

# Winter Worm Summer Grass

## 冬蟲夏草

### What is Cordyceps Sinensis?

Also known in Chinese as *Dong Chong Xia Cao* (winter worm, summer grass), cordyceps sinensis is a parasitic fungus that is found in caterpillars, primarily that of the moth *Hepialus armoricanus* Oberthur, which live about six inches below the surface of the ground. The fungus infects the caterpillars during late autumn and eventually replaces the host caterpillar tissue, sprouting its fruiting body above ground the following summer. This fruiting body and the fungus beneath the ground are harvested for therapeutic purposes.

For centuries, Chinese have used cordyceps sinensis as a tonic and herbal medicine in invigorating the overall health of the human body. Initially recorded in the Chinese New Compilation of *Materia Medica* (*Ben Cao Cong Xin*) by Wu-Yiluo during the Qing Dynasty (1757), cordyceps sinensis is also used in treating the lungs and kidneys. In Traditional Chinese Medicine (TCM), the lungs and kidneys are considered vital organs that serve as the source of the Qi (energy) and the Jing (essence) of life. By preserving the balance

### 甚麼是冬蟲夏草?

麥角菌科冬蟲夏草菌，即著名的冬蟲夏草(冬天之蟲，夏天之草)，是一種寄生真菌，它生長在距地面六英寸的土壤中的蛾幼蟲身上——主要是蝙蝠科昆蟲虫草蝙蝠蛾的身上。此真菌在深秋時附著在蛾的幼蟲體上，最終侵佔並主宰整個幼蟲組織，在來年的夏季萌發為植物的芽體，破土而出。將這種植物體和藏在土壤下的真菌體採收回來，可用於強身健體，因為它具有極大的滋補效益。

由於冬蟲夏草對於人類的整體健康都具有提昇的作用，所以幾個世紀以來，它一直被中華醫藥作為一種滋補品和一味本草藥物所採用。有關冬蟲夏草的文字記載最早始於清代(1757)吳儀洛所作的「本草從新」，書中指出，冬蟲夏草還可用於滋補肺部和腎臟。傳統中醫(TCM)理論認為，肺和腎是蘊藏氣(能量)和精(精力)的主要器官。根據傳統中醫的理論，通過維護這兩個器官的協調和健康水平，人體內的各個臟器就會以理想的狀態和諧地運作，這就是為甚麼冬蟲夏草在傳統中草藥中是一味非常貴重的藥材。

# Health Benefits

## Antioxidant Power



and health of these two organs, according to TCM, every organ in the body will then work harmoniously at optimum performance, which is why cordyceps sinensis is a prized mushroom in Traditional Chinese Medicine.

### Health Benefits

Although cordyceps sinensis is well-known in Eastern medicine, it only received attention in Western medicine in 1993 when Chinese female runners broke several world long-distance records (1,500 to 10,000 meters) by increasing their physical performance and endurance with a special diet containing cordyceps. Since then much research and many studies have been performed on the herb, confirming its healthful properties.

According to the Department of Biochemistry of the Chinese University of Hong Kong, cordyceps sinensis contains a series of chemical constituents, mainly cordycepin, ergosterol, polysaccharides, a glycoprotein and alpha-aminoisobutyric acid peptides. Cordycepin contributes to anti-tumor and antibacterial activity, while polysaccharides account for the anti-inflammatory, antioxidant, anti-tumor, immunomodulatory, hypoglycaemic and hypolipidaemic activity. Ergosterol in cordyceps sinensis is also anti-tumor and triggers a healthy immune system.

### Antioxidant Power

According to one study reported in the Journal of Alternative and Complementary Medicine, patients treated with cordyceps sinensis showed an increase of superoxide dismutase (SOD) in their bodies after 30 days of treatment, resulting in free radical scavenging capacity that reduced oxidative cellular damage. Cordyceps sinensis's antioxidant properties have also proven effective against cholesterol. Its polysaccharide contents help provide potent protection as well, helping the body defend against the accumulation of cholesterol on the walls of arteries.

### Intense Stamina

Cordyceps sinensis is mostly known in TCM for its energy inducing property. According to research at Kyoto

### 健康效益

雖然冬蟲夏草早已享譽東方醫學界，但它被西方醫學界所認識並引起關注，卻已到了1993年。那一年，中國的長跑女運動員打破了幾項世界長跑紀錄(1500米到10,000米)，她們之所以會有如此出色的表現，是因為其飲食中含有的特殊成份——冬蟲夏草，幫助她們提昇了身體的強度和耐力。至此，對冬蟲夏草的研究和探討在西方醫學界才大規模地展開，以確認其所固有的各種有益健康的特別性能。

香港中文大學生化學院的研究指出，冬蟲夏草中含有一系列的化學成份，主要有虫草素、麥角固醇、多醣體、糖蛋白和 $\alpha$ -氨基異丁酸甲肽類等。在抗腫瘤和抗病菌方面，冬蟲夏草具有特別的活力，而它所含的多醣體可以抗炎症、抗氧化、抗腫瘤，調解免疫功能、低血糖、高血脂症等。冬蟲夏草中的麥角固醇也具有抗腫瘤並促進免疫系統健康的效益。

### 強大的抗氧化效益

一篇發表在「交替與補償醫學雜誌」(Journal of Alternative and Complementary Medicine)上的研究報告指出，使用冬蟲夏草的病患，在經過30天的治療之後，體內的超氧化物歧化酶(SOD)有明顯的提昇，形成了清除自由基的能力，減少了氧化細胞的損傷。經證實，冬蟲夏草的抗氧化特性還具有降膽固醇的作用。它所含的多醣體也有助於起到有效的保護作用，即幫助身體控制動脈壁內膽固醇的囤積。

### 增強體力和耐力

冬蟲夏草在傳統中醫中最廣為稱道之處是它促生能量的特性。日本京都大學的研究顯示，冬蟲夏草會提高血流的速率，進而激發人體呈現高能量狀態。此項研究顯示在使用冬蟲夏草後，人體肝臟新陳代謝的能力會得到提昇。

除對血流速率的影響之外，冬蟲夏草還會影響氧氣在人體內的分佈狀況。美國加利福尼亞斯坦福大學醫學院在一項相似的研究中發現，冬蟲夏草能夠幫助人體內的器官應對缺氧狀態——指血液中缺少氧氣。通過促進體

▶ Intense Stamina

▶ Renal Protection



University, Japan, cordyceps sinensis heightens blood-flow rate in the body, which simulates a high-energy state. This research linked cordyceps sinensis with the increase of hepatic energy metabolism in the body when treated with the mushroom.

Apart from affecting blood-flow rate, cordyceps sinensis also affects the way oxygen is distributed in our body. In a similar study at Stanford University School of Medicine, California, the mushroom was found to help organs in the body cope with a state of hypoxia, the lack of oxygen in the blood. The mushroom helps the body manage its oxygen supply more efficiently by supporting the essential physiological activities of organs and tissues, and in doing so, causes the body to be more tolerant of hypoxia, resulting in the enhancement of physical capability, endurance and anti-fatigue effects.

### Renal Protection

Studies have shown that cordyceps sinensis could improve kidney functions, protecting it from damage caused by nephrotoxic chemicals. Research showed that the condition of patients with chronic renal failure improved in as early as 30 days. In fact, a notable regeneration of renal tubular cells was found in subjects treated with cordyceps sinensis. A study published in Nephrology Dialysis Transplantation reports that three grams of cordyceps sinensis per day is sufficient to protect the kidney against cyclosporine-induced nephrotoxicity. The research, performed on 69 kidney transplant patients, suggested cordyceps sinensis as a catalyst in the reduction of cyclosporine induced renal toxicity, thus protecting the kidney against nephritis.

### Control Blood Sugar

Researchers from the University of Macau, China, found that the isolated polysaccharide, CSP-1, from cordyceps sinensis has a potent antioxidant activity and hypoglycemic effect on diabetics. CSP-1 causes a significant drop in blood glucose in all the subjects tested. CSP-1 lowers plasma blood glucose and is also known to increase the activity of glucokinase, a liver enzyme responsible for decreasing internal sugar production and regulating the liver's sugar processing function.

內器官和組織的基本生理活力，冬蟲夏草還會幫助人們有效控制體內的氧氣供應流向，更加有效地分配氧氣，這樣，使身體對缺氧狀態的承受力更強，從而提昇身體的耐受力、持久力和抗疲勞的能力。

### 保護腎臟

研究顯示，冬蟲夏草可以促進腎功能，能夠保護腎臟免於受到有損腎臟的化學物質的傷害。研究顯示，那些慢性腎功能衰竭的病患在使用了冬蟲夏草之後，其病情最快在30天中就可以得到改善。事實上，在以冬蟲夏草進行治療的病例中，發現腎小管細胞的明顯更新。一篇發表在「腎病學、透析、移植術」(Nephrology Dialysis Transplantation)上的報告指出，每天攝取三克的冬蟲夏草，可以有效地保護腎臟，免於遭受環孢菌素引起的腎臟中毒。在對69名接受了腎移植手術的病患進行了臨床研究後得出的結論是：使用冬蟲夏草來降低環



## Reducing Blood Sugar

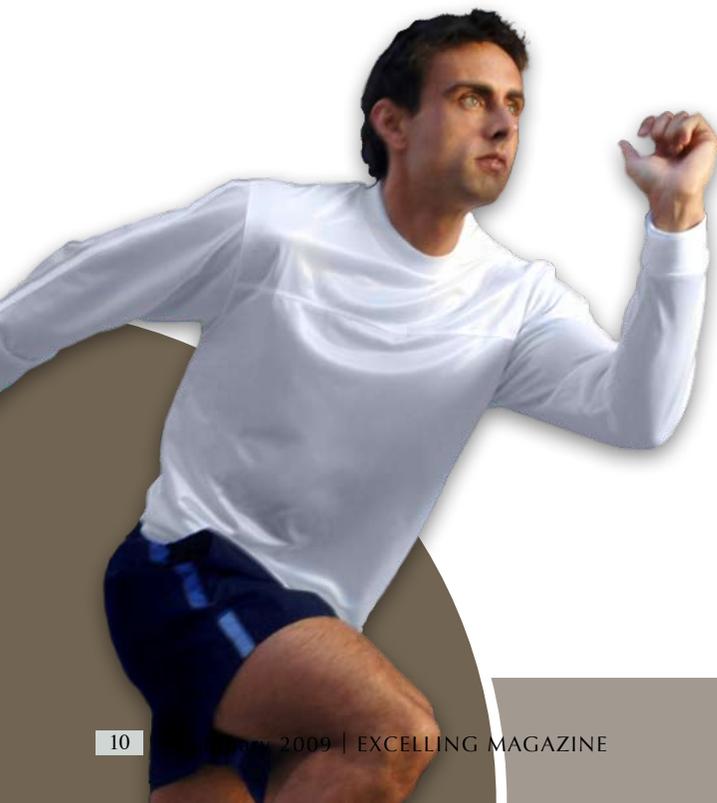
## Immune Booster



### Immune Booster

Cordyceps sinensis is also used in TCM to treat debility, especially for the elderly, because it activates pro-inflammatory responses in macrophages, stimulating the immune defense system against alien cells in the body. This anti-inflammatory mechanism triggers the body's response against systemic lupus erythematosus in humans, thus protecting the body against lupus and other autoimmune diseases.

Widely used in TCM, cordyceps sinensis is beginning to gain popularity in western medicine due to its multi-medicinal properties proven successful in treating health conditions relating to the immune system, rampant cell growth, metabolism, blood sugar level and renal activities. Once only affordable by the Chinese imperial family, this fungus is now more available to consumers who are beginning to be more informed and educated in its benefits and health enhancing properties.



孢菌素引起的腎臟毒素，進而保護腎臟，預防腎炎。

### 控制血糖

中國澳門大學的科研人員發現，從冬蟲夏草中分離出來的多糖體CSP-1，用於治療糖尿病時，具有強大的抗氧化活力和降血糖的作用。在對所有參加試驗者進行了測試後發現，CSP-1可明顯地降低血糖指數。CSP-1還可降低血漿中的血糖，以及提昇葡萄糖激酶的活躍性-葡萄糖激酶是一種能夠降低體內糖份生成的肝酶素，它可調解肝臟的糖份生產功能。

### 強化免疫功能

在傳統中醫中，冬蟲夏草還被用來消解虛弱，尤其是老年性虛弱，因為它能激活巨噬細胞的促炎反應，進而刺激免疫系統防禦外來細胞的入侵。此項抗炎症機制可啟動身體的反應，對抗系統性紅斑狼瘡對人體的進攻，以此，保護人體抗擊紅斑狼瘡和各種其它自體免疫性疾病。

曾在傳統中醫中被廣泛使用的冬蟲夏草，能夠強化免疫系統、激發細胞生長、促進新陳代謝、調整血糖水平和促生腎臟活力，所有這些有助提昇健康水平的綜合治療性能均已被成功地證實，所以，現在它已開始被西醫所普遍接受。這種曾一度只有中國的皇家貴族才有財力享用的珍貴菌類，現在已經走入了尋常百姓家，普通的消費者正在開始學習和了解它所帶來的滋補效益和增進健康的性能。