

# COVID-19–Related Home Confinement in Adults: Weight Gain Risks and Opportunities

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As the global coronavirus (COVID-19) pandemic unfolds, more than 90% of U.S. adult residents are confined to their homes, with restaurants, shops, schools, and workplaces shut down to prevent disease spread. Although it is a priority to mitigate the immediate impact, one area of great concern is the long-term effects of this pandemic on weight management in adults. As evident from previous research, small changes in body weight in relatively short periods can become permanent and lead to substantial weight gain over time (1). Considering that the current situation could last a total of several months, this extended home confinement could exacerbate the problem of obesity in adults by substantially contributing to or exceeding annual weight gain.

Though not identical conditions or contexts, we can cautiously draw parallels between the extended home confinement and the literature on holiday (2-4) and vacation (5) weight gain. One thing they all have in common is a deviation from usual routines. Through research on how holidays or vacations impact weight management, we know several things that may be relevant to the current shelter-in-place situations occurring as a result of COVID-19. First, significant weight and fat mass accumulation can occur during a relatively short period (3-6); second, individuals with overweight and obesity are at greater risk for this weight gain (3); third, regular exercisers or those with a previous high energy expenditure are not necessarily protected from weight gain (3,4,7); fourth, weight that is gained during a very short period is likely to remain in some populations, with women being at the greatest risk (5,6); and fifth, changes in eating behavior are likely the main driver toward energy surplus (4). If we apply this knowledge to extended home confinement because of COVID-19, it is quite possible that significant body weight or fat mass gain is going to occur in adults, with women and adults with overweight or obesity being at the greatest risk for permanent change.

There are numerous challenges facing adults with shelter-in-place practices as they relate to weight management. These challenges influence both energy intake and energy expenditure, with some factors that overlap and affect both sides of the energy balance equation. With respect to energy intake, current food purchasing trends clearly indicate that households are stocking up on shelf-stable, ultraprocessed, energy-dense comfort foods, such as potato chips, popcorn, chocolate, ice cream, and alcohol (8). Prior studies have suggested that availability of food, observing others eat, and easy access to energy-dense foods (9), which is likely in our current situation, increase the likelihood of greater energy intake. Additionally, current trends show that people are getting more takeout foods, baking more, and consuming more alcohol than before the pandemic. Overall, we anticipate that with easy and abundant availability of foods with high energy density, adults will experience higher energy intakes during the pandemic response.

With respect to energy expenditure, gym closures and canceled events may be decreasing structured exercise. The lack of a routine or normal daily schedule could further be impacting both structured exercise and spontaneous physical activity if people are remaining indoors most of the time. This may be especially true in northern regions where colder temperatures and unpleasant conditions are still frequent. Furthermore, we speculate that increases in stress, anxiety, and boredom on a daily basis during the pandemic may be contributing to higher energy intake, sleep disturbances, and less exercise (10). Indeed, a recent analysis of Google Trends data provided insight into general patterns of behavior associated with the COVID-19 outbreak, including greater stress in the middle of the week and more searches for restaurants and cooking or baking terms during the March 18th and 23rd breakpoints (11). Google Trends in early April also showed an increase in searches for the term “recipes,” which typically surge during the holidays, and a decline in searches for the term “healthy eating,” which typically surge in January after the holidays. An upward trend in the use of television, internet-connected devices, and applications/web on smartphones was also observed in US adults during March 2020 (8). Similar findings were reported in Italy and Spain, where live streaming across YouTube and Facebook increased along with the installation of programming applications such as Netflix. We speculate that this added screen time is further displacing overall physical activity and possibly contributing to more energy intake. Overall, having a shelter-in-place guideline in which daily routines are altered, home food access is increased, fast food or convenience food access is high, boredom may be higher, and physical activity or exercise may be lower is the perfect storm for an energy surplus leading to substantial weight or fat mass gain.

Though the possibility of weight gain during this COVID-19 crisis is anecdotal but plausible, several strategies may be helpful to combat this. Frequent or daily self-weighing is effective for weight loss, weight loss maintenance, and the prevention of age-related weight gain (12). Recently, we also showed that it was effective at preventing holiday-associated weight gain (6). If people have access to a bathroom scale, this is a relatively inexpensive and easy tool that can be utilized in an attempt to prevent or slow shelter-in-place-associated weight gain, if such a thing exists. As telemedicine is becoming the “new normal” for health care providers, strategies such as daily self-weighing and other behavior modifications may be adapted by behavioral nutritionists to provide virtual counseling and healthy weight management practices at home, such as one supported by the Academy of Nutrition and Dietetics. Indeed, a recent perspective described how clinicians and researchers can utilize electronic scales as a means to monitor weight as well as track body weight data throughout the pandemic (13). Alternatively, more typical strategies for weight maintenance during this challenging time may include limiting energy-dense but nutrient-poor foods;

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relying more on cooking at home and less on fast food takeout or delivery; taking frequent breaks to perform short bouts of physical activity; scheduling structured exercise sessions that can be done at home; establishing daily routines; finding different outlets for stress, such as meditation, yoga, or walking; and using tracking applications. The time for using virtual strategies or activities and social networks to support healthy behavior practices has never been greater. Technology may allow us to (1) participate in virtual races or activity challenges; (2) visit virtual social support groups; (3) utilize free internet-based videos, programs, and websites for new at-home exercise routines; and (4) utilize internet-based healthy meal ideas, cooking tips, and ideas for modifying recipes for pantry items because fresh items may not be available or easily accessible.

As we move through this pandemic, one challenge will be collecting objective measures of body weight change to determine whether or not COVID-19–related weight gain is real, what populations gain the most weight, and whether weight gain persists, which affects the magnitude of impact on chronic disease risk. It is possible that annual weight data may capture smaller or larger than normal changes in body weight; however, clinical studies with objective measures of weight at several time points throughout the shelter-in-place guidelines and over the course of the entire pandemic will provide stronger data. Holidays (6-8 weeks) contribute to a modest average weight gain of 0.5 kg (1). However, this seemingly small change contributes to more than half of annual weight gain in adults and can lead to substantial increases over multiple decades. Objective weight data during this pandemic will be critical to understanding the short- and long-term effects on health. Although less accurate, self-report data on weight changes as a result of the pandemic through electronic questionnaires can be used as a secondary measure.

Finally, we do acknowledge that the aforementioned parallels drawn between holiday or vacation weight gain and shelter-in-place guidelines may not apply to certain subgroups of the population. Notably,

individuals who have continued to work outside of their homes and follow a more “normal” routine may not be affected in the same way or to the same degree as those who have been sheltering in place and working remotely. Additionally, this perspective is not focused on the millions of Americans who may be facing food shortages because of unemployment, poorly stocked grocery stores, or the inability to access healthy food. Indeed, though there is a major concern for weight gain during this pandemic, there is an equal concern for undernutrition for certain populations in the United States and around the world. **O**

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