TOP COMPLIANCE (Pty) Ltd

Your Business' Safety Is Our Concern

QSE B-BBEE - Level Four

www.topcompliance.co.za

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The importance of nutrition to support immunity.

We often turn to over-the-counter medication and "immune-boosting" supplements to help support our immunity but did you know that through eating a balanced, nutritious diet you can save your money and achieve the same effect?

Let us take a deeper dive into the immune system and how it functions:

The immune system is complex, involving many cell types and organs such as the bone marrow, thymus gland, spleen and gastro-intestinal tract (GIT). Research has shown us that over 60% of our immune cells are located in our GIT making this a very important collection of organs. You might be thinking "what it the GIT?" It encompasses your oral cavity, oesophagus, stomach, small intestines and large intestines.

The cells in our GIT have gate-keeper functions – think of these as an army. They receive fuel from the fermentation process undergone by fibres and the "healthy" micro-organisms in the gut. A diet high in saturated fat (coconut oil, animal fat, butter, full cream dairy) may result in gut inflammation which causes dysfunction in these cells. Similarly, smoking and excessive sugar and alcohol intake causes oxidative damage within the body rendering these cells less effective. Consuming polyphenol-rich alcohol (such as wine) in moderation can be protective, however, in excess it can be disruptive to the immune system. On the other hand, a diet high in fruits, vegetables and wholegrains provides plenty of fibre and nutrients to keep these cells functioning as intended.

Let us take a deeper dive into key nutrients needed in the diet.

1. Pre- and pro-biotics

Probiotics are non-pathogenic microorganisms that make up the microbiota. Prebiotics are non-digestible fibres that serve as food for the microorganisms in the GIT. The dominant bacteria strains living within individuals are the Firmicutes (unfriendly) and the Bacteroidetes (friendly) strains. Having a higher ratio of Bacteroidetes to Firmicutes improves GIT function. The microbiota executes the following functions in the body:

- It assists with the development of the mucous layer and the epithelial intestinal barrier essential for preventing the penetration of harmful bacteria.
- It competes with pathogens for receptors and nutrients preventing them from being activated in the GIT.
- It is important for immune cell production with special reference to the B cells and T cells.

Does this mean you should be taking a supplement? Not necessarily. Taking pre and probiotics unnecessarily may lead to GIT symptoms such as bloating. There are many strains on the market including *Lactobacillus acidophilus,*

Lactobacillus rhamnosus, Bifidobacteria longum, Saccharomyces boulardii and many more that it can cause more confusion. Speak to your dietitian about where supplementation would be right for you and if so, which strains to look out for. You can get probiotics from fermented products such as yoghurt, kombucha, kefir, sauerkraut, pickles, miso, tempeh, and kimchi. Prebiotics can be found in fibre-rich foods (fruits, vegetables and wholegrains) such as apples, asparagus, barley, banana etc.

2. Vitamins

- **Vitamin C**

Vitamin C has been associated with reducing the severity and duration of flus and it has been shown to increase antibodies to fight harmful pathogens. It plays an essential role in collagen synthesis which helps the strengthen the cell barriers, preventing these harmful pathogens from causing damage to the cells. Little evidence supports the use of long-term vitamin C, however, there is evidence supporting the supplementation of 500-1000mg per day when you are sick. Important to note, supplementation (of > 100mg) over a long period of time may increase the risk of oxalate formation leading to kidney stones. If you are required to supplement for a long duration, ensure that your supplement also contains thiamine (vitamin B1) which helps prevent oxalate formation. Ensure you are getting enough vitamin C by eating citrus fruit, broccoli, brussels sprouts, spinach, strawberries, bell pepper, cabbage, and tomatoes. We can achieve our vitamin C requirements with 2 oranges or 1 cup of strawberries. Therefore, the food first approach with vitamin C is recommended and often more beneficial than supplementation.

- **Vitamin D**

Several immune cells express the vitamin D receptor and produce anti-microbial substances. Vitamin D helps down regulate inflammation. We find vitamin D in salmon, tuna, mackerel, cod liver oil, fortified bread spreads and full-cream and low-fat milk. Although mushrooms are low in vitamin D, it can synthesis vitamin D just like humans. Therefore, you can tan your mushrooms gills side up or sliced for 15 minutes around mid-day to optimize the vitamin D content. Most importantly, try getting your daily dose of a minimum of 10 minutes of sun every day. It is recommended that you test your vitamin D levels and if your levels are insufficient consult with your doctor or dietitian.

- **Vitamin A**

Vitamin A is important for preventing an excessive and prolonged immune response. A good vitamin A status will keep the homeostasis in the GIT and to prevent auto-immune reactions. Food sources rich in vitamin A are turkey, sweet potatoes, carrots, butternut, kale, spinach, red peppers apricots and eggs.

- **Vitamin E**

Vitamin E is a fat-soluble vitamin and acts as a strong antioxidant. Antioxidants play a role in preventing oxidative damage caused by free radicals. Vitamin E supports cell membrane health. Food sources high in vitamin E are sunflower seeds, wheat germ, almonds, hazelnuts, and vegetable oils (peanut oil, canola oil).

- **B Vitamins**

Vitamin B6 plays a role towards the production of the T cytotoxic cells (important for the destruction of pathogenic organisms) while folic acids assist to maintain the condition of T regulatory cells. We find folic acid in lentils, beans, asparagus, spinach, and broccoli. Food sources high in vitamin B6 are potatoes, bananas, and pork meat.

3. Minerals

- **Zinc**

Zinc is important for the normal functioning of a variety of immune cells. As zinc modulates the cytokine release by the cytotoxic T cells, the quantity needs to be carefully controlled and it is important not to over-supplement. Zinc is important for the production and functioning of B cells by the bone marrow. We find zinc in oysters, lean beef, poultry, seafood, low fat milk, whole grains, nuts, and whole grains (wild brown rice, health breads quinoa, corn, rolled oats pearl wheat and barley).

- **Selenium**

As mentioned, the oxidative burst that take place during the immune response produce free radicals that can be harmful to the individual. The antioxidant enzymes (glutathione peroxidase, catalase, and superoxide dismutase) neutralize the free radicals. The activity of these enzymes depends on the adequate provision of phytonutrients (color components in fruit and vegetables), Vitamin C, A and E and minerals zinc and selenium. Rich sources of selenium are Brazil nuts, tuna, oysters, and chicken.

- **Iron**

Iron plays an important role in T immune cell production and action as well as generating reactive oxygen species (ROS). These ROS molecules are important for signaling the immune system to kill pathogens. Haem iron is the better absorbed form of iron which you will find in chicken, meat, and eggs. Non-haem iron is less easily absorbed and can be found in legumes (beans, peas, lentils), green leafy veg and fortified foods. Vitamin C is important for the absorption of iron. Avoid supplementation without speaking to your doctor or dietitian first.

4. Omega 3 essential fatty acids

The active metabolites of omega 3 essential fatty acid are EPA and DHA. They keep the immune response in check as they have an anti-inflammatory properties. We find EPA and DHA in fatty fish such as anchovies, salmon, sardines, herring, mackerel, and pilchards. You can get omega-3 fatty acids from other sources such as flax seed oil and walnuts, however, they do not contain the active metabolites EPA and DHA and thus are not as biologically available as fish sources. If you are vegan, vegetarian or simply don't eat fish speak to your dietitian regarding supplementation.

Lifestyle

As sleep plays a role in immune system memory, a lack of sleep can cause dysregulations in immune function. Stress can also trigger inappropriate activation of the immune system. Incorporate stress relief activities as part of your lifestyle.

Supplementation

Your diet may be adequate, or it may not meet the levels of nutrients required to ensure a robust immune system. Numerous supplements claim immune boosting properties. Contact your dietitian to evaluate your diet and discuss the best action to take to optimize your nutrition.

References

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4. Grant WB, Lahore H, McDonnell SL, Baggerly CA, French CB, Aliano JL, et al. Evidence that Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths. Nutrients. 2020;12(4).
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7. Hemila H, Chalker E. Vitamin C for preventing and treating the common cold. Cochrane Database Syst Rev. 2013(1):CD000980.

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Some of our training courses can be done through our virtual classroom.

Certain types of Risk Assessments and audits will be done by means of virtual site visits using various means of technology to virtually visit the site.

For more information please contact – info@topcompliance.co.za

https://www.topcompliance.co.za/index.php/products

			
Medical equipment	SANS Signage	Legal posters	Personal Protective Equipment

Courses offered by Top Compliance (Pty) Ltd

https://www.topcompliance.co.za/index.php/skills-development-head/training-calendar

ONSITE TRAINING		
First Aid Courses:		**Accreditation**
NEW level 1 – US 119567 - Perform basic life support and first aid procedures	2 days	DEL
NEW level 2 – US 120496 - Provide risk-based primary emergency care/first aid in the workplace.	3 days	DEL
NEW level 3 – US 376480 - Provide first aid as an advanced first responder	3 days	DEL
First aid: Level 1	2 days	No longer recognised
First aid: Level 2	3 days	No longer recognised
First aid: Level 3	3 days	No longer recognised
First aid: Level 1 & 2	3 days	No longer recognised
First aid: Level 2 & 3	3 days	No longer recognised
First aid: Level 1, 2 & 3	5 days	No longer recognised
Child and infant CPR & choking	6 hours	

Adult CPR & choking	6 hours	
Adult CPR & choking and AED	1 day	
Occupational Health and Safety Courses		
OHS Act & SHERQ representative – Legal Liability	1 day	
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	1 day	
Hazard Identification and Risk Assessment	1 day	
Safety representative course specific for COVID-19 in terms of the OHS Act and Regulation for Hazardous Biological Agents	6 hours	
Food facility health & safety course in terms of R364	6 hours	
Fire Fighting and Prevention Courses		
Basic firefighting (Fire marshal)	6 hours	
Basic firefighting with emergency action planning (Fire & Evacuation marshal)	1 day	

ONLINE VIRTUAL CLASSROOM	
Occupational Health and Safety Courses	
Safety representative course specific for COVID-19 in terms of the OHS Act and Regulation for Hazardous Biological Agents	07h45 – 11h00
OHS Act & SHERQ representative – Legal Liability	07h45 – 16h00
The Occupational Health and Safety Act & responsibilities of management – Legal Liability	07h45 – 16h00
Hazard Identification and Risk Assessment	07h45 – 15h00
Food facility health & safety course in terms of R364	07h45 – 14h00
Fire Fighting and Prevention Courses	
Basic firefighting (Fire Marshal)	07h45 – 13h00
Basic firefighting with emergency action planning (Fire and Evacuation marshal)	07h45 – 15h00

SKILLS PROGRAMS - ONSITE TRAINING – *HEALTH AND WELFARE SETA*		**Credits**	**Class days**
First Responder - HW/SP/1508113 (First aid level 1 and 2)			
US 119567	Perform basic life support and first aid procedures	5	4 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace.	5	
First Aid Level 1,2 & 3 - HW/SP/1601190 (First aid level 1, 2 and 3)			
US 119567	Perform basic life support and first aid procedures	5	5 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace.	5	
US 376480	Provide first aid as an advanced first responder	8	
First Aid Responder and HIV Awareness - HW/SP/150475			
US 120496	Provide risk-based primary emergency care/first aid in the workplace.	5	4 days
US 14656	Demonstrate an understanding of sexuality & sexually transmitted infections including HIV/AIDS	5	
First Aid (Basic) - HW/SP/150795.			
US 119567	Perform basic life support and first aid procedures	5	4 days
US 9964	Apply health and safety to a work area	3	
Emergency First Aider - HW/SP/1605377.			
US 119567	Perform basic life support and first aid procedures	5	5 days
US 120496	Provide risk-based primary emergency care/first aid in the workplace.	5	
Workplace SHE Rep - HW/SP/1510182.			

US 9964	Apply health and safety to a work area	3	3 days
US 259639	Explain basic health and safety principles in and around the workplace	4	
First Aid and Safety Representative - HW/SP/1510183.			
US 9964	Apply health and safety to a work area	3	4 days
US 119567	Perform basic life support and first aid procedures	5	
First Aid and Firefighting - HW/SP/1511239.			
US 120496	Provide risk-based primary emergency care/first aid in the workplace.	5	4 days
US 13961	Demonstrate knowledge and use of hand operated firefighting equipment	4	
Fire and Rescue Skills Programme - HW/SP/1604338.			
US 252250	Apply firefighting techniques	3	4 days
US 119567	Perform basic life support and first aid procedures	5	