

CORRESPONDENCE

CORONA EXPERIENCE

The gut microflora changes during the COVID-19 pandemic due to exposure to disinfectants

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Introduction

Due to the lack of definitive drugs to treat COVID-19, most people seek to prevent it. As a preventive measure, the hands are suggested to be regularly disinfected with a variety of disinfectants and alcohols. Fruits and vegetables are immersed in solutions containing detergents and even diluted vitex agnus-castus (a plant used in herbal medicine, also known as chaste tree or chasteberry). Alcohol spray is very common for home and kitchen surfaces and hands. In some cases, these disinfectants may be used excessively due to fears of corona virus infection. Some people even ingested alcohol and vitex agnus-castus to avoid being infected leading to severe toxicity including blindness. Its compounds may be overused for specific diseases. Therefore, these disinfectants may change the type and function of the microflora in the gut.

The intestinal microflora contains almost 400 species of bacteria. The intestinal microflora may prevent infection by interfering with the pathogen. There is a direct link is between gastrointestinal microbes and the immune and endocrine system, digestion, energy metabolism. Microflora plays a vital role in the body's balance. They also play a role in drug metabolism. The gut microflora changes under the influence of various factors including age, environment, stress, diet, health status medication agents, and nutrition.¹

The state of the liver also changes following a change in the intestinal microflora.² which is involved in the normal functioning of the brain and social intelligence. Its imbalance, especially in old age, can lead to complications such as Alzheimer's.³ Alteration of the intestinal microbial flora has been associated with non-communicable diseases.⁴

Previous studies have shown that alcohol can alter the natural microflora and provide the conditions for the growth of pathogenic bacteria, including *H pylori*. This bacterium is one of the causes of gastrointestinal cancers. Alcohol can also kill bacteria in the intestinal flora that have anti-inflammatory properties.⁵ Furthermore, Antimicrobial compounds play a major role in reducing the normal intestinal flora.⁶ It is possible that disinfectants have a pattern similar to the effects of antibiotics on intestinal flora. The use of disinfectants will change the composition and number of microorganisms in the gastrointestinal tract. Therefore, measures should be taken to prevent the effects of these changes.

Modulation and promotion of gut microflora in this period

Health officials in most countries are currently under pressure from the disease and are less concerned about

the consequences of this change in behavior, so it is necessary to inform about this subject. Consumers should be instructed after using these chemical agents for disinfection. Food and surfaces should be washed with sufficient water to minimize exposure to chemical agents. Along with these changes, diets must also change. During this period, a series of nutritional ingredients should be used that can modulate the gut microflora changes. The probiotics and prebiotics consumption will improve natural gut microflora. Probiotics are powerful tool to modulate gut homeostasis and promote gut health.⁷ Fermented milk products are good sources of probiotics. Among the nutrients, polyphenols can modulate the intestinal microflora. Polyphenols are flavonoids, phenolic acids, acetylene and lignans that are found in fruits, vegetables, cereals, tea, and coffee. Fermentation of these compounds leads to the stimulation and growth of a number of beneficial bacteria, including *Bifidobacteria*.⁸ Mediterranean diets that contain plenty of fruits and vegetables, as well as olive oil and seafood are also recommended.⁹

During this period, the lifestyle has changed. Restrictions and quarantines were imposed to prevent the transmission of the virus between individuals, so physical activity was reduced and many people became overweight which leads to changes in the intestinal microflora. Obese mice present decreased Bacteroidetes in feces.¹⁰ The intestinal microflora plays an important role in weight control. Probiotics are prescribed to combat this problem by affecting the intestinal microflora and module their composition.¹¹ Therefore, it is necessary to emphasize the consumption of certain foods to prevent this problem.

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