

Animal Alpha F: Because Alpha Women Demand Better Supplements

written by Mike Roberto | March 25, 2022

If one surveys the current state of the supplement market, they'll find lots of testosterone boosters and recovery aids aimed at *male* athletes – but not nearly as many well-formulated hormonal supplements made specifically for **women**.

Animal Alpha F: For serious women who need more



Universal Nutrition has set out to rectify this imbalance with their **Animal Alpha F**, a female-targeted comprehensive wellness supplement. All in one “Pak” (a nod to the legendary *Animal Pak* multivitamin packs), Alpha F provides the following complexes:

- **Hormone balance**
- **A premier form of collagen**
- **Mood & stress support**
- **Bone & joint health blend**
- **Complexion, hair, skin and nail care**
- **Absorption / bioavailability booster**

Women have many needs, and they can be addressed by numerous ingredients. The best way to do this is to *pack* them in – and that's with Universal Nutrition's famous “paks”, which contain multiple capsules in one convenient serving.

The science of each ingredient is covered below, and you can check prices using PricePlow's price comparison tool:

Universal Animal Alpha F – Deals and Price Drop Alerts

Get Price Alerts

Get Animal Alpha F Price Alerts Get Universal alerts Get Women's Health price drops

Also get hot deal alerts

No spam, no scams.

Disclosure: PricePlow relies on pricing from stores with which we have a business relationship. We work hard to keep pricing current, but you may find a better offer.

Posts are sponsored in part by the retailers and/or brands listed on this page.

Animal Alpha F Ingredients

In a single, *one-pack* serving of Alpha F from Universal Nutrition, you get the following:

- **Hormone Balance Support**

AlphaF_81522G

Supplement Facts

Serving Size 1 Pack

Servings Per Container 30

Amount Per Pack		%DV
Vitamin D (as cholecalciferol)	25mcg (1000IU)	125%
Vitamin K (as phytonadione, menaquinone)	120mcg	100%
Folate	400mcg DFE (240mcg folic acid)	100%
Biotin	300mcg	1000%
Calcium	30mg	2%
Chromium (as chromium chloride)	200mcg	571%
Sodium	15mg	<1%

Hormone Balance Support

Calcium-D-Glucarate	250mg	**
Diindolylmethane (DIM)	100mg	**

Complexion & Joint Health Support

BioCell Collagen® (Hydrolyzed Sternal Cartilage Extract) (provides Hydrolyzed Collagen type II, Chondroitin Sulfate, Hyaluronic Acid)	1000mg	**
---	--------	----

Calm, Mood & Stress Support

Ashwagandha Extract (leaf and/or root)	300mg	**
L-Theanine	100mg	**
Gotu Kola Herb Powder	100mg	**
Eleutherococcus senticosus Root Powder	100mg	**

Bioavailability & Absorption

Panax notoginseng Extract (root), Astragalus membranaceus Extract (root) (as Astragin™)	25mg	**
Black Pepper Extract (fruit) (as Bioperine®)	5mg	**
Ginger Root Powder	250mg	**

** Daily Value (DV) not established.

OTHER INGREDIENTS: Gelatin (bovine), dicalcium phosphate, magnesium stearate. Made in a GMP facility on equipment that processes milk, soy, egg, peanuts, tree nuts, fish, shellfish, and wheat.

All of this in five capsules!

All of us—men and women alike—need *some* estrogen for optimal health[1] – and *in the right balance*. However, in some people, enzyme *aromatase*, which converts testosterone to estrogen, can become overly active, feeding into a syndrome called “estrogen dominance” where, you guessed it, you’re left with *too* much estrogen.

Estrogen dominance can be pretty bad news. Aromatase overexpression and estrogen dominance have been correlated with serious disease, including certain forms of cancer.[2]

One common cause of aromatase overexpression is *obesity*[3] – a very common condition in the United States, and other industrialized countries, too. The more body fat you carry, the more active your aromatase system will be.

When it comes to women’s health, *breast cancer proliferation* is perhaps the most infamous consequence of estrogen dominance.[4] In fact, pharmaceutical-grade *aromatase inhibitors*—drugs that prevent aromatase from producing estrogen—are one of the most common treatments for breast cancer.[5]

Aromatase inhibitors work because they decrease the amount of circulating estrogen in the body.[5]

Furthermore, the modern environment is loaded with xenoestrogens – compounds (usually synthetic) that mimic the action of estrogen closely enough to increase the body's overall estrogenic load for some people.[6]

The idea behind this two-ingredient *hormonal balance* blend is basically to decrease that estrogenic burden.

- **Calcium-D-Glucarate – 250 mg**

Calcium D-glucarate is a combination of *glucaric acid* and *calcium*. It occurs naturally in the body in small amounts and participates in a process called *glucuronidation*, a detoxification process by which the liver eliminates toxic compounds from the body.[7]



The steroid hormones, which include testosterone, estrogen, and their metabolites, are eliminated from the body via glucuronidation.[8]

Calcium D-glucarate inhibits *beta-glucuronidase*, an enzyme that interrupts glucuronidation by breaking down glucuronic acid. High beta-glucuronidase activity is associated with hormone-dependent cancers,[9] such as breast cancer.

When it comes to the estrogen system, beta-glucuronidase *reactivates estrogens*, which leads to the absorption of free estrogen by the body's tissues.[10]

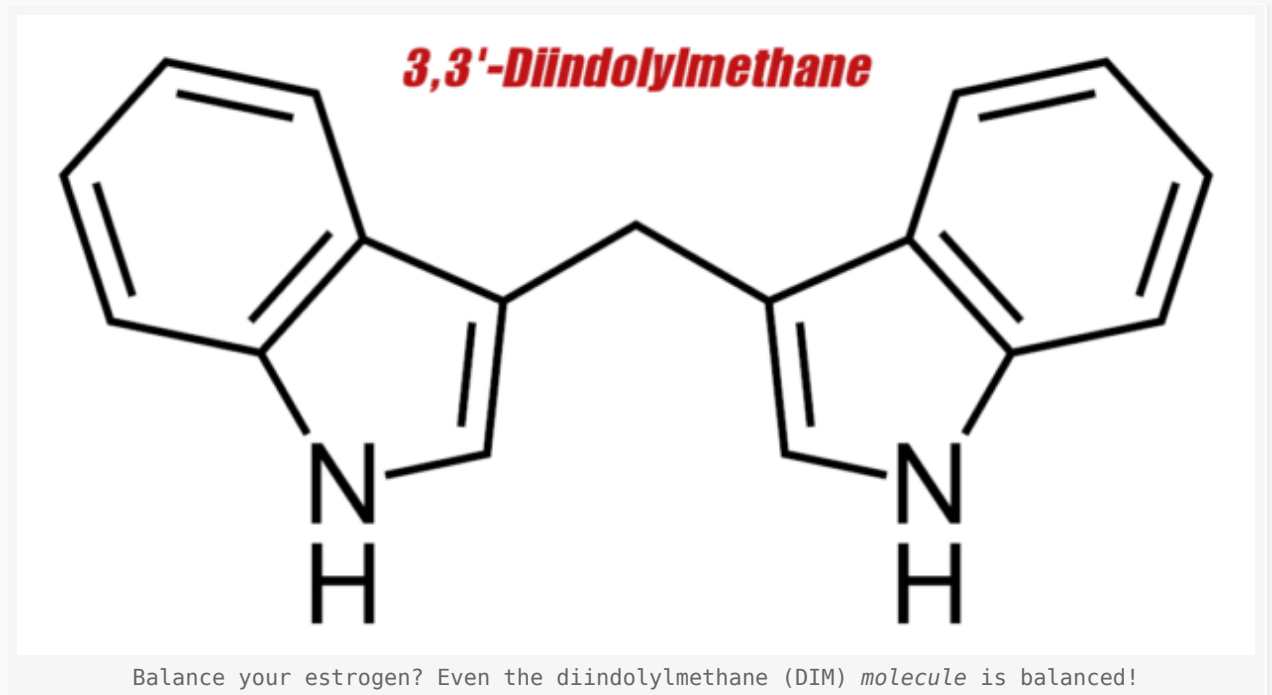
So in other words, by inhibiting *beta-glucuronidase*, calcium D-glucarate encourages the glucuronidation of estrogen.

Calcium D-glucarate synergizes with the next ingredient we'll discuss, DIM – whereas DIM helps reduce estrogen production, calcium D-glucarate helps the body efficiently dispose of whatever estrogen it's already produced.

- **Diindolylmethane (DIM) – 100 mg**

Now that we know how aromatase works, we can discuss **diindolylmethane (DIM)**, a potent *aromatase inhibitor*.

A preliminary body of research shows that DIM can impair the proliferation of estrogen-dependent breast cancer cells *in vitro*. [11]

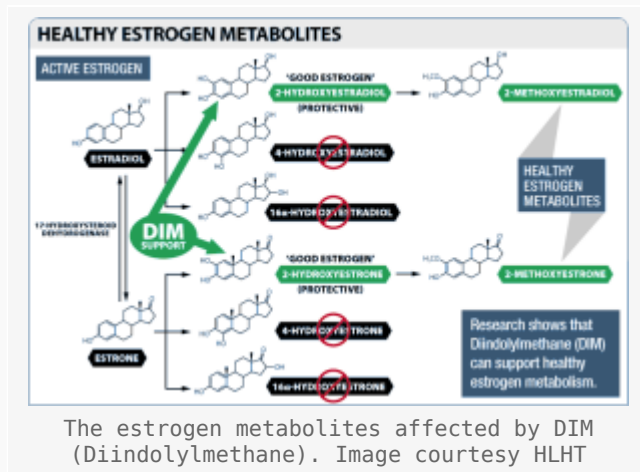


One theory as to how DIM does this is that it has an affinity for the *aryl hydrocarbon receptor (AhR)*, which, when activated, downregulates (decreases the density of) *estrogen* receptors. [12-14] By activating AhR, DIM basically makes estrogen less active in the body. [15]

But beyond its ability to prevent androgens (testosterone and its metabolites) from being converted into estrogen, DIM also shifts the body's balance toward less harmful forms of estrogen.

Three main forms of estrogen are found in the human body – estrone, estradiol, and estriol. Estradiol is the strongest, which means that it has the highest level of activity at the cellular estrogen receptor. [16]

When these three forms of estrogen are metabolized by the body, a few different estrogen metabolites are produced as a byproduct, including *estradiol-2-hydroxylase (EH)* and *16-alpha-hydroxyestrone*. [16]



Most researchers regard these *2-hydroxylated* forms of estrogen as being “good” estrogens because of their beneficial impact on human health.[17,18] In fact, the ratio of 2-hydroxylated metabolites to 16-hydroxylated metabolites is used as a measure of hormonal health.

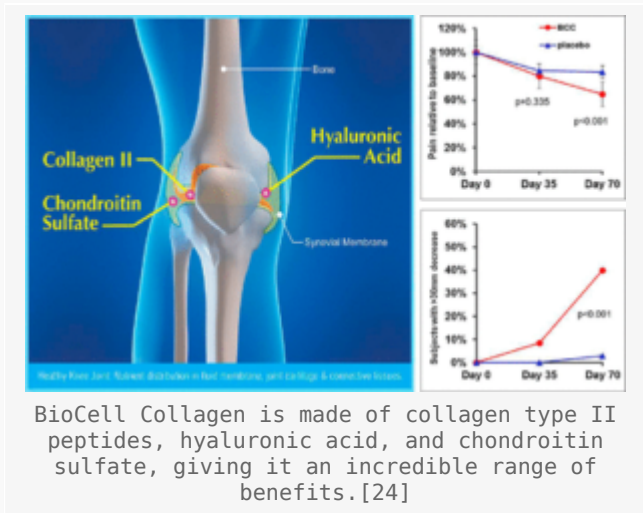
Having more “good” estrogen, i.e. more 2-hydroxylated estrogen, is correlated with higher amounts of muscle mass and lower levels of body fat.[19]

So why is this important for us? In 2012, researchers found that **DIM affects the enzymes that convert estrone to hydroxyestrone, [20] increasing 2-hydroxylates while decreasing 4-hydroxylated and 16-alpha-hydroxylated estrogens.** [20-23]

- **BioCell Collagen – 1000 mg**

The sole component of the Alpha F’s **Complexion & Joint Health Support** section, **BioCell Collagen** is a trademarked blend of *collagen type II peptides, hyaluronic acid, and chondroitin sulfate* that’s extracted from hydrolyzed sternal cartilage.

Type II collagen is especially important for the health of joints and connective tissue – a big concern as we age, especially for those of us who wish to remain physically active. The *hyaluronic acid* and *chondroitin sulfate* are here as collagen and cartilage precursors, respectively.



Human clinical trials of BioCell and similar collagen extracts (i.e. rich in type II collagen) have found that supplementation with these compounds leads to improved mobility, increased physical activity, and a reduction in chronic pain, particularly in study subjects' *joints*. [24-26]

Researchers have also found that BioCell *decreased* the recovery time needed after resistance training, and improved biomarkers for tendon and ligament health. [25]

But aging doesn't just reduce our mobility – it also changes our appearance. As we get older, decreased collagen and a shift in the *type* of collagen we produce often lead to wrinkles, crow's feet, and other skin features that many people wish to minimize wherever possible and as fast as possible.

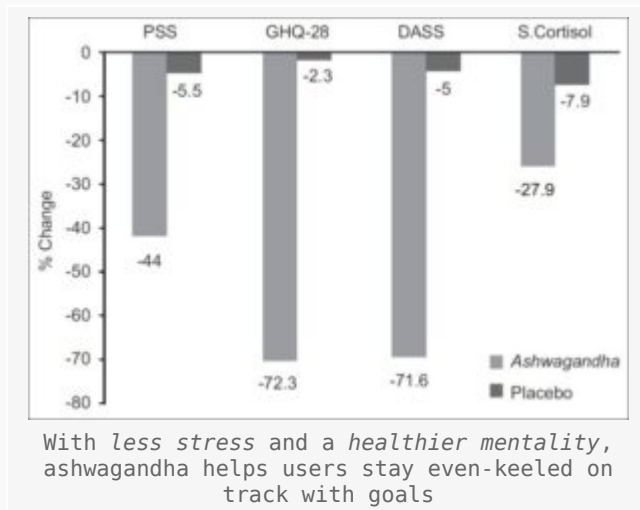
Fortunately for them, a 2019 study found that a collagen type II-rich extract (sourced from chicken sternums) improved the tone of facial epidermis in healthy adult women. [26]

- **Calm, Mood, & Stress Support**

Most supplements like this simply opt for ashwagandha. Team Animal uses that, but thanks to the pak form factor, they've got room to add much more:

- **Ashwagandha Extract – 300 mg**

Famed for its abilities as an *adaptogen*, a class of compounds that can normalize the human stress response (turning it up when too low, and turning it down when too high), **ashwagandha** has been used for millennia all over the world to treat a wide variety of health conditions.



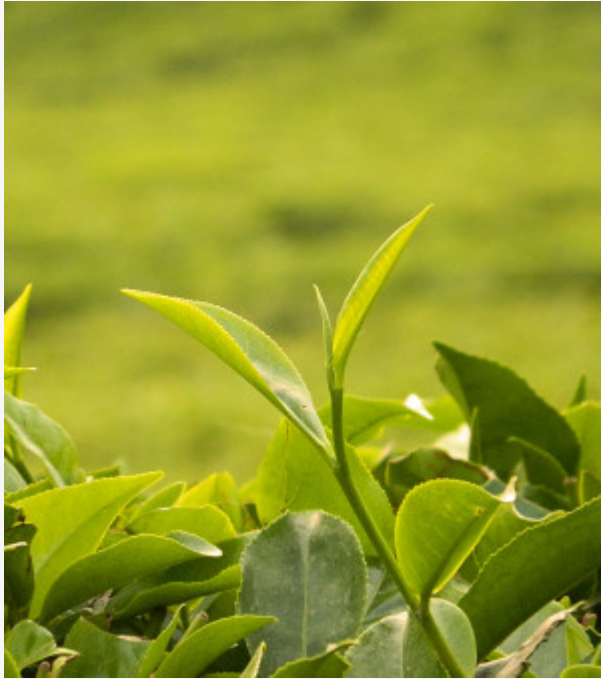
Recent research has borne this ancestral wisdom out, as scientists are finding more and more evidence that ashwagandha can help manage chronic stress, whether it's physical or mental.[27-30]

Ashwagandha works much of its magic by reducing our blood levels of *cortisol*,[27-30] the main human stress hormone, which leads to a corresponding decrease in anxiety, stress, and mood.

However, ashwagandha also has powerful antioxidant, anti-inflammatory, and even immunomodulatory properties.[27-30]

Since aging is associated with a rise in average daily cortisol levels,[31] keeping cortisol under control should definitely be a priority for anyone who is trying to age gracefully and slow typical signs of aging.

- **L-Theanine – 100 mg**



L-Theanine comes from tea leaves, and pairs very well with ashwagandha.

Theanine is an amino acid that's found in high concentrations in *tea leaves*. In the brain, theanine behaves like a neurotransmitter[32] and has calming, anxiolytic effects – without sedation.[33-35]

According to the research literature, theanine does this by increasing our levels of three key neurotransmitters that are essential for optimal brain function: dopamine, serotonin, and gamma aminobutyric acid (GABA).[36-40]

If you're a habitual caffeine user (as most of us are), you'll be happy to hear that L-theanine shows synergistic effects with caffeine.[41] In the research literature, people who take caffeine and theanine together consistently show better reaction times, working memory, and alertness.[42,43]

Research indicates that theanine supplementation can significantly improve sleep quality.[40]

- **Gotu Kola Herb Powder – 100 mg**

Much like theanine, **gotu kola** is known for its substantial anxiolytic properties. But it also stimulates *neurogenesis*, the process by which the brain – *even the adult brain* – generates new neurons and dendritic connections between neurons.[44-47]

- **Eleutherococcus senticosus Root Powder – 100 mg**

Much like ashwagandha, **Eleutherococcus senticosus**, also known as *Siberian ginseng*, is an adaptogen with a powerful ability to normalize and balance the stress response.[48] It works its magic mostly by increasing the

expression of *neuropeptide Y*, which helps reduce the symptoms of stress and anxiety.[49]

- **Bioavailability & Absorption**

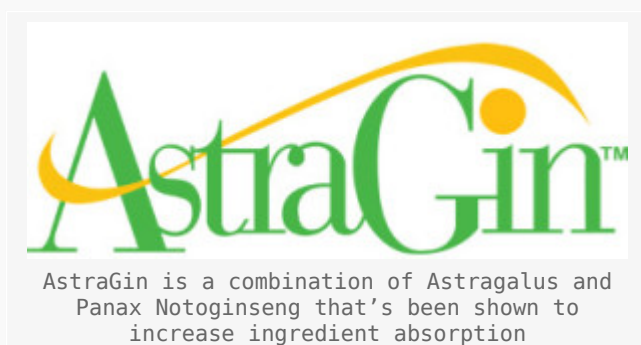


Not one, not two, but *three* ways to boost absorption – and each one carries its own unique added benefits. We especially appreciate the addition of *ginger* here:

- **AstraGin (Panax notoginseng & Astragalus membranaceus) – 25 mg**

Ginseng is chock full of *ginsenosides* that have been shown to regulate *adenosine monophosphate-activated protein kinase (AMPK)*, an enzyme that catalyzes the the conversion of AMP to ATP, thus regulating overall cellular energy.[50,51]

The ATP-producing ginsenosides increase bioavailability of ingredients by improving nutrient absorption in the intestine: because the absorption of nutrients is an energy-intensive process,[52,53] increasing the ATP available to intestinal cells also increases the quantity of nutrients that those cells are able to transport across the intestinal wall and into the bloodstream.



The **astragalus** half of this blend is rich in *astragalosides*, bioactive compounds that have been shown to improve heart health, increase collagen synthesis, improve metabolic function and neurological health, and improve the function of the liver.[54-61]

Astragalosides have similarly beneficial effects on intestinal function.[62]

When tested in a research setting, AstraGin has been found to significantly increase the bioavailability of *amino acids, nutrients, water-soluble* and *fat-soluble vitamins*.[63]

- **Black Pepper Extract (BioPerine) – 5 mg**

Like AstraGin, **BioPerine** is famed for its ability to increase the bioavailability of supplements. It inhibits the stomach enzymes that break your supplements down before they can reach the intestinal wall, where they are absorbed into the bloodstream.[64]



But BioPerine has some other good effects – the piperine in BioPerine increases GLUT4 activity,[65] the transporter that moves glucose out of the bloodstream and into muscle tissue where it can be used for growth and repair.

BioPerine also has some activity against insulin resistance and fatty liver,[66] and is a powerful antioxidant.[67]

- **Ginger Root Powder – 250 mg**

Ginger is well-known to help with nausea.[68-78] But even better, it has powerful anti-inflammatory properties[79-81] and has been shown to alleviate symptoms of osteoarthritis.[82,83]

Beyond that, there’s even a study showing that high-dose ginger can prevent muscle pain 24-48 hours post workout![84]

Like BioPerine and AstraGin, **ginger root powder** helps increase the efficiency of digestion and nutrient absorption, by stimulating the release of gastric and pancreatic enzymes.[85] But as you can see above, it provides so much more than faster gastric emptying, and is a perfect way to end such a supplement.



Dosage and Directions

Take one pack (which has five capsules) once daily. Animal Alpha F will usually be best taken with food.

Takeaway: The women at Animal get what they’ve needed

Animal Alpha F is wellness and balance from the alpha female.

By optimizing the body’s estrogen balance and supporting collagen and cartilage synthesis, Animal Alpha F paks from Universal Nutrition is a powerful tool in the arsenal of any female athlete.

This is an incredible stack that can be added to numerous Animal supplements, *Animal Immune Pak*, *Animal Greens*, and *Animal Flex*. It can also be combined with tried-and-true pre-workouts like *Animal Fury* and *Animal Pump Pro*.

Universal Animal Alpha F – Deals and Price Drop Alerts

Get Price Alerts

Get Animal Alpha F Price Alerts
Get Universal alerts
Get Women's Health price drops

Also get hot deal alerts

No spam, no scams.

Disclosure: PricePlow relies on pricing from stores with which we have a business relationship. We work hard to keep pricing current, but you may find a better offer.

Posts are sponsored in part by the retailers and/or brands listed on this page.

References

1. Hammes, Stephen R., and Ellis R. Levin. "Impact of Estrogens in Males and Androgens in Females." *The Journal of Clinical Investigation*, vol. 129, no. 5, 1 May 2019, pp. 1818–1826, 10.1172/JCI125755. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6486327/>
2. Shozu, Makio, et al. "Understanding the Pathological Manifestations of Aromatase Excess Syndrome: Lessons for Clinical Diagnosis." *Expert Review of Endocrinology & Metabolism*, vol. 9, no. 4, 9 June 2014, pp. 397–409, 10.1586/17446651.2014.926810. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4162655/>
3. Bulun SE, Chen D, Moy I, Brooks DC, Zhao H. Aromatase, breast cancer and obesity: a complex interaction. *Trends Endocrinol Metab.* 2012 Feb;23(2):83-9. doi: 10.1016/j.tem.2011.10.003; <https://pubmed.ncbi.nlm.nih.gov/22169755/>
4. Chen S. Aromatase and breast cancer. *Front Biosci.* 1998 Aug 6;3:d922-33. doi: 10.2741/a333; <https://pubmed.ncbi.nlm.nih.gov/9696881/>
5. Miller WR. Aromatase inhibitors and breast cancer. *Minerva Endocrinol.* 2006 Mar;31(1):27-46; <https://pubmed.ncbi.nlm.nih.gov/16498362/>
6. Watson CS, Hu G, Paulucci-Holthauzen AA. Rapid actions of xenoestrogens disrupt normal estrogenic signaling. *Steroids.* 2014 Mar;81:36-42. doi: 10.1016/j.steroids.2013.11.006; <https://pubmed.ncbi.nlm.nih.gov/24269739/>
7. Yang, Guangyi, et al. "Glucuronidation: Driving Factors and Their Impact on Glucuronide Disposition." *Drug Metabolism Reviews*, vol. 49, no. 2, 1 May 2017, pp. 105–138, 10.1080/03602532.2017.1293682; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7660525/>
8. Lewis, Susannah S., et al. "Select Steroid Hormone Glucuronide Metabolites Can Cause Toll-like Receptor 4 Activation and Enhanced Pain." *Brain, Behavior, and Immunity*, vol. 44, 1 Feb. 2015, pp. 128–136, 10.1016/j.bbi.2014.09.004. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4275344/>
9. "Calcium-D-Glucarate." *Alternative Medicine Review: A Journal of Clinical Therapeutic*, vol. 7, no. 4, 1 Aug. 2002, pp. 336–33. <https://pubmed.ncbi.nlm.nih.gov/12197785/>
10. Ervin, Samantha M., et al. "Gut Microbial β -Glucuronidases Reactivate Estrogens as Components of the Estrobolome That Reactivate Estrogens." *The Journal of Biological Chemistry*, vol. 294, no. 49, 6 Dec. 2019, pp. 18586–18599, 10.1074/jbc.RA119.010950. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6901331/>
11. Thomson, Cynthia A., et al. "Chemopreventive Properties of 3,3'-Diindolylmethane in Breast Cancer: Evidence from Experimental and Human Studies." *Nutrition Reviews*, vol. 74, no. 7, 1 July 2016, pp. 432–443, 10.1093/nutrit/nuw010; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5059820/>
12. Shozu, Makio, et al. "Understanding the Pathological Manifestations of Aromatase Excess Syndrome: Lessons for Clinical Diagnosis." *Expert Review of Endocrinology & Metabolism*, vol. 9, no. 4, 9 June 2014, pp. 397–409, 10.1586/17446651.2014.926810; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4162655/>
13. Stevens, Emily A, et al. "The Aryl Hydrocarbon Receptor: A Perspective on Potential Roles in the Immune System." *Immunology*, vol. 127, no. 3, 1 July 2009, pp. 299–311, 10.1111/j.1365-2567.2009.03054.x; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2712099/>

14. Matthews, Jason, and Jan-Åke Gustafsson. "Estrogen Receptor and Aryl Hydrocarbon Receptor Signaling Pathways." *Nuclear Receptor Signaling*, vol. 4, no. 1, Jan. 2006, p. nrs.04016, 10.1621/nrs.04016. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1513070/>
15. Sanderson, J. T., et al. "2,3,7,8-Tetrachlorodibenzo-p-Dioxin and Diindolylmethanes Differentially Induce Cytochrome P450 1A1, 1B1, and 19 in H295R Human Adrenocortical Carcinoma Cells." *Toxicological Sciences: An Official Journal of the Society of Toxicology*, vol. 61, no. 1, 1 May 2001, pp. 40–48, 10.1093/toxsci/61.1.40. <https://pubmed.ncbi.nlm.nih.gov/11294972/>
16. Moore, Steven C., et al. "Endogenous Estrogens, Estrogen Metabolites, and Breast Cancer Risk in Postmenopausal Chinese Women." *JNCI Journal of the National Cancer Institute*, vol. 108, no. 10, 18 May 2016, 10.1093/jnci/djw103. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5858156/>
17. Samavat, Hamed, and Mindy S. Kurzer. "Estrogen Metabolism and Breast Cancer." *Cancer Letters*, vol. 356, no. 2, Jan. 2015, pp. 231–243, 10.1016/j.canlet.2014.04.018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4505810/>
18. Muti, Paola, et al. "Estrogen Metabolism and Risk of Breast Cancer: A Prospective Study of the 2:16 α -Hydroxyestrone Ratio in Premenopausal and Postmenopausal Women." *Epidemiology*, vol. 11, no. 6, Nov. 2000, pp. 635–640, 10.1097/00001648-200011000-00004. <https://pubmed.ncbi.nlm.nih.gov/11055622/>
19. Napoli, Nicola, et al. "Increased 2-Hydroxylation of Estrogen Is Associated with Lower Body Fat and Increased Lean Body Mass in Postmenopausal Women." *Maturitas*, vol. 72, no. 1, May 2012, pp. 66–71, 10.1016/j.maturitas.2012.02.002. <https://www.sciencedirect.com/science/article/abs/pii/S0378512212000552>
20. Szaefer, Hanna, et al. "Modulation of CYP1A1, CYP1A2 and CYP1B1 Expression by Cabbage Juices and Indoles in Human Breast Cell Lines." *Nutrition and Cancer*, vol. 64, no. 6, 1 Aug. 2012, pp. 879–888, 10.1080/01635581.2012.690928. <https://pubmed.ncbi.nlm.nih.gov/22716309/>
21. Vivar, Omar I., et al. "Selective Activation of Estrogen Receptor- β Target Genes by 3,3'-Diindolylmethane." *Endocrinology*, vol. 151, no. 4, 16 Feb. 2010, pp. 1662–1667, 10.1210/en.2009-1028. <https://www.ncbi.nlm.nih.gov/pubmed/20160136/>
22. Kall, Morten A., et al. "Effects of Dietary Broccoli on Human in Vivo Drug Metabolizing Enzymes: Evaluation of Caffeine, Oestrone and Chlorzoxazone Metabolism." *Carcinogenesis*, vol. 17, no. 4, 1996, pp. 793–799, 10.1093/carcin/17.4.793. <https://www.ncbi.nlm.nih.gov/pubmed/8625493/>
23. Jellinck, P. H., et al. "Ah Receptor Binding Properties of Indole Carbinols and Induction of Hepatic Estradiol Hydroxylation." *Biochemical Pharmacology*, vol. 45, no. 5, 9 Mar. 1993, pp. 1129–1136, 10.1016/0006-2952(93)90258-x. <https://pubmed.ncbi.nlm.nih.gov/8384853/>
24. Schauss, AG. et al.; "Effect of the Novel Low Molecular Weight Hydrolyzed Chicken Sternal Cartilage Extract, BioCell Collagen, on Improving Osteoarthritis-Related Symptoms: A Randomized, Double-Blind, Placebo-Controlled Trial."; *J. Agric. Food Chem.* 2012, 60, 16, 4096–4101; <https://pubs.acs.org/doi/10.1021/jf205295u>
25. Lopez, H.L., Habowski, S., Sandrock, J. et al.; "Effects of BioCell Collagen on connective tissue protection and functional recovery from exercise in healthy adults: a pilot study."; *J Int Soc Sports Nutr* 11, P48 (2014); <https://jissn.biomedcentral.com/articles/10.1186/1550-2783-11-S1-P48>
26. Schwartz SR, Hammon KA, Gafner A, et al.; "Novel Hydrolyzed Chicken Sternal Cartilage Extract Improves Facial Epidermis and Connective Tissue in Healthy Adult Females: A Randomized, Double-Blind, Placebo-Controlled Trial."; *Altern Ther Health Med.* 2019;25(5):12-29; <https://pubmed.ncbi.nlm.nih.gov/31221944/>
27. Lopresti, Adrian L et al. "An investigation into the stress-relieving and pharmacological actions of an ashwagandha (*Withania somnifera*) extract: A randomized, double-blind, placebo-controlled study."; *Medicine* vol. 98,37 (2019): e17186; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6750292/>
28. Chandrasekhar, K et al. "A prospective, randomized double-blind, placebo-controlled study of safety and efficacy of a high-concentration full-spectrum extract of ashwagandha root in reducing stress and anxiety in adults." *Indian journal of psychological medicine* vol. 34,3 (2012): 255-62; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573577/>
29. Andrade C, Aswath A, Chaturvedi SK, et al. "A double-blind, placebo-controlled evaluation of the anxiolytic efficacy of an ethanolic extract of *withania somnifera*"; *Indian J Psychiatry* 2000;42:295–301; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2958355/>
30. Auddy B, Hazra J, Mitra A, et al. A standardized *Withania Somnifera* extract significantly reduces stress-related parameters in chronically stressed humans: a double-blind, randomized, placebo-controlled study. *J Am Nutraceut Assoc* 2008;11:50–6; <https://www.semanticscholar.org/paper/A-Standardized-Withania-Somnifera-Extract-Reduces-A-A>

uddy-Hazra/46bdaebfcf4f00730ad217fd6bb88228964e4c2e

31. Yiallouris A, Tsioutis C, Agapidaki E, Zafeiri M, Agouridis AP, Ntourakis D, Johnson EO. Adrenal Aging and Its Implications on Stress Responsiveness in Humans. *Front Endocrinol (Lausanne)*. 2019 Feb 7;10:54. doi: 10.3389/fendo.2019.00054; <https://pubmed.ncbi.nlm.nih.gov/30792695/>
32. Juneja, L. R., et al; "L-Theanine-a Unique Amino Acid of Green Tea and Its Relaxation Effect in Humans.;" *Trends in Food Science & Technology*; Elsevier; 17 Dec. 1999; <https://www.sciencedirect.com/science/article/abs/pii/S0924224499000448>
33. Lu, Kristy, et al; "The Acute Effects OfL-Theanine in Comparison with Alprazolam on Anticipatory Anxiety in Humans.;" *Human Psychopharmacology: Clinical and Experimental*; vol. 19; no. 7; 2004; pp. 457–465; <https://espace.library.uq.edu.au/view/UQ:284103>
34. Haskell, C F, et al; "The Effects of L-Theanine, Caffeine and Their Combination on Cognition and Mood.;" *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; Feb. 2008; <https://www.ncbi.nlm.nih.gov/pubmed/18006208>
35. Lu, K; The acute effects of L-theanine in comparison with alprazolam on anticipatory anxiety in humans; *Human Psychopharmacology*, 19 7: 457-465; 2004; <http://espace.library.uq.edu.au/view/UQ:284103>
36. Giesbrecht T. et al; "The combination of L-theanine and caffeine improves cognitive performance and increases subjective alertness"; *Nutr Neurosci*. 2010 Dec;13(6):283-90; <https://doi.org/10.1179/147683010X12611460764840>
37. Owen, GN. et al; "The combined effects of L-theanine and caffeine on cognitive performance and mood"; *Nutr Neurosci*. 2008 Aug;11(4):193-8. doi: 10.1179/147683008X301513; <https://doi.org/10.1179/147683008X301513>
38. Higashiyama, A; "Effects of l-theanine on attention and reaction time response"; University of Shiga Prefecture, Human Culture Department; 2010; <http://www.sciencedirect.com/science/article/pii/S1756464611000351>
39. Lu, K; "The acute effects of L-theanine in comparison with alprazolam on anticipatory anxiety in humans"; *Human Psychopharmacology*, 19 7: 457-465; 2004; <http://espace.library.uq.edu.au/view/UQ:284103>
40. Lyon, M; "The effects of L-theanine (Suntheanine) on objective sleep quality in boys with attention deficit hyperactivity disorder (ADHD): a randomized, double-blind, placebo-controlled clinical trial.;" *Altern Med Rev*. 2011 Dec;16(4):348-54.; <http://www.altmedrev.com/publications/16/4/348.pdf>
41. Haskell, C F, et al; "The Effects of L-Theanine, Caffeine and Their Combination on Cognition and Mood.;" *Current Neurology and Neuroscience Reports*; U.S. National Library of Medicine; Feb. 2008; <https://www.ncbi.nlm.nih.gov/pubmed/18006208>
42. Owen GN, Parnell H, De Bruin EA, Rycroft JA. The combined effects of L-theanine and caffeine on cognitive performance and mood. *Nutr Neurosci*. 2008 Aug;11(4):193-8. doi: 10.1179/147683008X301513; <https://pubmed.ncbi.nlm.nih.gov/18681988/>
43. Giesbrecht T, Rycroft JA, Rowson MJ, De Bruin EA. The combination of L-theanine and caffeine improves cognitive performance and increases subjective alertness. *Nutr Neurosci*. 2010 Dec;13(6):283-90. doi: 10.1179/147683010X12611460764840; <https://pubmed.ncbi.nlm.nih.gov/21040626/>
44. Lokanathan Y, Omar N, Ahmad Puzi NN, Saim A, Hj Idrus R. Recent Updates in Neuroprotective and Neuroregenerative Potential of *Centella asiatica*. *The Malaysian Journal of Medical Sciences* : MJMS. 2016;23(1):4-14. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4975583/>
45. Satake T, Kamiya K, An Y, Oishi Nee Taka T, Yamamoto J. The anti-thrombotic active constituents from *Centella asiatica*. *Biol Pharm Bull*. 2007;30(5):935-940. <https://www.ncbi.nlm.nih.gov/pubmed/17473438>
46. Wijeweera P, Arnason JT, Koszycki D, Merali Z. Evaluation of anxiolytic properties of Gotukola–(*Centella asiatica*) extracts and asiaticoside in rat behavioral models. *Phytomedicine*. 2006;13(9-10):668-676. doi:10.1016/j.phymed.2006.01.011. <https://www.ncbi.nlm.nih.gov/pubmed/16488124>
47. Wanasuntronwong A, Tantisira MH, Tantisira B, Watanabe H. Anxiolytic effects of standardized extract of *Centella asiatica* (Eca 233) after chronic immobilization stress in mice. *J Ethnopharmacol*. 2012;143(2):579-585. doi:10.1016/j.jep.2012.07.010. <https://www.ncbi.nlm.nih.gov/pubmed/22841896>
48. Gaffney, B T et al. "The effects of *Eleutherococcus senticosus* and *Panax ginseng* on steroidal hormone indices of stress and lymphocyte subset numbers in endurance athletes." *Life sciences* vol. 70,4 (2001): 431-42. doi:10.1016/s0024-3205(01)01394-7; <https://pubmed.ncbi.nlm.nih.gov/11798012/>
49. Ciumaşu-Rîmbu, Mălina et al. "Neuropeptide Y stimulation as primary target for preventive measures of maladaptative cardiovascular reactions in occupational chronic stress

- exposure." *Revista medico-chirurgicala a Societatii de Medici si Naturalisti din Iasi* vol. 116,3 (2012): 790-3; <https://pubmed.ncbi.nlm.nih.gov/23272529/>
50. Richter, Erik A., and Neil B. Ruderman. "AMPK and the Biochemistry of Exercise: Implications for Human Health and Disease." *Biochemical Journal*, vol. 418, no. 2, 11 Feb. 2009, pp. 261–275, 10.1042/bj20082055; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2779044/>
51. Jeong, Kyong Ju, et al. "AMP-Activated Protein Kinase: An Emerging Target for Ginseng." *Journal of Ginseng Research*, vol. 38, no. 2, 1 Apr. 2014, pp. 83–88, 10.1016/j.jgr.2013.11.014. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3986499/>
52. Kiela, Pawel R., and Fayez K. Ghishan. "Physiology of Intestinal Absorption and Secretion." *Best Practice & Research Clinical Gastroenterology*, vol. 30, no. 2, Apr. 2016, pp. 145–159, 10.1016/j.bpg.2016.02.007. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4956471>
53. Cooper, Geoffrey M. "Endocytosis." Nih.gov, Sinauer Associates, 2014. <https://www.ncbi.nlm.nih.gov/books/NBK9831/>
54. Ren, Shuang, et al. "Pharmacological Effects of Astragaloside IV: A Literature Review." *Journal of Traditional Chinese Medicine*, vol. 33, no. 3, June 2013, pp. 413–416, 10.1016/s0254-6272(13)60189-2. <http://www.journaltcm.com/modules/Journal/contents/stories/133/25.pdf>
55. Costa, Ianara M., et al. "Astragaloside IV Supplementation Promotes a Neuroprotective Effect in Experimental Models of Neurological Disorders: A Systematic Review." *Current Neuropharmacology*, vol. 17, no. 7, 1 July 2019, pp. 648–665, 10.2174/1570159X16666180911123341; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6712289/>
56. Hu, Jiong-Yu, et al. "Astragaloside IV Attenuates Hypoxia-Induced Cardiomyocyte Damage in Rats by Upregulating Superoxide Dismutase-1 Levels." *Clinical and Experimental Pharmacology & Physiology*, vol. 36, no. 4, 1 Apr. 2009, pp. 351–357, 10.1111/j.1440-1681.2008.05059.x. <https://pubmed.ncbi.nlm.nih.gov/18986331/>
57. Li, Zi-Pu, and Qian Cao. "Effects of Astragaloside IV on Myocardial Calcium Transport and Cardiac Function in Ischemic Rats." *Acta Pharmacologica Sinica*, vol. 23, no. 10, 1 Oct. 2002, pp. 898–904. <https://pubmed.ncbi.nlm.nih.gov/12370095/>
58. Chen, Ping, et al. "Astragaloside IV Attenuates Myocardial Fibrosis by Inhibiting TGF- β 1 Signaling in Cocksackievirus B3-Induced Cardiomyopathy." *European Journal of Pharmacology*, vol. 658, no. 2-3, May 2011, pp. 168–174, 10.1016/j.ejphar.2011.02.040. <https://pubmed.ncbi.nlm.nih.gov/21371462/>
59. Chen, Bin, et al. "Astragaloside IV Controls Collagen Reduction in Photoaging Skin by Improving Transforming Growth Factor- β /Smad Signaling Suppression and Inhibiting Matrix Metalloproteinase-1." *Molecular Medicine Reports*, vol. 11, no. 5, 16 Jan. 2015, pp. 3344–3348, 10.3892/mmr.2015.3212; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4368092/>
60. Cheng, M.-X., et al. "Astragaloside IV Protects against Ischemia Reperfusion in a Murine Model of Orthotopic Liver Transplantation." *Transplantation Proceedings*, vol. 43, no. 5, 1 June 2011, pp. 1456–1461, 10.1016/j.transproceed.2011.02.066; <https://pubmed.ncbi.nlm.nih.gov/21693217/>
61. Lv, Lin, et al. "Effect of Astragaloside IV on Hepatic Glucose-Regulating Enzymes in Diabetic Mice Induced by a High-Fat Diet and Streptozotocin." *Phytotherapy Research*, vol. 24, no. 2, 16 July 2009, pp. 219–224, 10.1002/ptr.2915; <https://pubmed.ncbi.nlm.nih.gov/19610026/>
62. Lee, Shih-Yu, et al. "Astragaloside II Promotes Intestinal Epithelial Repair by Enhancing L-Arginine Uptake and Activating the MTOR Pathway." *Scientific Reports*, vol. 7, no. 1, 26 Sept. 2017, p. 12302, 10.1038/s41598-017-12435-y. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5614914/>
63. NuLiv Science; AstraGin Product Dossier; <https://docdro.id/rA01t90>
64. Bhardwaj, R. et al. Aug. 2002. "Piperine, A Major Constituent of Black Pepper, Inhibits Human P-glycoprotein and CYP3A4." *The Journal of Pharmacology and Experimental Therapeutics* vol. 302, 2. 645-50. <https://pubmed.ncbi.nlm.nih.gov/12130727/>
65. Maeda A, Shirao T, Shirasaya D, Yoshioka Y, Yamashita Y, Akagawa M, Ashida H. Piperine Promotes Glucose Uptake through ROS-Dependent Activation of the CAMKK/AMPK Signaling Pathway in Skeletal Muscle. *Mol Nutr Food Res*. 2018 Jun;62(11):e1800086. doi: 10.1002/mnfr.201800086. Epub 2018 May 17. PMID: 29683271. <https://pubmed.ncbi.nlm.nih.gov/29683271/>
66. Choi S, Choi Y, Choi Y, Kim S, Jang J, Park T. Piperine reverses high fat diet-induced hepatic steatosis and insulin resistance in mice. *Food Chem*. 2013 Dec 15;141(4):3627-35. doi: 10.1016/j.foodchem.2013.06.028; <https://pubmed.ncbi.nlm.nih.gov/23993530/>
67. Mittal R, Gupta RL. In vitro antioxidant activity of piperine. *Methods Find Exp Clin Pharmacol*. 2000 Jun;22(5):271-4. doi: 10.1358/mf.2000.22.5.796644;

<https://pubmed.ncbi.nlm.nih.gov/11031726/>

68. Borrelli, Francesca, et al. "Effectiveness and Safety of Ginger in the Treatment of Pregnancy-Induced Nausea and Vomiting." *Obstetrics & Gynecology*, vol. 105, no. 4, Apr. 2005, pp. 849–856, 10.1097/01.aog.0000154890.47642.23; <https://pubmed.ncbi.nlm.nih.gov/15802416/>
69. Fischer-Rasmussen, Wiggo, et al. "Ginger Treatment of Hyperemesis Gravidarum." *European Journal of Obstetrics & Gynecology and Reproductive Biology*, vol. 38, no. 1, Jan. 1991, pp. 19–24, 10.1016/0028-2243(91)90202-v; <https://pubmed.ncbi.nlm.nih.gov/1988321/>
70. Smith, Caroline, et al. "A Randomized Controlled Trial of Ginger to Treat Nausea and Vomiting in Pregnancy." *Obstetrics & Gynecology*, vol. 103, no. 4, Apr. 2004, pp. 639–645, 10.1097/01.aog.0000118307.19798.ec; <https://pubmed.ncbi.nlm.nih.gov/15051552/>
71. Willetts, Karen E., et al. "Effect of a Ginger Extract on Pregnancy-Induced Nausea: A Randomised Controlled Trial." *The Australian and New Zealand Journal of Obstetrics and Gynaecology*, vol. 43, no. 2, Apr. 2003, pp. 139–144, 10.1046/j.0004-8666.2003.00039.x; <https://pubmed.ncbi.nlm.nih.gov/14712970/>
72. Keating, Angela, and Ronald A. Chez. "Ginger Syrup as an Antiemetic in Early Pregnancy." *Alternative Therapies in Health and Medicine*, vol. 8, no. 5, 1 Sept. 2002, pp. 89–91; <https://pubmed.ncbi.nlm.nih.gov/12233808/>
73. Ernst, E, and M H Pittler. "Efficacy of Ginger for Nausea and Vomiting: A Systematic Review of Randomized Clinical Trials." *British Journal of Anaesthesia*, vol. 84, no. 3, Mar. 2000, pp. 367–371, 10.1093/oxfordjournals.bja.a013442; <https://pubmed.ncbi.nlm.nih.gov/10793599/>
74. Pillai, Anu Kochanujan, et al. "Anti-Emetic Effect of Ginger Powder versus Placebo as an Add-on Therapy in Children and Young Adults Receiving High Emetogenic Chemotherapy." *Pediatric Blood & Cancer*, vol. 56, no. 2, 14 Sept. 2010, pp. 234–238, 10.1002/pbc.22778; <https://pubmed.ncbi.nlm.nih.gov/20842754/>
75. Apariman, Sirirat, et al. "Effectiveness of Ginger for Prevention of Nausea and Vomiting after Gynecological Laparoscopy." *Journal of the Medical Association of Thailand = Chotmaihet Thangphaet*, vol. 89, no. 12, 1 Dec. 2006, pp. 2003–2009; <https://pubmed.ncbi.nlm.nih.gov/17214049/>
76. Nanthakomon, Tongta, and Densak Pongroj paw. "The Efficacy of Ginger in Prevention of Postoperative Nausea and Vomiting after Major Gynecologic Surgery." *Journal of the Medical Association of Thailand = Chotmaihet Thangphaet*, vol. 89 Suppl 4, 1 Oct. 2006, pp. S130–136; <https://pubmed.ncbi.nlm.nih.gov/17725149/>
77. Vutyavanich, T. "Ginger for Nausea and Vomiting in Pregnancy: Randomized, Double-Masked, Placebo-Controlled Trial." *Obstetrics & Gynecology*, vol. 97, no. 4, Apr. 2001, pp. 577–582, 10.1016/s0029-7844(00)01228-x; <https://pubmed.ncbi.nlm.nih.gov/11275030/>
78. Chaiyakunapruk, Nathorn, et al. "The Efficacy of Ginger for the Prevention of Postoperative Nausea and Vomiting: A Meta-Analysis." *American Journal of Obstetrics and Gynecology*, vol. 194, no. 1, Jan. 2006, pp. 95–99, 10.1016/j.ajog.2005.06.046; <https://pubmed.ncbi.nlm.nih.gov/16389016/>
79. Zick, Suzanna M., et al. "Phase II Study of the Effects of Ginger Root Extract on Eicosanoids in Colon Mucosa in People at Normal Risk for Colorectal Cancer." *Cancer Prevention Research (Philadelphia, Pa.)*, vol. 4, no. 11, 1 Nov. 2011, pp. 1929–1937, 10.1158/1940-6207.CAPR-11-0224; <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC3208778/>
80. Cd, Black, et al. "Ginger (*Zingiber Officinale*) Reduces Muscle Pain Caused by Eccentric Exercise." *The Journal of Pain : Official Journal of the American Pain Society*, 1 Sept. 2010; <https://pubmed.ncbi.nlm.nih.gov/20418184/>
81. Zahmatkash, Mohsen, and Mohammad Reza Vafaeenasa. "Comparing Analgesic Effects of a Topical Herbal Mixed Medicine with Salicylate in Patients with Knee Osteoarthritis." *Pakistan Journal of Biological Sciences*, vol. 14, no. 13, 1 Dec. 2011, pp. 715–719, 10.3923/pjbs.2011.715.719; <https://pubmed.ncbi.nlm.nih.gov/22308653/>
82. Bliddal, H, et al. "A Randomized, Placebo-Controlled, Cross-over Study of Ginger Extracts and Ibuprofen in Osteoarthritis." *Osteoarthritis and Cartilage*, vol. 8, no. 1, Jan. 2000, pp. 9–12, 10.1053/joca.1999.0264; <https://pubmed.ncbi.nlm.nih.gov/10607493/>
83. Oso, A. O., Awe, A. W., Awosoga, F. G., Bello, F. A., Akinfenwa, T. A., & Ogunremi, E. B. (2013). Effect of ginger (*Zingiber officinale* Roscoe) on growth performance, nutrient digestibility, serum metabolites, gut morphology, and microflora of growing guinea fowl. *Tropical Animal Health and Production*, 45(8), 1763–1769; <https://pubag.nal.usda.gov/catalog/614420>
84. Black, Christopher D., and Patrick J. O'Connor. "Acute Effects of Dietary Ginger on Muscle Pain Induced by Eccentric Exercise." *Phytotherapy Research*, vol. 24, no. 11, 28 Oct. 2010, pp. 1620–1626, 10.1002/ptr.3148; <https://pubmed.ncbi.nlm.nih.gov/21031618/>
85. Wu, Keng-Liang, et al. "Effects of Ginger on Gastric Emptying and Motility in Healthy

Humans." *European Journal of Gastroenterology & Hepatology*, vol. 20, no. 5, May 2008, pp. 436–440, 10.1097/meg.0b013e3282f4b224; <https://pubmed.ncbi.nlm.nih.gov/18403946/>