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Progesterone Cream for Osteoporosis

Part I of a Series on "Natural" Hormones

By Adriane Fugh-Berman, MD

FOR YEARS, A TOPICAL FORM OF NATURAL PROGESTERONE HAS BEEN touted as a treatment for osteoporosis, hot flashes, and PMS, and as a prophylactic against breast cancer. Natural progesterone is derived from diosgenin in either soybeans or an inedible Mexican wild yam (*Diascorea villosa*) that is unrelated to sweet potatoes and edible yams. Oral wild yam preparations have been used in herbal medicine, primarily to treat gastrointestinal cramping. Topical wild yam creams are available; it is unclear whether any active components of wild yam can be absorbed through the skin. Diosgenin is a chemical precursor to progesterone, but a lengthy laboratory process is involved in the conversion. In any case, eating or applying wild yam extract or diosgenin will not result in increased progesterone levels because humans cannot convert diosgenin into progesterone.

Natural progesterone creams are available over the counter. Almost all claims about natural progesterone cream can be traced to John M. Lee, MD. Lee published a popular booklet, *Natural Progesterone: The Multiple Roles of a Remarkable Hormone*, in which he claims that fibroids, breast cancer, fibrocystic breasts, PMS, and osteoporosis are all linked to "estrogen dominance secondary to a relative insufficiency of progesterone."[1]

Lee conducted a single study that shows a positive effect of natural progesterone cream on bone. This one study has appeared in several different publications.[2,3,4] Each version lacks crucial details. It is unfortunate that the *Lancet* published such an incomplete report[2] even as a letter. The study appears to be an unselected case series of 100 postmenopausal patients, ages 38-83 (apparently, Lee simply tracked his own patients over time). It's not clear how many women were diagnosed with osteoporosis. Generalities characterize these reports, one of which states that "the majority had already experienced height loss, some as much as five inches."[3] Another states that "The majority had already noted height loss, a cardinal sign of osteoporosis, and many had experienced one or more fractures."

Lumbar bone mineral density measurements (by dual photon absorptiometry) were done on 63 of the 100 patients and Lee claims that over three years, average bone density increased 15.4%, with those with the lowest bone densities experiencing the most benefit. Although there is a table indicating averages of lumbar bone density at baseline and after three years, no report indicates how many patients were in each group. Also, none of the reports gives a breakdown of patients by age, menopausal status, diagnosis of osteoporosis, risk factors, or prior fracture history. Needless to say, no statistical analysis is presented.

Besides treatment with progesterone cream, an unspecified number of women in this case series were also taking estrogen. Although it is stated that bone benefits "were unaffected by supplemental estrogen,"[2] that statement is impossible to evaluate because there is no information presented on how many patients were taking estrogen, and the group taking estrogen is not analyzed separately. One 74-year-old patient in the case series developed endometrial cancer during the study.

Another factor that confounds this study is that women were advised to stop smoking; to exercise for 30 minutes three times weekly; and to take a supplement regimen including calcium, vitamin D, beta carotene, and vitamin C. It is not stated what the compliance was for these instructions, but smoking contributes to osteoporosis and estrogen, exercise, calcium, and vitamin D all help to prevent bone loss, so all of these factors are potential confounders.

Appropriate, objective endpoints are lacking. Lee writes, "The addition of progesterone to the conventional treatment program in postmenopausal women was found to be consistently beneficial. By the third month the patients generally experienced a sense of well-being.... During the three-year follow-up observation, patient height was stabilized, aches and pains diminished, mobility and energy levels rose, normal libido returned, and no side effects emerged."[3] Most of these results are subjective, placebo-responsive, and unconnected to osteoporosis. Height loss does indicate vertebral osteoporosis, but "height stabilization" is not a reasonable osteoporosis endpoint because loss of height does not occur at a predictable, linear rate.

Lee states that "the occurrence of osteoporotic fractures dropped to zero." Three fractures occurred; one knee fracture occurred in an 80-year-old in a car accident, another subject in her 70s fell while hiking, and the third fell down a flight of stairs. Lee states in one report that "Three traumatic fractures did occur and, in each case, these healed normally with the treating orthopedist commenting on the good quality of their bones."

Progesterone and Bone

It is clear there are progesterone receptors on bone, and that in vitro, progesterone stimulates osteoblasts,[5,6] but in humans, studies are not so clear. It is unclear whether progestogens increase bone or decrease it, and results may be specific to the progestogen. One study of 66 premenopausal women found that short luteal phases correlated with decreases in spinal bone density;[7] women with the shortest luteal phases lost 2-4% of bone a year. Another study of amenorrheic athletes found that those given 10 mg of medroxyprogesterone acetate (Provera®) for 10 days a month had significant increases in trabecular bone.[8]

Lactation reduces bone density temporarily, and progestin-only contraception such as Depo-Provera® (depot medroxyprogesterone acetate or DMPA) seems to reduce postpartum bone loss.[9] Long-term users of DMPA (which usually produces amenorrhea) show decreases in spinal bone.[10] After discontinuing DMPA, spinal bone density increases almost to pretreatment levels.[11]

There is some evidence to suggest that estrogen and progesterone may have synergistic effects on bone, and that progestin alone may have a mild bone preserving effect in patients treated with GnRH agonists.[5,12] It is also possible that some benefits attributed to progestins are actually due to estrogenic effects. Norethindrone

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appears to have estrogen-like qualities in animal models;[13] a very small percentage (2.3%) of orally administered progestin is converted into ethinyl estradiol.[5] More work needs to be done in this area.

Effect on Endometrium

Some menopausal patients believe that natural progesterone cream can be substituted for the progestin component of hormone replacement therapy (HRT).[14] Since the entire purpose of the progestational component of HRT is to decrease the risk of estrogen-induced endometrial cancer, the issue of whether natural progesterone cream provides adequate progestational effect on the uterus is of much concern to clinicians. A recent study of absorption of a popular natural progesterone cream calls into question whether enough progesterone is absorbed transdermally to have any systemic effect.

A crossover study of 20 surgically menopausal women (not receiving HRT) compared plasma progesterone and 17-hydroxyprogesterone (17-OHP) and pregnanediol-3alpha-glucoronide (P3G) after topical application of Pro-Gest® cream, topical application of placebo, and oral natural progesterone (Uterogestan). In this 10-day study, women were randomly assigned to apply one teaspoon of Pro-Gest cream or an emollient cream placebo bid (this is 2-4 times the recommended daily dose); there was a four-day washout period prior to switching creams. Each subject then took oral natural progesterone (100 mg qam and 200 mg qpm) for five days. Blood was drawn 4-6 hours after treatment; urinary P3G was from first morning urine. Compared to placebo, Pro-Gest significantly increased urinary P3G and plasma progesterone levels, but median plasma levels after 10 days of treatment were only 2.9 nmol/L, compared to 9.5 nmol/L with oral progesterone. 17-OHP values were similar (1.1 with Pro-Gest, 1.2 with Uterogestan); P3G levels in urine were 4.2 µmol with Pro-Gest and 291 µmol with Uterogestan. The authors note that plasma levels were insufficient to protect the endometrium from estrogen stimulation. This study also found that each two-ounce jar contained 200 mg progesterone (as opposed to the 930 mg claimed by the manufacturers).

Both John Lee and Transitions for Health, the manufacturers of Progest, wrote letters to the *Lancet*. The manufacturer stated that the product contains 465 mg/oz, not 200 mg/2 oz, and calls the other results into question.[15] John Lee's letter stated that plasma progesterone does not accurately reflect bioavailable levels, because progesterone preferentially enters red blood cell membranes; Lee suggests that saliva levels are more predictive of bioavailable progesterone.[16] Cooper and Whitehead, authors of the study, respond that "we find it difficult to envisage how progesterone could bind to red blood cells, but not to serum albumin, corticosteroid binding globulin, and alpha-1 glycoprotein, and yet be readily released into saliva…we remain very concerned about the clinical use of Pro-Gest because of the absence of scientifically valid studies on endometrial protection and bone conservation. Prescription should follow scientific evaluation – not the reverse."

No argument here. Certainly, natural progesterone may have different effects than synthetic progestin. In the Postmenopausal Estrogen/Progestin Intervention (PEPI) trial, oral micronized progesterone reduced estrogen's beneficial effect on lipids to a lesser degree than synthetic progestins.[17] More research is needed to delineate the differences between natural progesterone and synthetic progestins. But there is scant basis for claims that progesterone cream is an effective treatment or prophylactic for osteoporosis (or any other condition). ❖

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Myths and Mistakes About Herb-Drug Interactions

Abstract & Commentary

Source: Miller LG. Herbal medicinals: Selected clinical considerations focusing on known or potential drug-herb interaction. *Arch Intern Med* 1998;158:2200-2211.

Synopsis: *Herbal medicinals are being used by an increasing number of patients who typically do not advise their clinicians of concomitant use. Known or potential drug-herb interactions exist and should be screened for.*

COMMENT BY DENNIS AWANG, PHD, FCIC AND ADRIANE FUGH-BERMAN, MD

Herbs do contain pharmacologically active ingredients, some of which can potentially interact with medications. However, the abstract of this article contains numerous errors, and thus is not a credible source of information. In our analysis, the publication of this review indicates deficiencies in both editorial judgment and the peer review process. What follows is a discussion of statements in the abstract that are most egregious and demanding of correction.

"If used beyond 8 weeks, Echinacea could cause hepatotoxicity and therefore should not be used with other known hepatoxic drugs, such as anabolic steroids, amiodarone, methotrexate, and ketoconazole. However, Echinacea lacks the 1,2 saturated necrine ring associated with hepatotoxicity of pyrrolizidine alkaloids."

This assertation is not referenced in the text, for good reason. There are no reports of hepatotoxicity associated with echinacea alone, in combination with any of the drugs listed, or in combination with any pharmaceutical drug. There is one report of hepatotoxicity with a product purportedly containing echinacea and skullcap (*Scutellaria lateriflora*). Products purportedly containing skullcap have been implicated in several cases of hepatitis, and even here skullcap may not be the culprit. Some "skullcap" products have been found to contain germander (*Teucrium chamaedrys*),[1] sometimes mistaken for skullcap. Germander has demonstrated hepatotoxicity in both rodents[2] and humans.[3,4] There is no reason to implicate echinacea as a contributing factor to hepatotoxicity in the above case.

It is not the "1,2 saturated necrine ring" but rather the 1,2-unsaturated necine ring that is associated with hepatotoxicity of pyrrolizidine alkaloids. While echinacea does not contain the dangerous unsaturated form of pyrrolizidine alkaloids, it does contain extremely low levels (0.006%) of isotussilagine and tussilagine, which are non-toxic saturated pyrrolizidine alkaloids.[5] There are of course other mechanisms of hepatotoxicity, but echinacea causes none of them.

"Feverfew, garlic, Ginkgo, ginger, and ginseng may alter bleeding time and should not be used concomitantly with warfarin sodium."

There is a case report of ginseng reducing international normalized ratio (INR) in a patient on warfarin.[6] Garlic intake has been associated with excessive postoperative bleeding and spontaneous spinal hematoma but specific drug interactions have not been reported. In the text, Miller makes the unreferenced assertation that "...several practitioners have noted elevated international normalized ratios (INRs) and prothrombin times in patients previously stabilized while taking warfarin." This is unlikely since garlic interferes with platelet aggregation[7,8] rather than the coagulation cascade, and thus would be expected to alter bleeding time, not INR or prothrombin time. Ginkgo alone[9,10] and in combination with anticoagulants[11,12] has been linked to bleeding episodes. Although both ginger and feverfew contain anticoagulant substances, there are no reports in the medical literature of bleeding episodes or alterations in bleeding time with feverfew or ginger.

"Ginseng should also not be used with estrogens or corticosteroids because of possible additive effects."

Ginseng has complex actions, including effects on corticosteroid action. A theoretical interaction with corticosteroids is possible, but no such interactions have been reported. Ginseng does not contain phytoestrogens (although interestingly, several cases of postmenopausal bleeding have been linked to ginseng ingestion[13,14]).

"Kyushin, licorice, plantain, uzara root, hawthorn, and ginseng may interfere with either digoxin pharma-

codynamically or with digoxin monitoring."

Kyushin is a Chinese medicine containing dried toad venom, which does have cardiac glycoside activity. Toad venom, however, is not an herb. High chronic doses of licorice can cause hypokalemia, which of course can cause cardiac arrhythmias, but there are no in vitro, in vivo, or clinical reports of licorice-digoxin interactions. The warning against plantain is apparently based on a plantain product that was contaminated with woolly foxglove (*Digitalis lanata*),[15] a source of cardiac glycosides (and the original source of the digoxin we use in practice). Plantain itself has never been associated with cardiotoxicity or any interaction with digoxin.

Uzara root contains cardiac glycosides but is rarely used in herbal medicine today. There are no clinical reports of hawthorn interacting with digoxin, and the reference for the statement in the text that "Hawthorn berries purportedly potentiate the action of digoxin" actually states that hawthorn may be combined with digitalis.[16]

Ginseng (*Panax* species) has not been associated with elevated digoxin levels. The reference to this statement in the full text of the article is incorrect; it refers to an article on sesquiterpene esters in echinacea. Perhaps the author meant to refer to an article about eleuthero (*Eleutherococcus senticosus*), which is also called "Siberian ginseng." Siberian ginseng is not ginseng, but belongs to an entirely different genus.

The eleuthero-digoxin case is interesting. A 74-year-old man whose digoxin levels had been maintained in a consistent range for many years experienced a sudden rise in digoxin levels to 5.2 nmol/L after taking capsules purportedly containing Siberian ginseng (concurrent medications included acetaminophen, cimetidine, oxazepam, aspirin, and magaldrate).[17] Considering that the therapeutic range for digoxin is 0.6-2.6 nmol/L, the fact that this patient was completely asymptomatic with digoxin levels of 5.2 nmol/L (EKG was unchanged, and there were no other signs or symptoms of digoxin poisoning) suggests that the herb interfered with the assay for digoxin rather than actually increasing serum digoxin levels.

Although the implicated capsules were tested for the presence of digoxin and digitoxin (neither was found), the capsules were not tested to confirm that they actually contained eleuthero. Another herb known as Chinese silk vine (*Periploca sepium*) is commonly substituted for *Eleutherococcus senticosus*; *Periploca* does contain cardiac glycosides.[18]

"Evening primrose oil and borage should not be used with anticonvulsants because they may lower the seizure threshold."

The full text article states that "evening primrose oil contains gamolenic acid (GLA) that lowers the seizure threshold" and that "Neither evening primrose oil nor borage should be used with other drugs known to lower the seizure threshold (e.g., tricyclic antidepressants and phenothaizines [sic])." Miller's own reference[19] to the first statement (the second is unreferenced) states that epileptic events were reported only in patients treated with phenothiazines.

"Kava when used with alprazolam has resulted in coma."

There is no reported association between kava and coma. It is true that the reference for this statement is misleadingly titled, "Coma from the health food store: interaction between kava and alprazolam,"[20] but surely it is reasonable to expect the author of a review article to read beyond the title of a referenced article. The case actually reports only lethargy and disorientation, not unconsciousness.

"Numerous herbs (e.g., karela and ginseng) may affect blood glucose levels and should not be used in patients with diabetes mellitus."

While it is true that a number of herbs have hypoglycemic effects, in diabetics this effect may be an advantage, not a disadvantage. In fact, a double-blind, placebo-controlled, eight-week study of 36 newly-diagnosed NIDDM patients found that 100 mg or 200 mg ginseng extract reduced fasting blood glucose (the higher dose also significantly reduced HbA1c).[21] Although Miller states in the full text article "that ginseng…has been associated with hyperglycemic properties," it is the opposite that is true (as her own reference states). ❖

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Infertility from Herbs?

Abstract & Commentary

Source: Ondrizek RR, et al. An alternative medicine study of herbal effects on the penetration of zona-free hamster oocytes and the integrity of sperm deoxyribonucleic acid. *Fertil Steril* 1999;71:517-522.

Materials/Methods: In the first part of this two-part in vitro study, the effect of herbal solutions of St. John's wort (*Hypericum perforatum*), ginkgo (*Ginkgo biloba*), saw palmetto (*Serenoa repens*), and echinacea (*Echinacea purpurea*) on fertilization was determined by human sperm penetration of zona-free hamster oocytes that had been incubated with the herbs for an hour.

The second part of the study tested the effect on the integrity of sperm incubated for seven days with the same herbs. Viability of sperm and the effect on DNA (specifically the BRCA1 exon 11 gene) was determined.

Results: Saw palmetto and low concentrations of echinacea (0.8 mg/mL), ginkgo (0.1 mg/mL), and St. John's wort (0.06 mg/mL) had no effect on sperm penetration. High concentrations of echinacea (8 mg/mL) and ginkgo (1 mg/mL) reduced oocyte penetration and high concentrations of St. John's wort (0.6 mg/mL) prevented oocyte penetration completely. Saw palmetto and ginkgo had no effect on sperm. Echinacea and St. John's wort resulted in significant denaturation of DNA that occurred concomitantly with decreased sperm viability.

Funding: Not indicated.

COMMENT BY ADRIANE FUGH-BERMAN, MD

This interesting preliminary study leaves many questions unanswered. Of most concern is the finding that incubation of oocytes with high concentrations of echinacea, ginkgo, and St. John's wort reduced or prevented oocyte penetration. It is unclear whether such high concentrations of any of these herbs would ever be achieved in tubal fluid.

This study raises but does not answer the question of whether St. John's wort (and to a lesser extent echinacea) decreases sperm integrity and viability. Marinating sperm in herbs for a week is a poor surrogate for a clinical situation in which herbs are ingested, metabolized, and diffused differentially into various bodily fluids. A more clinically relevant study would have been a semen analysis of men who are using St. John's wort.

It is maddening that so little information is given about the herbs when the most minute details are given about every other aspect of this experiment. The sum total information given on the source, formulation, and preparation of the herbs consists of the unfathomable sentence, "Concentrated herbal solutions consisting of each of the four herbs studied dissolved in modified HTF [human tubal fluid] and filtered through 0.8-mcm filters were added separately to each sperm suspension." What were the herbs' sources? Was the starting material crude herb, a tincture, or a standardized extract? Did the researchers simply make a cold infusion by floating dried herbs in HEPES-buffered synthetic human tubal fluid?

There is scant information given on how concentrations were chosen. It is stated that the lower doses represent "one thousandth of the recommended daily dose dissolved in 1 mL of medium" for saw palmetto, gink-

go, and echinacea, and "one millionth of the recommended daily dose" for St. John's wort. However, recommended doses for these herbs vary by formulation (and prescriber), and it is not clear how "low" and "high" concentrations of each herb were chosen. For example, if 0.06 mg represents one millionth of a daily dose for St. John's wort, the dose would be 60,000 mg or 60 g, an astronomical dose for standardized extract or tincture, and a high dose even for dried herb used in infusion.

This report emphasizes the denaturation of sperm DNA and mutations of the BRCA1 exon 11 gene, but there is a crucial caveat, which is that "This occurred concomitant (sic) with decreases in sperm viability." In other words, these herbs were spermicidal. A week's worth of St. John's wort at high concentration (0.6 mg/mL) resulted in only 0.5% of sperm with intact DNA, but only 7.5% of the sperm were viable. A week's worth of echinacea at high concentration (8 mg/mL) resulted in 29% of sperm with intact DNA, but only 8.5% of sperm were viable. Such a drastic reduction in viable sperm would render a semen analysis in the infertile range. Point mutations are beside the point in a non-viable gamete.

According to Gary Klinefelter, PhD, a reproductive biologist and toxicologist with the U.S. Environmental Protection Agency, PCR amplification/electrophoretic screening for mutations is a validated procedure, but lacks sensitivity. Also, there is no validation for using the BRCA1 exon 11 gene in this context.

In conclusion, this study seems to affirm the lack of effect of saw palmetto on gametes, and raises the question of whether St. John's wort (and to a lesser extent ginkgo and echinacea) decreases fertility in women. Animal studies should be conducted to determine whether these herbs have contraceptive or mutagenic effects.

In general (with the exception of women being treated for infertility by a qualified herbalist), it is a good idea for a woman attempting pregnancy to avoid using any non-food medicinal herbs as there is a little known about the effect of such herbs on fertility and teratogenicity. It is possible that some herbs decrease male fertility as well. This study's finding of effects on sperm lack clinical relevance; a study should be performed on the sperm of men who have ingested St. John's wort. ❖

CME Questions

16. Which of the following statements are true?
- a. Echinacea causes hepatotoxicity.
- b. Echinacea contains unsaturated pyrrolizidine alkaloids.
- c. Echinacea is hepatotoxic in combination with certain drugs.
- d. Echinacea contains saturated pyrrolizidine alkaloids.

17. Bleeding episodes have been reported in patients taking which of the following herbs?
- a. Garlic and ginkgo
- b. Feverfew and ginger
- c. Garlic, feverfew and ginkgo
- d. Ginger

18. A clinical study of ginseng in newly diagnosed NIDDM patients found that ginseng:
- a. raised fasting blood glucose levels.
- b. lowered fasting blood glucose levels.
- c. had no effect on fasting blood glucose levels.

19. Wild yams contain:
- a. diosgenin, which can be converted to progesterone in the body.
- b. diosgenin, which can be converted to progesterone in a lab.
- c. diosgenin, which can be converted to progesterone in the body or in a laboratory.
- d. progesterone.

20. A study in surgically menopausal women found that topically applied natural progesterone cream:
- a. achieved serum levels of progesterone equivalent to oral natural progesterone.
- b. achieved serum levels of progesterone sufficient to protect endometrium from estrogen stimulation.
- c. none of the above.

Clinical Abstracts

With Comments from Adriane Fugh-Berman, MD

Infertility from Saliva?

Source: Anderson L, et al. The effects of coital lubricants on sperm motility in vitro. *Hum Repro* 1998;13:3351-3356.

Methods and Materials: The effect of four sexual lubricants (KY jelly, baby oil, olive oil, and saliva) was tested on sperm motion (using computer-assisted semen analysis) in 16 sperm samples from patients undergoing infertility investigations.

Results: At a 12.5% concentration, baby oil had no effect on sperm. However, KY jelly, olive oil, and saliva significantly decreased percentage progressive motility, progressive velocity, curvilinear velocity, and lateral head displacement. At a 6.25% concentration, both olive oil and saliva significantly reduced progressive motility parameters, and KY jelly significantly reduced head movement parameters.

Funding: Not indicated.

Comments: Even at low concentrations, KY jelly and saliva inhibit sperm motility. Infertile couples who use sexual lubricants may well be advised to use, appropriately enough, baby oil. ❖

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"All Natural Diet and Exercise Plan"

"A weight loss plan to help you – burn fat – burn calories"

"100% drug free"

"The dietary supplement in this plan is for nutritional use only and does not contribute to loss of weight or body fat."

"30 caplets plus weight loss plan"

"The Ultra Burn all natural diet and exercise plan will help you make the most of your body's own natural fat burning process. Created to help you burn fat and calories, the Ultra Burn Plan is supplemented by a unique combination of natural ingredients.*"

"The Ultra Burn plan contains Garcinia, an all-natural extract of the *Garcinia Cambogia* fruit, rich in (-) hydroxycitric acid (HCA). HCA, which is similar to the citric acid in oranges, has been the subject of numerous laboratory studies on body fat and appetite suppression."

"Plus, the Ultra Burn Plan also contains chromium, as well as a special thermogenic herbal blend. And, unlike many other weight loss plans, the Ultra Burn Plan contains Ginseng to compliment your weight loss program."

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Suggested Use

As a dietary supplement take 2 caplets with a full glass of water 1 hour before lunch and dinner. This product is intended to be used in conjunction with a well-balanced diet and exercise plan.

Important: This product is not intended for children. If you are pregnant, nursing, have a medical condition or are taking any prescription medication, consult your doctor before starting this or any weight loss program.

An enclosed diet plan contains information on calculating fat grams, low-fat substitutes, advice on exercise, and a seven-day meal plan with "exchange" items. The diet plan supplies about 1200 calories and <16% fat. The following statement appears at the bottom:

"As a healthy and nutritious alternative, substitute an Ultra Slim-Fast® for any breakfast or lunch meal. For variety, substitute an Ultra Slim Fast® Snack Bar for any snack."

Supplement Facts

Serving size: 2 caplets	*Amount per serving*	*% daily value*
Chromium (niacin-bound)	60 mcg	50
Garcinia cambogia fruit extract (50% hydroxycitrate)	500 mg	†
Ginseng root standardized extract (*Panax ginseng*)	200 mg	†
Proprietary Herbal Blend	400 mg	†
(contains naturally occurring caffeine††)		
Guarana seed extract (*Paullinia cupana*)		
Green tea leaf extract (*Camellia sinensis*)		

†Daily value not established

††Each serving contains the approximate caffeine equivalent of one cup of coffee

Analysis by Adriane Fugh-Berman, MD

Chromium: Two of three clinical studies of chromium and weight loss demonstrate improvements in body composition in terms of improved lean body mass, but clinically significant weight loss attributable to chromium has not been demonstrated.[1] Studies of the effect of chromium on body composition have used doses of 200-400 mcg/d, so the dose in this supplement is low in comparison.

Garcinia: A recent randomized, double-blind, placebo-controlled trial of 135 overweight adults treated with hydroxycitric acid (active ingredient in *Garcinia cambogia*) 1000 mg tid ac x 12 weeks found that patients in both groups lost weight, but there were no significant differences between the two groups in weight loss.[2] Previous trials (most published in non-peer-reviewed journals) have been mixed.

Ginseng: There is no evidence that ginseng facilitates weight loss.

Guarana and green tea: Guarana and green tea both contain caffeine, a common ingredient in weight-loss products, but there is no evidence that caffeine facilitates weight loss.

Comments

What a mixed message—the statement on the label that the caplets should be used with a diet and exercise plan despite the caveat that "The dietary supplement in this plan is for nutritional use only and does not contribute to loss of weight or body fat" reminds me of the children's story in which a woman claims to be able to make soup from a stone, then proceeds to make a delicious offering from ingredients wheedled one by one from villagers as flavorings for the magic "stone" soup.

The diet and exercise plan enclosed, if followed, would be expected to result in weight reduction; it is a perfectly reasonable version of the weight-loss plans in "women's magazines," largely unchanged from the 1950s. (OK, rice cakes and salsa are modern touches.)

References

1. Anderson RA. Effects of chromium on body composition and weight loss. *Nutr Rev* 1998;56:266-270.
2. Heymsfield SB, et al. *Garcinia cambogia* (hydroxycitric acid) as a potential antiobesity agent. *JAMA* 1998;280:1596-1600.