

## CHAPTER 5

# DIETARY HABITS AND LIFESTYLE CHANGES DURING COVID19

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## INTRODUCTION

COVID-19 pandemic has had a global impact on daily diet among adults. Although it has not been possible to establish a correlation between weight gain and changes on eating behavior, an increased appetite accompanied by a higher consumption of snacks and a greater number of daily meals have been found. In the case of children, results appear to point at similar conclusions as the closure of school canteens has affected many families. This situation has worsened the quality of diet in families with little resources as well as in families in which all members were workers. Finally, regarding dependent persons such as the elderly, people with morbid obesity and people with other type of disabilities, scientific evidence has linked preventive measures of physical contact restriction to changes in eating behaviour. Those changes have been associated to a significant decline in health nutrition.

## DIETARY HABITS

Prolonged staying at home may also support eating palatable meals, snacking, and alcohol consumption . It may further affect individual choices to cook more or buy prepared food more often. A healthy balanced diet is an integral part of a personal risk management strategy during pandemics, such as the one of COVID-19 .It does not entirely prevent the infection, although it may play a profound role in the host response to an infectious agent. Various macro-, micro-, and phytonutrients have immunomodulatory effects and are required for immunocompetence, whereas nutritional deficiencies are linked to higher host

susceptibility to viral infection and a more severe clinical course of disease. At the same time, nationwide lockdown due to disease outbreak may potentially alter dietary habits, as it forces the majority of individuals to stay at home for a prolonged period of time, often with unlimited access to food and lower physical activity. This is of particular concern in the case of individuals with pre-existing nutritional issues.

In addition, also diet seems to influence the quality of sleep, in fact very recently in a cross-sectional study included 172 middle-aged adults it has been reported that good sleepers had higher adherence to the Mediterranean diet (MD) and lower body mass index (BMI) compared to poor sleepers. Considering the smoking, there are a significant association exists between SARS-CoV-2 infection and air pollution, and in this context in smokers, more severe COVID-19 symptoms occur. Low physical activity levels have been suggested to interact both with body fat and appetite deregulation.

Eating habits and lifestyle modification may threaten our health. Maintaining a correct nutrition status is crucial, especially in a period when the immune system might need to fight back. In fact, subjects with severe obesity ( $BMI \geq 40 \text{ kg/m}^2$ ) are one of the groups with the higher risk for COVID-19 complications. Obesity is an expansion of the adipose tissue, which produces cytokines and contributes to a pro inflammatory milieu. Moreover, in regards to pulmonary physiology, subjects with obesity have decreased expiratory reserve volume, functional capacity and respiratory system compliance. In patients with high abdominal fat, pulmonary function is further compromised in the supine position by decreased diaphragmatic excursion, making ventilation more difficult. The inflammatory state is also one of the most important factors of the severity of lung disease in COVID-19, which leads to the famous “*cytokine storm*” associated with the acute respiratory distress syndrome and multiple organ failure.



## **LIFESTYLE CHANGES DURING COVID 19**

There are two major influences: staying at home (which includes digital-education, smart working, limitation of outdoors and in-gym physical activity) and stockpiling food, due to the restriction in grocery shopping. In addition, the interruption of the work routine caused by the quarantine could result in boredom, which in turn is associated with a greater energy intake. In addition to boredom, hearing or reading continuously about the COVID-19 from media can be stressful. Stress leads subjects toward overeating, especially ‘comfort foods’ rich in sugar, defined as “food craving”. Those foods, mainly rich in simple carbohydrates, can reduce stress as they encourage serotonin production with a positive effect on. However, this food craving effect of carbohydrates is proportional to the glycemic index of foods that is associated with the increased risk of developing obesity and cardiovascular diseases, beyond a chronic state of inflammation, that has been demonstrated to increase the risk for more severe complications of COVID-19 .

This new condition may compromise maintaining a healthy and varied diet, as well as a regular physical activity. For example, limited access to daily grocery shopping may lead to reduce the consumption of fresh foods, especially fruit, vegetables and fish, in favour of highly processed ones, such as convenience foods, junk foods, snacks, and ready-to-eat cereals, which tend to be high in fats, sugars, and salt. Moreover, psychological and emotional responses to the COVID-19 outbreak may increase the risk of developing dysfunctional eating behaviors. It is well known how the experience of negative emotions can lead to overeating, the so-called “emotional eating”. In order to contrast and respond to the negative experience of self-isolation, people could be more prone to look for reward and gratification physiologically associated with food consumption, even overriding other signals of satiety and hunger. In addition, boredom feelings, which may arise from staying home for an extended period, are often related to overeating as a means to escape monotony. On the other hand, negative experiences may lead to eating restriction, due to the physiological stress reactions that mimic the internal sensations associated with feeding-induced satiety.

Finally, lifestyle may be substantially changed due to the containment measures, with the consequent risk of sedentary behaviours, modification in smoking and sleeping habits. Of interest, different studies reported an association between sleep disturbances and obesity due to increase the secretion of pro-inflammatory cytokines by the increased visceral adipose that could contribute to alter the sleep–wake rhythm.

## CONCLUSION

The COVID-19 outbreak led to changes in eating behaviour, which may have become less healthy during the pandemic. Although these changes could be a result of uncertainty and discomfort, adverse effects on health, especially for vulnerable population, would emphasize the need to promote healthy habits through preventive interventions and social actions supported by governments. Additionally, with the aim of assessing a more accurate framework of the stages through which eating behaviour changes evolved during this period, further research should be carried out. In this context, it would be important to focus on food intake but also on alcohol consumption and its consequences. By this, not only may a progression of ‘eating behaviour during a state of alarm’ be developed but also a benchmark for future directions can be established that will help improve guidelines for achieving proper nutrition aimed at the new normality.

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