How coffee, alcohol, medicines affect gut health

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The Daily Morning Voice Online Desk: The medical community is intrigued by the incredible complexity of the gut and its corresponding impact on the overall health of the individual. A healthier gut ensures proper digestion of nutrients and the balance of microbiota which plays a significant role in energetic and metabolic processes in the body. The smooth functioning of the nervous and immune systems of the body is strongly interconnected with the digestive system. Already home to over 100 trillion bacteria commonly known as “gut flora”, several diet-related factors tend to have detrimental effects on gut health. Coffee, alcohol and medicines have contradistinctive effects on the gut which will be discussed at length.

Coffee is arguably an essential part of our daily lives, which makes it one of the most popular non-alcoholic beverages globally. It is estimated that over two billion cups of coffee are consumed every single day, with one billion coffee drinkers worldwide. What makes coffee so popular is its signature bitter taste and the presence of caffeine. Coffee contains arabinogalactans and galactomannans, which are mainly soluble fibre. When it comes to coffee, its effects on gut health depend on the daily intake, keeping in mind the maximum daily recommendation of 400 milligrams, according to the U.S. Food and Drug Administration. Keeping coffee limited to two or three cups a day appears to have beneficial effects such as improved bowel movements, lower inflammation and even faster gastrointestinal recovery after abdominal surgery. As coffee works as a prebiotic, several studies report a positive effect on gut microbiota.

However, excessive intake of coffee leads to the relaxation of the lower oesophageal sphincter (LOS), which is a small band of muscle that sits between the oesophagus and the stomach. This may allow food to travel backwards, triggering indigestion and heartburn in some people. There is an increase in the production of stomach acid secretions that cause irritation. Due to overstimulation of the gastrointestinal tract, it also produces a laxative effect on the gut.
Alcohol is known to trigger severe gastrointestinal problems and colon inflammation in the gut as it promotes a relative abundance of Clostridioides species. Excessive amounts of alcohol affect the stomach and digestive tract in different ways. Causing similar effects to coffee, alcohol also weakens the lower oesophageal sphincter (LOS) and makes the stomach produce more acid than usual. Alcohol promotes dysbiosis (bacterial imbalance) and bacterial overgrowth which directly lead to an increase in endotoxins release. This in turn activates proteins and immune cells that promote inflammation. When consumed in large quantities for a longer period of time, alcohol causes acute damage to the digestive system and the liver. Many studies have attempted to quantify the damage. One found that a single heavy episode of drinking can damage the mucous cells in the stomach, and induce inflammation and lesions. Another found that drinks that have more than 15 per cent alcohol volume can delay stomach emptying, which can result in bacterial degradation of the food, and cause abdominal discomfort.

Alcohol and its metabolite (breakdown product) acetaldehyde affect the liver and are classified as Group 1 carcinogens (cancer-causing agents). Alcohol consumption is a risk factor for mouth, pharynx, larynx, oesophagus, breast, bowel and liver cancers. When it comes to the factors affecting the microbiome of the digestive system, the role of medication is often undermined. Medicines have varied effects on the gut many a time causing drug toxicity in the gastrointestinal tract. They may cause a “leaky gut” which presents itself as large tears, holes and cracks that allow food and toxins to penetrate the tissue. They interfere with bacterial balance in the gut leading to serious digestive problems. A variety of health problems such as abnormal weight loss, weakness and hair loss are also caused by some medications that interfere with the absorption of nutrients from food. Several antidepressants, anti-anxiety drugs and pain medications slow down the movement of food through the intestines, causing constipation and affecting the composition of the gut microbiota. Stomach acid, gut immunity and gastrointestinal flora are the main drivers of gut health. Higher volumes or frequent consumption of coffee and alcohol have a negative impact on the microbiome. At the

same time, medicines irritate the intestinal mucosa which leads to an imbalanced gut microbiota. Finding an adequate balance is the key to maintaining optimal gut health.