



The use of mushroom nutrition in viral conditions // Table of contents

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The use of mushroom nutrition in viral conditions // 1. Introduction 1.1

General usage of mushroom nutrition

For health care practitioners mushroom nutrition can serve as:

- stand-alone nutritional strategy
- adjunct strategy for
 - standard/other nutritional therapy, including herbal therapy
 - Western medicine treatment
 - acupuncture therapy

For utilization of mushroom nutrition's full potential holistic approaches such as TCM are of unquestionable value for individual assessment and selection of most suitable mushroom

"Let food be thy medicine and medicine be thy food."
Hippocrates, 460-370 BC

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General contraindications of mushroom nutrition

- usage of broad-spectrum antibiotics
- usage of immunosuppressives
- states after transplantations (of organs, bone marrow)
- usage of antiplatelet and anticoagulant drugs (Warfarin, aspirin) concurrently with mushrooms possessing strong anticoagulant effect (e.g. *Ganoderma*, *Auricularia*, *Shiitake*, *Chaga*)
- + not recommended to use these mushrooms in pregnant women during few last weeks before (expected) delivery
- In pregnancy & in women willing to conceive
 - usage of *Auricularia* (Jew's ear, wood ear, jelly ear, *heimuier*)
 - ...avoid also Asia-style dishes & cuisine where it is often included
- With alcohol:
 - don't mix *Coprinus comatus* (shaggy mane) with alcohol (for +/- 40 hours)

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Generally: mushroom nutrition is safe

- all given mushrooms are non-toxic
- majority of them can be used long-term & in higher doses

With caution

- in people on multiple and combined treatment with Western medicines
- when incidental effects: in 2 – 5 % of users might occur stomach discomfort (mostly mild & short-term, related to detoxification effect). If longer than 5 days, please discontinue supplementation.
- incidental allergic reaction for given mushroom (relationship could be tested by repeated discontinuation of supplementation)

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MUSHROOM NUTRITION USAGE according to Western medicine

- symptomatic (i.e., „oyster mushroom for cholesterol“, „cordyceps for fatigue“)
- for constituents (i.e., micro- a macroelements, enzyme activity)
- possibly also by the effect on functional circuits (but WM either doesn't have its own data/research or is not regarding it as generally credible)

Usage in WM is limited:

- * by approaching truly natural and whole food representatives through its single constituents
- * by only "partial" knowledge of a role(s) of such constituents in living organism, not even mentioning individualized living human being

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MUSHROOM NUTRITION

USAGE according to Chinese medicine

- symptomatic (i.e. „cordyceps for fatigue“, BUT always simultaneously checking its consistency with syndromology models of cordyceps)
- by TCM syndromology (i.e. „poria for resolving dampness and strengthening the Spleen“)
- by TCM characteristics (especially by nature: i.e. balanced vs. warm)
- possibly by functional circuits (i.e. fluids circuit we can affect e.g. through Spleen or Kidneys)

Usage is based on complex approach of TCM covering aggregated effect of whole natural substances in the context of the health condition of an individual, i.e. it is an intersection of known characteristics of the substance (mushroom) and their behavior known within seen TCM syndromes (of the person)

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The use of mushroom nutrition in viral conditions // 2. Direct antiviral strategy by means of MR&NT 2.1

Antiviral properties (AVP) of selected mushrooms

Mushroom	AVP	Suitable terrain & biomedical conditions
<i>Auricularia auricula</i> (heimuer-kikurage)	●	dry cough, dry stools, pale complexion, stiff tendons
<i>Agaricus blazei</i> (jisongrong-himematsutake)	●	BIG sensitivity to cold, lower backache, cold and weak knees or legs, early-morning diarrhea, slight abdominal distension, indigestion of cold or raw food
<i>Inonotus obliquus</i> (baihuarong) – chaga	●	purple lips, purple nails, purple tongue
<i>Cordyceps sinensis</i> (dongchongxiacao-tochukaso)	●	sensitivity to cold, lower backache, cold and weak knees or legs, male infertility (low sperm count, low libido), depression, tiredness, apathy // (males < 50)
<i>Coriolus/Trametes versicolor</i> (yunzhi-kawaratake)	●●●	feeling of heaviness, feeling of oppression of the chest // fatigue (from unknown reasons)
<i>Ganoderma lucidum</i> (lingzhi-reishi)	●●	palpitations, anxiety, insomnia, dream-disturbed sleep, dizziness, fatigue, histamine-mediated allergies // females
<i>Grifolia frondosa</i> (huishuhua-maitake)	●	diabetes II type, indigestion // males; obese
<i>Hericium erinaceus</i> (houtougu-yamabushitake)	●	gastric pain (ulcers), inflammation, brain support, indigestion // managers
<i>Lentinula edodes</i> (xianggu-shitake)	●	propensity to catch colds, fatigue, indigestion // youngsters, elderly
<i>Pleurotus ostreatus</i> (pinggu-hiratake)	●	cholesterol, stiff tendons, spasm
<i>Polyporus umbellatus</i> (zhuling-chore)	●	BIG retention of fluids (esp. lower extremities) - diuretic
<i>Poria cocos</i> (fuling-bukuryo)	●	retention of fluids, mild diuretics for minor swellings (irrespective of the location), loose stool

But still new emerging antiviral scientific evidence, e.g.:
Auricularia: In vitro antiviral activity of sulfated *Auricularia auricula* polysaccharides. Ngien et al, Carbohydrate Polymers Vol 90, 2012.
Hericium: Effects of *Hericium erinaceus* polysaccharide on reovirus-induced tissue necrosis and apoptosis in Muscovy ducks. Chen et al, Chinese Journal of Preventive Veterinary Medicine, 2010.

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Coriolus versicolor
Polyporus versicolor
Trametes versicolor

turkey tail
 yunzhi 云芝/雲芝
 kawaratake

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Coriolus mushroom nutrition – Material & Methods

Used as a food supplement (FS) – mushroom nutrition for effects based on detoxication/expelling & simultaneous supplementation (statement valid for both WS & TCM approaches)

Usage of *Coriolus* in nutrition therapy (NT) is based on WS studies revealing causality between (mainly) single ingredient/constituent part and particular effects especially on CFS, autoimmune diseases, states after chemo- or radiotherapy, viral load, virus related conditions

Usage of *Coriolus* in Chinese medicine (TCM) is based on holistic properties fitting into complex syndromology of TCM especially for heat deriving from impediment or stagnation of Phlegm with/without Dampness, which harms mainly Liver-Yin and Kidney-Yin (with all the consequences)

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Coriolus mushroom nutrition – WS documented usage

either as an additive/adjuvant or stand alone food supplementation

- antiviral effect on **herpes simplex (HSV)** (HSV linked to facial/oral/genital herpes)
- antiviral effect on **Epstein Barr virus (EBV)** (EBV linked to breast lumps)
- antiviral effect on **Human papillomavirus (HPV)** (HPV linked to cervical pathologies)
- chronic fatigue syndrome (CFS)** (viral link?) and fatigue from various (or unknown) reasons
- immune support of **healthy prostate** (viral link?)
- immune support in **hepatitis** (H_V – hepatitis viruses)

other valuable usage (but not necessarily virus related)

- Immune modulation/support
- Leaky Gut Syndrome (LGS)
- Detoxification
- Fibromyalgia (FM; chronic pain of muscles and connective tissue)
- Immune support during **radio or chemotherapy** (important tool!)
- nutrition in **palliative care**
- chlamydia** (together with other mushrooms and TCM remedies)

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a) Coriolus mushroom nutrition & Herpes simplex virus (HSV)

either as an additive/adjuvant or stand alone food supplementation

Herpes simplex (HSV-1, HSV-2)

- * facial/oral herpes (cold sores, fever blisters)
- * genital herpes
- * herpetic whitlow (lesion of fingers), herpetic gingivostomatitis (gums & mouth inflammation)
- * herpes gladiatorum (wrestler's herpes)
- * ocular herpes
- * encephalitis (cerebral herpes infection)
- * Mollaret's meningitis
- * neonatal herpes (but better to supplement the mother for couple of months prior to delivery)
- * possibly also Bell's palsy (facial paralysis from dysfunction of the facial nerve from no specific cause)

Coriolus supplementation reduces viral shedding and alleviate the severity of symptomatic episodes.

Recommended supplementation:

- first day upon starting to feel the beginning of an eruption immediately give up to 3 g, then every 2-4 hours 0,5 g tablet
- first 2 weeks 3x 1 g a day
- next 6 weeks 3x 0,5 g a day

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b) Coriolus mushroom nutrition & Epstein Barr Virus (EBV) 2.a.4b
 either as an additive/adjuvant or stand alone food supplementation

Epstein Barr virus belongs to herpes family (human herpes virus 4 / HHV-4)

- * in Western medicine (WM) associated with particular forms of cancer (Hodgkin's lymphoma, Burkitt's lymphoma, nasopharyngeal carcinoma, breast cancer)
- * in WM cause of infectious mononucleosis (glandular fever)
- * in WM associated with human immunodeficiency virus (HIV)
- * in WM associated with certain autoimmune diseases (dermatomyositis, systemic lupus erythematosus, rheumatoid arthritis, Sjögren's syndrome, multiple sclerosis)
- * in WM associated with chronic fatigue syndrome (CFS)
- * in WM associated with disorders of liver functions

Coriolus supplementation accelerates the decline in antibody IgM, IgG levels

Recommended supplementation:

- depending on severity of the disease
- 0,5 – 3 g a day, best split into several doses

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c) Coriolus mushroom nutrition & Human papillomavirus (HPV) 2.a.4c
 either as an additive/adjuvant or stand alone food supplementation

Scheme of HPV infection as a cause of cervical cancer (Western medicine flowchart)

```

    graph LR
      NE[Normal epithelium] --> HP[HPV infection]
      HP --> TI[Transient infection]
      HP --> CIN1[CIN 1]
      CIN1 --> PI[Persistent infection]
      PI --> CIN23[CIN 2 & 3]
      CIN23 --> IC[Invasive cancer]
    
```

*CIN 1, 2 and 3: Cervical Intraepithelial Neoplasia degree 1, 2 and 3.

Flowchart © 2010-2012, dr. Silva Couto

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c) Coriolus mushroom nutrition & Human papillomavirus (HPV) 2.a.4c2
 either as an additive/adjuvant or stand alone food supplement

Results of 1 year supplementation of Coriolus-MRL at 3 g (6 tablets) a day

The skin texture of the cervical area returned to normal in 72.5% of the patients taking Coriolus supplementation, while the viral load of HPV was not detected in 91.5% of the patients taking Coriolus supplementation

Very useful food supplementation with positive therapeutic impact, either:

- ❖ in the reversion of LSIL (with High Risk HPV+),
- ❖ or in those HSIL patients, who have undergone surgery but experience continued High Risk HPV viral count

Supplementation used: 6 tablets a day of Coriolus-MRL for one year

Source: Dr. Couto SC. Clinical Journal of Mycology Vol 2, 2009. ISSN 1646-6551

Available online from [mycologyresearch.com](http://mycologyresearch.com/pdf/newsletter/Clinical_Journal_of_Mycology_Vol2_July2009.pdf)

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d) Coriolus mushroom nutrition & ME/CFS 2.a.4d
 either as an additive/adjuvant or stand alone food supplementation

Myalgic Encephalomyelitis (ME) Chronic Fatigue Immune dysfunction syndrome (CFIDS, CFS)

- Natural Killer Cells before supplementation averaged 129.64 mm³, while after supplementation this increased to 175.00 mm³; **an increase of 35 %.**
- T cell (CD3 + CD26) activation increased in 66 % of patients
- increase in leucocytes during first 15 days of 27 %, later plus 14 %
- Quality of life improved as measured with the Fukuda quality of life scale.

Supplementation used: first 2 weeks 6 tablets a day of Coriolus-MRL next 6 weeks 3 tablets a day of Coriolus-MRL

Source: Pioneering Work at Breakspear Research in Coriolus Supplementation for CFIDS/ME/CFS. Mycology News, Vol 1, Ed.4, 12/2000. Available online from [mycologyresearch.com](http://mycologyresearch.com/pdf/newsletter/issue1_vol_04.pdf)

Monro J. Chronic Fatigue Immune Dysfunction Syndrome, Journal of Integrative Medicine, 8:101-108, 2004

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d) Coriolus mushroom nutrition & sport nutrition („ME/CFS like“) 2.a.4d2
 either as an additive/adjuvant or stand alone food supplementation

Sportsmen, athletes

- * due to strenuous training and insufficient rest & “living high”
- => often in condition similar to CFS

Young athletes

- * due to combination of school, hard training & lifestyle
- * highly competitive environment, where individual (health) condition is not of big value for administration
- => often in condition similar to CFS

Coriolus supplementation helps the organism to recover more quickly and to deal with possible viral load due to exhaustion.

Recommended supplementation:

- 14 days before event: 2x 1,5 g of Coriolus + the same of Cordyceps a day
- in training: 1x 1,5 g of Coriolus + the same of Cordyceps a day
- in males possible to replace Cordyceps for Blazer

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e) Coriolus mushroom nutrition & prostate 2.a.4e
 either as an additive/adjuvant or stand alone food supplementation

For benign prostatic hyperplasia mushrooms are often recommended:

- *Grifola frondosa* (maitake, ram's head, hen-of-the-woods)
- *Ganoderma lucidum* (reishi, lingzhi)

Thanks/despite recent contradictory studies wheather there is or is not a viral link in prostate tumors we recommend to combine in given condition Coriolus with one of the above mushrooms (+ selen)

Coriolus supplementation would help the organism to

- * increase NK cell activity
- * assist the body against viruses from herpes family (EBV, cytomegalovirus (CMV/HHV-5) etc.)
- as well as against HPV

Hsieh TC, Wu JM. Cell growth and gene modulatory activities of Yunzhi (Windsor Wurz) from mushroom *Trametes versicolor* in androgen-dependent and androgen-insensitive human prostate cancer cells. Int J Oncol. 18 (1): 81–8, 2001. PMID 11115542

Recommended supplementation:

- first 2 weeks 3x 1 g a day
- next 6 weeks 3x 0,5 g a day
- follow-up 0,5 g a day for 2 weeks every 2-3 months

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f) Coriolus mushroom nutrition & hepatitis (H_V)

either as an additive/adjuvant or stand alone food supplementation

For some hepatitis viruses there are already some studies on usage of mushrooms:

- * chronic HBV: *Ganoderma lucidum* (reishi, lingzhi)
- * chronic HBV: *Cordyceps sinensis* (dongchong xiaocao)
- * chronic HBV: *Lentinula edodes* (shiitake)
- * autoimmune hepatitis: *Griofola frondosa* (maitake)
- * chronic HBV, HCV: *Agaricus blazei*

Apapart from hepatitis viruses, among other viruses that can also cause liver inflammation are herpes simplex, cytomegalovirus or Epstein-Barr virus therefore it is recommend to combine Coriolus with one from above mushrooms

Coriolus supplementation would help the organism to

- * increase NK cell activity
- * assist the body against viruses from herpes family (EBV, cytomegalovirus (CMV/HHV-5) etc.)

Recommended supplementation:

- * first 2 weeks 3x 1 g a day
- * next 6 weeks 3x 0,5 g a day
- * follow-up 0,5 g a day for 2 weeks every 2-3 months

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Coriolus - selected references

Immunomodulatory, immunostimulative and adaptogenic effect

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Coriolus - selected references II

Antiviral (HPV, EB...), apt antitumor activity I

- Borisov S. Coriolus versicolor - Assessment of the Effects on Patients Infected with Low-risk and High-risk HPV Subtypes. Clinical Journal of Mycology, Vol. 3, 2012 Jan. ISSN 1646-6551.
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Coriolus - selected references III

Antiviral (HPV, EB...), apt antitumor activity II

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- Wu JM, et al. Cell growth and gene modulatory activities of Yunzhi (Windsor Wunxi) from mushroom Trametes versicolor in androgen-dependent and androgen-insensitive human prostate cancer cells. Int. J. Oncol.18, 81-88 (2001).
- Zhou XW, Hua J, Lin J, Tang KK. Cytotoxic activities of Coriolus versicolor (Yunzhi) extracts on human liver cancer and breast cancer cell line. Afr J Biotechnol 6, 1740-43. 2007

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Ganoderma lucidum

ganoderma

lingzhi 灵芝/靈芝
chizhi 赤芝
hongzhi 红芝/紅芝
reishi

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Ganoderma mushroom nutrition & antiviral properties

either as an additive/adjuvant or stand alone food supplementation

As for antiviral properties is Ganoderma similar, but less powerful than Coriolus

In specific viral conditions Ganoderma can be preferred to Coriolus, especially when accompanied by:

- asthma, bronchitis, allergy (great in histamine mediated a.i)
- cardiovascular disease (hypertension, blood clotting, angina pectoris, atherosclerosis, high cholesterol – all this thanks to triterpens and sterols)
- diabetes (DM2), gout (in gout preferably with Poria or Polyporus)
- hepatitis
- palpitation
- breathlessness, short breath
- insomnia, mental restlessness
- Cough, dizziness, vertigo, flashing lights/floaters in the vision

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Ganoderma mushroom nutrition & antiviral properties
 either as an additive/adjuvant or stand alone food supplementation

Ganoderma supplementation helps the organism to deal with possible viral load while simultaneously addressing given specific associated or underlying conditions.

Recommended supplementation:

- depending on severity of the disease
 0,5 – 3 g a day, best split into several doses
 initial dosage could be higher for couple of days/weeks
- ideal to combine with Coriolus, either give:
 - * together
 - * separately during the day
 - * (weekly, monthly) courses of each
 - ** distribution of the daily dosage could be equal or with preference to one mushroom (which again can be changed over time)



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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.a.1

Digestion inconvenience addressed by mushroom nutrition

Symptoms

- loss of appetite
- stomach problems, regurgitation, nausea, vomiting, stomach ache
- diarrhea, abdominal pain, ...

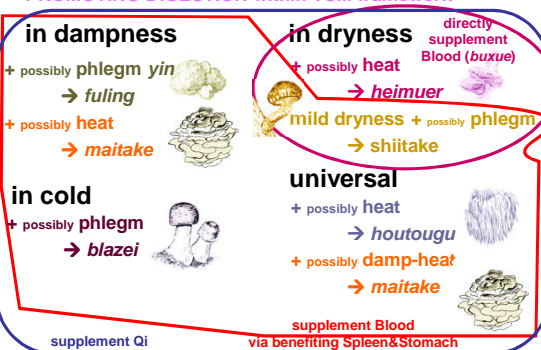
Diagnosis according to WM :

- psychosomatic complaints
- gastritis, intestine inflammation, peptic ulcer disease
- cholecystitis, gallstones
- liver inflammation, steatosis, cirrhosis of the liver
- intestinal infection, parasitic disease, ...

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Further inspiration for mushroom nutrition therapists:
PROMOTING DIGESTION within TCM framework



in dampness
 + possibly phlegm yin → **fuling**
 + possibly heat → **maitake**

in dryness
 + possibly heat → **heimuer**
 mild dryness + possibly phlegm → **shiitake**

in cold
 + possibly phlegm → **blazei**

universal
 + possibly heat → **houtougu**
 + possibly damp-heat → **maitake**

supplement Qi
supplement Blood via benefiting Spleen&Stomach

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.1

Chronic fatigue syndrome (CFS)
Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Description in Western medicine (WM)

Also called as:

- Chronic viral syndrome
- Post viral syndrome
- Myalgia encephalomyelitis

=> complex clinical syndrome

Characterized by:

- Persistent fatigue /for more than 6 months/
- Neurological problems
- Constellation of symptoms that can resemble other illnesses

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.2

Chronic fatigue syndrome (CFS)
Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Main symptoms as evaluated by WM

- persistent fatigue - doesn't respond to exerted activity /tiredness without apparent cause /
- sleep and relaxation doesn't restore enough energy
- symptoms get worse with any physical and mental activity
- recovery /convalescence /of the body after common infections /virosis/ is difficult and time-consuming
- Patient is very limited in everyday life

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.3

Chronic fatigue syndrome (CFS)
Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Other causes of fatigue that should be eliminated according to WM

Diff. diagnosis:

- hypothyroidism, lupus erythematosus – and other autoimmune diseases,
- anemia, insufficiency of minerals, vitamins,
- tumors
- active ongoing Lyme disease,
- EBV,
- addiction on drugs, alcohol...
- psychiatric illnesses

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Minor symptoms I – as evaluated by WM 3.b.4

- Muscle pain, joint pain /without redness/
- Sore throat
- Headache
- Chills
- Weakness, coldness of the extremities
- Sweating
- Swollen, painful glands, /lymph nodes/

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 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Minor symptoms II – as evaluated by WM 3.b.5

- Insomnia
- Irritation, nervousness, changes in mood
- Low concentration, poor memory
- Digestive problems, allergic pr.
- **Symptoms appear suddenly /after viral inf./**

= Symptoms are showing deregulation of immune, neurohumoral and digestive systems

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Objective criteria (symptoms) – as evaluated by WM 3.b.6

- Low-grade fever /37-38 degrees/
- Repeated pharyngitis /inflammation of the throat/
- Palpable and sensitive lymph nodes

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Diagnosis in Western medicine 3.b.7

... difficult, cannot be determined by objective examination

Dg:

- 2 main + 6 minor symptoms +2 objective criteria,

or

- 2 main + 8 minor s.

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Causes of CFS from the view of WM 3.b.8

- pollution of our environment /chemicals, heavy metals,../
- stress, emotions
- infections, viral load (EBV, CMV, Herpes simplex, borrelia, chlamydia...)
- metabolic and genetic defects
- bad nutrition + life style...

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS)
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Case study I /A– Girl, 18 y.o., student 3.b.9

- **Girl**, 18 years old, excellent, responsible student
- **She suffered from fatigue for 2-3 years**
- Headache, muscle, joint pain, sore throat, low-grade fever
- Sometimes insomnia, dizziness, herpes labialis
- Gastrointestinal weakness, stomachache, nausea, decrease of appetite, changing between constipation a. diarrhea, sweating during the day /spontaneous sw./, allergy
- Blood tests showed high antibody levels against EBV, borrelia
- High levels of ALT, AST 2x, IgE

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS) 3.b.10
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Case study I/B – Girl, 18 y.o., student

Treatment:

- Coriolus + Reishi 3g/day for 1 month
 1,5g/day for 4 months
- **Reishi** – recovers energy, strengthens the body, supports sleep and mental activity, is effective in treating allergy /suppresses the release of histamine/..
- **Coriolus** –nourishes the spirit, harmonizes immunity /balance between cellular and humoral immunity/, has antiviral effect/EBV,HS/..has hepatoprotective effect
- **We worked together for more than 2 years**

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS) 3.b.11
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Case study II – Woman, 42 y.o., teacher

- **Woman, 42 y., a teacher**
- Chronic fatigue, asthma, repetition of viral infections, herpes labialis, headaches, joint pain, coldness of the extremities, digestive problems..., EBV, HS

Th.: Cordyceps 3g/day for 2 weeks
 1 g/d. for 3 months

Cordyceps – immunomodulatory effects (weakened immune system, allergies, asthma), nourishes lungs, transforms phlegm, warms low part of body...

- She got better and now she is used to take Cordyceps 2x/year

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Chronic fatigue syndrome (CFS) 3.b.12
 Chronic fatigue immune dysfunction syndrome (CFIDS)
 // Case study III – Woman, 55 y.o.

- **Women , 55 years old**
- suffering from chronic fatigue, insomnia, headache, spontaneous sweating, palpable lymph glands, low grade fever in the afternoon, changes of mood, very nervous.
- She was after surgery, had stressful period in life
- **th: reishi** – strengthens the body (e.g. after exhaustion, surgery), calms the spirit.
- After 2 months – she slept well, wasn't so irritated, her condition got generally better...

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Allergy – hay fever 3.b.13
 // Case study IV – young man, 21 y.o., student

- **Student, 21 years old**
- He came to see me because of allergy, every spring he suffered from hay fever, (red eyes, full, swollen nose), his breathing was sometimes difficult (suffered from breathlessness)
- **th: reishi** 1,5g a day for 1 month prior to his allergic season
- He was feeling better than last Spring
- We made good use of reishi effects on suppressing the release of histamine & its anti-allergic effect.

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Juvenile arthritis 3.b.14
 // Case study V/A – little boy, 2 y.o.

- **Little 2 year-old boy** with evident autoimmune disease - juvenile arthritis combined with red rash
- His parents wanted to try more than only modern medicaments (antibiotics, corticoids, anti-rheumatics)
- The boy had painful and swollen joints, subfebrile temperature – mainly in the afternoon, and was sweating during the night.
- (according to TCM: *yinxu*, *xure* - internal heat).
- Th: diet, homeopathic care, +Coriolus 0,5g/ twice a day
 He used it for several months

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The use of mushroom nutrition in viral conditions / 3. Indirect antiviral strategy by immune support
 Juvenile arthritis 3.b.15
 // Case study V/B – little boy, 2 y.o.

- After 1 month the rash disappeared, swelling and sweating reduced
- After 2 months - even after stopping Prednison - the condition of the little boy got better
- afternoon fevers decreased, the pain and swelling of joints nearly disappeared
- Step by step, the boy recovered. He used the Coriolus mushrooms continually for next several months and after stopping the supplementation he felt and stayed well.

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.16

Conclusions
 from the clinical use of Coriolus

- balances immunity,
- is useful in the treatment of autoimmune inflammation,
- has antiviral effect,
- is increasing vitality, energy
- has hepatoprotective effect...

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.16 b

Conclusions
 from the clinical use of the combination of Coriolus+Cordyceps

In fatigue, chronic fatigue or in sportsmen nutrition

- To balance immunity
- To enhance the capacity to deal with stress
- To strengthen body
- To safeguard body from injury

Recommended supplementation:

- 14 days before event: 2x 1,5 g of Coriolus + the same of Cordyceps a day
- in training: 1x 1,5 g of Coriolus + the same of Cordyceps a day
- in (young) males possible to replace Cordyceps for Blazei
- in males above 50 y. advised to replace Cordyceps for Maitake (or Blazei)
- in women possible to replace Cordyceps for Reishi

// mushrooms are best to be taken separately, best 1 hour before or 2 hours after meal
 // Cordyceps or Blazei to be used best in the morning, forenoon, and definitely not before sleep

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.17

Leucorrhea, history of abortion
 // Case study VI – woman, 30 y.o.

- **Woman, 30 y.old**
- Gynecological problems – leucorrhea, history of 3 miscarriages /abortions/
- Blood tests showed: allergy, autoimmune problems, + antibodies x EBV
- She refused to take corticosteroids (Prednison)
- blood tests and immunological laboratory parameters were almost normalized after Th: using Coriolus 1,5-3g/day and some homeopathics for 2 months

- Leucorrhea disappeared
- She has a baby now

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.18

Nervousness, restlessness, insomnia
 // Case study VII – woman, 34 y.o.

- **Woman, 34 years old**
- She came to see me and she started the conversation with these words:
 "I am very busy, I have 2 small children, my job is demanding, I am nervous, I can't fall asleep, I feel swollen..."
- After evaluation of her condition I recommended her Poria
- She felt less nervous, less irritated, her sleep was better after using Poria (3g/day for 2 weeks)
- As a follow-up she was taking 1,5g/day for 1 month and after that she felt so good she asked for Poria for her mother and 2 other friends as well...

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.19

Fatigue, digestive problems
 // Case study VIII – young man, ~20 y.o.

- **young man** came to see me because of three main problems:
 - 1. cough with phlegm
 - 2. fatigue
 - 3. digestive problems – loss of appetite, sometimes nausea, sometimes diarrhea
- Th: Poria for 3 weeks in combination with some TCM herbs (*renshen* - Ginseng, *baizhu* - Atractylodes...) and his condition got better
- As a follow-up I recommended to continue taking only Poria for other 3 weeks
- after 6 weeks (3+3) he was feeling well and healthy

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.20

Conclusions
 from the clinical use of Poria

- Poria is of great value in tonifying digestive organs (pancreas, stomach) and in promoting good/healthy (not reduced, not excessive) appetite
- Good to treat coughs with phlegm (transforming phlegm: *hualan* in terms of TCM)
- Because of aiding the digestion it may be useful in treating fatigue....

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The use of mushroom nutrition in viral conditions // 3. Indirect antiviral strategy by immune support 3.b.21

Fatigue, digestive problems
 // Case study IX – boy, 12 y.o.

- **Boy, 12 y.o.**
- Problems: nausea, regurgitation, loss of appetite, stomachache
 + all symptoms getting worse with stress
- Problems started when he changed his school
- Relationships among schoolmates were bad
- Th: long-term use of Hericium proved to be effective

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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition 4.a.1

Background of efficacy of mushroom nutrition

- **Mycelium Content**
 Mycelium and primordia (germs of fruiting bodies) content allows exploitation of both. Mycelium plays an important role in the life of fungi – it produces the digestive **enzymes** necessary for metabolism, is able to resist the surrounding competitors and pathogens, and actively seeks optimal habitat.
- **Enzyme Content and Activity**
 Enzymes are essential components of the efficacy of fungal biomass. These protein substances are part of and partially control many vital processes of metabolism in the body, contributing greatly to the promotion of good health, protecting the body and also aiding the treatment of diseases.
For viral diseases, enzymes are an integral part of the mechanisms of the body in ensuring prevention and (self) treatment.
- **Mechanisms of Traditional Chinese Medicine (TCM)**
 TCM represents empirical summary of properties of the whole complex of active ingredients and mechanisms, both identified or as yet unknown by the West. When not using modified new modern preparations (with no history of use such as extracts or multiple concentrates) – we are endowed with the opportunity to use TCM holistic knowledge for selection according to the needs of each individual.
- **Content of Micro and Macro Elements**
 Dietary fibre, vitamins, trace elements, terpenes, sterols, secondary metabolites, amino acids and polysaccharides (glucans) in a natural context, i.e. in natural ratio with intact protein binding and in an unconcentrated non-extracted form.
- **Production Process**
 Must allow no contamination by other fungi and pesticides as well as **low temperature (+/- 40 °C) processing to preserve enzyme content and activity.**

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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition 4.a.2

The power of raw natural substances & products
 β-1,3-1,6- glucans with anti-tumor activity in Reishi (*Ganoderma lucidum*) – 1 g
 - water soluble fraction in µg

Condition	2.1 Water soluble fraction - A (µg)	2.1 Water soluble fraction - B (µg)
In absence of Proteolytic Enzymes	24.00	117.00
In presence of Pepsin	21.00	11.50
In presence of Trypsin	21.00	11.20

A – mushroom mycelia biomass product
 B – mushroom 20x concentrate (19% polysaccharide content guaranteed)

Source: Kamali A. Comparative Differences in 1,3,1,6 Glucan content between Ganoderma lucidum (Reishi) mushrooms (Biomass vs Extracted) in the Presence of Proteolytic Enzymes. Critical Journal of Mycology Vol 4, 2013, ISSN 1646-6551
 Available online from mycologyresearch.com
 http://mycologyresearch.com/download/CJm4Vol4.pdf

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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition 4.a.3

The power of raw natural substances & products II
 β-1,3-1,6- glucans with anti-tumor activity in Reishi (*Ganoderma lucidum*) – 1 g
 - hot water fraction in µg

Condition	2.2 Hot water fraction - A (µg)	2.2 Hot water fraction - B (µg)
In absence of Proteolytic Enzymes	29.00	750.00
In presence of Pepsin	22.00	22.00
In presence of Trypsin	25.00	25.00

A – mushroom mycelia biomass product
 B – mushroom 20x concentrate (19% polysaccharide content guaranteed)

Source: Kamali A. Comparative Differences in 1,3,1,6 Glucan content between Ganoderma lucidum (Reishi) mushrooms (Biomass vs Extracted) in the Presence of Proteolytic Enzymes. Critical Journal of Mycology Vol 4, 2013, ISSN 1646-6551
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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition 4.a.7

Background of efficacy of mushroom nutrition

Enzymes

- Enzymes that prevent oxidative stress:**
 - Laccase
 - Superoxide dismutase (SOD)
- Enzymes that inhibit cellular growth:**
 - Protease activity
 - Pyronase activity /Glucose 2 oxidase
 - Glucoamylase /Beta-glucanase activity
- Enzymes that promote detoxification:**
 - Peroxidase activity
 - Cytochrome P-450 activity

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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition 4.a.8

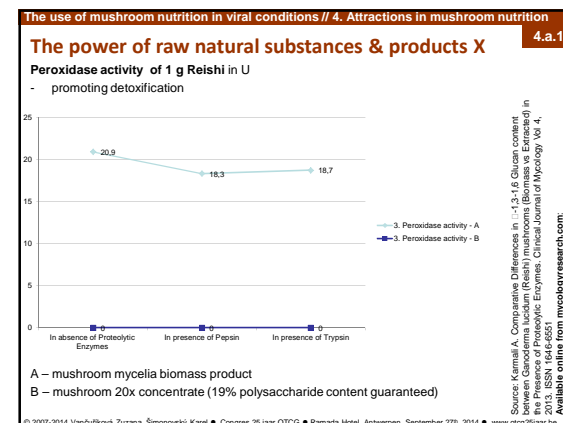
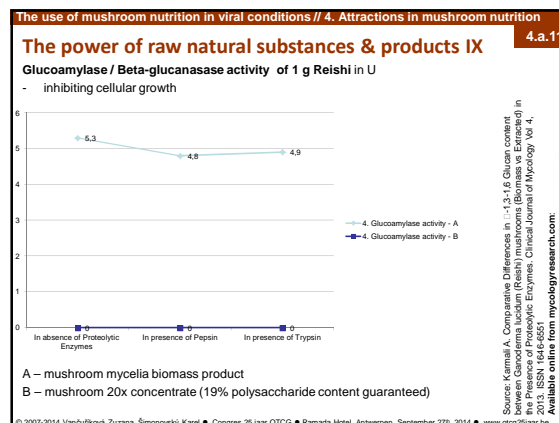
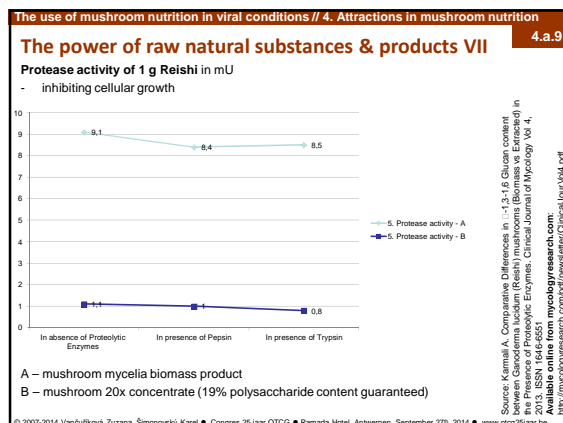
The power of raw natural substances & products VI
 Superoxide dismutase (SOD) activity of 1 g Reishi in mU
 - preventing oxidative stress

Condition	7. SOD activity - A (mU)	7. SOD activity - B (mU)
In absence of Proteolytic Enzymes	98.8	98.8
In presence of Pepsin	82.3	71.7
In presence of Trypsin	87.5	75.9

A – mushroom mycelia biomass product
 B – mushroom 20x concentrate (19% polysaccharide content guaranteed)

Source: Kamali A. Comparative Differences in 1,3,1,6 Glucan content between Ganoderma lucidum (Reishi) mushrooms (Biomass vs Extracted) in the Presence of Proteolytic Enzymes. Critical Journal of Mycology Vol 4, 2013, ISSN 1646-6551
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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition
Western tradition 4.b.3

3rd century BC: Ōtzi in Central Europe

- 1st century AD: custom to associate mushrooms with witches and fire (Plinius sen.) (and therefore not recommend to use them)
- 12th century: mysticism and problematic (=cursed) items still in use (St. Hildegarda)
- 14th+ century: herbalists using strange & non-compliant items could face burning at the stake (as witches)
- 14th+ century: age of herbariums (due to invention of typography)
- 16th century tendency of „medical establishment“ to suppress herbalists
- long way of mushrooms from supernatural and taboo status (not until the end of 18th cen.)
- 20th century: Asia's (Japan, Hong Kong) boom of mushroom nutrition
- 21st century: Europe slowly taking on the Asia boom as well

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The use of mushroom nutrition in viral conditions // 4. Attractions in mushroom nutrition
Eastern tradition Shénóng 神農(神农) Divine Farmer 4.b.6

Earliest records of mushroom usage in China:

- **Classics of Poetry (Shijing 詩經/诗经)**
cca 10th – 7th century BC
- **Wushi'er bingfang 五十二病方 (168 BC)**
- **Divine Farmer's Materia Medica**
神農本草經(神農本草经)
cca 250 AD

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**Thank you
for your attention**

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