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EndoTrim™ features a combination of herbs and nutrients that help support energy production and endocrine function to promote healthy body composition.* The bioactive compounds in these ingredients also support basal metabolic rate to potentially promote energy expenditure.* This array of nutrients and botanicals is also useful for promoting normal appetite and supporting healthy blood glucose metabolism.*

Ingredient Highlights

- 200 mg of American ginseng standardized to contain 5% ginsenosides to promote healthy body composition*
- 200 mg of garcinia extract standardized to contain 50% hydroxycitric acid to support energy production*
- 300 mg of green tea extract standardized to contain 95% polyphenols and 45% epigallocatechin gallate (EGCg) to support an increase in basal metabolic rate*
- 100 mg of banaba extract standardized to contain 1% corosolic acid to support antioxidant status in the body*
- Chelated minerals to support bioavailability and absorption

Benefits*

- Promotes a healthy body composition
- Promotes a normal basal metabolic rate
- Supports healthy endocrine function
- Supports normal appetite

American ginseng (*Panax quinquefolius*) contains many potential bioactive phytochemicals including ginsenosides. The main ginsenosides in the root of American ginseng generally consist of Rb1, Re/Rg1, Rd, and Rb2, with the highest content in Rb1. American ginseng also generally has an Rb1:Rg1 ratio of 10 or greater.^{1,2} Certain compounds, such as ginsenosides, may have the potential to activate key brown adipose tissue genes in white adipose tissue in a process known as browning.³ White adipose tissue stores excess energy and releases adiponectin and leptin. Brown and beige adipocytes have the potential to use the main functional factor for adaptive thermogenesis, uncoupling protein 1 (UCP-1), to oxidize fatty acids to generate heat and increase energy expenditure.³ Browning of white adipocyte tissue may promote thermogenesis and healthy insulin responses.⁴

Supplement Facts

Serving Size 4 capsules
Servings Per Container 30

Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Vitamin C (as Ascorbic Acid)	100 mg 111%	American Ginseng (<i>Panax quinquefolius</i>) (root) [standardized to contain 5% ginsenosides]	200 mg *
Vitamin B-6 (as Pyridoxal-5-Phosphate)	5 mg 294%	Garcinia Extract (<i>Garcinia cambogia</i>)(fruit) [standardized to contain 50% hydroxycitric acid]	200 mg *
Pantothenic Acid (as d-Calcium Pantothenate)	100 mg 2000%	Banaba Extract (<i>Lagerstroemia speciosa</i>) (leaf) [standardized to contain 1% corosolic acid]	100 mg *
Zinc (as Zinc Bisglycinate Chelate)	5 mg 45%	N-Acetyl-Tyrosine	100 mg *
Chromium (as TRAACS® Chromium Nicotinate Glycinate Chelate)	200 mcg 571%	GABA (<i>gamma</i> -Aminobutyric Acid)	100 mg *
Green Tea Extract (<i>Camellia sinensis</i>)(leaf) [standardized to contain 95% polyphenols and 45% EGCg]	300 mg *	L-Carnitine (as Carnitine Fumarate)	100 mg *
Forskolin Extract (<i>Coleus forskohlii</i>)(root) [standardized to contain 20% forskolin]	250 mg *	Vanadium (as TRAACS® Vanadium Nicotinate Glycinate Chelate)	100 mcg *

*Daily Value not established.

Other Ingredients: Cellulose (capsule), microcrystalline cellulose, vegetable stearate, silicon dioxide.

Ginsenosides Rb1 and Rb2 have been shown to increase the messenger RNA expression of UCP-1 to increase mitochondrial density and respiratory capacity and proliferator-activated receptor gamma coactivator 1 alpha to increase mitochondrial biogenesis and browning.³⁻⁶ Rb1 and Rb2 also activate PRDM16, which correlates with brown adipocyte tissue development in adipocytes and increases proliferator-activated receptor gamma (PPAR gamma) activity.³⁻⁶ This is a strong inducer of browning and supports the secretion of adipocytokines to support insulin action on tissues and basal insulin uptake.³⁻⁶ Additionally, Rb1 increases mitochondria respiration, basal respiration rate, and adenosine triphosphate (ATP) production.⁴ Ginsenosides Rb1, Rb2, and Rg1 have been shown to promote browning by activating AMP-activated protein kinase (AMPK) to upregulate browning gene expression and UCP-1.^{3,5-7} Rb1 may also inhibit adipogenesis by suppressing matrix metalloproteinases (MMP)-2 and MMP-9.⁸ Rd has been shown to increase intracellular cyclic adenosine monophosphate (cAMP) to enhance thermogenic gene expression and increase browning.⁹

Garcinia extract (*Garcinia cambogia*) contains many bioactive compounds, including hydroxycitric acid (HCA), which may support healthy body composition.* HCA may inhibit ATP citrate lyase, which is involved in the creation of acetyl-coenzyme A in the liver for the tricarboxylic acid cycle. Inhibiting this enzyme may increase carbohydrate metabolism and reduce fatty acid synthesis and lipogenesis. The inhibition of ATP citrate lyase may also produce an anorectic effect and increase serotonin levels.^{10,11} Garcinia may also suppress adipocyte differentiation by modulating key cell cycle proteins that inhibit mitotic clonal expansion and suppress pre-adipocyte proliferation.¹² Garcinia has also been shown to suppress the transcription of regulators of adipogenesis, including those that regulate adipocyte differentiation and autophagy.¹³

A systematic review and meta-analysis looked at data from five studies using garcinia extract with doses between 1,667 mg and 3,000 mg per day for 12 to 16 weeks and found that it significantly reduced weight and fat mass.¹⁴

Chromium (as TRAACS® Chromium nicotinate glycinate chelate) is a trace element that supports carbohydrate and lipid metabolism.^{15,16} Chromium may also have a positive effect on eating behavior and appetite, and stimulate thermogenesis and enhance resting metabolic rate.^{15,16} This may promote healthy body composition.* A meta-analysis used data from 19 randomized controlled trials to assess the impact of chromium on body composition. Included trials had a total of 1,316 participants; three trials used the nicotinate form of chromium, 17 trials used chromium picolinate, and the rest of the trials used chromium-enriched yeast. The trial lengths ranged from 9 to 24 weeks (median, 12 weeks), and doses ranged from 200 mcg to 1,000 mcg per day (median, 400 mcg per day). The researchers determined that supplementation with chromium was associated with a significant reduction in body weight, body mass index (BMI), and body fat percentage in individuals who were classified as overweight or obese. Subgroup analysis found the optimal dose was \leq 400 mcg per day (with the lowest doses at 200 mcg per day).¹⁵

Green Tea Extract (*Camelia sinensis*) features potentially health-promoting bioactive compounds including catechins. The catechins may increase norepinephrine activity to increase metabolic rate and increase energy expenditure.¹⁷ Green tea extract may also stimulate browning, thermogenesis, and fat oxidation, which may promote healthy body composition.*¹⁷⁻¹⁹ Studies have also demonstrated the potential of green tea to inhibit ghrelin secretion, increasing adiponectin, inhibiting adipogenesis, and controlling appetite.^{18,20} A systematic review and meta-analysis found that green tea intake (doses range, 300 mg to 6,000 mg per day for 8 to 12 weeks) led to a significant improvement in weight, BMI, waist circumference, hip circumference, and total cholesterol levels.¹⁴ Another systematic review and meta-analysis found a significant reduction in body weight and BMI, especially in the subgroups of individuals with a BMI \geq 30 and in trials using doses $<$ 800 mg per day for 12 weeks or longer. The included studies used doses ranging from 99 mg per day to 20,000 mg per day.²⁰

Banaba Extract (*Lagerstroemia speciosa*) contains phytochemicals including corosolic acid and ellagitannins.^{21,22} Studies have demonstrated the potential for banaba extract to inhibit adipocyte differentiation induced by insulin, increase lipolysis, decrease gluconeogenesis, and stimulate PPAR gamma to promote browning.^{21,22} Banaba may also support antioxidant status in the body and promote a healthy inflammatory response and normal glucose metabolism.*^{21,22}

Forskolin extract (*Coleus forskohlii*) may promote a healthy body composition by stimulating browning.*²³ It may also inhibit adipocyte differentiation, promote lipolysis, and reduce fat cell diameter.²⁴ This may be due to its increase of cellular cAMP concentration.²⁴

Vanadium (as TRAACS® Vanadium Nicotinate Glycinate Chelate) is a trace mineral with potential health-promoting benefits, which includes promoting normal glucose metabolism and a healthy body composition.*²⁵ Vanadium plays an important role in energy metabolism.²⁵ It may also decrease adipocyte differentiation and adipogenesis.²⁵ Vanadium may also inhibit leptin signaling.²⁵

N-acetyl-tyrosine and gamma-aminobutyric acid (GABA) support healthy neurotransmitter synthesis.* Tyrosine (as part of protein tyrosine phosphatase 1B may play a role as a negative regulator of leptin, an insulin signaling pathway, and as a support of energy balance.²⁶ GABA may also play a role in mediating leptin action.²⁷

Essential Nutrients (Vitamin C, Vitamin B6, Pantothenic Acid, Zinc) to support cellular energy production, neurotransmitter synthesis, and antioxidant status in the body.*

Recommended Use: Take 4 capsules per day with meals or as directed by your health-care practitioner.
(Divided dosing recommended.)

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---endotrim-tech-sheet-references.pdf>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities. Individual monitoring, including liver function tests, may be appropriate.

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

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