved with a minimum of 30 minutes of moderate intensity physical activity most days of the week. However, 30 minutes per day of regular physical activity is insufficient to maintain body weight in adults in the recommended body mass index range from 18.5 up to 25 kg/m² and achieve all the identified health benefits fully. Hence, to prevent weight gain as well as to accrue additional, weight-independent health benefits of physical activity, 60 minutes of daily moderate intensity physical activity (e.g., walking/ jogging at 4 to 5 mph) is recommended, in addition to the activities required by a sedentary lifestyle.

Body weight serves as the ultimate indicator of adequate energy intake. Increasing EEPA (Energy Expenditure of Physical Activity) or maintaining an active lifestyle provides an important means for individuals to balance food energy intake with total energy expenditure.”

Optimal Health or Optimal Weight?

The issue under debate is partly about the type and amount of physical activity that is needed for optimal health vs. that required for optimal body weight and/or the prevention of weight regain. While these are related issues, they are clearly different. The Surgeon General Report on Physical Activity and Health⁵ and the ACSM/CDC Report⁶ did not focus solely on body weight but rather on the health benefits of physical activity in preventing chronic diseases, including obesity. It should be emphasized that the 30 minute guideline is valid and should be the daily goal of all Americans for reducing the risk for chronic disease morbidity and mortality. However, the issue that I want to explore in this column is that of weight maintenance for the American population in the 21st century – not the minimum amount of physical activity that should be recommended for health benefits.

Energy balance is the key.

It is axiomatic that the energy balance equation explains weight control for everyone; i.e., when the calories expended equal the calories consumed, the individual is in energy balance and we assume that just about everyone understands that by now. But while the equation is simple, the components of the equation are far from simple. In other words, what is *not* known very precisely is the amount of calories consumed by each individual during a day, the amount of calories expended by each individual in a day, or whether an individual has a genetic predisposition to obesity⁷.

Genetics. While the focus of this paper is on the energy expenditure side of the equation, it must be emphasized that there is a wide range in efficiency among individuals in the way that fat is either gained or lost under identical caloric intakes and identical caloric expenditures. Elegant studies on the influence of genetics on weight gain after over-eating, and weight loss after over-exercising, have been conducted by Bouchard and colleagues^{8,9} in two landmark studies on identical twins. Bouchard and colleagues found that under *identical conditions of excess caloric intake*, the range of weight gain was 9.5-29 lbs and under *identical conditions of excess caloric expenditure*, the range of weight loss was 2-17 lbs – thus revealing the powerful influence of genetics on our ability to gain/lose weight under identical conditions of either caloric intake or expenditure.

Energy intake and expenditure. It is a challenge to obtain accurate self-report information for the energy balance equation; this is clearly demonstrated by two recent studies: Lichtman et al¹⁰ demonstrated that obese subjects who are less successful in losing weight under-report their actual food intake by an average of 47%±16% and over-report their physical activity by 51%±75%, and Jackicic et al¹¹ found that nearly half of obese women significantly overestimate their physical activity levels.

Behavior Change. In order to achieve a reasonable energy deficit within a given individual it is important to realize that behavior change must take place since there are two behaviors that are basically responsible for creating the problem: excess caloric intake and/or a sedentary lifestyle. The most important behavior change is one that can be maintained, because while initial success in weight loss is common, what is uncommon is preventing weight regain. The majority of all research studies have shown that most if not all of the weight lost is regained within 2-5 years. Thus, the key to permanent behavior change is helping each individual make small but permanent changes in their “choices” of both food and activity, i.e., their decisions at critical points in each day when they can choose if, when, and what to eat -- or choose whether to be active or remain sedentary. Behavioral Choice Theory is consistent with the idea of making permanent changes in food choices and it has proven to be an effective method for weight control.¹²

Recommendation: An Individualized Approach.

Given the myriad of seemingly contradictory recommendations from experts, what should you recommend to your clients? First, you should assess your client and place them into one of several groups – because you cannot treat an individual according to population standards.

- Individuals of **normal body weight** (BMI 18.5-25 kg/m²) should be directed to weigh themselves regularly and maintain their balanced behavior of intake/expenditure. They will first become aware of a weight gain by the way that their clothes fit them and by regular weight checks.
- Individuals who are **overweight** (BMI 25-30 kg/m²) should initiate a combined program of *gradually decreased* caloric intake (~250 kcal/day) plus a *gradually increased* caloric expenditure (~250 kcal/day or ~45 min) that should result in ~1 lb weight loss/week (i.e., 3500 kcal/wk deficit). Prior research demonstrates that the most successful programs of weight loss and maintenance combine both diet plus physical activity to achieve more permanent outcomes. Note that this combined approach of diet plus physical activity has the potential to produce an impressive 50+ lb weight loss in one year at these recommended deficits.
- Individuals who are **obese** (BMI ≥ 30 kg/m²) should follow the same program as the overweight individual above, but may want to restrict their caloric intake to a greater degree, possibly with the aid of current medications¹³ that have been shown to be an effective adjunct in the short term. Of course, medications should always be prescribed under the direction of a physician.

The Bottom Line.

The ACSM/CDC and Surgeon General guidelines for 30 min/day are appropriate for maintaining health and preventing chronic disease in those individuals within the normal body weight range. The guidelines from the IOM, IASO, and the ACSM Position Stand for increasing doses of 45, 60, or 90 min/day may be necessary for certain overweight/obese individuals who need to lose weight and/or prevent weight regain after weight loss. They will also obtain all the health benefits that result from an active lifestyle. It bears repeating that all exercise programs for sedentary individuals must start at a low level and progress at a reasonable level that is within the psychological and physiological tolerance of each individual.

Perhaps the most salient point from the IASO report states that: “**Body weight serves as the ultimate indicator of adequate energy intake**” and those who desire to lose weight at a faster rate must either lengthen their daily workouts or further restrict their caloric intake.

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