

BURN + CONTROL COFFEE

white paper provided by Archmore Botanical Research Group, LLC

*A Javita
International
product*



Burn + Control Coffee

a Javita International product

- A technical overview outlining the safety and efficacy of Burn + Control Coffee, a dietary supplement designed to support healthy weight management*
- This technical white paper will include:
 - Formulation breakdown
 - Synopsis of health benefits associated with the proprietary ingredients
 - Safety
 - In vitro and in vivo trials demonstrating safety of ingredients in Burn + Control Coffee at recommended levels
 - A review of any adverse events associated with the ingestion of the proprietary ingredients
 - Efficacy
 - Cellular, animal, and human trials demonstrating weight management benefits
 - A review of any negative outcomes found in clinical trials using the proprietary ingredients
 - Potential secondary health benefits outside the scope of weight management
 - Recommended guidelines for use
 - Dosing recommendations for weight management
 - Potential adverse events and warnings

**These statements have not been evaluated by the Food and Drug Administration and are meant for research purposes only.*



Overview

Obesity and overweight are growing epidemics for much of the civilized world, leading to chronic diseases commonly associated with this health condition, such as cardiovascular issues, high blood pressure, diabetes, stroke, and potentially cancer. Preventing or reversing this debilitating condition has been the focus among complementary and alternative medicines, particularly within the nutraceutical and functional food industries. Many herbal products make claims toward weight loss and weight management, yet scientific research is scanty for these products at best. Researching and reviewing available scientific evidence prior to formulating novel products is ideal to insure the safety and efficacy of natural products.

When formulating Burn + Control Coffee, Javita International made extensive use of available research to confirm their own findings- that Burn + Control Coffee is not only safe at the recommended dosages, but that it is highly effective for supporting the body in healthy weight management. It targets multiple functions in the weight management system of the body, including but not limited to increased energy, appetite suppression, and a reduction in fat cell formation. In addition to the functionality of this product for weight management, anecdotal evidence from consumers affirms that due to the taste and ease of use of the product, compliance is relatively easy, and thus the results may be enhanced over supplement-type weight loss products.

This white paper will focus on the scientific evidence used to support the formulation and use of Burn + Control Coffee as a weight management product. It will include descriptions and conclusions from various in vitro and in vivo trials showing efficacy and safety of the proprietary ingredients. As the 103rd US Congress dictated when passing the historical Dietary Supplement Health and Education Act (DSHEA) in 1994, "...consumers should be empowered to make choices about preventive health care programs based on data from scientific studies of health benefits related to particular dietary supplements." This paper is meant to assist in the empowerment of the educated consumer, to determine the best weight management product for their needs.



Formulation

Burn + Control Coffee was designed to be a delicious instant coffee with weight management potential. Therefore, in addition to the coffee itself, two key herbal ingredients were added to enhance the health benefits. These ingredients include *Garcinia cambogia* and *Ilex paraguariensis*. These ingredients have naturally occurring chemical components that enhance their weight management activities. When consumed together, the synergistic effects for weight management include a reduction in fat-cell formation, an increase in energy expenditure, and a reduction in appetite, all key mechanisms for reducing and maintaining optimal weight.

- Formulation includes two key herbal ingredients for enhanced efficacy of the coffee
- *Garcinia cambogia* provides naturally occurring hydroxycitric acid (HCA)
 - HCA plays a role in inhibiting the conversion of carbohydrates to fat in the body
 - HCA contributes to an increase in available energy for calorie burning
 - HCA increases serotonin levels, assisting in the reduction of emotional overeating
- *Ilex paraguariensis* (Yerba mate) contains xanthines, a family of compounds with energy- and focus-enhancing properties
 - Yerba mate reduces fat cell formation and inflammation
 - Yerba Mate increases fat oxidation
 - Yerba mate modulates the expression of genes that are changed in the obese state, potentially acting as a preventative aid for disease-causing risk factors associated with obesity



Garcinia cambogia- overview

Garcinia cambogia, also known as Malabar tamarind, has been consumed by peoples throughout Southeast Asia for centuries. It is used as a food and flavor enhancer but has widespread anecdotal evidence of providing satiation to the consumer, a feeling of fullness after consumption. Because of this effect, researchers began studying the fruit to determine its usefulness in weight management. It was during this research that scientists determined that the naturally occurring chemical hydroxycitric acid (HCA) is the main active constituent providing weight loss potential.

HCA is a non-essential nutrient that is known for its ability to inhibit the enzyme ATP-dependent citrate lyase, which plays a role in the transformation of carbohydrates into fat in the body. It does this by competitively blocking the enzyme as it works to convert leftover glucose into adipocytes (fat cells), a storage mechanism utilized to supply energy at a later date. By blocking this conversion, excess glucose is no longer stored in fat cells and remains available for the body to use as energy. This is how *G. cambogia* provides an increase in energy levels without containing a “stimulant”, like natural caffeine. An increase in available energy may also assist in increased exercise potential and output, further assisting in weight management benefits.

In addition, HCA has been shown to increase serotonin levels. Serotonin is a hormone naturally produced in the body which assists in regulating mood. Researches have determined that, in many cases, overeating is directly related to emotions and mood. In cases of depression and anxiety, serotonin levels are dramatically reduced. Thus, by increasing serotonin production, negative emotions are diminished, and emotional overeating is markedly reduced.



Ilex paraguariensis- overview

Ilex paraguariensis is the botanical name for Yerba mate (pronounced “yer• ba ma• tay”). The leaves from this tree have been consumed for centuries by South American natives, primarily in tea form, both for health as well as social and ritualistic traditions. It has been gaining a strong reputation in the past 18 years due to its rapid introduction into the world market as an ingredient in functional foods and dietary supplements. Chemical constituents of the leaves include a family of compounds known as xanthines. These include theobromine, caffeine, and theophylline. These methylated xanthines have been studied for their clinical benefits in treating asthma, affecting heart rate and performance, and their effect on digestion. In moderate dosages, they are considered safe for human consumption, with caffeine ranking as one of the top most commonly consumed dietary ingredients throughout the world.

Yerba mate has also been researched for its benefit on weight loss. Cellular studies have shown suppression of fat cell differentiation and triglyceride accumulation as well as a reduction of inflammation associated with obesity. Subsequent animal studies have shown effects on the signaling pathways that regulate fat cell formation (adipogenesis) as well as insulin signaling responses. Human trials have confirmed these findings through the demonstration of weight loss, fat reduction, and overall improvement in body composition. Not only does Yerba mate provide weight loss results in clinical trials, but it also modulates the expression of genes that are changed in the obese state and restores them to normal levels of expression. This means that Yerba mate could have long term health benefits for reducing potential disease-causing factors commonly associated with obesity.



Safety

- Burn + Control Coffee was designed such that a single cup daily could produce results, but that multiples cups would maintain the same safety parameters.
- All safety studies outlined below are relevant to the dosages recommended for Burn + Control Coffee
- Adverse safety and toxicity trials are also reviewed



Garcinia cambogia- safety

Garcinia cambogia, also known as the Malabar tamarind from which HCA is extracted and supplied in Burn + Control Coffee, has no known serious side effects, particularly at dosages commonly associated with supplements and beverages. *G. cambogia* has been consumed in high quantities as a food product for several decades in Southeast Asia, and thus is usually considered safe. However, when formulating with an extract of an herbal product, additional safety studies must be conducted before that ingredient can be considered safe for human consumption.

In early research on *Garcinia cambogia*, and specifically the extract of HCA found in Burn + Control Coffee, Preuss et al. determined that in a standard 90-day toxicity study, no remarkable toxicity results were detected. They then moved on to clinical trial using 60 human volunteers. They demonstrated that no adverse effects were reported, nor were any negative physical changes in the parameters measured. Researchers concluded that HCA is safe and effective in this highly bioavailable form [1]. Marquez, et al. conducted a thorough examination in 2012 of the available published research to date for *Garcinia cambogia*, and more specifically extracts standardized to hydroxycitric acid (HCA), with regards to safety and efficacy in humans. They concluded that except in extremely rare cases, the research proved that *G. cambogia* does not increase mortality nor toxicity, and that no significant differences have been reported in terms of side effects or adverse events in humans treated with *G. cambogia* versus control [2]. Although still considered a food additive or herbal supplement and thus not granted GRAS status (Generally Recognized As Safe- a designation awarded by the FDA), it is assumed that *G. cambogia* is considered a relatively safe herbal product even at higher dosages than those found in Burn + Control Coffee.

Further confirmation of these findings was reported in a separate review of available literature conducted by Li Oon Chuah and colleagues. Chuah concluded that even at levels up to 2800mg/day, *G. cambogia* did not show adverse effects, suggesting its safety for use as a food ingredient or supplement [3].

More recently, HCA from *Garcinia* was tested for adverse effects in the liver. It was determined that HCA does not promote inflammation or hepatotoxicity but that it actually reduces markers of inflammation in the brain, intestines, kidney and serum [4].



Adverse Events in Clinical Trials: A Review

A controversial dose dependent animal trial was conducted in 2005 to determine the “no observed adverse effect level” (NOAEL) of *Garcinia cambogia* extract standardized to HCA content. Although the highest dosages of 154 mmol/kg showed a suppression of epididymal fat accumulation in developing obese male rats, a potent testicular atrophy and toxicity was observed. This same toxicity was not observed in diets containing a third of this dose HCA. There, a lower NOAEL was reported and is recommended when formulating with this ingredient [5].

However, K. Hayamizu, et al. conducted a more recent study to evaluate the specific effect of *Garcinia extract* on serum sex hormones in overweight human subjects. In Hayamizu's double blind placebo controlled trial, researchers conclusively determined that dosages of 1000mg of HCA per day over 12 weeks had no significant effect on serum testosterone, estrone, or estradiol levels. In addition, hematology, serum triacylglycerol and serum clinical pathology parameters did not reveal any significant adverse effects. Hayamizu concluded that as dosages commonly recommended for human consumption, *Garcinia cambogia* extract (HCA) does not affect serum sex hormone levels and blood parameters [6].

It must be noted that studies have not been conducted on pregnant or nursing women nor on children; thus care should be exercised when taking any herbal supplements if in these categories of individuals [7].



Ilex paraquariensis- safety

Ilex paraquariensis, commonly referred to as Yerba mate, has been consumed by natives of South America for centuries without adverse events. However, as it has achieved widespread fame over the past two decades through its use in functional foods and supplements in the northern hemisphere, it has been researched more thoroughly to determine its safety. In 2012, researchers concluded that the use of high doses (2g/kg body weight) of Yerba mate extract was not only safe, but that it was very well tolerated for both single and chronic administration. This means that at doses much higher than those provided in supplements and functional foods, Yerba mate should not negatively impact an individual with either toxic effects or undesired side effects. These include physical as well as behavior effects [8].

Because Yerba mate is consumed daily by thousands of natives including pregnant women, researchers set out to determine the effects that daily consumption has on preterm delivery and “small for gestational age” (SGA) births. After controlling for confounders, there was no association between daily Yerba mate drinking and SGA or preterm birth [9]. That being said, body composition varies from woman to woman, and it is not recommended to begin any supplement program during pregnancy unless recommended directly by your healthcare professional.

As Yerba mate contains many compounds, including polyphenols and xanthines, individual analyses of these compounds have also been conducted to determine safety, the main one being caffeine. Caffeine has a stimulatory effect on the body, and at high dosages may be perceived as a negative effect. Therefore, much research has been put into studying this compound to determine its safety. Many regulatory agencies throughout the world have approved the daily moderate consumption of caffeine as a safe ingredient in food and supplement products [10].



Adverse Events in Scientific Literature: A Review

As there have been reports into the US National Poison Data System regarding the consumption of high doses of caffeine and serious adverse events, an extensive review was conducted to determine if this was directly correlated with the rise of caffeine-containing energy beverages entering the marketplace. Among these beverages are those containing the natural ingredient Yerba mate. In this review, 2.3 million calls to the NPDS between October 1, 2010 and September 30, 2011 were analyzed, but only 4854 were energy drink related. Of these cases, those drinks containing unknown additives were excluded. Of the remaining non-alcoholic energy drink cases, the majority were children under the age of 6 years having accidental exposure to the caffeinated beverages. Major adverse events consisted of only six cases involving preexisting conditions in the subjects that may have been exacerbated by the energy drink. Following the time period of this study, significant education and legislative initiatives were put in place to increase consumer understanding of the health consequences that may be associated with energy drink consumption; these initiatives showed a dramatic decrease in the rate of energy drink-related cases to near non-existent [11].

Formulating a coffee product to include a secondary source of caffeine is a unique approach Javita has enlisted to deliver the desired benefits of Burn + Control Coffee; however, even after consuming multiple cups of coffee per day, the total caffeine content falls well within the general parameter of safety. That being said, care should be exercised whenever such a product is considered by pregnant and nursing women, children, and those with preexisting conditions that might be exacerbated by the consumption of caffeine- these individuals should consult with their healthcare profession prior to consumption of any caffeinated product.



Formulation Efficacy

Research suggests multiple mechanisms by which *Garcinia cambogia* and Yerba mate affect the body with regards to weight management. Outlined below are those conclusively defined in published available literature. As these natural ingredients continue to gain popularity in the world market, further funding will be available for research, and additional mechanisms of action may become known. At the time of publication of this white paper, these are the most commonly known mechanisms:

- *Garcinia cambogia*
 - Competitively inhibits citrate lyase to prevent the formation of fat cells
 - Increases energy
 - Increases serotonin levels to reduce emotional overeating
- *Ilex paraguariensis* (Yerba mate)
 - Increases fat oxidation for increased calorie burning
 - Restores health parameters to normal levels after being negatively impacted by the condition of obesity
 - Acts as an anti-inflammatory
 - Suppresses appetite or increases satiety

In addition to weight management, there have been preliminary findings suggesting additional health benefits from Yerba mate. These include:

- Increasing bone mineral density in women
- Modulating the insulin signaling pathway

These secondary benefits may play a positive role in those individuals struggling with weight management, as they tend to be directly linked to carrying excess body weight, but may have clinical applications for those not overweight as well.



Garcinia cambogia- efficacy

Mechanism of Action: competitively inhibits citrate lyase to prevent excess fat cell formation

Garcinia cambogia extract standardized for HCA content has been extensively studied for its use in weight management. This is primarily due to the mechanism of action of the HCA itself, namely competitively inhibiting the enzyme that converts excess carbohydrates into fat in the body [12]. In the metabolic processes of the body, a particular enzyme called ATP-dependent citrate lyase is necessary to catalyze the cleavage of citrate to oxaloacetate and acetyl-CoA. This cleavage, or separation, is necessary for lipogenesis, or the formation of fat cells. If the enzyme is inhibited, lipogenesis is also inhibited. Therefore, it has been hypothesized and later shown in cellular and animal trials that *G. cambogia*/HCA can in fact competitively inhibit extra-mitochondrial citrate lyase and reduce the formation of fat cells [13].

Another study by Roy et al., utilized female human subcutaneous preadipocytes collected from obese women which were then differentiated to adipocytes (fat cells) for 2 weeks in culture. This allowed researchers to test the effect of HCA on lipid metabolism as well as study the genetics involved in this process. It was determined that HCA significantly down regulated (or reduced) the expression of fat- and obesity-related genes, supporting the antilipolytic and antiadipogenic effects of HCA from *G. cambogia*. In other words, HCA was shown to prevent the expression of obesity-related genes as well as the formation of fat cells, reducing weight and improving long term health [14].

Mechanism of Action: Increases energy

The second known mechanism of action for *Garcinia cambogia* (HCA) may be directly related to its ability to inhibit citrate lyase, as outlined above. The outcome of this action is the reduced formation of fat storage cells from glucose. Therefore, excess glucose remains available in the body to be used as an energy source. Having excess glucose readily available in the body should produce a rise in energy, allowing for the opportunity to burn excess calories. Researchers were able to scientifically demonstrate this property by showing that HCA is capable of activating hypoxia inducible factor (HIF). This is a transcription factor involved in energy metabolism and, when activated, increases the burning of energy [15].



Energy is also available for use due to *G. cambogia's* ability to assist in fat oxidation. In human clinical trials, urinary fat metabolites significantly increased in subjects taking HCA over an 8 week trial period. Urinary fat metabolites are a biomarker of fat oxidation. If fat is being oxidized, it is being released from its dormant state to be used as energy in the body. Thus weight reduction is achieved through increased energy expenditure as fat is oxidized [16].

A pleasant side effect of HCA is the decrease in oxidative stress, inflammation, and insulin resistance associated with obesity [17]. This is a synergistic effect with the other proprietary ingredient and will be discussed in further depth with regards to Yerba mate.

Mechanism of Action: Increases serotonin to diminish emotional overeating

With obesity being a global health epidemic, billions of dollars and countless hours of research have been spent to determine the cause. One of the main causes of obesity and overweight is overeating due to emotional stressors, such as depression and anxiety. Although a highly complex relationship, researchers have shown that various moods can enhance or diminish eating primarily due to a subject's unique response to pleasure and gratification. For example, eating a particular food may stimulate the production of dopamine, a special excitatory neurotransmitter that helps with depression and focus. Dopamine activates the pleasure center of the brain and enlists the subject to continue to consume this food to experience the positive feeling of gratification that dopamine provides. This repetitive behavior is extremely strong and can override other signals, such as satiety and hunger. Thus a gratification habit may be formed leading to overeating and obesity. The effect of the individual's mood can also play a role in the gratification. If the individual is stressed, anxious, or depressed, they may seek gratification by eating foods known to previously stimulate their pleasure centers, thus providing relief from the stressor, albeit for a short period of time. This is known as "stress- or emotional- overeating" [18].

Serotonin is an inhibitory neurotransmitter, which means that it does not directly stimulate the brain. Adequate amounts are necessary for stabilizing mood and balancing the excitatory neurotransmitters, such as dopamine, that are firing in the brain. As emotional-overeating has been linked to a desire for dopamine release, it was hypothesized that an increase in serotonin production should help assuage this desire for pleasure and gratification from eating. This was tested in animals by measuring body weight and abdominal fat gene expression profile after consuming *G. cambogia* extract (HCA). By conducting



genetic assays on fat leptin expression as well as physical measurements on body weight, researchers were able to show that HCA is effective in restricting body weight gain, and that it does so through the upregulation of genes encoding serotonin receptors [19].

Furthermore, these same researchers went on to publish data postulating that this mechanism also contributed to a feeling of satiety (fullness) as a direct result of HCA supplementation [20]. This two prong approach shows the neurological benefits of HCA for managing weight through the reduction of emotion overeating and increasing satiety [21].



Garcinia cambogia: a review of negative outcomes from clinical trials

Although the majority of the published cellular, animal, and human studies show *Garcinia cambogia* (HCA) to be highly effective for weight management, there has been a human trial published in the highly reputable Journal of the American Medical Association that attempts to show the opposite. In this randomized controlled trial, 135 subjects received HCA or placebo for twelve-weeks. Following the trial, there were no significant differences estimated between the two groups in terms of body fat mass loss [22].

There have been over sixteen years' worth of additional clinical testing on *Garcinia cambogia* since this study was published, the majority of which have found significant improvements in body weight and fat loss, as outlined earlier in this white paper. However one particular study cited the JAMA article, noting that there was a flaw in the study design that eliminated the positive results other have seen. They claim that because researchers administered a high-fiber, low-energy diet, HCA absorption was impaired and thus did not have a significant effect in the body [23]. Although the precise reason remains unknown, researchers have shown that administering HCA on an empty stomach or prior to feeding, achieved optimal reduction in hepatic lipid synthesis [24].



Ilex paraquariensis-efficacy

Mechanism of Action: Increases fat oxidation

In the process of “burning calories” to achieve weight loss, energy sources need to be utilized to provide the fuel for this combustive process. These energy sources include fats, carbohydrates, and proteins.

Fats may be both consumed as well as created by the body. They are created when energy is consumed in one of these three forms but is not needed for immediate use. The body stores it as fat through a process known as adipogenesis. In order to use this fat for energy, the fat must be oxidized. Yerba mate has been shown to catalyze the fat oxidation process.

In a study conducted to evaluate the effects of Yerba mate tea on hyperlipidemia, researchers found that Yerba mate had a beneficial effect on modulating the genes involved in lipid oxidation and lipogenesis. In addition, they noted that Yerba mate also improved hyperlipidemia in part by reducing lipid peroxidation and improving endothelial function (the lining of blood vessels), all of which may help improve overall health negatively impacted by conditions of obesity [25].

In research conducted in 2014 using human subjects, it was reconfirmed that Yerba mate promotes fatty acid oxidation in vivo. However, subjects were then tested further to determine if there were positive outcomes from this increase in fatty acid oxidation on energy expenditure during exercise. It was concluded that acute Yerba mate supplementation does indeed increase fat metabolism parameters of fatty acid oxidation, and this in turn produces an increase in exercise effectiveness for weight loss and sports performance [26].

Mechanism of Action: Restores health parameters to normal levels after being negatively impacted by the condition of obesity

Gene expression is the process by which the information that a particular gene provides is used to synthesize the functional gene product. In most cases this means the protein that the gene represents. Gene expression can be negatively impacted through certain health conditions, such as a person being overweight or obese. This can have long term health impacts, as without the proper proteins encoded by that gene, an individual may be at a higher risk for various diseases. Yerba mate was studied for its ability to return negatively impacted gene expressions to normal.



One study assessed the impact that Yerba mate extract had on gene and protein expression levels for adiposity, epididymal fat-pad weight, and serum levels of cholesterol, triglycerides, LDL cholesterol, and glucose. When impacted by a high-fat diet, all of these expression levels were negatively affected. However, after treatment with the Yerba mate extract, a recovery of all of the expression levels to normal was observed. Researchers concluded that Yerba mate extract has potent anti-obesity activity in vivo and may play a role in reducing the negative impacts of obesity leading to other diseases [27].

Various mechanisms of action may be fueling this benefit, namely modulation of gene expression through up- or down-regulation of gene encoding pathways, as noted above, or through the protection of the DNA itself through antioxidation. Multiple studies confirm that Yerba mate acts as an antioxidant, protecting DNA and its genes from oxidation and allowing them to be expressed correctly [28, 29].

Several additional studies have reconfirmed that plasma antioxidant capacity as well as expression of antioxidant enzymes is positively affected by Yerba mate intervention in human subjects [30].

In addition, Yerba mate may assist in the reduction of obesity-related diseases by affecting blood viscosity. In the Journal of Experimental Gerontology, researchers tested 142 human volunteers for the effect Yerba mate tea has on the reduction of blood viscosity and the improvement of microcirculatory parameters commonly associated with risk for serious cardio- and cerebrovascular disorders. After six-weeks of intervention, subjects showed an improvement in all measured values as comparable with normal microcirculation. Therefore, Yerba mate can be considered a novel preventative strategy for patients at risk for vascular issues [31].

Mechanism of Action: Acts as an anti-inflammatory

When most consumers think of anti-inflammatory products, they often think of pain or anti-aging. These two areas are definitely related to certain types of inflammation and require targeted anti-inflammatories to suppress their expression. However, Yerba mate has been shown to have a very specific type of anti-inflammatory effect in the body: inflammation associated with obesity. Chronic inflammation of metabolic tissues is a leading cause in the widespread epidemic of obesity, insulin resistance, cardiovascular disease and other comorbidities [32].



Researchers set out to demonstrate the anti-inflammatory effects of Yerba mate using three classic in vivo models generally regarded as the standard for this type of research. They concluded that Yerba mate extract is indeed in possession of in vivo preventative or therapeutic anti-inflammatory effects in both local and systemic inflammatory processes [33].

This conclusion had been echoed in an earlier study regarding a specific type of inflammation- that of lung tissue exposed to short-term cigarette smoke. In this animal study, researchers found that Yerba mate had an anti-oxidative and anti-inflammatory benefit on the lung tissue exposed to the cigarette smoke at levels high enough to show very little difference between the exposed group and the control group [34]. This reaffirms findings where Yerba mate aids in the return of at risk tissues to normal levels, even outside the scope of weight management.

Mechanism of Action: Appetite suppression

In addition to modulating fat oxidation and gene expression pathways, Yerba mate assists in weight management by decreasing appetite. Researchers who previously had shown Yerba mate's benefit for reducing body weight, body mass, and food intake went on to study its effect on appetite and satiety markets (glucagon-like peptide 1 and leptin, respectively). After chronic administration of Yerba mate in animals, they found significant increases in both markers compared to control. This suggests that Yerba mate induces anorexic effects through the direct stimulation of satiety and the increase of serum leptin levels [35].

Varying researchers have noted a similar effect, as demonstrated by Pang et al. This study was designed to evaluate the anti-obesity potential of Yerba mate extract molecularly. In addition to successfully reducing weight, Pang showed appetite suppression on a chemical level [36]. Another such study showed that oral administration of Yerba mate for 7 weeks significantly decreased body weight and body mass, but that it also significantly reduced food intake due to a decrease in appetite. Researchers believe this was caused by a secondary mechanism: the dose-dependent delay in gastric emptying causing a feeling of fullness and thus a diminished appetite [37]. All of these actions contribute to the feeling of fullness or the suppression of appetite experienced by subjects in human trials [38].



Ilex paraquariensis- secondary health benefits

Osteoporosis and bone density

Although much research has been conducted on Yerba mate in relation to weight loss and body composition, studies have shown additional health benefits from this powerful plant product. Among these studies are findings that prolonged consumption of Yerba mate has a direct correlation with increased bone mineral density in women, aiding in the prevention and treatment of osteoporosis [39].

Insulin resistance and diabetes

Diabetes is a condition that in many cases is associated with overweight and obesity. Therefore, studies have been conducted on the effects of Yerba mate with regards to insulin and diabetes particularly in terms of weight management. These studies have found a beneficial relationship between Yerba mate consumption and markers for insulin resistance. Several studies have demonstrated that Yerba mate restores hepatic insulin signaling in animals with high fat diet-induced obesity, and that this restoration occurs from the downregulation of the genes associated with insulin resistance [40, 41].



Usage Guidelines

Obesity and overweight are conditions that negatively impact millions of people in the civilized world. They may be caused by various health factors or by dietary and lifestyle choices. Regardless of the cause, they have the same serious health implications if left untreated. Every individual should strive to be their healthiest self in order to increase longevity and improve wellbeing. This starts with reducing excess body weight to subsequently reduce the risk for obesity-related diseases and health factors.

Burn + Control Coffee is meant to assist in this process. It was formulated such that 1-3 cups of coffee could safely be consumed daily to achieve optimal health benefits.

As noted in this white paper, safety studies were conducted using dosages of these natural ingredients much higher than those provided in Burn + Control Coffee, even when multiple cups are consumed daily. Therefore, consuming 1-3 cups of this particular coffee should yield health benefits without negative safety concerns.

By taking this product according to the package recommendations, one should experience the positive benefits as outlined in this white paper. Results will differ between individuals, as no two bodies act identically when faced with the same stimulus. However, the general results should include

- a decrease in body weight and/or body fat
- an increase in available energy
- a feeling of fullness or a suppression of the appetite itself.

As coffee products are normally consumed in the early morning prior to the consumption of food, Burn + Control Coffee should show a marked increase in benefits associated with HCA administration, as this ingredient has been shown to be highly effective when absorbed on an empty stomach.

As always, pregnant and nursing women as well as children should consult their health care professional before beginning any supplement program, particularly caffeine-containing products.

Should adverse effects be felt when consuming any new supplement, discontinue use and contact your healthcare professional immediately.



Citations

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