Herbs and Nutrients for Healthy Aging

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Key Herbs and Nutrients

- Japanese Knot Weed (*Polygonum cuspidatum*)
- St Mary’s Thistle
- Korean Ginseng
- Ginkgo
- Green Tea
- Garlic
- Omega-3 fatty acids
- Folate, B12
- Echinacea
Healthy Aging - Key Products

- HerbaVital
- Vitanox
- Garlic 5000mg
- Folic Acid $\text{B}_{12}$
- Echinacea Premium
- Tuna Omega-3 Oil
Resveratrol as a CR Mimetic

- CR is not practical, so the search is on for other ways to activate the SIRT pathway
- Resveratrol has emerged as an important lead
- Resveratrol given to overfed middle-aged mice countered many of the adverse changes in metabolic pathways and improved survival
- These dramatic results provided worldwide attention and the observation that “you can eat your cake and not have it”

A PubMed search in March 2011 identified 3900+ publications on resveratrol. In contrast there are only around half this number on CR. Resveratrol demonstrates an amazing array of health benefits.
How Much Resveratrol?

One bottle of red wine contains just 2 to 3 mg

The human equivalent of the resveratrol dose used in the *Nature* mice study was around 140 mg/day

How Much Resveratrol?

- A recent clinical trial in 19 overweight/obese men and women examined resveratrol’s impact on endothelial function and cardiovascular health at doses of 30, 90 and 270 mg/day.

- Resveratrol showed significant benefit, but there was only a small additional benefit between the 90 and 270 mg dose\(^1\)

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1 Wong RHX, Howe PRC, Buckley JD et al. *Acute resveratrol supplementation improves flow-mediated dilatation in overweight/obese individuals with mildly elevated blood pressure.* *Nutr Metab Cardiovasc Dis* 2010; [Epub ahead of print]
Other Phytochemical SIRT1 Activators

- While the intense focus has been on resveratrol, other phytochemicals have been shown to activate SIRT1 or the SIRT1 pathway in various *in vitro* models.

- Silymarin and its components are active in protecting cells from various stressors by activating SIRT1 pathways\(^1,2\)

1. Li LH, Wu LJ, Tashiro SI et al. Activation of the SIRT1 pathway and modulation of the cell cycle were involved in silymarin's protection against UV-induced A375-S2 cell apoptosis. *J Asian Nat Prod Res* 2007; 9(3-5): 245-252

Silymarin and Insulin Support

- A recent placebo-controlled clinical trial assessed the effects of Silymarin extract (200 mg TDS) for 4 months.
- The trial reported on blood glucose and cholesterol levels in the study subjects.

Korean Ginseng & Insulin Support

- Korean Ginseng caused no change in HbA$_1^C$ or fasting plasma glucose in a placebo-controlled clinical trial.

- However, normal fasting plasma insulin was significantly supported for Korean Ginseng (by 34%) whereas it increased in the placebo group (by 10%).

Korean Ginseng and Good Health

- Health promoting effects have been demonstrated in numerous pharmacological studies for whole root extracts and various components of Korean Ginseng¹
- Korean epidemiological studies have found improved health rates (50%) in Ginseng users¹
- The protective effect increased with rising duration and frequency of Ginseng intake¹

Adaptogens and DHEA

- After oral administration of 6 g of Korean Red Ginseng for 30 days to postmenopausal women, DHEAS was increased by around 13%.

Adaptogens and DHEA

- Ashwaganda (*Withania somnifera*) significantly increased DHEAS by 30% in a placebo-controlled clinical trial (p<0.001)

In investigating whether Ginkgo might help prevent support cognitive function, it was found that regular users of the extract had a significantly improved health outcomes in old age.\(^1\)

Perhaps related to this, regular use of Ginkgo was also linked to improved ovarian health.


Ginkgo Supports DNA

- In an uncontrolled trial conducted in 1995, Ginkgo extract supported DNA in Chernobyl workers\textsuperscript{1}
- More recently the same dose of extract (120mg/day) supported DNA in patients needing thyroid support\textsuperscript{2}
- This was in a more solid randomized, controlled clinical trial, so the evidence for benefit is quite good

\textsuperscript{2} Dardano A, Ballardin M, Ferdeghini M et al. *J Clin Endocrinol Metab* 2007; \textbf{92}(11): 4286-4289
Ginkgo and CV Health

- Ginkgo extract, 240 mg/day, for 2 months
- The effect of Ginkgo on quantity amounted to 11.9% (p<0.008) and size was reduced by 24.4% (p<0.023)
- More significantly, the Ginkgo treatment had beneficial effects on lipids
- Superoxide dismutase (SOD) was increased and oxidized LDL was significantly lowered

Important points:

- Need enteric-coating because enzyme is inactivated by stomach acid
- Need to test enzyme activity in every batch
Is Garlic Nature’s Most Powerful Antioxidant?

- Thirteen elderly volunteers in Turkey were advised to take Garlic in their diet at a daily dose of 0.1 g/kg of body weight (7 g/day for a person weighing 70 kg) for 1 month¹

- Before and after this period, fasting blood samples were taken to check the effect on antioxidant measures in red blood cells and plasma

Is Garlic Nature’s Most Powerful Antioxidant?

- Garlic significantly lowered plasma and red blood cell malondialdehyde (MDA) levels and increased the activities of key antioxidant enzymes such as the all-important superoxide dismutase, which was increased by about 25%.

- MDA measures the amount of oxidation of your body fats, quite literally how rancid you are.
Omega-3 Fatty Acids

- The omega-3 fatty acid index is now recommended by some cardiologists as an independent cardiovascular risk factor.\(^1\) The evidence for DHA+EPA in supporting triglycerides is extremely robust\(^2\)

- A meta-analysis found that fish oil supplementation was associated with a significant cardiac benefits

Folate, B12 and Aging

- The OPTIMA group recently found that the homocysteine-supporting B vitamins (folic acid 0.8 mg/day, B12 0.5 mg/day and B6 20 mg/day) significantly supported the brain in a randomized, double blind placebo-controlled trial over 2 years\(^1\)
- Reduced telomere length in lymphocytes has been associated with higher homocysteine and lower folate in older men\(^2,3\)

One of the persistent controversies about Echinacea is whether it is safe to be taken consistently for long periods of time.

Mice were fed *Echinacea purpurea* root from 7 weeks of age to 13 months at equivalent normal human doses.¹

Long-term use of Echinacea was not only not detrimental, but distinctly beneficial.

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¹ Brousseau M, Miller SC. *Enhancement of natural killer cells and increased survival of aging mice fed daily Echinacea root extract from youth.* *Biogerontology* 2005; 6(3): 157-163
Echinacea and Immunosenescence

- By 13 months of age, 46% of the control mice fed the standard chow were still alive compared to 74% of those consuming Echinacea.
- The NK cell levels and function in the Echinacea-fed mice were considerably elevated compared to controls.
- In other words, this and other studies by Miller found that Echinacea reverses the aging effects observed on innate immunity and prolongs lifespan in a meaningful manner.

### Echinacea Root and HSPs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Before</th>
<th>After</th>
<th>%</th>
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<tbody>
<tr>
<td><strong>Heat Shock Protein</strong></td>
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<tr>
<td>Males</td>
<td>2.69</td>
<td>4.36</td>
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<td>Females</td>
<td>1.65</td>
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<tr>
<td><strong>White Cell Count</strong> (x10⁹/L)</td>
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<tr>
<td>Males</td>
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<td>7.5</td>
<td>7%</td>
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<tr>
<td>Females</td>
<td>6.2</td>
<td>7.0</td>
<td>13%</td>
</tr>
</tbody>
</table>

Echinacea Premium was given at 2 tablets per day for 2 weeks in an open-label clinical trial.

Key Products for Healthy Longevity

- HerbaVital tablets (2 to 4 per day)
- Vitanox tablets (1 to 2 per day)
- Garlic 5000mg tablets (1 to 2 per day)
- Folic Acid $B_{12}$ tablets (1 per day)
- Echinacea Premium tablets (2 to 3 per day)
- Tuna Omega-3 Oil capsules (2 to 4 per day)
Each tablet contains:

Japanese Knot Weed root extract 100:1 80 mg
from *Polygonum cuspidatum* root 8.0 g
Containing resveratrol 36 mg

Milk Thistle seed extract 70:1 60 mg
from *Silybum marianum* seed 4.2 g
Containing flavanolignans calc. as silybin 48 mg

Korean Ginseng root extract 5:1 50 mg
from *Panax ginseng* root 250 mg
Containing ginsenosides calc. as Rg₁ and Rb₁ 4.2 mg
Masson Pine bark extract 100:1
from *Pinus massoniana* bark 5.0 g
Containing proanthocyanidins 37.5 mg

Ginkgo leaf extract 50:1
from *Ginkgo biloba* leaf 1.5 g
Containing ginkgo flavonglycosides 7.2 mg
Containing ginkgolides and bilobalide 1.8 mg

**Dosage:**
2 to 4 tablets per day
Vitanox

Each tablet contains:
Rosemary leaf 5:1 extract 200 mg
from *Rosmarinus officinalis* leaf 1.0 g
Green Tea 25:1 extract 166.7 mg
from *Camellia sinensis* leaf 4.2 g
Containing catechins 83.35 mg
Turmeric rhizome 25:1 extract 80 mg
from *Curcuma longa* rhizome 2.0 g
Containing curcuminoids 70.4 mg
Grape seed 120:1 extract 50 mg
from *Vitis vinifera* seed 6.0 g
Containing procyanidins 42.5 mg

**Dosage:** 2 to 3 tablets per day
Garlic 5000mg

Each tablet contains:

Garlic bulb 6.5:1 extract
from *Allium sativum* bulb 1.04 g
Containing alliin 4.3 mg

Garlic (*Allium sativum*) bulb powder
Containing alliin 1.4 mg

Dosage: 1 to 2 tablets per day

The fresh weight of Garlic in each tablet is approximately 5.0 g, total alliin 5.7 mg
Echinacea Premium

Each tablet contains:

Echinacea root 4:1 extract
from *Echinacea angustifolia* root 600 mg
Containing alkylamides 2.0 mg

Echinacea root 6:1 extract
from *Echinacea purpurea* root 675 mg
Containing alkylamides 2.1 mg

Dosage: 1 tablet 2 to 3 times per day
Key Products for Healthy Longevity

- HerbaVital tablets (2 to 4 per day)
- Vitanox tablets (1 to 2 per day)
- Garlic 5000mg tablets (1 to 2 per day)
- Folic Acid B₁₂ tablets (1 per day)
- Echinacea Premium tablets (2 to 3 per day)
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