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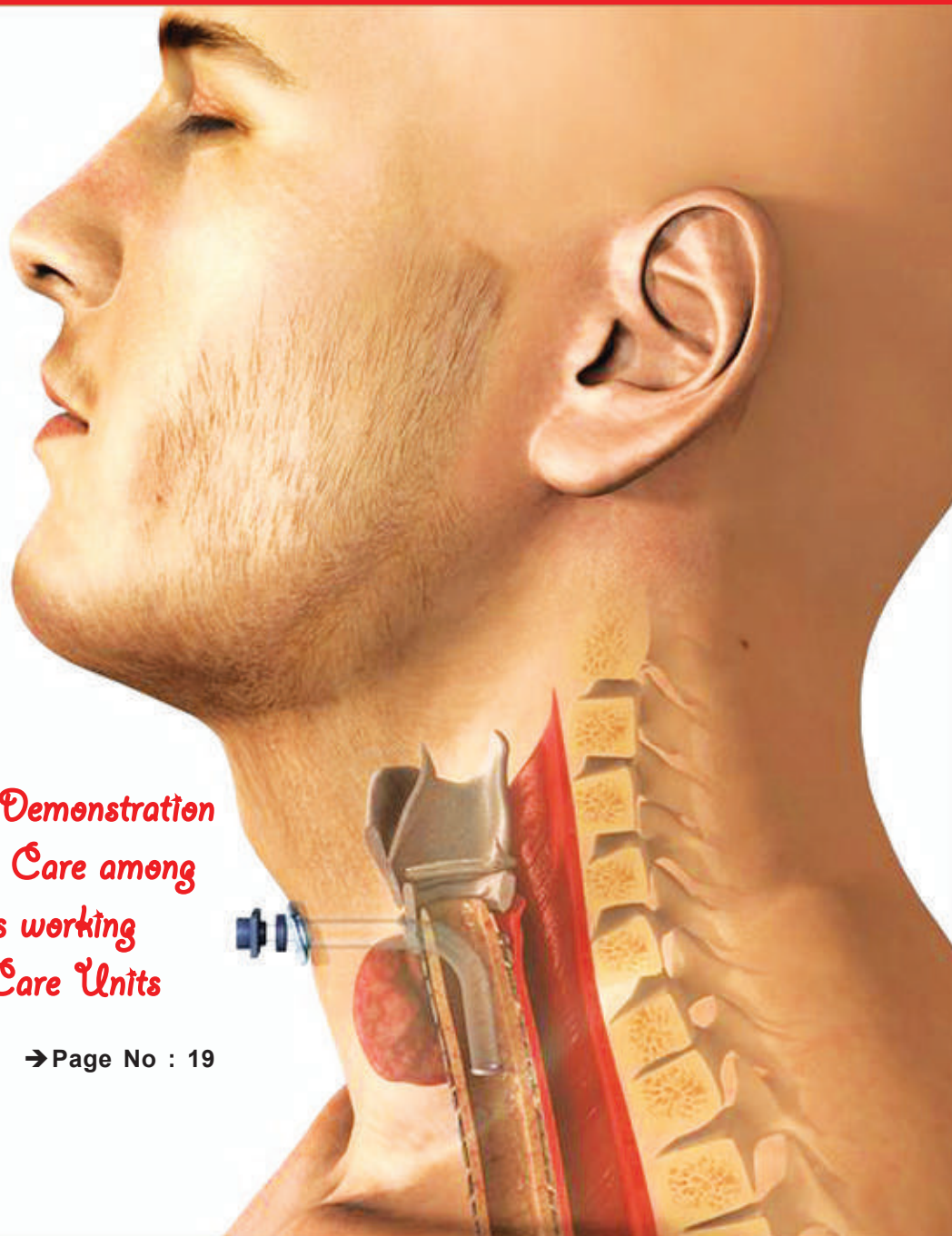
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*Effectiveness of Demonstration  
on Tracheostomy Care among  
the Staff Nurses working  
in the Intensive Care Units*

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# Overdose consumption of probiotics creates flatulence

**SANJAY AGRAWAL**

Probiotics are live microbial supplements which are health promoting by virtue of their functional re-establishment and stabilization of microbial niche dynamics of the human gastro-intestinal tract and they beneficially affect the host by improvements of its intestinal microbial niche restoring balance, a few examples are *Lactobacillus* sp and *Bifidobacterium* sp, etc and the growth in the probiotic market is also being driven by the enhanced efficiency of ingredients, which offer products with bio-therapeutic properties.

Probiotics are defined as live microorganisms that when administered in adequate quantity and grant a health benefit on the host and they are live bacteria and yeasts that provide health benefits to human body in adequate quantities. Probiotic bacteria are those useful aerobic or anaerobic bacteria that aids in breaking up food into simple molecules either by hydrolysis. These microorganisms exist in intestines and help to break down food, absorb nutrients, and minimize harmful bacteria that may otherwise cause disease.

The concept of probiotics is credited to "Élie Metchnikoff, a Russian scientist born in the mid-1800s, whose work provided profound insights into immunology and microbes. He

developed a theory about aging that over the years had been forgotten in mainstream medicine but is now embraced by many scientists". Probiotics are part of human body's microbiota and collection of microbes. The sum of the microbiota and its metabolic activities is called microbiome. The word "microbiome" used to denote both the microbiota and its genetic and metabolic effects. While most probiotics are found only in probiotic pills, some good probiotics and/or other beneficial microbes on raw produce are found in fermented foods and beverages such as yogurt, sauerkraut, kimchi, some cheeses, kefir, kombucha, and kvass; and in probiotic-fortified processed foods such as some breads and chocolates.

## Probiotics for diarrhoea

A wide range of probiotic strains have been evaluated for their anti-diarrhoeal capabilities with varying degrees of outcomes. In acute infantile diarrhoea, often due to infection with rotavirus, *Lactobacillus rhamnosus* GG has repeatedly shown the duration of diarrhoea by 50 per cent. Diarrhoea occurs in about 20 per cent of the patients on antibiotics. The antibiotics might directly affect the indigenous gut microbiota by compromising the colonization resistance and favouring the growth of pathogenic microbes, for example *Clostridium difficile* and *Klebsiella oxytoca*. Certain probiotic strains are observed to reduce the incidence and duration of diarrhoea. *Bifidobacterium longum*, *L. bacillus* and *L. rhamnosus* GG

has shown decreased incidence of erythromycin-induced diarrhea, whereas *L. acidophilus* reduced the incidence of clindamycin and ampicillin-induced diarrhea. *Lactobacillus rhamnosus* GG is meant to support gastro-intestinal health and general well-being in children as well as adults with no adverse effects. *Lactobacillus rhamnosus* GG is globally the number one choice amongst probiotics and they are going to become the mainstay in future healthcare sector.

## Health benefits and cautions

There are many health benefits of probiotics, but there are also a few cautions to be advised very well. First, if you are immune compromised (catheters, cancer treatments, HIV, trauma, and so on), it is very good to consult with your family doctor to check if there are any contraindications for using probiotics. Second, if you never used probiotics or a particular type of probiotic before, and/or never ate much raw food or indulged in fermented probiotic-rich foods and drinks (such as sauerkraut, kimchi, kefir, or kombucha), it advised to proceed slowly with probiotic supplements and use. Although probiotics are tiny organisms, they can have very potent effects on your body system. As you progress with increasing dosages of probiotics internally, you may experience increased abdominal gas, upset digestion with diarrhea, headache, fever, muscle pain, brain fog, and/or anxiety. If the symptoms become too uncomfortable, decrease the dosage for a few days

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and try again. These symptoms are your body's way of telling you that things such as a die-off of pathogens or an awakened intestinal reflex are changing.

### **Overdose**

Consuming a large quantity of prebiotics (the food source for probiotics) may at first result in bloating or flatulence. This is a positive sign that the prebiotics are working; however if symptoms persist for longer than a few days then consider reducing one's dose of prebiotics and gradually building it up again. Bloating is the most common side effect with many forms of digestive distress. It occurs when human abdomen fills with excess air or gas. Stomach may look large or swollen and feel tight to the touch. While it is generally not fatal, bloating can come with plenty of pain and discomfort and overdosing on probiotics can irritate gut and result in loose stools. Overdosing of probiotics may cause unpleasant digestive symptoms. While most people do not experience side effects, the most commonly reported reaction to bacteria-based probiotic supplements is a temporary increase in gas and bloating. Those taking yeast-based probiotics may experience constipation and increased thirst. It is not known exactly why some people experience these side effects, but they typically subside after a few weeks of continued use. To reduce the side effects, start with a low dose of probiotics and slowly increase to the full dosage over a few weeks. This can help body adjust to them. If the gas, bloating or any other side effects continue for more than a few weeks, stop taking the probiotic and consult a medical professional.

### **Side effects and risks of probiotics**

In people who are generally healthy, probiotics have a good safety record. Side effects - if they occur at all, usually consist only of mild digestive symptoms such as gas.

On the other hand, there have been reports linking probiotics to severe side effects, such as dangerous infections, in people with serious underlying medical problems. The people who are most at risk of severe side effects include critically ill patients, those who have had surgery, very sick infants, and people with weakened immune systems. Probiotics might theoretically cause infections that need to be treated with antibiotics, especially in people with underlying health conditions. They could also cause unhealthy metabolic activities, too much stimulation of the immune system, or gene transfer (insertion of genetic material into a cell). Some live microorganisms have a long history of use as probiotics without causing illness in people. Probiotics' safety has not been thoroughly studied scientifically, however. More information is especially needed on how safe they are for young children, elderly people, and people with compromised immune systems. Probiotics can be taken as supplements or consumed naturally through fermented foods like yogurt, kefir, sauerkraut, kimchi and kombucha. The health benefits of probiotic supplements and foods have been well documented, including a lower risk of infections, improved digestion and even a reduced risk for some chronic diseases. While there are many health benefits linked to taking probiotics, there can also be side effects. Most of these are minor and only affect a small percentage of the population. People with serious

illnesses or compromised immune systems may experience more severe complications.

Amines in probiotic foods may trigger headaches. Some probiotic-rich foods, such as yogurt, sauerkraut and kimchi, contain biogenic amines. Biogenic amines are substances that form when protein-containing foods age or are fermented by bacteria. The most common amines found in probiotic-rich foods include histamine, tyramine, tryptamine and phenylethylamine. Amines can excite the central nervous system, increase or decrease blood flow and may trigger headaches in people sensitive to the substance. One study found that low-histamine diets reduced headaches in 75 per cent of participants. However, a review of 10 controlled studies found no significant effect of dietary amines on headaches. More research is needed to determine whether or not amines can be direct triggers of headaches or migraines in some people. Keeping a food diary including any headache symptoms you might experience can help clarify whether fermented foods are problematic for you. If probiotic-rich foods trigger your symptoms, a probiotic supplement may be a better choice. Fermented foods rich in probiotics naturally contain amines. Some people may experience headaches after eating these foods, and should instead opt for probiotic supplements.

Some ingredients cause adverse reactions. People with allergies or intolerances should read the labels of probiotic supplements carefully, since they might contain ingredients they could react to. For example, some of the supplements contain allergens such as dairy, egg or soy. These ingredients should be avoided by anyone who is allergic, as they



may trigger an allergic reaction. If necessary, read labels carefully to avoid these ingredients. Similarly, yeast-based probiotics should not be taken by those with yeast allergies. Instead, a bacteria-based probiotic should be used. Milk sugar, or lactose, is also used in many probiotic supplements. Many studies suggest that most people with lactose intolerance can tolerate up to 400 mg of lactose in medications or supplements, there have been case reports of adverse effects from probiotics. As a small number of people with lactose intolerance may experience unpleasant gas and bloating when consuming lactose-containing probiotics, they may want to choose lactose-free products. In addition to containing powerful probiotics, some supplements also contain prebiotics. These are plant fibers that humans cannot digest, but that bacteria can consume as food. The most common types are lactulose, insulin and various oligosaccharides. When a supplement contains both probiotic microorganisms and prebiotic fibers, it is called a synbiotic. Some people experience gas and bloating when consuming

synbiotics. Those who experience these side effects may want to select a supplement that does not contain prebiotics. Probiotic supplements can contain allergens, lactose or prebiotic fibers that may cause adverse reactions in some people. These ingredients can be avoided by reading labels.

Probiotics are safe for the vast majority of the population, but may not be the best fit for everyone. In rare cases, the bacteria or yeasts found in probiotics can enter the bloodstream and cause infections in susceptible individuals. Those at greatest risk for infection from probiotics include people with suppressed immune systems, prolonged hospitalizations, venous catheters or those who have undergone recent surgeries. However, the risk of developing an infection is very low, and no serious infections have been reported in clinical studies of the general population. It is estimated that only about one in one million people who take probiotics containing *Lactobacilli* bacteria will develop an infection. The risk is even smaller for yeast-based probiotics, with only about

one in 5.6 million users getting infected. When infections do occur, they typically respond well to traditional antibiotics or antifungals. However, in rare cases, deaths have occurred. Research suggests that people with severe acute pancreatitis should not take probiotics, as this may increase the risk of death. People with compromised immune systems, venous catheters, recent surgery, acute pancreatitis or prolonged hospitalizations should avoid taking probiotics.

Some people can also react poorly to ingredients used in probiotic supplements or to naturally occurring amines in probiotic foods. If this occurs, stop using probiotics. In rare cases, people with compromised immune systems, prolonged hospitalizations or recent surgeries may develop an infection from probiotic bacteria. People with these conditions should weigh the risks and benefits before consuming probiotics. Overall, probiotics are a beneficial addition to most people's diet or supplement regimen, with relatively few and unlikely side effects. ❖

- ❖ Hyperglycemia contributes to joint vulnerability through formation of advanced glycation end – products (AGEs) in cartilage.
- ❖ Accumulation of AGEs leads to stiffness and brittleness of collagen
- ❖ AGEs are also implicated in altering the synthesis and degradation of collagen



- ❖ OA is the 11th cause of disability in the world.
- ❖ As per the literature, the prevalence of OA ranges from 12.3% to 21.6%.
- ❖ According to the 2010 WHO Global Burden of Disease Study:
  - The global prevalence of knee OA in 2010 was estimated at 3.8%.
  - The global prevalence of hip OA in 2010 was 0.85%

- JAPI