Mineral Herbs
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When you think of the minerals your body needs, your thoughts probably turn to calcium or iron pills. Of course, most of our daily minerals come from food, and at that, many from plants. Many of the plants we think of as herbal remedies are, in fact, mineral-rich foods.

Since the minerals in these herb are in the form of organic compounds, they are usually easier for your body to assimilate than mineral supplements. And nettle, alfalfa and horsetail are three of the herbal mineral superstars.

Nettles are widely spread over the world and consist of about 500 species, mainly tropical, though several, occur widely in temperate climates. Imported from Europe, but now naturalized here, the common stinging nettles, the perennial Urtica (from "to burn") dioica, which can grow as high as seven feet, and the smaller, annual Urtica urens, are fixtures in Western herbal medicine.

First and foremost, nettle is a traditional food. The leaves are consumed as a spinach-like vegetable throughout Europe. Nettle leaf is remarkably nutritious. Cooking or drying deactivates the sting. As a healing food, nettle is a general tonic, a nutritive, building herb. European herbal expert David Hoffmann calls it "one of the most widely applicable plants we have," and says that they strengthen and support the whole body.[1] Hoffmann once personally told me that his motto is "if in doubt, use nettles."[2] At its peak ripeness, nettle contains up to 25% dry weight protein, which is top-notch for a leafy green vegetable.

Is kale your go-to leafy green because of its high calcium content? You'll go nuts for stinging nettle, which humble-brags about its four times the calcium at 428 mg of calcium per cup. Naturally high in iron, with 1.46 milligrams per 1-cup serving of cooked leaves (2 cups of fresh leaves or 2 tablespoons of crushed, dried leaves, which makes one cup of nettle tea), nettle s a champion for blood health.

Add that to substantial amounts of zinc, magnesium, copper, selenium, potassium, manganese and vitamins A and C, and spinach has found a rival.

Speaking of spinach, cooked nettle tastes similar to Popeye's lunch mixed with cucumber. Soaking or cooking young leaves removes the sting from the plant. Use nettle as spinach, basil or parsley n polenta, pesto, and purée. Nettle soup is a common use of the plant, particularly in Northern and Eastern Europe.[3]

When we think of alfalfa, after horse food, we probably think sprouts. Turns out, though, that alfalfa is a pretty decent food. A legume, related to clover, beans and licorice, its young leaves can be used in salads or as steamed greens. Alfalfa is high in calcium and other minerals, protein, vitamin B complex, C, D, E and K.[4] With its mild, grassy taste, dried alfalfa goes down well as a tea, or you can consume the dried powder in food or capsules.[5] [6]

Horsetail *(Equisetum spp.),* an ancient plant, grows in profusion all over the globe. Herbalists have pointed to its bone-healing properties form centuries.

Studies indicate that silicon plays a role in bone development, may enhance bone mineralization, and may promote calcium deposition in bone. Horsetail, which contains silicon, is a traditional joint medicine.[7] According to preliminary evidence, it may be an

effective natural treatment for osteoporosis. In an Italian randomized trial, 122 women took placebo, no treatment, horsetail dry extract or a horsetail-calcium combination. After 40, 80, and 365 days, both the horsetail and calcium groups had a statistically significant improvement in bone density.[8] [9] [10]

Building on the traditional knowledge of horsetail, recent studies have confirmed that this mineral-rich herb does in fact promote bone growth, while simultaneously suppressing bone mineral loss.[11] [12]

In an era where devitalized foods are the norm in the American diet, perhaps it's time to turn to some herbal foods that really pack a mineral punch. As side dishes, salads or teas, we can turn back the clock and enjoy some nourishing herbal foods that once graced the tables of our ancestors.

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[1] Hoffmann, David, The Complete Illustrated Holistic Herbal (Barnes and Noble, 1996.

[2] Personal commuuniication

[3] http://www.hindawi.com/journals/ijfs/2013/857120/

Stinging nettle (Urtica dioica L.) has a long history of usage and is currently receiving attention as a source of fiber and alternative medicine. In many cultures, nettle is also eaten as a leafy vegetable. In this study, we focused on nettle yield (edible portion) and processing effects on nutritive and dietary properties. Actively growing shoots were harvested from field plots and leaves separated from stems. Leaf portions (200 g) were washed and processed by blanching (1 min at 96–98°C) or cooking (7 min at 98-99°C) with or without salt (5 g·). Samples were cooled immediately after cooking and kept in frozen storage before analysis. Proximate composition, mineral, amino acid, and vitamin contents were determined, and nutritive value was estimated based on 100 g serving portions in a 2000 calorie diet. Results show that processed nettle can supply 90%–100% of vitamin A (including vitamin A as β-carotene) and is a good source of dietary calcium, iron, and protein. We recommend fresh or processed nettle as a high-protein, low-calorie source of essential nutrients, minerals, and vitamins particularly in vegetarian, diabetic, or other specialized diets.

[4] http://nutritionresearchcenter.org/healthnews/alfalfas-nutritional-value/

[5] Diamond, Marilyn (1990). The American Vegetarian Cookbook from the Fit for Life Kitchen. New York: Warner Books. p. 379.

[6] http://www.anapsid.org/iguana/alfalfa.html

[7] http://umm.edu/health/medical/altmed/herb/horsetail

[8] http://pennstatehershey.adam.com/content.aspx?productId=107&pid=33&gid=000257

[9] http://www.wholehealthmd.com/ME2/dirmod.asp?type=AWHN_Supplements&id=7DACCA2A89BD4CB7B96BDD8A56943792&tier=2

[10] Corletto F. Female climacteric osteoporosis therapy with titrated horsetail (Equisetum arvense) extract plus calcium (osteosil calcium): randomized double blind study. Miner Ortoped Traumatol. 1999;50:201-6. Corletto F.

Background. Aim of this study is to evaluate the efficacy of silicon uptake in the diet (Equisetum arvense) in subjects with in menopausal and senile osteoporosis.

Methods. The study recruited 122 women in menopause for at least two years, who had not undergone estrogen replacement therapy or drug therapies for recalcification: 30 patients were administered with titrated dry horsetail extract for 80 days; 31 patients were administered with a placebo for 40 days and titrated horsetail extract for a further 40 days; 29 patients received no treatment whatsoever; 32 patients were treated with OSTEOSIL Calcium for 80 days. All patients received two tablets per day according to procedures for randomized double blind studies.

Results. Variations in the results of Nordin tests, carried out at the beginning of the study and after 40 and 80 days, indicate that treatment with placebo and the absence of treatment were both ineffective; patients who received treatment with titrated horsetail extract after the period of placebo administration showed the same changes observed in patients treated with the active ingredient; treatment with titrated horsetail extract and with Osteosil Calcium proved effective in reducing the average score of the Nordin test and hence in improving bone metabolism. After the 80-day initial study period, patients treated with titrated

horsetail extract and with Osteosil Calcium continued treatment for one year, two tablets per day for two months, followed by 2 weeks without treatment, then two months administration, 2 weeks rest, and so on. Conclusions. Total body double ray bone densitometry carried out at baseline control and after one year's therapy with titrated horsetail extract or Osteosil Calcium showed a sharp increase in the average densimetric values for the vertebra, and these were significantly higher in patients treated with Osteosil Calcium, with an average recovery of bone mass of around 2.3%. During the period of the study no adverse events which could be attributed to the administration of the study drug were reported.
language: Italian

[11] Cell Prolif. 2012 Aug;45(4):386-96. doi: 10.1111/j.1365-2184.2012.00826.x. Epub 2012 Jun 1.
Equisetum arvense hydromethanolic extracts in bone tissue regeneration: in vitro osteoblastic modulation and antibacterial activity.
Bessa Pereira C, Gomes PS, Costa-Rodrigues J, Almeida Palmas R, Vieira L, Ferraz MP, Lopes MA, Fernandes MH.

Abstract
OBJECTIVES:
Equisetum arvense preparations have long been used to promote bone healing. The aim of this work was to evaluate osteogenic and antibacterial effects of E. arvense hydromethanolic extracts.
MATERIALS AND METHODS:
Dried aerial components of E. arvense were extracted using a mixture of methanol:water (1:1), for 26 days, yielding three extracts that were tested (10-1000 μg/ml) in human osteoblastic cells: E1, E2 and EM (a mixture of E1 and E2, 1:1). Cell cultures, performed on cell culture plates or over hydroxyapatite (HA) substrates, were assessed for osteoblastic markers. In addition, effects of the extracts on Staphylococcus aureus were addressed.
RESULTS:
Solution E1 caused increased viability/proliferation and ALP activity at 50-500 μg/ml, and deleterious effects at levels ≥1000 μg/ml. E2 inhibited cell proliferation at levels ≥500 μg/ml. EM presented a profile between those observed with E1 and E2. In addition, E1, E2 and EM, 10-1000 μg/ml, inhibited expansion of S. aureus. Furthermore, E1, tested in HA substrates colonized with osteoblastic cells, causing increase in cell population growth (10-100 μg/ml). E1 also exhibited antibacterial activity against S. aureus cultured over HA.
CONCLUSIONS:
Results showed that E. arvense extracts elicited inductive effects on human osteoblasts while inhibiting activity of S. aureus, suggesting a potentially interesting profile regarding bone regeneration strategies.

[12] Cell Prolif. 2012 Dec;45(6):566-76. doi: 10.1111/j.1365-2184.2012.00848.x.
Inhibition of human in vitro osteoclastogenesis by Equisetum arvense.
Costa-Rodrigues J, Carmo SC, Silva JC, Fernandes MH.

Abstract
OBJECTIVES:
Equisetum arvense has long been used in traditional medicines to treat different disorders, including bone pathologies. In this study a hydromethanolic extract of E. arvense was assessed for its effects on human osteoclastogenesis.
MATERIALS AND METHODS:
Osteoclast precursors were maintained in non-stimulated and stimulated (presence of M-CSF and RANKL) conditions, or in co-cultures with osteoblasts. Cell cultures were treated with 0.00016-0.5 mg/ml of a hydromethanolic E. arvense extract.
RESULTS:
The extract did not affect spontaneous osteoclastogenesis. In osteoclast precursors committed to osteoclastogenesis (stimulated or co-cultured with osteoblasts), E. arvense caused dose-dependent inhibitory effect that became statistically significant at concentrations ≥0.004 mg/ml. This was observed using different osteoclast differentiation and activation markers. Cell response was associated with changes in relative contribution of MEK and NFkB signalling pathways, as well as PGE2 production. As there were differences in the response of osteoclast precursors maintained in the presence of inductive factors, or co-cultured with osteoblastic cells, it seems that E. arvense extract had the ability to modulate osteoclastogenesis, either by acting directly on osteoclast precursor cells, and/or via osteoblasts.
CONCLUSIONS:

Equisetum appeared to have a negative effect on human osteoclastogenesis, which is in line with its putative beneficial role in pathophysiological conditions associated with increased osteoclastic activity, and might suggest potential utility for treatment with bone regeneration strategies.