

Spirulina:

Found to Boost the Body's Ability to Combat RNA Viral Infections

螺旋藻:

研究发现可以增强人体对抗核糖核酸病毒感染的能力



Introduction

A new study published in the "Progress in Cardiovascular Diseases" journal explores nutraceuticals that show potential in strengthening type 1 interferon response to RNA viruses such as influenza and coronavirus. What are RNA viruses? They are viruses that have RNA (ribonucleic acid) as its genetic material. Notable human diseases caused by RNA viruses include the common cold, influenza, SARS, COVID-19, hepatitis C, hepatitis E, West Nile fever, Ebola virus disease, rabies, polio and measles.

Type 1 interferon response is part of our immune system. Its primary function is to cause digestion of viral DNA and viral proteins in infected cells, while inducing protection against viruses in neighbouring, non-infected cells. Type 1 interferon response helps to limit the spread of infections, particularly viral infections, in the body.

Due to the worldwide spread of coronavirus, there is an increased awareness on RNA viral infections. With no vaccine or established medical cure for coronavirus, it is quite interesting that recent research has shown the potential of nutraceuticals for improving the body's immune response against RNA viruses.

What Are Nutraceuticals?

The word "nutraceuticals" is derived from "nutrition" and "pharmaceuticals". Nutraceuticals are nutritional or food products that can also be used as medicine. Nutraceutical products provide physiological benefit as well as protection against chronic diseases. They are now being researched heavily by medical experts as safe and effective methods for treating the body.

Nutraceuticals may be used to improve health, delay the aging process, prevent chronic diseases, increase life expectancy, or support the structure or function of the body.

In the study, the mechanisms of type 1 interferon response are described and nutraceuticals such as spirulina are researched for their potential in helping the body combat RNA viruses.

Here is the explanation from the study:

"Moreover, the phycocyanobilin (PCB) chromophore of cyanobacteria (such as spirulina) and many types of blue-green algae, a biliverdin metabolite, has been shown to mimic the NADPH oxidase inhibiting activity of unconjugated bilirubin, likely because it is rapidly converted within cells to phycocyanorubin, a compound very similar in structure to bilirubin. This phenomenon likely explains many of the profound antioxidant and anti-inflammatory effects observed when spirulina, phycocyanin (the prominent spirulina protein incorporating PCB as a chromophore), or PCB itself are administered in rodent models of human pathology. Hence, ingestion of spirulina or of spirulina extracts enriched in PCB may have potential for boosting type 1 interferon response in the context of RNA virus infection. Oral administration of a cold-water spirulina extract rich in phycocyanin has been found to decrease mortality in influenza-infected mice."

简介

近期发表于《心血管疾病研究进展》期刊的一项新研究，探索了在增强1型干扰素对抗核糖核酸（RNA）病毒（如流感和冠状病毒）方面有潜力的营养食品。什么是RNA病毒？它们是一种以RNA（核糖核酸）作为遗传物质的病毒。由RNA病毒引起的人类疾病包括普通感冒、流感、严重急性呼吸系统综合症、新冠病毒、丙型肝炎、戊型肝炎、西尼罗热、伊波拉病毒病、狂犬病、小儿麻痹症和麻疹。

1型干扰素反应是我们免疫系统的一部分。它的主要功能是在感染细胞中促进病毒脱氧核糖核酸（DNA）和病毒蛋白的分解，同时保护邻近的未感染细胞抵御病毒的侵袭。1型干扰素反应有助预防感染的传播，特别是病毒在体内的扩散。

由于新冠病毒在全球各地传播，人们对核糖核酸病毒感染的认识也开始有所提高。虽然目前还没有可对抗新冠病毒的疫苗或疗法，但最近的研究显示营养食品具有增强人体对核糖核酸病毒产生免疫反应的潜力。

营养食品

营养食品一词意指“营养”和“药物”。营养食品是一种营养与食品的结合，也可作为药物使用。营养食品不仅可提供生理上的好处，还能预防慢性疾病。目前许多医学专家正大量研究营养食品以可作为安全又有效的治愈方法。

营养食品可用来改善健康、延缓老化、预防慢性疾病、延长寿命或支持身体结构及功能。

在这项研究中，除了描述1型干扰素反应的机制，也研究了螺旋藻这类营养食品，在帮助人体对抗核糖核酸病毒方面的潜力。

以下是此项研究的解说：

「此外，蓝藻（例如螺旋藻）和许多类型的蓝绿藻当中的藻蓝素（PCB），即一种胆绿素代谢物，可模拟NADPH氧化酶（简称辅酶II）来抑制非结合胆红素的活动。这可能是因为藻蓝素可在细胞内快速转换成一种与胆红素结构上非常相似的化合物。这一现象可能解释了当螺旋藻、藻蓝蛋白（含藻蓝素发色团的主要螺旋藻蛋白）或藻蓝素在人类病理啮齿动物模型中施用，所观察到的许多极大的抗氧化和抗炎作用。因此，摄取富含藻蓝素的螺旋藻或螺旋藻提取物能在核糖核酸病毒感染的情况下可能可以增加1型干扰素所能发挥的潜力。口服富含藻蓝蛋白的冷萃取螺旋藻已被发现可降低流感感染小鼠的死亡率。」

More on Spirulina

Spirulina is a blue-green algae that grows in both fresh and salt water.

While studying it as a potential food for space travel, NASA found that 1 kg of spirulina had the same nutrients found in about 1,000 kg of assorted vegetables.

Spirulina is a nutritional powerhouse rich in vitamins, minerals, protein, essential fatty acids, and more:

- **Protein:** Spirulina is 65-70% protein (more than meat!) of which 95% is digestible. The quality of the protein in spirulina is considered excellent, comparable to eggs. It contains all the essential amino acids that we need, making it a complete protein.
- **Carotene:** 25 times more than carrots; 50 times more than spinach.
- **Vitamin E:** 3 times more than wheat germ.
- **Vitamins B:** Highest whole food source of Vitamin B12 and B Complex; one heaped dessertspoon (approximately 12 g) of spirulina powder provides over 500% of the US RDA of Vitamin B12, 21% of Vitamin B2 (Riboflavin), 21% of Vitamin B1 (Thiamin) and 7% of Vitamin B3 (Niacin).
- **Iron:** 2-6 times higher in iron than beef liver; 300% more iron than steak.
- **Organic minerals:** Loaded with more than 14 organic minerals which are highly bioavailable, like calcium, magnesium, potassium, chromium and other trace minerals.
- **Antioxidants:** Contains more antioxidants than any other whole food.
- **Chlorophyll:** Richer in chlorophyll than alfalfa or wheat grass, making spirulina an incredible alkalizer and blood purifier.
- **Glycogen:** Rich in glycogen. When energy is needed, glycogen is quickly mobilized to provide the body with the fuel that it needs. Spirulina is the only known vegetable that contains glycogen.
- **Healthy fats:** Spirulina contains both Omega-3 and Omega-6 fatty acids, and contains 3 times more Gamma Linolenic Acid (GLA) than Evening Primrose Oil. GLA has shown to be effective in strengthening the body's immune system.
- **Enzymes:** Good source of natural enzymes.

Gram for gram, spirulina may literally be the single most nutrient-dense food on earth. It is low in calories, with 1 tablespoon of spirulina containing only 20 calories and 1.7 grams of digestible carbohydrate.

Spirulina has been well-researched for its many tremendous health benefits. These include:

- **Antioxidant powerhouse.** Spirulina contains a rare antioxidant compound known as phycocyanin which helps protect cells from oxidative damage. Oxidative damage can drive chronic inflammation, which contributes to cancer and other diseases.

螺旋藻也被称为蓝绿藻。它可生长在淡水或咸水中。

在研究螺旋藻作为太空食物的潜力时，美国国家航空航天局发现1公斤螺旋藻所含的营养与1000公斤各种蔬菜所含的营养相同。

无可置疑，螺旋藻是一种非常有营养的食物。它含有丰富的维生素、矿物质、蛋白质、必需脂肪酸等等：

- **蛋白质：**螺旋藻含有65-70%的蛋白质（比肉类还多），其中95%的蛋白质属于易消化蛋白质。螺旋藻中含有的蛋白质质量被认为是最好的，可与鸡蛋媲美。螺旋藻包含我们身体所需的所有必需氨基酸，是个完整蛋白质的最佳来源。
- **胡萝卜素：**比红萝卜高出25倍；比菠菜更高出50倍。
- **维生素E：**比小麦胚芽高出3倍。
- **维生素B：**是维生素B12和B群维生素的最佳食物来源：一中匙（大约12克）的螺旋藻粉可以提供比美国每日所需的推荐量来得多：维生素B12超过500%，维生素B2（核黄素）多21%，维生素B1（硫胺素）21%和维生素B3（烟碱酸）7%。
- **铁：**比牛肝中的含铁量高出2-6倍；比牛排含铁量高出300%。
- **有机矿物质：**含有超过14种生物可利用的有机矿物质，如钙、镁、钾、铬及其他微量矿物质。
- **抗氧化剂：**比其他所有食物含有更多的抗氧化剂。
- **叶绿素：**比苜蓿芽或小麦草含有更丰富的叶绿素，因此螺旋藻是食源中非凡的碱化剂和血液净化剂。
- **糖原：**富含糖原。当身体需要能量时，糖原会被激活，运送燃料以供身体所需。螺旋藻是唯一含有糖原的植物。
- **健康脂肪：**螺旋藻含有奥美加-3与奥美加-6脂肪酸，并且含有比月见草油多3倍的伽马亚麻酸（GLA）。GLA已被证明能有效增强人体免疫系统。
- **酶：**天然酶的良好来源。

一克对一克，螺旋藻可能是地球上最营养丰富的食物。它的卡路里含量很低，1汤匙的螺旋藻只含有20卡路里及1.7克的可消化碳水化合物。

螺旋藻还提供许多健康效益。这些效益都经广泛的研究支持与验证，其中包括：

- **丰富的抗氧化剂。**螺旋藻含有一种罕见的抗氧化化合物——藻蓝蛋白，可帮助保护细胞免受氧化损害。氧化损害会致使身体引发慢性炎症，进而导致癌症和其他疾病。

- **Lowers blood pressure.** Spirulina can increase the production of nitric oxide, a signalling molecule that helps the blood vessels relax and dilate, which may help to lower blood pressure levels.
- **Protects cholesterol from oxidative damage.** Fatty structures in the body can become oxidized, known as lipid peroxidation, which promotes the progression of many serious diseases. The antioxidants in spirulina appear to be particularly effective at reducing lipid peroxidation.
- **Increases oxygen in the blood.** Cells that have optimum oxygen levels will give us more energy, enhance brain function, and lower stress. Oxygenated cells help the body overcome fatigue and maintain a youthful appearance. Poor blood oxygenation deprives the cells of energy to clean and rebuild. As a result, our immune system weakens, which can lead to viral infections, DNA mutations, pathogenic bacteria infection, inflammation, heart disease, toxic build-up in blood, and premature aging. Poor blood oxygenation is the number one cause of declining health and disease! Spirulina stimulates the production of various stem cells including red blood cells which help to supply oxygen while keeping the blood clean.
- **Improves sinus issues.** Studies have shown that spirulina benefits the body by reducing the inflammation that causes people to experience sinus problems. It is very effective at reducing various symptoms like nasal discharge, sneezing, nasal congestion and itching.
- **Increases haemoglobin.** The most common form of anaemia is characterized by a reduction in haemoglobin or red blood cells in the blood. It is fairly common in the elderly, and may lead to prolonged feelings of weakness and fatigue. One study showed that spirulina supplementation increased haemoglobin in the body. Immune function also improved.
- **Promotes a healthy gut.** Spirulina promotes the growth of healthy bacterial flora in the intestines, which can help the body eliminate candida cells as well as support the immune system.
- **Helps control blood sugar.**
- **Detoxifies heavy metals (especially arsenic) from the body.**
- **Boosts energy and improves endurance.**
- **Offers neuroprotection for brain disorders and memory failure.**

NewLife™ Spirulina is available in both powder and tablet form. It is recommended to be taken daily for all ages to promote health and well-being. Should you have any questions, please do not hesitate to contact us through www.newlife.my.

Please see back cover for a special offer on NewLife™ Spirulina.

- **降低血压。**螺旋藻可增加一氧化氮的生成，是一种重要的分子信号，它帮助血管放松和扩张，降低血压。
- **保护胆固醇免受氧化损害。**身体内的脂肪结构会被氧化，称为脂质过氧化。这个过程会促成许多严重疾病的发展。螺旋藻中的抗氧化剂对降低脂质过氧化似乎特别有效。
- **增加血液中的氧气。**充满氧气的细胞会给我们更多的能量，增强大脑功能，降低压力。含氧细胞帮助身体克服疲劳，保持年轻的外表，更有活力。血缺氧会导致细胞无法获得充分的必需营养素以提供身体足够的能量进行净化与重建。其结果是，我们的免疫系统减弱，这可能导致病毒感染、基因突变、病菌增生、发炎、心脏病、血液中毒素堆积及过早老化等。因此血缺氧是健康衰退和疾病发生的首因！螺旋藻能刺激各种干细胞的生产，包括红血球，有助于供应氧气，同时保持血液清洁。
- **改善鼻窦炎。**研究显示，螺旋藻可减少身体的发炎反应，从而改善鼻窦炎。它能有效减轻鼻分泌物、打喷嚏、鼻塞和瘙痒等各种症状。
- **增加血红蛋白。**贫血最常见的表现是血液中的血红蛋白或红细胞减少。这在老年人中相当普遍，可能会导致长期的虚弱和疲劳。一项研究显示，补充螺旋藻可增加体内的血红蛋白及改善免疫功能。
- **促进健康肠道。**螺旋藻可促进肠道内健康菌群的生长，有助身体消除念珠菌细胞及维持免疫系统功能。
- **帮助控制血糖。**
- **排除体内重金属（特别是砷霜）。**
- **增加能量和提高耐力。**
- **为大脑紊乱和记忆衰退提供神经保护。**

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