

## element

# Herbal Safety in Pregnancy

Recommending Herbal Medicines During Pregnancy

**Black Cohosh** 

quality update

Sexual Health

addressing libido

**Prostate Cancer** 

a Q&A with Dr. Geo Espinosa, ND

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## **LETTER FROM THE DOCTOR** \*\*\*\*\*\*\*\* Tina Beaudoin, ND Senior Medical Educator Hello and welcome to the latest edition of The Element. We have a great

lineup of diverse and helpful tools, pearls and updates to share with you on women's and men's health. Dr. Jaclyn Chasse takes on a very sought-after topic and answers the questions many of us have on "Herbal Safety and Pregnancy".

A new member of the Medical Education Team, Dr. Meredith Murray, shines a light on some exciting research around curcumin and HPV that you won't want to miss.

If you use black cohosh in your practice, be sure to read the update on adulteration and quality issues with this prized botanical. If you don't use black cohosh in your practice yet, you might want to check out the article by Lisa Murray, RDN, LD, in which she dives further into the clinical applications and research. We also have a great interview with Dr. Geo Espinosa on prostate cancer that details new screenings, diagnostics and treatment options.

Lastly, I want to take this opportunity to say THANK YOU! Thank you for the work you do with your patients and in your communities. And thank you for choosing Emerson Ecologics!

Tina Beaudoin, ND

#### FDA STATEMENT

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#### **FEATURE** ARTICLE

## Herbal Safety in Pregnancy

By Jaclyn Chasse, ND

Women have depended on herbs to support their pregnancy, providing nutrition and handling minor complaints, for thousands of years. Today, most clinicians are appropriately cautious about using herbs in pregnancy. Safety studies in pregnancy are rare, even for medications, as it is unethical to expose women to compounds of unknown safety during pregnancy. Therefore, objective scientific data on the safety of herbal medicines during pregnancy is lacking.1

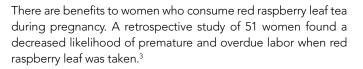
Based on geographical surveys, the prevalence of herbal medicine use in pregnant women across the world is on the rise. According to a study published in 2016, herbal use in pregnant populations ranges between 7% and 55% among different geographical, social and cultural settings and ethnic groups.<sup>2</sup> Studies have shown that while women sometimes use herbal medicines at the recommendation of their healthcare providers (primarily not in the United States), even in locations with a strong herbal history, most of the recommendations come from family members and friends versus healthcare providers.

Some of the herbal medicines most readily used during pregnancy include red raspberry leaf, ginger, licorice (as DGL form), Echinacea, elderberry, valerian and holy basil.



#### **Red Raspberry Leaf**

A tonifying herb for the uterus and reproductive system, red raspberry leaf tastes delicious and is a common ingredient in most commercially available pregnancy teas.



Another study of 192 low-risk pregnancies gave women 1.2 g of red raspberry leaf twice a day or a placebo, starting in the 32nd week. There was no change between the two groups in the first stage of labor, but the second stage was, on average, 10 minutes shorter. In addition, the red raspberry leaf group had fewer forceps deliveries (19% versus 30%).4 Red raspberry leaf acts as a uterine tonic and allows the uterus to be more productive during labor. There was no increase in birth defects noted in either study. While red raspberry leaf tea has a very mild taste, women who

> don't like the taste can mix it with juice or a little juice concentrate.

#### **Ginger**

Ginger is the best-studied herb for nausea and vomiting, including nausea and vomiting during pregnancy. A systematic review of six random controlled trials with 675 patients found that ginger had favorable results for nausea

and vomiting. Four studies showed that ginger worked better than a placebo; two showed ginger to be as effective as vitamin B6. In another double-blind study, 70 Thai women experiencing nausea and vomiting were given 250 mg of ginger four times daily; they saw an 80% reduction in vomiting and significant improvement in nausea.<sup>5</sup>

One study showed ginger to be efficacious against hyperemesis gravidarum, the more severe diagnosis related to prolonged and severe nausea and vomiting during pregnancy.<sup>6</sup> A double-blind, randomized, cross-over, placebo-controlled trial of 30 women diagnosed with hyperemesis gravidarum received 250 mg of ginger rhizome four times a day and it provided significantly more effective reduction of symptoms versus placebo.<sup>7</sup>

In a randomized controlled trial, 120 women who were less than 20 weeks pregnant and experiencing morning sickness were given 1,500 mg of ginger daily for four days. They experienced significant improvements in nausea and vomiting. Post-delivery follow-ups revealed birth weights, gestational age and APGAR scores were within the normal limits.8

Ginger can be taken as a tea, soda, capsules or as candied ginger or cookies.

#### **Licorice Root**

Licorice root is a delicious herb that is quite popular, due to its helpful impact on the adrenals and demulcent effect in the gut. However, studies have shown an association between heavy glycyrrhizin intake (>500 mg/wk) and shorter gestation9, leaving most forms of

licorice contraindicated during pregnancy. It is believed that glycyrrhizin inhibits placental 11 beta- hydroxysteroid dehydrogenase type 2, which acts as the feto-placental barrier to high maternal levels of cortisol. When a woman is exposed to licorice, it opens the pores of the placenta, allowing more of her cortisol to affect her fetus. The placenta loses its protective benefits, meaning that if the woman is under a great deal of stress, so is her fetus. Other outcomes have been observed in children whose mothers were exposed to a high intake of glycyrrhizin during pregnancy, including an increase in attention deficit, rule breaking and aggression problems.

While this may steer you away from using licorice at all, the use of deglycyrrhizinated licorice (DGL) is considered safe and can be very helpful for a common complaint of pregnancy: heartburn. The use of DGL, often prescribed as chews, can be taken as needed without the associated risks of the glycyrrhizin constituent of the licorice.

#### **Echinacea**

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While colds and the flu are not necessarily more common during pregnancy, they can feel like more of a nuisance when a woman is experiencing other



symptoms and might be unable to take her preferred over-the-counter medications or herbal treatments.

There are plenty of lifestyle options that you can turn to when treating a cold or the flu during pregnancy. These include the use of herbal steam inhalations, saltwater gargles or a saline nasal rinse, using a neti pot or a 30 mL or 50 mL syringe.

Echinacea is considered safe for use during pregnancy, with studies to back it up. (According to some studies, it is the most widely used herb by pregnant women.) The first prospective study suggested Echinacea can be safely used for 5 to 7 days during pregnancy without adverse effects, even during the first trimester, which is when organogenesis occurs and is considered the most sensitive time in a pregnancy.

Black elderberry syrup is another favorite herb for immune support; children like it, too! There have been no published trials during pregnancy, but no adverse events have been noted in the literature, according to the American Herbal Products Association's Botanical Safety Handbook.

#### **Holy Basil**

Also known as tulsi, holy basil is considered an adrenal adaptogenic herb. While no adrenal herbs have been tested in pregnancy (other than licorice, which is not considered safe),

holy basil can be considered if a woman really needs some adrenal support.

While lifestyle approaches like exercise and sleep should be the first-line recommendations for stress during pregnancy, this gentle adaptogen may offer some benefit to pregnant moms.

Holy basil is an herb traditionally used to support fertility in both men and women. It has a galactagogue action

and is really uplifting, calming and relaxing. Some adrenal herbs, such as licorice or ginseng, are rather stimulating, making them ideal herbs for non-pregnant women who are stressed and tired. These herbs will perk them up. Holy basil is for a woman who is stressed and wired, someone who may get anxious and amped up and needs to calm down to feel more grounded.

#### **Herbs Contraindicated in Pregnancy**

While we have discussed some herbs that are great to choose during pregnancy, it is also vital that all practitioners recognize what herbs should NOT be used during pregnancy. These categories of herbs are listed

Abortifacients are herbs that will trigger uterine stimulation and get the

uterus to contract, which can trigger a miscarriage or an abortion. These include: blue cohosh, cotton-root bark, Thuja, wormwood, rue and pennyroyal.

Essential oils should never be taken internally during pregnancy, but some can be used topically with care and proper dilution. However, if you are not highly comfortable with this product set and population, they should be avoided. Essential oils which should not be used at all during pregnancy include Thuja, oregano, sage, pennyroyal, hyssop, wintergreen, rue, wormwood, anise, tansy, mugwort, parsley and basil and this is not be a complete list.

Teratogens will harm a developing fetus. Lupine and Datura are examples of teratogenic herbs.

Avoid plants that contain strong alkaloids, which can also cause concerns with a growing fetus. These include: comfrey, coltsfoot, borage, goldenseal, barberry, Oregon grape, butterbur and life root.

Stimulating laxatives should be avoided because they cause such strong stimulation in the colon that the cytokines and prostaglandins that are released can often trigger and stimulate the uterus. (This is why castor oil is sometimes used to stimulate

labor, as the cathartic laxative effect impacts the uterus as well.) Other examples include: buckthorn, aloe latex and rhubarb. Senna, while having laxative effects, appears to be safe in pregnancy in small doses, such as in use of a tea.

Phytoestrogens such as hops and sage should be avoided due to their hormonal impact on both the mother and the fetus' gonads, particularly if it is a male child.

Avoid strong nervous system stimulants and depressants, such as ephedra, coffee and kaya.

#### **Herbal Safety in Pregnancy**

Contradictory findings in the research and recommendations on herbal safety and efficacy can make the task of providing clinical recommendations difficult. A few aspects that can exacerbate the incongruencies are misinformation, adulterated herbal substances, differences in plant parts used and differences in dosing and method of delivery. In conclusion, use the best research available and clinical judgment when it comes to herbal medicine in pregnant populations. When treating women with herbs during pregnancy, I recommend referencing Herbal Medicines in Pregnancy and Lactation: An Evidence-Based Approach and the aforementioned American Herbal Products Association's Botanical Safety Handbook.

#### Herbs Contraindicated During Pregnancy

a guide to herbs that are not safe to use during pregnancy.

#### **Abortifacients**

Blue Cohosh

Cotton-root Bark

Thuja

Wormood

Rue

Pennyroyal

#### Teratogens

Lupine

Datura

### Stimulating Laxatives

Buckthorn

Aloe Latex

Rhubarb

#### Stimulants

Ephedra

Coffee

Kava

#### Phytoestrogens

Hops

Sage

#### Strong Alkaloids

Comfrey

Coltsfoot

Borage

Goldenseal

Barberry

Oregon Grape

Butterbur

Life Root

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#### **FOUNDATIONS**



Q&A with Dr. Geo Espinosa, ND



#### by Tina Beaudoin, ND

Prostate cancer is the leading cancer among men after skin cancer. According to the American Cancer Society, it affects 1 in 7 men and there will be over 160,000 new prostate cancer diagnoses in 2017. Roughly 1 in 39 men will die from prostate cancer/PrCA, which means that the majority of men diagnosed with prostate cancer do not die from it. Men with localized disease have a 100% survival rate at five years. To put it another way, an American man has a 16% lifetime risk of developing prostate cancer, but the risk of dying from it is only 2.9%. An interesting study from 1996 investigated the incidence of prostate cancer via autopsy (died from trauma) and found that one-third of the men in their thirties had prostate cancer. It is also important to note that the majority of deaths from prostate cancer occur in men in their 70s and 80s. These statistics illustrate that prostate cancer is typically a slower-growing cancer and that the majority of men with prostate cancer will die from causes other than prostate cancer.<sup>2</sup> There is an opportunity for integrative practitioners to further educate themselves and patients on how to address and modify the lifestyle factors that influence disease progression.

There are ongoing changes in the screening and management of prostate cancer. To help sort through the updates and advances is Dr. Geo Espinosa, ND, an expert in the field who has counseled thousands of patients with prostate cancer in New York City at the Holistic Urology Center at Columbia University Medical Center. Dr. Espinosa is currently working at the Integrative and Functional Urology Center at New York University's Langone Medical Center.

#### Q&A with Dr. Geo Espinosa, ND

#### Q: What do you recommend in terms of screening for prostate cancer?

Dr. Espinosa: The physical exam is of great value and I do recommend regular DREs (digital rectal exams). While PSA (prostate specific antigen) screening is not without its flaws and limitations, there is value to testing patients. The prostate gland does secrete small amounts of PSA and levels can increase secondary to enlargement, inflammation and cancer. If the PSA is greater than 10, then practitioners should screen for PrCA with additional markers related to PrCA. It is also about how the PSA changes over time, called the PSA velocity or doubling time. Men with PSA lower than 10 may also have prostate cancer, so family history, DRE, PSA Density and PSA velocity become important before screening with more aggressive medical methods like biopsies.

I start testing the PSA of every man 40 to 45 years of age, which is ten years younger for men (with average risk of prostate cancer) than dictated by the American Urological Associations guidelines. Men with a strong family history of this disease or from African American descent have an increase risk and should begin screening at 40. I find that men who are diagnosed with PrCA in their 40s have a more aggressive type of cancer than older men who get PrCA. I'm unsure as to why, but have noticed this trend clinically. At a minimum, have baseline testing at 40 years of age. If low PSA at 40 (under 1), then you can do it again in five years.

#### Q: How does one make best use of the PSA test?

#### Dr. Espinosa:

- At 40 to 50 years of age, 2.1 is not low and you should test at least every six to 12 months moving forward.
- At 60 years of age, 2.1 is low.
- At greater than 70 years of age, PSA is irrelevant because if you are diagnosed with PrCA at this age, it is more likely that one will die from other co-morbidities as prostate cancer is such a slow-growing cancer.

#### Q: What are your guidelines on PSA velocity?

Dr. Espinosa: PSA velocity/PSAV measures the significance of PSA changes over time. If the PSA today is a 2.0, for example, and then in six months it's at 4.0, then the PSAV score is 2.0 over a six-month period and that may be significant. PSAV can be one measure to determine if a biopsy should be considered as part of your prostate cancer screening. A PSAV of 0.75 in a year has been associated with a higher probability of cancer.

#### Q: What other screening tests do you recommend?

Dr. Espinosa: Percent Free PSA is an important test in that it lets you know the amount of unbound PSA traveling in the blood compared to total PSA. The lower the percentage of unbound or free PSA, the higher the probability of cancer. If the free PSA is between 5-9%, there is a greater than 25% of prostate cancer. On the flip side, if the free PSA is greater than 25%, there is less than a 10% chance of prostate cancer.

PSA Density (PSAD) is another piece of the puzzle that measures PSA value relative to the size of the prostate gland as measured by ultrasound or MRI. Once you divide PSA value over prostate volume, a value over 0.15 may suggest aberrant cells in the prostate.

I also recommend the **4Kscore Test**, a blood test that measures the probability of there being a more aggressive type of PrCA. It includes total PSA, free PSA, intact PSA and human kallikreinrelated peptidase 2.

The Prostate Cancer Antigen 3/PCA3 is a genetic molecule found in a urine test that is highly overexpressed in nearly all prostate cancers. Urine is collected after a DRE of three strokes per lobe. PCA3 has been evaluated for guiding biopsy decisions when PSA levels are in an indeterminate range (2.5 to 10.0 ng/mL) and for men with previously negative biopsies but persistently elevated PSA levels.

#### Q: When do you recommend a biopsy?

Dr. Espinosa: Recommendations for biopsy is a case-by-case basis. If there is a strong family history and the many of the above motioned values suggest prostate cancer is present, then the next step would be a pelvic MRI, targeted biopsy as explained below.

#### Q: When do you recommend 'active surveillance'?

Dr. Espinosa: After a biopsy, if the Gleason score (a staging method for prostate cancer) is six, active surveillance is suggested and intensive lifestyle and naturopathic interventions should be the primary treatment.

#### Q: What type of biopsy do you recommend?

Dr. Espinosa: I recommend a targeted biopsy, also called the MRI ultrasound fusion biopsy. Prior to biopsy, the patient will undergo a multi-parametric MRI because it is the best option to show the locations of the lesions in the prostate gland and it is pretty accurate, although not 100%. In the random biopsy using only ultrasound (TRUS biopsy), important cancer cells can be missed due to the limited image quality of the ultrasound and the

TRUS biopsy often gets low-risk cancer cells that we shouldn't worry about. In addition, sometimes cancer cells are in areas that are hard to reach with the biopsy needle. The MRI image lights up areas of concern and when the physician knows ahead of time which areas to definitely include for biopsy, the technique -Seminal vesicle can be altered to ensure those areas are biopsied. ultrasound image is fused with Ejaculatory duct the MRI for the biopsy to help guide the sampling. The better

the image, the better the biopsy.

The targeted biopsy is more

accurate at targeting higher risk/ - Corpus more aggressive types of prostate cancer cells. Insurance companies are only paying for fusion biopsies in those who have already been diagnosed with prostate cancer and are not being treated, but are under active surveillance. The MRI is about \$1,200 out of pocket for those without insurance coverage.

#### Q: What are your therapeutic goals when working with men with prostate cancer?

Dr. Espinosa: You want to create a hostile micro-environment for the cancer cells:

- 1. Lower chronic inflammation
- 2. Promote immunity, especially natural killer cell activity
- 3. Enhance detoxification

Bladder

Prostate

Urethra

-Penis

- 4. Protect against oxidative stress
- 5. Healthy insulin and blood sugar control
- Q: What type of diet do you recommend for your patients who are positive for prostate cancer and low risk: those under 'active surveillance'?

#### Dr. Espinosa:

- Low carbohydrate diet (less than 150 grams per day) with lots of organic cruciferous vegetables.
- Organic, grass-fed meat diet.
- Avoid overly cooked or processed animal meats (no charring or high heat) and enjoy smaller (low mercury) wild-caught fish.
- No dairy! There is decent research associated with increased risk of prostate cancer with dairy consumption. I'm unsure if this is due to the quality of the dairy or the casein.
- A little soy is fine; the research is mixed and some studies do show benefits.

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#### **Presenting Symptoms of Prostate Cancer**

- Asymptomatic
- A need to urinate frequently, especially at night
- Difficulty starting urination or holding back urine
- Weak or interrupted flow of urine

- Painful or burning urination
- Difficulty in having an erection
- Painful ejaculation
- Blood in urine or semen
- Frequent pain or stiffness in the lower back, hips or upper thighs

#### Q: What do you recommend for exercise?

#### Dr. Espinosa:

- Four hours per week of moderate/high intensity aerobic exercise.
- If on hormone androgen deprivation therapy, then add weight resistant training three times per week to prevent metabolic syndrome and osteoporosis.

#### Q: What do you recommend for supplemental support?

#### Dr. Espinosa:

Curcumin, boswellia and grape seed extract/GSE for their antioxidant, anti-inflammatory and immune boosting effects. You might be surprised by GSE recommendation but research shows a 24% decrease in incidences of PrCA in men who consume GSE.

Milk thistle to help safely metabolize hormones.

Reishi mushroom extracts as the data is compelling in terms of Cochrane report. It is very useful for increased immune function and natural killer cell activity in cancer patients.

The following antioxidants are balanced; one shouldn't do high doses of single antioxidants as there is the potential to make things worse.

- Vitamin C: 500 mg daily
- Zinc: 15-30 mg daily
- Alpha lipoic acid: 100 mg daily
- Selenium (selenized yeast form): 200 mcg daily
- Vitamin E with mixed high gamma tocopherols 200 IUs daily

If you'd like a more in-depth look at prostate cancer, Dr. Espinosa wrote an excellent book called *Thrive Don't Only Survive: Dr. Geo's Guide to Living Your Best Life Before & After Prostate Cancer.* 

It goes through Dr. Espinosa's CaPLESS Wellness Method, a sustainable lifestyle approach to improve the prognosis for men diagnosed with prostate cancer.

Prostate cancer is an inflammatory condition and the best medicine is always prevention. While many integrative practitioners routinely guide patients on how to reduce inflammation (good sleep, organic colorful diet, exercise, stress management, healthy digestive biome, and elimination of chronic infections), it is also helpful to remember the wide variety of environmental factors that also influence health and disease

Perfluorooctanoic acid/PFOA is a synthetic chemical compound and known toxicant that is used in Teflon, Gore-Tex, textiles and carpets and can be found in the air and house dust. Recent EPA monitoring found PFOAs in water supplies that serve nearly 10 million Americans.<sup>3</sup> A 2013 study that looked at six contaminated water supplies found that higher PFOA serum levels were associated with testicular, kidney, prostate and ovarian cancers.<sup>4</sup> A study done

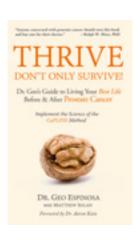


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just last year in Illinois found that counties with higher mean arsenic levels in community water systems had significantly higher prostate cancer incidence.<sup>5</sup> While grape and apple juice made the news as being contaminated with arsenic, your municipal drinking water supply is still your greatest source of exposure to arsenic! Highlighting just two of the toxicants that can influence prostate cancer warrants consideration when formulating strategies on prevention and management. As there is pervasive exposure to thousands of chemicals every

day, professional-grade water and air filters are an important consideration in integrative treatment protocols.

In summary, prostate cancer is a slower growing cancer and the screening tools continue to evolve to allow for better discernment of disease presence and the likelihood of progression. Integrative practitioners can significantly enhance "active surveillance" of prostate cancer with lifestyle modifications, toxicant exposure reduction and supplemental nutrient support.

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#### **HOT TOPICS**

#### Sexual Health: Libido

A Natural Whole-Person Approach



#### by Meredith Murray, ND

Sexual health is incredibly important to human health and often left out of the discussion when speaking to patients. As practitioners who focus on the whole-person, consider sexual health part of a holistic view.

Studies have revealed that most practitioners do not broach the topic of sexual health with patients, especially in general practice. One poll suggested that only 35% of general practitioners asked patients about sexual health and that was only 75% of the time. By not offering a discussion about sexual health with patients, it perpetuates the idea that the topic is not appropriate, too private or considered shameful, which is simply untrue. When you offer a safe, non-judgmental space for patients to discuss sexuality, it may strengthen the doctor-patient relationship and also uncover aspects of their health you may not have otherwise discussed in your visit.

For men, the inability to have or maintain an erection may not just be due to low hormones, but can be related to cardiovascular disease, diabetes or other chronic disease states.

For women who state they are having decreased sexual desire or function, you may want to look into further signs of depression or adrenal imbalance.

For all patients, decreased sexual function may be a result of concurrent medication use. They may not be aware that their medication is causing this side effect and remain silently embarrassed by it. If they do understand it is caused by their medication, they may feel there is nothing else they can do about it and there are no alternatives. By approaching this topic, you can counsel them and perhaps offer a natural alternative to help resolve the issue.

Asking all patients about sexual health can uncover potentially high-risk sexual practices for which counseling (non-judgmentally) is appropriate to reduce their risk of STIs or unwanted pregnancies. If you determine a patient is at risk of STIs, after offering counseling on barrier methods and safe practices, you may want to consider adding immune support to their treatment plan.

Many practitioners feel that they are unprepared for this type of questioning or they underestimate its importance. As a result, patients generally feel discomfort in bringing up sexuality for fear of judgment. The first step to this conversation is to ask permission from the patient to discuss their sexual health, allowing the patient to bring up the topic then or in the future.

#### Here are some simple, brief ways to incorporate the questioning into your visit:

- Are you sexually active? (Don't assume they are. Also ask if they have been in the last six months.)
- Are your partners men, women or both? (Avoid using the phrase "married" or "monogamous".)
- Are you using barrier methods: sometimes, 100% or never?

(Depending on the answer, this could provide an opportunity to discuss safe sexual practices or offer referrals.)

• What sexual concerns do you have? (This leaves it open to the patient to discuss what is their concern, whether it is a physical symptom, a lack of desire or something more serious such as not feeling safe with their partner(s). It also implies that many people have sexual concerns and it is not unusual for them to have some as well.)

Be sensitive and mindful that the topics you address and how you approach a respectful discussion about sexual health will need to differ depending on the age and gender of the patient.

It is estimated that decreased sexual function, or low libido,

(SHBG). It has been used for centuries to enhance libido and reduce effects of stress.

There are many safety studies in both rodents and humans which show safety at the recommended dose of 50-200 mg/day.<sup>4</sup>

One small study looked at physically active seniors who took 400 mg of tongkat ali daily for five weeks and found that there was significant increase in total and free testosterone and muscular force in both men and women. The theory behind the increase in testosterone in women is that the tongkat ali causes a decline in SHBG. $^5$ 

"When you offer a safe, non-judgmental space for patients to discuss sexuality, it may strengthen the doctor-patient relationship and also uncover aspects of their health you may not have otherwise discussed in your visit."

affects over 50% of both men and women.<sup>1</sup> Luckily, there are a number of botanicals for this issue. Here is a brief review of two of the best studied:

#### Tribulus terrestris

Tribulus is an herb of the Zygophyllaceae family. The main constituent, considered to be the active ingredient, is alpha amyrin.

The mechanism by which it can affect libido is unclear at this time. However, studies show that it can influence FSH and LH in women and testosterone in men.

Traditionally, it has been used for centuries for improving overall health, particularly in the realm of sexual desire and libido.

Overall, results of studies on Tribulus improving sexual function are mixed, but there have been multiple positive outcome studies involving Tribulus with women. One study in Iran showed that women taking 7.5 mg/day of Tribulus extract had improvement in desire, arousal, lubrication, satisfaction and pain<sup>2</sup> with sex. It also has been shown in vivo and in vitro to have an erectogenic effect in males<sup>3</sup>.

#### Tongkat ali (Eurycoma longifolia)

This is an herb from the Malaysian rainforest. The mechanism of action comes from its "eurypeptides," which have shown to help increase free testosterone from sex hormone binding globulin

Another study showed that 200 mg/day for four weeks improved salivary cortisol and testosterone in stressed individuals.<sup>4</sup> This may be helpful to those with sexual dysfunction as a result of stress.

Overall, discussing the topic of sexual health with patients as a part of a holistic approach to wellness can improve their health, wellbeing and longevity.

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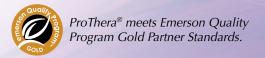
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#### by Lisa Murray, RDN, LD

Black cohosh is native to North America and for more than two centuries women have been using it to successfully relieve menstrual and menopausal discomfort. In modern times, both research and clinical practice have verified its effectiveness for reducing hot flashes and other symptoms during the perimenopausal years and beyond. But even after 50 years of scientific investigation, randomized double blind trials, in vitro, in vivo, population studies and various forms of poking, prodding and dissecting, we still do not understand the mechanisms of action of Cimicifuga racemosa, aka black cohosh.<sup>1</sup> Some herbs do not readily give up their secrets.

Although the physiology of hot flashes has been studied for more than 30 years, it is still not known exactly why or how they occur. Estrogen is definitely involved—because if it wasn't, then estrogen therapy would not relieve vasomotor symptoms as well as it does—but that's not the whole story. For example, researchers have found no differences in estrogen levels in women who have hot flash symptoms and those who don't. Because black cohosh root extract relieves hot flashes effectively, producing results similar to estrogen replacement therapy, it is commonly thought of as a phytoestrogen, but this is not a fair assumption. Herbs are often misunderstood and often pigeon-holed for ease of understanding their application and then much gets lost in the translation. I myself have been guilty of describing black cohosh as a "phytoestrogen", because it eases the symptoms caused by low estrogen. But unlike the isoflavones in soy, alfalfa or red clover, which are simpler to define by their chemical components and mechanism of action as phytoestrogens, how black cohosh root exerts its influence is still a mystery. Truly, the best way to think about some herbs for reproductive health is that they usually enable what is most appropriate to occur but do so in ways we simply don't understand clearly.

For example, a study in 2006<sup>2</sup> compared the effects of black cohosh to conjugated estrogens on bone turnover. Both had positive results. However, analysis of bone turnover markers indicated that while estrogen inhibited osteoclast activity, black cohosh stimulated osteoblast activity. These are two different actions, resulting in a similar outcome—bone protection.

In addition, more than one retrospective study looked at the relationship between use of supplements and breast cancer risk. Population studies suggest that taking black cohosh does not significantly increase breast cancer risk. In some studies, the use of black cohosh had a significant protective effect against breast cancer and might prolong disease-free survival in patients with breast cancer.<sup>3,4</sup> A study published in the journal *Nutrition and* Cancer in 2007 investigated specifically whether black cohosh extract exerted estrogenic influence on the breast, concluding that black cohosh "relieved menopausal symptoms without systemic or breast specific estrogenic effects". 5 Research shows that black cohosh doesn't seem to affect estrogen receptors. These reports on the estrogenic activity of black cohosh extract are "consistent with the effects of a selective estrogen receptor modulator (SERM), which acts as an estrogen agonist in some tissues and as an estrogen antagonist in others. The ideal SERM is one which acts as an estrogen on bone and brain, but does not act as an estrogen in the breast and uterus. BCE (black cohosh extract) may contain compounds which fit the criteria of a SERM."6

So the long and the short of what we know is that black cohosh has estrogen-like effects that are exerted by still unknown mechanisms. Research suggests that extracts of black cohosh do not bind to estrogen receptors, up-regulate estrogen-dependent genes or stimulate the growth of estrogen-dependent tumors in experimental animals. The general consensus and conclusion seems to be that black cohosh safely helps provide the hormone balancing that is desired by many women to help them ease through the menopausal transition.

For more on Black Cohosh read Adulteration of Black Cohosh in Quality Update on page 28 in this issue!

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<sup>1.</sup> Henneicke-von Zepelin, HH. 60 years of Cimicifuga racemosa medicinal products. Wien Med

<sup>2.</sup> Wuttke W, Gorkow C, Seidlová-Wuttke D. Effects of black cohosh (Cimicifuga racemosa) on bone turnover, vaginal mucosa, and various blood parameters in postmenopausal women: a double-blind, placebo-controlled, and conjugated estrogens-controlled study. Menopause. 2006 Mar-Apr;13(2):185-96.

<sup>3.</sup> Henneicke-von Zepelin HH, Meden H, Kostev K, Schröder-Bernhardi D, Stammwitz U, Becher H. Isopropanolic black cohosh extract and recurrence-free survival after breast cancer. Int J Clin Pharmacol

<sup>4.</sup> Fritz H, et al. Black cohosh and breast cancer: a systematic review. Integr Cancer Ther. 2014 Jan;13(1):12-29. doi: 10.1177/1534735413477191. Epub 2013 Feb 25.

<sup>5.</sup> Ruhlen RL. Black cohosh does not exert an estrogenic effect on the breast. Nutr Cancer. 2007;59(2):269-77. PMID: 18001221 DOI: 10.1080/01635580701506968

<sup>6.</sup> Ruhlen RL, Sun G, Sauter, E. Black Cohosh: Insights into its Mechanism(s) of Action. Integr Med Insights.

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Trifal™ Product Code: AY137



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#### by Cathleen Thomas

Whether you're a one-person business or part of a professional group, email marketing is a key component of any successful business and should be part of your business marketing strategy.

Email is a versatile, low-cost way of maintaining contact and educating your patients. It allows you to schedule messages in advance. You can use it to welcome new patients and send appointment reminders and other routine information like practice updates or event news. You can also use it to send out newsletters with valuable content and healthcare information, share tips on how to stay healthy and position your practice as the go-to source for various conditions or concerns. Here are some best practices to optimize your email marketing program.

#### Design

Whether you're using a template or hiring a designer, you want your emails to be representative of your practice. You'll want to ensure that they're professional and consistent with your practice's branding. You don't want your recipient to open your message and have no idea who it came from. Design for mobile first. The goal is to provide the best user experience when sending emails and because the majority of emails are opened on mobile devices, you need to make sure that your emails are designed to accommodate any device that they may be opened on. Lastly, create emails that are easy to scan and read.

#### **Subject Lines**

It's better to be direct and descriptive than trendy. Your email subject line should be relevant to the topic at hand and ideally contain no more than 50 characters. You can use an A/B testing campaign to see if different subject lines affect the open rates.

#### From Address

Your emails should be sent from an address that contains your practice's name so that your emails aren't mistaken for spam.

#### Assess

The best way to evaluate the success of your email campaigns is by looking at engagement. Engagement metrics like opens, clicks and unsubscribes are important. If you see reasonable and consistent open and click rates, you have a healthy email program. If you see email addresses that never engage, it may be time to remove them from your list. You'd do better to send to a smaller, but highly engaged list of recipients, rather than a larger unengaged list.

#### **Build Your List**

Be sure to capture email addresses as part of your patient's registration process. Look for opportunities to promote your signup on your website or blog. Just make sure that you communicate what they are signing up for when they give their email address.

#### Keep Your List Current

Monitor your bounces and opt-outs. Remove bad email addresses from your list and/or ask you patients for current email addresses.

#### **Accommodate Email Preferences**

Maybe some of your patients want to receive your newsletter or health tips. Some may only want to get appointment reminders. Others may want both. You should give your patients the option to choose what kind of emails they want to receive, segment your distribution list and target your audience.

#### Make It Easy to Unsubscribe

By law, you also need to make it easy for people to unsubscribe from these communications if they wish to do so. That means every email you send needs to have an "unsubscribe" link that's easy to find.





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### **Adulteration** of Black Cohosh

and the Challenges of Identity

by Jaclyn Chasse, ND

Emerson is very proud to support the American Botanical Council (ABC), one of the top herbal research and education sources in the country. One of ABC's goals is to improve awareness of not just the benefits of herbal medicines, but also the challenges that practitioners face when using herbs available through the dietary supplement market.

In this issue. I want to cover a botanical most of us know of for its benefits in women's health: black cohosh. Black cohosh (Actaea racemosa or Cimicifuga racemosa) is an herb grown in North America and most frequently used to treat menopause. With so many women going through menopause at any given time, the sales growth of black cohosh has led to a market opportunity that has been taken advantage of in unfortunate ways. A report published by Steven Foster in Herbalgram back in 2013 reported that there are several issues with the black cohosh available on the market, including adulteration with other Actaea species, primarily from China.

Adulteration affects clinicians in many ways. In 2002, reports began to surface that black cohosh may be linked to liver toxicity. It is now believed that the reports were not tied to black cohosh, but to a common adulterant in the herbal product. Giving an herb a bad rap due to an adulterant, and not due to the actual plant in question, could push us from using botanicals, which have a firm place in our clinical formularies. In addition, it would not be expected for other Actaea species to carry the same constituent profile or clinical benefits. When looking into published research on black cohosh for hot flashes, for example, how much of the discrepancies in outcome stem from the material used in the study? Could the wrong plant species have been used in some of the studies showing lack of efficacy?

For more on Black Cohosh read Mysterious Black Cohosh in Everyday Practice on page 20 in this issue! This brings up the common problem of identifying the herbal material with certainty before use in manufacturing. Many manufacturers trust the source of the material (the "ingredient supplier") to test the ingredient and purchase it based upon review of a certificate of analysis. This practice, in some instances where the ingredient supplier is well vetted ahead of time, can be adequate to meet the FDA's laws. However, the best brands are going above and beyond to also test in-house or to send to one of their own verified labs to review the material and ensure it is what they think it is! Our EQP partners leverage this latter practice, with EQP Gold partners testing every new lot of material that comes in.

Testing can be challenging when it comes to herbs as well; their chemistry is complex, and savvy ingredient sellers looking to make more profit may add adulterants (like other similar species) to the finished product to get more material, but not so much that it won't pass the routine identification testing.

Another reason to be cautious about where you are purchasing

Many thanks to our partners at the American Botanical Council for their ongoing work in ensuring that all of us in relationship with herbs (as medicines, as ingredients, etc.) can understand best practices. For more information on the ABC, visit Herbalgram.org.

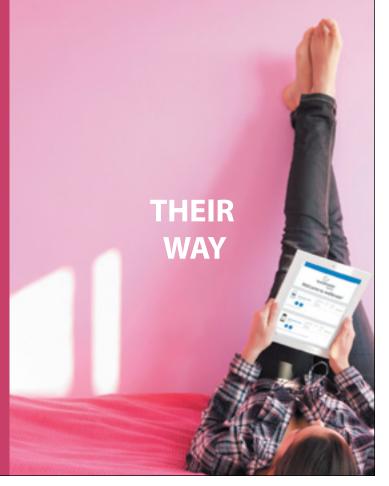


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by Alan Gaby, MD

Author: Saad K, et al

Reference: Randomized controlled trial of vitamin D supplementation in children with autism spectrum disorder. J Child Psychol Psychiatry. November 21, 2016. [Epub ahead of print].

Design: Randomized, double-blind, placebo-controlled trial.

Participants: One hundred nine Egyptian children (aged 3-10 years) with autism spectrum disorder.

Study Medication and Dosage: Vitamin D3 (300 IU per kg of body weight per day with a maximum of 5,000 IU per day) or placebo for four months.

Primary Outcome Measure: Autism severity and social maturity as assessed by the Childhood Autism Rating Scale, Aberrant Behavior Checklist, Social Responsiveness Scale and Autism Treatment Evaluation Checklist.

Key Findings: Compared with placebo, vitamin D significantly improved symptoms of autism including irritability, hyperactivity, social withdrawal, inappropriate speech, stereotypical behavior and communication. No significant side effects occurred.

Practice Implications: In this study, vitamin D supplementation improved symptoms of autism in Egyptian children. Prior to vitamin D supplementation, the mean serum 25-hydroxyvitamin D level was 27 ng/ml. The appropriate 25-hydroxyvitamin D cut-off level for diagnosing vitamin D deficiency and the reliability of serum 25-hydroxyvitamin D as an indicator of vitamin D status remains controversial. However, it appears that it is not necessary to have severe vitamin D deficiency in order for autistic children to benefit from vitamin D supplementation. Further research is needed to confirm the safety and efficacy of the relatively high dose of vitamin D used in this study.

Author: de la Torre R. et al.

Reference: Safety and efficacy of cognitive training plus epigallocatechin-3-gallate in young adults with Down syndrome (TESDAD): a double-blind, randomized, placebo-controlled, phase 2 trial. Lancet Neurol 2016; 15:801-810.

Design: Randomized, double-blind, placebo-controlled trial.

Participants: Eighty-four Spanish adults (aged 16-34 years) with Down syndrome.

Study Medication and Dosage: A green tea extract that contained 45% epigallocatechin-3-gallate (EGCG) or placebo. The dosage of EGCG was 9 mg per kg of body weight per day for 12 months. All participants received cognitive training.

Primary Outcome Measure: Various measures of cognitive function.

Key Findings: Compared with placebo, EGCG significantly improved scores on scales that assessed visual recognition memory (p < 0.04), inhibitory control (p = 0.04) and adaptive behavior (p = 0.002). Adverse effects did not differ between groups.

Practice Implications: Individuals with Down syndrome suffer from an accelerated decline in cognitive function and frequently develop senile dementia of the Alzheimer type by early middle age. The results of the present study demonstrate that administration of EGCG, when used as an adjunct to cognitive training, can improve measures of cognitive function in adults with Down syndrome. EGCG is believed to work by inhibiting the dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 1A (DYRK1A) enzyme, which is overexpressed in people with Down syndrome and appears to play a role in the pathogenesis of intellectual deficits in these individuals. While no serious side effects were observed, EGCG in doses only moderately higher than those used in the present study (such as 800 mg per day in patients with multiple sclerosis) resulted in elevations of liver enzymes in some cases after an average of 20 weeks of treatment.<sup>1</sup> Patients being treated with EGCG should therefore have periodic liver function tests.

 Lovera J, et al. Polyphenon E, non-futile at neuroprotection in multiple scierosis but unpredictably hepatotoxic: Phase I single group and phase II randomized placebo-controlled studies. J Neurol Sci. 2015; 358:46-52.

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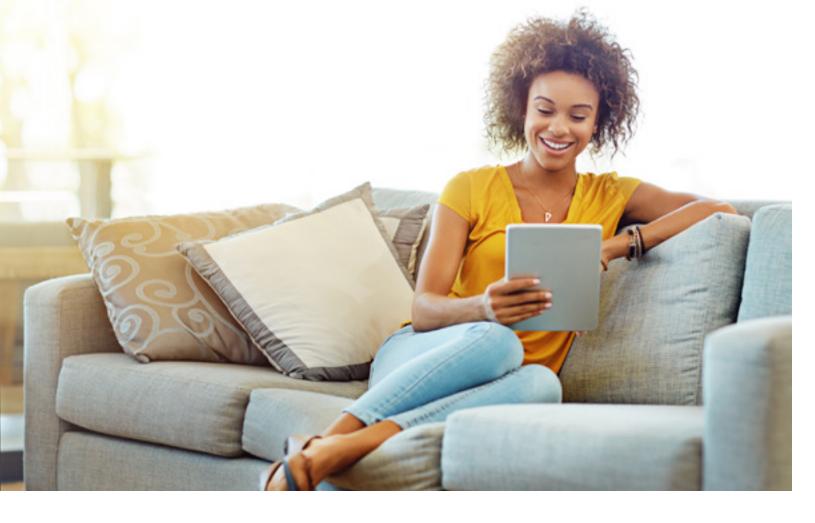
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#### Q&A with the Experts

PRESENTS -

The times, they are a-changin'. When it comes to integrative medicine and supplement dispensaries, new trends can be both exciting and nerve-racking-especially when you add Amazon to the mix. But embracing those trends (and those challenges) is often what practitioners need to do to thrive. To understand some of the key industry shifts and their impacts on practitioners today, Dr. Jaclyn Chasse, ND sat down with Adam Carr, CEO of Emerson Ecologics, to discuss.

Dr. Jaclyn Chasse, ND: In the world of integrative medicine, it can be daunting for some to embrace trends-particularly when it comes to technology. How can practitioners start taking advantage of trends when it comes to their practices?

Adam Carr: A good way to start is by looking for opportunities that help grow and strengthen their practice. Online dispensaries are a new technology with enormous staying power-and now is the time to get involved. Emerson's online dispensary, wellevatesm, is the perfect complement to practitioners' in-office dispensary, and safely and easily connects them to their patients.

During a patient visit, practitioners can quickly enter supplement and lifestyle recommendations for a patient along with any specific instructions on dosage and when and how to take. Patients can then log into wellevatesm at their convenience, from any device-be it their smartphone, tablet or computer—to review their practitioner's recommendations and place their orders. (Plus, they'll enjoy free shipping on orders of \$49 or more!)

In addition, wellevate<sup>sm</sup> helps practitioners more effectively communicate with their patients, making it a valuable and highly trusted tool. Patients love it because they can view all of their old treatment plans and supplement recommendations in one place, making it easy to stay on track with their practitioner's recommendations.

Dr. Jaclyn Chasse, ND: Changing an industry's landscape is exciting and also necessary at times. Why is it so important now for technology like wellevate<sup>sm</sup> to drive industry direction?

Adam Carr: Until recently, professional-grade supplements were really only available at your integrative practitioners' offices. However, changes in

consumer buying habits and the unstoppable forces of the internet have resulted in broad availability of many professional-grade products on Amazon or the like. As such, patients-who often have their smartphones handy-are less likely to return to their practitioners' offices to replenish their supply, opting to purchase from Amazon instead.

Leveraging wellevatesm allows practitioners to gain an advantage by meeting their patients' expectations for easy ordering, product availability, and free shipping, and allows them to effectively compete with the benefits of online shopping through players like Amazon.

Jaclyn Chasse, ND: Isn't counterproductive to practitioner recommendations and a patient's care regimen?

Adam Carr: Practitioners play a vital role in ensuring their patients are taking the correct products-in the right way and at the right dosages—and this critical oversight is at risk when patients buy their refills on Amazon.

While patients try to buy the identical product that their practitioners recommend, more often than not they buy something with different ingredients or different concentrations, which are often not suitable for them or require a different dosage.

Dr. Jaclyn Chasse, ND: I see that. I had a patient who bought a refill online and wasn't doing well-they had purchased N-acetylglucosamine rather than N-acetyl cysteine. Thankfully, they didn't get hurt, but buying online led to easy confusion even for this savvy patient!

How then should practitioners confront the Amazon challenge? And, how should they address the reality that their patients, like all consumers, increasingly prefer the convenience of purchasing everything on their smartphones?

Adam Carr: By leveraging wellevatesm, practitioners can bring their patients back under their care, and create an even stronger relationship with them-something Amazon can never match.

And by pairing their Emerson Ecologics account with a wellevatesmaccount, the hybrid-selling model of both in-office and online dispensaries ensures greater flexibility and freedom for both practitioners and patients.

wellevate<sup>sm</sup> also helps recoup lost revenue. When patients purchase directly from Amazon, practitioners get no compensation for the order. With wellevate<sup>sm</sup>, practitioners can instead maintain control and earn income.

Dr. Jaclyn Chasse, ND: Competing with Amazon may seem daunting at first, but the benefits are strong-and there are real success stories out there.

a | ≡

\$36,452

\$1,246

02

Dr. Jane Doherty

Ashley Smith

1. Fish OliQ 60 Gels

Trevor Wharton

Adam Carr: Very true. Change is often met with resistance, but oftentimes, it's the best way to stay relevant in your industry (and to your core consumers!).

One clear success story is Warby Parker, the online retailer of eyeglasses. They developed a unique model of selling eyeglasses online, which leveraged technology allowing consumers to upload a picture of themselves to see how different glasses styles would look on them. This not only vastly improved the shopping experience, but this level of value-added service was unique to the specific category and allowed Warby Parker to successfully compete with Amazon.

While Amazon has proven it's possible to sell everything under the sun, they've yet to prove that they can be the best at selling each category. And that's good news for practitioners. I believe wellevate<sup>sm</sup> will soon join the ranks of Warby Parker and others who have revolutionized an industry by embracing the changing landscape, leveraging technology to gain an advantage unique to their patients' needs, and effectively competing with Amazon.

To take your practice to the next level, look no further than wellevatesm. It's the perfect way to

take control back in a changing industry, and the perfect way to continue to improve the health of all members of our community. Your advice, their way. That's wellevatesm.



Take your practice well beyond. VISIT WELLEVATE.ME

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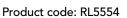
PRODUCT SHOWCASE PRODUCT SHOWCASE

#### a-Drenal

By: RLC Labs

a-Drenal is designed to combat the side effects of adrenal fatique, while promoting the healthy function of the adrenal glands.

- Comprehensive formulation of organic adrenal tissue and adaptogenic herbs
- Doctor approved
- Provides effective support from stress induced symptoms
- Promotes calm, balanced physical and mental energy





By: Bio-Kult

Spring arrives and for some people so does the sneezing, sniffling and runny eyes! Seasonal allergies are associated with an oversensitive immune system. Live bacteria have been shown in studies to help rebalance the gut flora, support a healthy immune response and to significantly improve the quality of life in allergy sufferers. This multi-strain formula contains 14 live bacterial cultures that complement existing gut flora naturally present in a healthy person's digestive system.



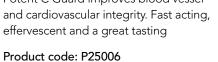
a Drena

Product code: B01721

#### PERQUE Potent C Guard PAQUFT™

By: PERQUE

Bestselling buffered C powder, now more convenient! Our powerful 100% reduced, I ascorbate, which is fully buffered with alkalinizing minerals and purified under nitrogen, is now available in a convenient single serving size 'PAQUET.' pH balanced for cellular alkalinity, PERQUE Potent C Guard improves blood vessel and cardiovascular integrity. Fast acting, effervescent and a great tasting





With Huperzine A, which helps to maintain ACh in the brain, Alpha-GPC, a bioavailable form of choline, and Phosphatidyl Serine (PS), which is critical for efficient signaling in nerve cells, RememBRAIN<sup>™</sup> is a comprehensive formula utilizing clinically relevant doses of Hup A and PS, which help to support normal healthy ACh levels and neurological function.

Product code: P3414



#### nanomeal®

By: BioPharma Scientific

Eating a balanced diet is foundational to lifelong, energetic health, but your busy schedule doesn't always give you a chance to prepare (or even buy) a healthy meal. Enjoy a tasty and healthy meal replacement shake to keep you feeling full and energized all day. Enjoy the benefits of; nanopro + nanomega3 + nanogreens10 in an easy, portable packet. Our meal replacement powder comes in a yummy light flavor containing tropical notes of green apple, vanilla, orange, and pineapple.



Product code: NANOM1

#### NOW® Sports Pure MCT Oil

By: NOW®

NOW® Sports Pure MCT Oil is a convenient way to obtain medium chain triglycerides (MCTs), fats that are more easily and rapidly digested than other types of fats. MCTs are readily absorbed from the GI tract and are metabolized very quickly by the liver. Numerous studies suggest that substituting MCT Oil for other fats in a healthy diet may therefore help to support healthy weight and body composition.

Product code: N2199



#### Joint Complex (Single Dose)

By: Pure Encapsulations

Joint Complex supports joint function and comfort by combining ingredients that operate as cartilage building blocks and herbal extracts into one convenient once-daily capsule. Joint Complex also supports tissue hydration and joint lubrication.

Product code: P14807



#### **HMF** Travel

By: Genestra Brands

A number of travel-related factors, including unfamiliar food or water, stress, and jet-lag, can all affect the normal composition

of gut bacteria. That's why Genestra has introduced HMF Travel, a research-driven. shelf-stable probiotic formula that offers 35 billion CFU daily from a combination of five strains from Lactobacillus,



Bifidobacterium and Saccharomyces genera to support gastrointestinal health while traveling.\*

Product code: G48806

#### Allimax PRO

By: Allimax

- Allimax offers immune support and overall well being in just one capsule per day
- Suitable for long-term use
- Seasonal allergy support
- Real certified bioactive, stabilized allicin for true immune supporting benefits
- Broad spectrum
- No smell or aftertaste

Product code: A00277

#### ProOmega®2000-D

By: Nordic Naturals

ProOmega®2000-D is an ultra-concentrated fish oil that combines the benefits of doublestrength EPA+DHA with vitamin D3. This combination of 1125 mg EPA, 875 mg DHA, and 1000 I.U. vitamin D3 helps optimize immune function, provides unmatched support for heart, brain and eye health, and helps regulate levels of calcium and other minerals needed for strong, healthy bones.\*

Product code: N21357



#### Ultra HNS

By: Douglas Laboratories®

Ultra HNS supplies high dose biotin, methylfolate, vitamin C, zinc, and Cynatine® HNS, a patented, solubilized keratin for the health of hair, nails, and skin. Cynatine® HNS has demonstrated that it can improve the strength, brightness and appearance of hair, nails and skin as well as reduce hair loss associated with washing

Product code: D38161



#### QH+PQQ™

By: Jarrow

Jarrow Formulas' QH+PQQ™ is the powerful combination of QH (ubiquinol) and PQQ (pyrrologuinoline guinone) that work together to support mitochondrial biogenesis, heart health, and cognitive function.\*

QH+PQQ™ is ideal for aging individuals and those who want to protect cardiovascular and cognitive functions, but can also be used for those seeking a subcellular means of boosting energy capacity

Product code: J60284

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#### by Meredith Murray, ND

Curcumin, a polyphenol of *Curcuma longa*, is one of the most widely known natural remedies and one most of us use regularly. However, you may not know that curcumin is the focus of recent (and ongoing) studies for cervical dysplasia due to its ability to target cells at high risk of developing into cervical cancer.

Each year, cervical cancer affects thousands of women, with most cancers originating from a persistent infection of certain strains of HPV in cervical cells. While HPV is pervasive in society (almost all men and women contract at least one type during their lives), the infection can often be cleared by the immune system in both men and women. Currently, there is no conventional treatment for cervical HPV, specifically to proactively prevent progression to cancer. Instead, the cervix is monitored over time and surgical procedures are utilized if the virus becomes too invasive. Luckily, there have been some exciting new studies looking at the positive effect curcumin has on the process of inhibiting HPV and cervical cancer cells.

For HPV to become carcinogenic in cervical cells, a needed requirement is for the expression of oncogenes E6 and E7 and subsequent reduction of the tumor suppressor gene p53.<sup>2,3</sup> Studies have shown that curcumin can actually inhibit E6 and E7 oncogenes, even as early as six hours post-treatment as well as restore the expression of p53 and other mechanisms to prevent tumorigenesis.<sup>4</sup>

A study involving four HPV(+) cell lines showed that curcumin could eliminate HPV in all of them. This same study went on to create a vaginal cream using curcumin, which was introduced to mice and showed the same ability for curcumin to eliminate HPV+ cells, while not affecting any of the surrounding normal tissue.<sup>5</sup>

Studies have taken into account curcumin's limited bioavailability and have created intra-vaginal forms of curcumin to best attack cervical dysplasia. A study in India used a combination of curcumin plus other herbs in a topical vaginal cream, which showed a higher clearance of HPV compared to placebo. Curcumin alone had a higher clearance rate than placebo, but it was not clinically significant. More recently, a nanoparticle form of curcumin was developed and it performed better at inhibiting cell growth and inducing apoptosis in cervical cancer cell lines than free curcumin. A phase-1 study has demonstrated that intravaginal curcumin for women with cervical dysplasia is considered safe.

As curcumin is being studied more and more for its amazing abilities, watch for future research on this ingredient and its effect on HPV.

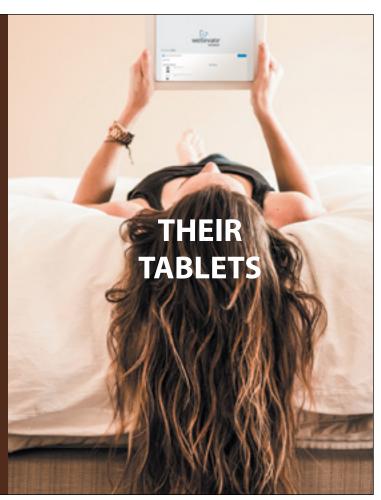
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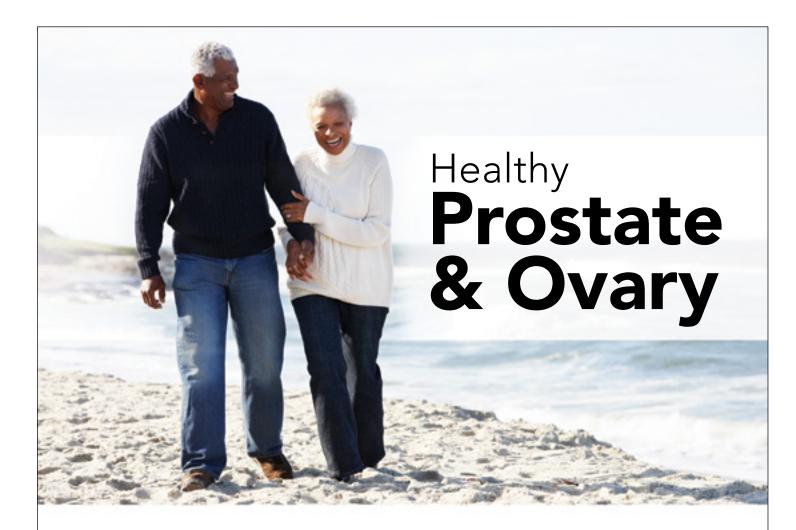


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