

Herbal Immune Support

A focus on chronic suboptimal immunity, associated fatigue and stress



Common clinical presentations of weakened and poorly functioning immunity include recurrent infections (particularly gastrointestinal, respiratory, and skin), slow and incomplete recovery from infections, fatigue, a general 'run down' feeling, enlarged lymph nodes, weight changes, mental health and cognitive effects, chronic fatigue syndrome (CFS) and other chronic immune conditions, as well as abnormal immune haematology.¹⁻³

An association between immune deficiency and autoimmune conditions has also been reported.⁴ Recurrent infections and compromised immunity may become a vicious cycle where impaired immunity increases susceptibility to infections, and infection impairs immune function.⁵ This is evident in highly pathogenic influenza viruses which induce excessive inflammatory responses that damage host tissues and weaken immune defences.⁶



Suboptimal immunity can result from certain medications and underlying medical diseases (as primary or acquired immune deficiency), although it is more often a consequence of poor lifestyle habits.⁷ Contributing factors may include age, stress, obesity, extreme exercise, poor sleep, drug and alcohol use, nutrient deficiencies and poor diet.⁸⁻¹³

Fatigue and Immune Function

Immune dysfunction has been long established as having a causative role in the development of debilitating chronic fatigue. Whilst it commonly occurs during and following acute infection, prolonged activation of immune and inflammatory pathways (>6 months) may lead to a chronic state of fatigue. Through various triggers, peripheral immune activation drives a chronic pro-inflammatory state, activation of oxidative and nitrosative stress pathways, as well as metabolic dysfunction in the brain. These changes lead to disturbed mitochondrial function and reduced ATP production, which presents as fatigue.¹⁴⁻¹⁶

Chronic fatigue is particularly apparent in individuals with chronic immune, neuro-inflammatory and oxidative conditions such as Rheumatoid Arthritis (RA), Multiple Sclerosis (MS), Systemic Lupus Erythematosus (SLE), mental health disorders, nervous system disorders, cancer, chronic fatigue syndrome (CFS) and fibromyalgia.¹⁴

Stress and Immune Function

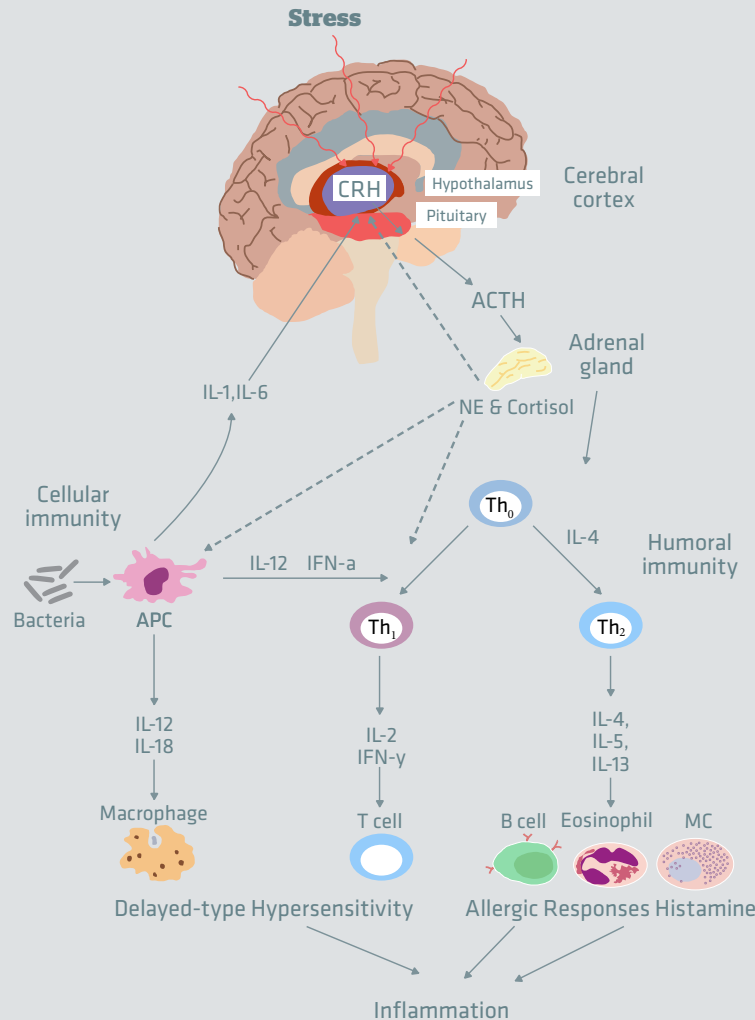
Chronic stress, marked by persistent activation of the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic-adrenal-medullary axes, impair immune responses and may be a core mechanism behind the development and progression of immune conditions, including some types of cancer.¹⁷ Chronic stress can increase susceptibility to infections, cause slow recovery from infections, influence the severity of infectious disease, diminish the strength of immune responses to vaccines, reactivate latent viruses and slow wound healing.¹⁸

In response to a specific stressor, some parameters of the immune system might increase, suggesting improved capabilities, while others decline or are relatively unaffected. These changes can vary depending on several factors, including the type of stressor and duration of exposure.

Generally, chronic stress is associated with suppression of certain immune parameters.¹⁹ A large number of studies have demonstrated that glucocorticoids, catecholamines, histamine, opioids, and cytokines released during chronic stress can suppress various aspects of cellular mediated immunity (CMI) and selectively reduce Th-1 type responses, resulting in a shift to a Th-2 dominant immune response, as seen in Figure 1 below. This shift to a Th-2 phenotype explains the impaired CMI defences against certain Th-1 mediated immune conditions which has been reported in chronic stress.¹⁷

Dysregulation of the HPA axis is also related to chronic fatigue. Here, hypoactivity has been reported to contribute to states of chronic fatigue.¹⁴ It has been proposed that following prolonged periods of stress where HPA overactivity has occurred as a result of chronic stress (resistance phase), the body 'switches' to hypoactivity (exhaustion phase) as a preventative mechanism to protect against the negative effects of chronic excessive exposure to glucocorticoids.¹⁴

Figure 1: Physiological effects of glucocorticoids on immune cells.^{17,20}



CRH, corticotropin-releasing hormone; ACTH, adrenocorticotropic hormone; IL, interleukin; NE, norepinephrine; TH, T-helper cells; APC, antigen-presenting cell; IFN, interferon; MC, mast cells.

Herbal Medicines for Immune Support

Treatment strategies targeting psychological stress (such as exercise and social support) have long been a component of naturopathic treatment for chronic immune and stress conditions.^{17,18} The growing knowledge on the impact of psychological stress on immune function supports the use of these therapies and herbal support with immune enhancers, tonics and adaptogens to assist in immune conditions where chronic stress is a factor.¹⁷

Withania somnifera (Withania)

A traditional Ayurvedic herb, the roots of *Withania* have been used for over 3000 years as a rejuvenating tonic (rasayana) and adaptogen. It is used to build strength, restore vitality, relieve stress and anxiety, increase energy and relieve general debility, especially during convalescence or old age.²²⁻²⁴ *Withania* also has anti-inflammatory, antioxidant and immune properties, augmenting defences against disease.^{21,25} Extract doses of 250-1250 mg, or dry herb equivalent doses of 1000-10,000 mg, appear to have therapeutic activity, and the use of root standardisation to withanolides and/or other active components may be preferable. Outcomes of a selection of clinical studies investigating the use of extracts of *Withania* are summarised in Table 1.





Table 1: Clinical studies on Withania

STUDY DETAILS	OUTCOMES
<p>Stress and Anxiety</p>  <p>RCT. Chronically stressed adults (n=98) received a specific patented extract of Withania for a period of 60 days at one of the following doses:</p> <ol style="list-style-type: none"> I. 125mg QD II. 125mg BD III. 250mg BD IV. Placebo²⁶ 	<ul style="list-style-type: none"> • Days 30 and 60; significantly improved wellbeing in the Withania group as compared to baseline and placebo (determined by a modified Hamilton Anxiety scale questionnaire). Experiential benefits were related to fatigue, flushing, perspiration, loss of appetite, headache, muscle pain, feelings of impending doom, palpitations, dry mouth, sleeplessness, forgetfulness, irritability, and inability to concentrate. • Baseline to day 60; significant improvements seen in Withania group (based on the 125 mg QD group; other Withania groups had greater responses in a dose dependent manner) compared to placebo for biochemical indicators of stress: <ul style="list-style-type: none"> - Mean serum cortisol decreased by 14.5% - Mean serum DHEA increased by 13.2% - Mean serum VLDL-C decreased by 8.9% - Systolic blood pressure decreased by 1.6% - Diastolic blood pressure decreased by 5.6% - Serum C-reactive protein decreased by 31.6% - Pulse rate decreased by 6% - Haemoglobin increased by 6.3%
<p>RCT. Adults (n=75) with moderate to severe anxiety received either Withania as a part of a naturopathic treatment (NT) or Psychotherapy (PT) protocol.</p> <ol style="list-style-type: none"> I. NT: Withania 300 mg, multivitamin, dietary counselling, deep breathing techniques. II. PT: Deep breathing techniques, placebo multivitamin, psychotherapy²⁷ 	<ul style="list-style-type: none"> • Both NT and PT significantly improved anxiety. However, the decrease in anxiety was significantly greater in the NT group (p=0.003). • Significant differences between groups were also observed in mental health, concentration, fatigue, social functioning, vitality, and overall quality of life, with the NT group exhibiting greater clinical benefit.
<p>RCT. Adults (n=64) with a history of chronic stress received one of the following treatments for a period of 60 days:</p> <ol style="list-style-type: none"> I. Withania 600 mg II. Placebo²⁸ 	<ul style="list-style-type: none"> • All scores on the stress-assessment scale reduced significantly in the Withania group compared to baseline and placebo. • Withania safely and effectively improve an individual's resistance towards stress and self-assessed quality of life. Serum cortisol levels of the Withania group reduced by 27.9% compared to placebo (p=0.0006).
<p>DB, PC, dose ranging study. Adults (n=39) diagnosed with general anxiety disorder received one of the following treatments for a period of 2 weeks:</p> <ol style="list-style-type: none"> I. Withania 500 mg BD II. Placebo²⁹ 	<ul style="list-style-type: none"> • At 6 weeks, Withania was demonstrated to have a significantly greater anxiolytic effect when compared to placebo (88.2% and 50%, respectively; p=0.026). Advantages in the Withania group were observed in the Hamilton Anxiety Rating, not Global Ratings. Anxiolytic effects were reported to possibly result from GABA-mimetic effects which had been demonstrated through prior experimental research.
<p>Prospective study. Adult males (n=120; 25-38 years) received 5g Withania root for 3 months. They were categorised into 4 groups:</p> <ol style="list-style-type: none"> I. Normozoospermic heavy smokers (n = 20) II. Normozoospermic under psychological stress (n = 20) III. Normozoospermic with infertility of unknown aetiology (n = 20) IV. Normozoospermic fertile men (n = 60) (control group – not under stress)³⁰ 	<ul style="list-style-type: none"> • Treatment with Withania significantly improved several semen, antioxidant and hormonal parameters. Compared to baseline, the following improvements were seen for normozoospermic men, cigarette smokers and those having psychological stress, respectively: • SPERM QUALITY <ul style="list-style-type: none"> - Sperm concentration increased by 17, 20 and 36%. - Sperm motility increased by 9, 10 and 13%. - Semen liquefaction time increased by 19, 20 and 34%. - Pregnancy outcome was 15, 10 and 15%. • SPERM ANTIOXIDANTS <ul style="list-style-type: none"> - Seminal plasma lipid peroxidases decreased by 29, 27 and 23%. - Superoxide dismutase in seminal plasma increased by 8, 18 and 17%. - Catalase in seminal plasma increased by 6, 3 and 11%. - Ascorbic acid in seminal plasma increased by 19, 25 and 18%. - Glutathione in seminal plasma increased by 19, 10 and 20%. - Vitamin A and E were decreased in seminal fluid in all groups prior to treatment and were increased significantly following treatment. • HORMONES <ul style="list-style-type: none"> - Hormonal biochemistry trended towards normalisation for FSH, LH, RRL and testosterone. - Serum testosterone levels increased by 13, 10 and 22%. - Morning cortisol was reduced by 11, 28 and 32% and afternoon cortisol was reduced by 26, 48 and 48%.



Table 1: Clinical studies on Withania continued

STUDY DETAILS	OUTCOMES
<p>Withania in Immune Health</p> 	<p>Healthy adults (n=5) consumed 6 mL of Withania root extract twice daily for 96 hours. Peripheral blood samples were collected at 0, 24, and 96 hours and compared for differences in cell surface expression of CD4, CD8, CD19, CD56, and CD69 receptors by flow cytometry.³¹</p> <ul style="list-style-type: none"> Significant increases were observed in the expression of CD4 on CD3+ T cells after 96 hours. CD56+ NK cells were also activated after 96 hours as evidenced by expression of the CD69 receptor. At 96 hours, mean values of receptor expression for all measured receptor types were increased over baseline, indicating that a major change in immune cell activation occurred across the sample.
<p>Withania in Fatigue</p> 	<p>Exploratory toxicological study. Healthy adults (n=18), were given an aqueous Withania extract according to the following regime: 750 mg for the first 10 days, 1,000 mg for the next 10 days, 1,250 mg for the last 10 days (equivalent to 6 g, 8g and 10 g of the dry root, respectively).³²</p> <p>RCT, parallel group, single blinded study. Healthy adults (n=40) were randomised over an 8-week period to receive:</p> <ol style="list-style-type: none"> Withania 500 mg Terminalia arjuna 500 mg Withania + Terminalia arjuna 500 mg Placebo³³ <p>Open-label, prospective, non-randomised, comparative clinical trial. Patients with stage I-IV breast cancer (n=100) received 6g (2 g tid) of Withania root extract daily during chemotherapy. Chemotherapy treatments consisted of:</p> <ul style="list-style-type: none"> Cyclophosphamide, epirubicin, 5-fluorouracil (CEF) or Taxotere®, Adriamycin®, cyclophosphamide (TAC). <p>Treatments were given intravenously every 3 weeks. Patients also took ondansetron or granisetron for nausea. Patients taking the TAC combination also took granulocyte colony-stimulating factor (G-CSF) therapeutics to alleviate the lessening of white blood cells.³⁴</p> <ul style="list-style-type: none"> At the end of the trial period, results showed: <ul style="list-style-type: none"> A significant reduction in total cholesterol (p<0.05). A significant increase in strength in the quadriceps and back extensor muscles (but not grip), despite no exercise (p<0.05). A slight trend (non-significant) to increase lean mass in otherwise sedentary persons. At the end of the trial period, Withania significantly increased oxygen consumption (p=0.005), maximum velocity (p=0.005), average absolute power (p=0.002) and average relative power (p=0.007) compared to baseline. Improvements to VO2 max were seen without affecting blood pressure or balance. Withania was reported to be useful for generalised weakness and to improve speed and lower limb muscular strength and neuro-muscular co-ordination. Ratings for breast cancer stage, fatigue, and QoL were measured at baseline and various stages throughout the 6 chemotherapy cycles. Mean fatigue scores (Piper Fatigue scale, PFS; Schwartz Cancer Fatigue Scale, SCFS) across the study were significantly higher in the control group as compared to the Withania group (p<0.001 PFS; p<0.003 SCFS). Lower scores indicate less fatigue in both of these assessments. QoL mean scores were also significantly lower in the Withania group for the categories of fatigue, insomnia, appetite loss, constipation, financial difficulties, and pain, as compared to the control group (p<0.001-0.024), indicating a lesser degree of symptoms. The scores for the categories of physical functioning, role functioning, emotional functioning, social functioning, and global health status/QoL were significantly greater in the Withania group as compared to the control group (p<0.001).



Astragalus membranaceus (Astragalus)

Astragalus root is a Traditional Chinese Medicine (TCM) with over 2000 years of use for its immune, antiviral and tonic properties. It is used to restore vitality, energy (qi) and promote healing and tissue regeneration during poor recovery from infections. Astragalus also has adaptogenic, antioxidant and respiratory tonic actions, and is predominately used in chronic immune conditions.⁴¹⁻⁴³

Clinical studies have shown Astragalus to be effective both orally and intra-nasally when used as a preventive measure against the common cold. Administration for a period of 2 months significantly increased intranasal levels of IgA and IgG in individuals susceptible to the common cold.⁴⁴ A further study administered large doses (15.6g/

day) of Astragalus to immune compromised patients for 20 days and found significant increases in serum IgM, IgE and cyclic AMP.⁴⁵

Due to its immune activity, Astragalus is used in cancer patients to enhance the effectiveness of chemotherapy and reduce associated side-effects. Clinical studies in this area have mostly administered Astragalus intravenously in hospitals in China, and have reported statistically significant benefits to survival rates and tumour growth rates.^{35,46,47}

The immune-modulating effects of Astragalus have been demonstrated in numerous experimental studies. Both cellular and humoral immune responses appear to be effected through various mechanisms, most notably via stimulation of macrophages and NK cells, and changes to the number of T-cells, various inflammatory cytokines and interleukins.^{21,43}



Echinacea purpurea (Echinacea)

Reviews on Echinacea in URTI's report that preparations of Echinacea purpurea may offer greater benefit for acute infections than other species, and recommend treatment be commenced at the first sign of infection to optimise results.³⁵

A meta-analysis of 14 RCT's evaluated Echinacea-containing products (all species) in the prevention and/or treatment of the common cold. The conclusion of the analysis was that Echinacea-containing products were beneficial in significantly decreasing both the incidence (58% reduction; $p < 0.001$) and duration (1.4 day reduction; $p = 0.01$) of the common cold.³⁶

In another meta-analysis involving 6 randomised, placebo-controlled studies of high methodological quality ($n = 2459$), the use of Echinacea extracts was associated with a significantly reduced risk of recurrent respiratory infections ($p < 0.0001$). Immune modulatory, antiviral, and anti-inflammatory effects appeared strongest in those individuals with higher susceptibility, stress or a state of immunological weakness, with Echinacea halving the risk of recurrent respiratory infections ($p < 0.0001$). Complications including pneumonia, otitis media/externa, and tonsillitis/pharyngitis were also less frequent with Echinacea treatment ($p < 0.0001$).³⁷

Alkylamides are a class of compounds present in plants of the genus Echinacea, which have been shown to have high bioavailability and immunomodulatory effects.³⁸ Numerous studies have investigated the pharmacodynamics of Echinacea in vitro and in vivo. Potential mechanisms for the immune modulating effects of Echinacea and its constituent alkylamides include:^{21,36,39,40}

- Activation of T-cell and B-cell lymphocytes
- Stimulation of cytokine and chemokine production
- Upregulation of dendritic cells
- Stimulation of phagocytosis
- Inhibition of prostaglandin production
- Stimulation of white blood cell production in the bone marrow, resulting in significant increases to levels and activity of natural killer cells (NK cells) and monocytes (animal study)
- Anti-inflammatory activity via inhibition of both cyclooxygenase enzymes (COX-1 and COX-2) and 5-lipoxygenase (F-LO)
- Reduction of interleukin (IL)-2 production in vitro
- Interaction with cannabinoid receptors (CB1 and CB2) and subsequent prolonging of tumor necrosis factor (TNF α) production following immune stimulation

Medicinal Mushrooms



Ganoderma lucidum (Reishi Mushroom)

The Reishi mushroom is one of the oldest medicinal mushrooms on record and is often referred to as the "mushroom of immortality" because of its beneficial effects on immune health and overall life expectancy.⁴⁸ Reishi's bioactive components include water-soluble polysaccharides and peptidoglycans, fatty acids, proteins, and more than 100 triterpenes.⁴⁹⁻⁵¹

Preclinical studies have established that the polysaccharide fractions (water-soluble) of Reishi have potent immuno-modulating effects. Other constituents of Reishi mushroom such as the triterpenoids (fat/ethanol soluble), have also been identified to exhibit

anti-inflammatory, antioxidant, antimicrobial, anti-tumour, and immune enhancing activity.^{52,53}

In TCM, Reishi is used as a tonic, immune-stimulant and adaptogen, and for deficiencies that manifest as insomnia, forgetfulness, fatigue, listlessness and poor appetite. It is thought to increase and strengthen energy, reduce weakness and increase stamina. Immune benefits may result from attenuated leukocyte depletion, and enhanced counts of B-cell and T-cell lymphocytes, macrophages, dendritic cells and NK cells.^{53,54}

Clinical studies on Reishi in fatigue, immunity, general wellbeing and cancer have shown some benefit. In a double-blind RCT, Reishi was found to provide benefits to fibromyalgia patients.⁵⁵ 64 patients with fibromyalgia were randomised to receive 3 g of Reishi twice daily (6 g/day total) or active placebo (carob powder) for 6 weeks. At the end of the trial period, and compared to placebo, Reishi supplementation significantly reduced the overall impact of fibromyalgia as assessed using the Fibromyalgia Impact Questionnaire (FIQ) ($p = 0.046$). It also improved sleep quality and move dimensions of the 15D Questionnaire, and results indicated that Reishi supplementation could lead to a reduction of 20-30% in pain levels. An earlier study concluded that Reishi (6 g/day for 6 weeks) might be a useful dietary supplement to enhance physical performance of patients suffering from fibromyalgia, with significant improvements demonstrated in aerobic endurance, lower body flexibility and velocity ($p < 0.05$).⁵⁶

A randomised, double-blind, placebo-controlled parallel study ($n = 132$) found polysaccharide extract of Reishi taken at a daily dose of 1.8 g tid (5.4 g/day total) for 8 weeks in persons with reported neurasthenia, was significantly more effective than placebo in increasing wellbeing and reducing fatigue.⁵⁷

A small double-blind randomised placebo controlled trial in 16 healthy adults assessed the safety and tolerability of 2 g daily of Reishi taken for a 10 day period. Immune markers were also monitored. No adverse effects were noted. CD56 cell counts increased although these were non-significant compared to placebo. These results suggest supplementation with Reishi may require a longer period of time to deliver immune benefits and/or immune benefits may only be seen in individuals with compromised immune function at baseline.⁵⁸

In advanced stage cancer patients ($n = 34$), high doses (5.4 g daily) of polysaccharide components of Reishi administered for a 12 week period was found to significantly enhance immune responses. Significant increases were seen in plasma concentrations of IL-2, IL-6, interferon gamma (IFN γ), and NK cell activity whereas the levels of IL-1 and TNF α were significantly decreased ($p < 0.05$).⁵⁹

A pilot RCT conducted on 48 breast cancer affected women investigated the effects of Reishi on fatigue related to endocrine cancer therapy. 1 g of Reishi spore extract three times daily (3 g/day total) for four weeks was used. Compared to the control group, significant improvements were seen in the treatment group in the domains of fatigue ($p < 0.01$), physical well-being ($p < 0.01$), and functional and emotional (but not social) wellbeing ($p < 0.05$). These patients also reported less anxiety and depression and better quality of life. Immune markers of cancer-related fatigue were also significantly ($p < 0.05$) lower in in the treatment group and no serious adverse effects occurred during the study.⁶⁰



**Lentinus edodes
(Shiitake mushroom)**

Both strengthening and restorative, shiitake is recognised for improving diseases involving depressed immune function, acute and chronic infections, cancer, allergies, hepatitis, and cardiovascular risk factors such as hypertension, hyperlipidaemia and diabetes.⁶¹ Shiitake mushrooms contain a number of constituents that can enhance both humoral and cellular immune responses in the adaptive immune system, the most well-known of these being lentinan, a beta-glucan polysaccharide that can significantly boost immune response by enhancing T-helper cells and stimulating interleukin and interferon, in order to defend against and eliminate pathogenic substances.⁶¹⁻⁶³ Shiitake also exerts antioxidant effects and has been shown to stimulate superoxide dismutase activity.⁶⁴

Research on immune conditions such as HIV and cancer most commonly use isolated lentinan administered intravenously. One small pilot trial administered shiitake orally to 7 patients undergoing cancer chemotherapy to assess safety, influence on quality of life (QoL) and immune responses. No adverse events were observed. Compared to the pre-chemotherapy state, no changes in QoL or immune parameters were noted after the first chemotherapy course. In contrast, following the second course of combined therapy, improvements were noted in QoL ($p < 0.05$), NK cell activity ($p < 0.05$) and immunosuppressive acidic protein (IAP) ($p < 0.01$) levels.⁶⁵

Immune-stimulating effects of medicinal mushrooms

Mushrooms exert their immune modulating properties through a variety of molecular mechanisms, one of which is via the increased expression of cytokines.⁶⁶ The primary function of cytokines is to regulate inflammation and as such, they play a vital role in regulating the immune response in health and disease.⁶⁷ Whilst cytokines such as tumor necrosis factor (TNF) and interleukin-6 (IL-6) are often thought of as being primarily pro-inflammatory, they also play an essential beneficial role in a variety of physiological functions, including immunity.⁶⁸

IL-6 can be secreted by a range of different cell types, including T-cells, B-cells, macrophages and microglia. IL-6 exerts its cellular effects through two distinct pathways, one of which is considered an anti-inflammatory pathway, involving the membrane-bound IL-6 receptor (IL-6R) expressed on selective cells in a process known as classical signalling that is also critical for bacterial defence.⁶⁹ IL-6 is quickly and transiently produced in response to infections and tissue injuries and as such, contributes to host defence through the stimulation of acute phase responses, haematopoiesis, and immune reactions.⁷⁰

TNF is primarily produced by macrophages during acute immune reactions to kill invading foreign organisms or mutated self-cells. Macrophages subsequently present digested foreign or mutated antigen to T cells for immune memorisation and further immune reactions. Researchers now appreciate the anti-inflammatory role of TNF, with recent advancements clearly demonstrating key roles for TNF in immune surveillance against tumor cells and infectious agents, and in the control against inflammation by activating and expanding Tregs, the central player in the negative feedback loop to suppress inflammation.⁶⁸

© 2019 Eagle
Eagle brochures are printed on Certified Carbon Neutral, Chlorine Free and FSC 100% Recycled paper. Paper is renewable, please recycle.



Importance of Managing Stress in Adolescents

Studies indicate that chronic or repeated exposure to stress during adolescence may result in heightened sensitivity to stress, which may increase the risk of anxiety and depression; decrease learning, memory and cognitive performance; impair immune responses and increase susceptibility to infection; and alter the regulation of gonadal steroidal hormones necessary for normal growth and development.⁷¹⁻⁷³



Safety

- Contraindicated in known allergy to Echinacea or plants of the Asteraceae family (e.g. chamomile, ragweed).
- Long-term use of Echinacea is not recommended in patients taking immunosuppressive medication.
- There is a slight risk that Withania may increase thyroxine concentrations when co-administered with levothyroxine and concurrent use should be monitored.
- Discontinue 7 days prior to general anaesthesia.

Summary

There is an intricate interplay between the nervous, endocrine, and immune systems in regulating the body's response to stress and the maintenance of homeostasis. Providing support to not only the immune, but also the adrenal and nervous systems are important considerations to help build up a patient's immune defences. By utilising a combination of immune enhancers, tonics and adaptogens, natural healthcare practitioners are better able to address the underlying stress and fatigue that often drive lowered immunity. Such an approach works to prevent long-term debility, whilst increasing quality of life in those patients who are struggling.

Recommended Co-prescriptions

Immune Support	Vitamin C, Cat's Claw, Garlic, Andrographis, Vitamin D3, Probiotics, Elderberry, Zinc, Vitamin A
Endocrine Support	Siberian Ginseng, Licorice, Rehmannia, Rhodiola, Tyrosine, Iodine, B vitamins
Nervous System Support	Magnesium, Omega-3 Fish Oils, Lavender, Kava
Nutritional Support	Multivitamin, Mineral and Antioxidant Formula

References available on our website via: <https://bit.ly/2RFR4DG> or scan QR code

