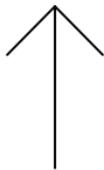


ROHTOS LABS 

Overpower



Organic Performance Enhancer

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Overpower intro

Overpower by Rohtos Labs is intended to be utilized in conjunction with frequent physical practise to maximize training response, or to help reach and sustain an optimal level of performance under heavy strain of all types.

Overpower's efficacy is based on utilizing a combination of widely bioactive extracts derived from adaptogenic plants - medicinal herbs which contain stress-response modifying compounds that increase the body's resistance to stress.

Overpower's 100% natural formulation contains a blend of 10 herbal compounds; five of the best performance-supporting adaptogenic herbs to modulate stress reactions and five other natural compounds to support stress modulation by providing synergistic effects, supplying crucial micronutrients and by increasing absorption of the blend.

Just as frequent practise modifies individuals' metabolic response to strain, repeated administration of adaptogens and the consequent adapted stress response does as well. A combination of frequent practise and utilization of adaptogens will result in improved response to training. Under prolonged stress adaptogens help by modulating the functioning of active organs.

The blend of herbal extracts in Overpower is designed to work in harmony to trigger systemic, body-wide modulation of stress reactions reaching all organ systems that are critical for physical performance. Scientific studies on adaptogenic combinations show that combining two or more active adaptogenic substances in one mixture significantly affects their actions, and synergistic interaction results in activation of processes that none of the individual substances affect.

In formulating Overpower we have also paid attention to mental aspects of performance in order to help with motivation, support the mood-boosting effects of physical activity and to sustain the mindset to keep going for extended periods under heavy strain.

Overpower is divided into two distinct formulations, OP Alpha and OP Omega. The two-part structure of Overpower enables flexible dosing and dosage timing to fit the subjective needs and situation of each individual.

OP Alpha and Omega contain ingredients grouped around their key target effects; OP Alpha primarily targets hormonal and lung functions, and acts as a superb electrolyte with over 40 minerals in highly bioavailable ionic form to supply nutrients to active deep tissues efficiently.

OP Omega contains three premier invigorating (or "Qi") tonics of traditional chinese medicine and primarily acts as an energizer by addressing stamina and endurance, energy metabolism and functioning of active muscles during performance.

Due to the systemic nature of its adaptive effects, Overpower excels in long-term performance support from individual to individual and across all fields of action. It goes well with both endurance and resistance training. Training at aerobic and anaerobic heart rates. Preparation, competition and transition. All stages of a workout program. With limited recovery, or for extended activity at peak oxygen intake, or at high altitudes or other extreme conditions.

On individual performance

The human performance capability is the individual's ability to execute a maximum performance in perfect conditions. It is a theoretical construct consisting of conditions at hand, human tendencies, motivation and character and the latent capacities resulting from practice and training.

Physical performance capability can be roughly divided into six areas: aerobic conditioning, posture, body composition, balance, flexibility and muscle strength. The mental factors that are crucial for physical performance are more difficult to categorize, but include, among other things, control of emotions, the ability to relax and tolerate distractions, self-guidance, visualisation and goal-setting.

Level of performance level refers to one's realized actual performance, which, unlike theoretical performance capability, can often be measured. Multiple factors affect the level of performance on a given day - mental state, training and preparation, nutritional and hydration status, preceding rest, time of day, temperature and other external conditions, and so on.

External stress, stress response and adaptation

Utilizing one's resources in full strains the body and affects its internal balance. 'Stress' represents the situation where an organism is affected by a stimulus, the stressor. The body reacts to stress with a battery of situation-dependent adaptive processes with the aim to preserve or restore its inner balance.

When a person is exposed to external stress factors, the autonomous nervous system is activated as the levels of regulatory hormones increase. Signal proteins activate the production of proteins responsible for stress management. Production of neurotransmitter nitric oxide (NO₂) increases in order to regulate stress reactions in the endocrine and immune systems, thereby indirectly suppressing the normal energy production in cells.

As the strain ends there is a counterreaction, recovery, when bodily functions normalize, energy levels rise and various systems of the body stabilize. Continuous strain can end in exhaustion – a growing feeling of difficulty in continuing the performance, which warns the person of unbalance and the growing need for recovery.

A complex causal relationship exists between development of performance capability and stress: on one hand psychological stress or overtraining weaken performance, and on the other hand an appropriate amount of frequent physical stress improves it. A frequent and appropriate strain results in improved stress tolerance in cells and organs through adaptation whereby they achieve a new balance on a higher functional level.

Exercise can serve as either a positive or negative stressor. If a person's body can manage the stress, it adapts by increasing muscle mass, optimizing metabolism or improving motor performance. If the person's body cannot manage the stress, then muscle soreness, malnutrition or declines in performance may be the result.

Frequent training modifies the metabolic response to strain. Training-induced adaptations encompass both biochemical responses - for example changes in protein content and enzyme activities in muscles, attenuated hormonal responses, as well as physiological responses - changes in blood capillary network, heart function and oxygen uptake. These adaptations are determined largely by the type of exercise and the intensity, frequency, and volume of the exercise stimulus.

Macronutrients

With strenuous activity there must be an increase in total food intake from baseline to balance the increased energy expenditure, otherwise activity cannot be sustained for long.

An elite long distance runner completing around 150 km/week of training needs an average daily calorie intake of around 3500-4000 calories per day. It is estimated that Tour de France cyclists consume around 6500 calories a day, without any increase in body weight – over 2.5 x the normal recommended dietary intake.

The diet, both before exercise and feeding during exercise, also influences the body's hormonal and metabolic responses to exercise. The timing and com-

position of post-exercise nutrition influences protein turnover and hence the response to hypertrophic stimulus.

Micronutrients

Vitamins and minerals play key roles in energy metabolism. During strenuous physical activity the rate of energy turnover in skeletal muscle may be increased up to 20-100 times the resting rate. Prolonged strenuous exercise performed on a regular basis may result in increased losses from the body or in an increased rate of turnover, resulting in increased dietary intake need.

Acute exercise modifies energy metabolism through intracellular effects and the action of hormones. Many micronutrients play key roles in energy metabolism and during strenuous physical activity, the rate of energy turnover in skeletal muscle may be increased up to 20-100 times vs. the resting metabolic rate.

Marginal deficiency states may only become apparent when the metabolic rate is high. These states may have little effect on sedentary individuals, but small impairments of capacity may have profound consequences for a serious athlete.

Adaptogens

Some dietary components can have performance enhancing ergogenic effects when ingested in sufficient amounts either acutely before or during exercise, or chronically during training.

Certain herbal supplements, most from outside of regular diet, are appealing ergogenics because of their proven potential for improving performance capacity, either through providing ergogenic benefits, or through offsetting the deleterious effects of rigorous training regimens and other stressors.

The properties of herbal adaptogens have been known for thousands of years and they have a long history of utilization by populations in their native habitats - vikings, cosmonauts and the Red Army, tribes from the Himalayas to Siberia, and Chinese endurance athletes.



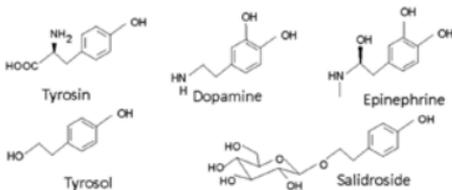
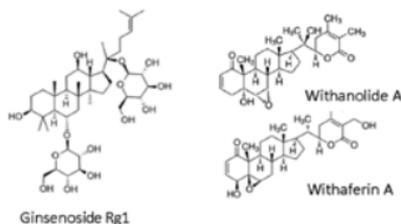
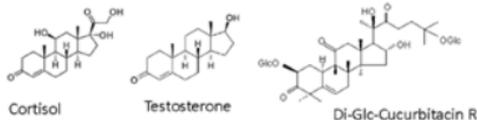
The term "adaptogen" was first used in 1940 by a Soviet scientist N. Lazarev, when he described *Schisandra Chinensis* and other bioactive herbs with the definition: "plant-originated adaptogens that can non-specifically enhance the human body". In 1998, the US Food and Drug Administration (FDA) defined adaptogen as a new kind of "metabolic regulator that has been proven to help in environmental adaptation and to prevent external harms".

In recent years interest in adaptogens has increased globally. They have also been researched in growing numbers; research in phytochemistry has identified isolated affective components of adaptogens, research in biochemistry and molecular biology has mapped their functions on cellular and molecular levels, and clinical pharmacology has verified their effectiveness and safety.

Man holding adaptogenic Reishi mushroom, Chen Hungsho, 1599-1652 AD.

Mechanism of adaptogenic action

What's unique about adaptogens is their ability to regulate various stress reactions by balancing them without side effects. The mechanism of action of adaptogens seems to involve their structural similarities to key neurotransmitters and hormones and is related to their role as minor stress factors, which accelerate the production and release of stress related hormones and proteins, thereby imitating the effects of external stress factors. This increases the body's stress tolerance by adapting it to be less sensitive to strain.



Panosian, Alexander (2017) Understanding adaptogenic activity: Specificity of the pharmacological action of adaptogens and other phytochemicals. Annals of the New York Academy of Sciences. 1401. 11:53 AM

Structural similarities between neurotransmitter precursors, neurotransmitters, human hormones and adaptogenic compounds of plant origin.

Adaptogens do not build tolerance, they are non-addictive and display no potential for abuse or cognition-altering effects. Adaptogens are generally very well tolerated and have low toxicity.

Adaptogens are widely bioactive in the body. Compounds in Overpower are, according to external research, able to activate or deactivate hundreds of biochemical processes in the human body. Purified individual compounds from *Rhodiola rosea* and *Eleuthero* can each regulate of 500-700 gene-controlled functions across various organ systems.

Research on multi-adaptogen blends indicates that adaptogens are more effective when used several at a time, as collective consumption strengthens their synergistic effects and enables them to affect processes that they can not reach individually.

When researching the effect of adaptogens on cellular level, the compounds used in Overpower have been found to, among other effects, to activate the autonomic nervous system, neuropeptides and stress sensing heat shock proteins, to suppress the levels of the stress hormone cortisol, to regulate activity in the central nervous system, to modulate the production of nitric oxide and lactic acid in active muscles, to improve energy production and manage the energy sources the body utilizes.

These functions are high in the functional hierarchy of human biosystem and they are then followed by a cascading effect of lower-level reactions across the body:

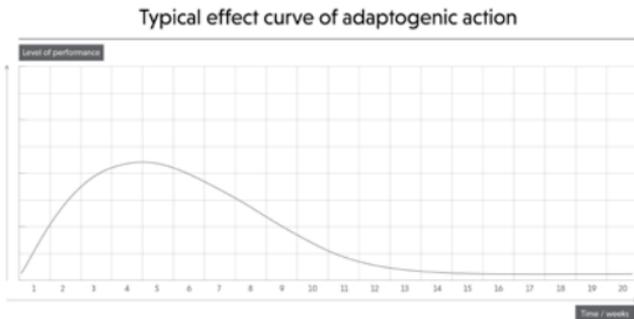
activation of heat shock proteins (which underlie the health benefits of sauna and cold immersion) enhance the functioning of stress management proteins;
activation of the autonomic nervous system activates receptors which regulate pulse and heart function;
decrease in cortisol levels suppresses excessive immune reactions and enables optimal steroid hormone function;
regulation of neurotransmitters supports efficient cognitive functioning and

stamina;
regulation of nitric oxide levels supports normal energy production in cells;
regulation of body's preferential energy sources shift the body to favour fats as an energy source, and
melatonin regulation improves sleep latency, integrity and the quality of rest, thereby enhancing recovery.

Overpower use

Repeated exposure to adaptogens is required to maintain their adaptive effects as stress resistance (adaptogen-induced or otherwise) possesses no memory function. On the other hand, breaks in exposure are recommended in order to maintain the optimal efficacy of adaptogens by avoiding making the body too accustomed to them and begin to downregulate other connected metabolic functions towards homeostasis. 'Cyclical' use of adaptogens, ie. regular breaks in exposure, is the recommended practise in traditional medicinal systems.

In general, the effects of adaptogens follow a pattern where their performance-supporting effects are at their highest some weeks after the onset and then start to slowly taper towards baseline over time, to remain above baseline. Users may take this into account when timing Overpower usage vs. competitions all other notable dates.



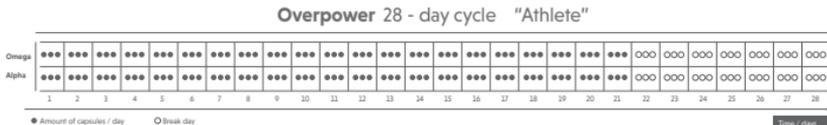
In this aspect, adaptogens are markedly different from stimulants, which are widely used in sports, work and elsewhere to reduce tiredness and increase alertness, competitiveness, and aggression, and whose extended use will result in one's level of performance dropping below the baseline.

We employ a standard dosing pattern for Overpower that we recommend Overpower users follow. The recommended dosing pattern for Overpower is cyclical - every fourth week and every fourth month off.

The experienced and observable effects of Overpower typically begin on average 2-4 days after onset. Overpower's effect is subjective, based on its users' general condition, metabolic state, stress levels and other subjective factors and its effects are emphasized when the user is tired or under stress.

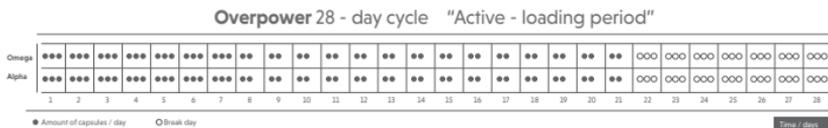
Overpower dosing

Overpower has a flexible dosing range, ie. the suitable dose varies according to individual response and amount of external stress the person is experiencing. The highest recommended dose is 3 capsules of OP Alpha and 3 capsules of OP Omega per day. This dose is suited for frequent exercise, when under strain or when performing at or near the individual maximum strain level.



Smaller doses of Alpha and Omega are recommended for more sedentary individuals, or when experiencing less strain and stress. We recommend testing various dosing combinations to find the best individual response.

An example of alternative dosing regimen for more sedentary individuals: a loading period of 3 capsules of OP Alpha and 3 capsules of OP Omega per day for one week at onset to reach the full effect sooner, then moving to a maintenance dosage of 2 OP Alpha and 2 OP Omega per day for the next two weeks of the cycle.



We recommend that the Alpha dose is taken in the morning or before noon, preferably at or near the same time every day. The recommended intake time for OP Omega is more flexible; it can be taken simultaneously with Alpha or for example an hour before exercise, or in the afternoon to boost OP Alpha and to provide energy for the rest of the day. We recommend that Omega is not taken late in the evening (unless the user is active at night-time), as it may affect sleep.

Overpower should always be taken on an empty stomach in order to maximize its absorption from stomach to blood circulation and the central nervous system.

The capsules disintegrate in the stomach usually within 30-60 minutes from consumption, after which their contents are absorbed from the stomach or intestines, depending on the compound. Proteins especially compete for absorption and should be avoided while taking Overpower. A small amount of fats, for example a tablespoon of coconut or olive oil is beneficial for the absorption of fat- soluble compounds in Overpower.

The amounts of bioactive compounds in a single Overpower dose correspond with the dosages that have induced verified and measurable performance-supporting results in both Rohtos Labs' own product tests, as well as third-party scientific research. In general, the amounts of adaptogenic extracts in an Overpower dose fall into the low dose to stimulatory range of concentrations; some adaptogens exhibit a wide response (>1000-fold) before point of zero equivalence is reached, while others exhibit an u-shaped effect curve where the best effect is achieved within a certain dose range.

Based on Rohtos Labs' own tests, the general experiences gained from the long history of adaptogen usage and the scientific research on effects of adaptogen use all indicate that Overpower is suitable for all healthy adults, regardless of sex.

As adaptogens have significant effects on the central nervous system and hormonal functions, it is important to consider possible interactions with drugs when using Overpower. This applies especially to SSRI- type antidepressants, thyroid hormone regulators, drugs for autoimmune diseases and stimulants for treating concentration disorders.

If you are on any type of continuous medication, we recommend you listen to your body, get educated on the possible interactions with your medicines and the compounds found in Overpower, and if needed, consult a doctor about the issue.

Active ingredients

ALPHA

Cordyceps militaris

Cordyceps militaris belongs to the Cordyceps family of mushrooms, which consists of over 400 different mushrooms. Unlike most of its relatives, Cordyceps militaris grows on soil.

Cordyceps is androgenic in nature, as it has been shown to reliably increase testosterone levels in a dose-dependant manner. This observed effect is possibly the result of structural similarity between luteinizing hormone (a testosterone precursor) and bioactive compounds in Cordyceps.

The effects of Cordyceps on sports performance, hormonal function and oxygen intake has been studied over the last years. Cordyceps supplementation has been found to increase endurance and oxygen intake in high intensity training, both acutely and over longer term. In addition, Cordyceps has been shown to increase blood flow, possibly via nitric oxide modulation and to improve oxygen utilization in tissues by increasing hemoglobin levels.

Cordyceps Militaris in Overpower is a dual water - ethanol extract, whose beta glucan content is standardized at 20%, and cordycepin, a key constituent, at 0.3%.

Mucuna pruriens

Mucuna, or velvet bean, is a tropical legume native to Africa and Asia, and a natural source of L-DOPA, a dopamine precursor, in well-tolerated and highly bioavailable form.

Supplementation with Mucuna has been shown to increase the levels of dopamine, but also on specific occasions the levels of testosterone, luteinizing hormone, adrenaline and noradrenaline.

In addition, Mucuna has been shown to increase the production of growth hormone. Increased levels of growth hormone have been shown to mitigate the effects of age-associated decline in energy levels, muscle mass, physical performance capability, blood circulation and cognitive capability.

Since dopamine modulates multiple functions which differentiate active and sedentary body states, such as coordinating motor functions, feelings of reward and mood, it plays a key role in supporting the mood-boosting effects of exercise and maintaining a high level of performance.

Mucuna in Overpower is an extract from bio-organically grown beans, with its L-DOPA content standardized at 20%.

Ashwagandha

Ashwagandha, *Withania somnifera*, is a member of the nightshade family of plants. Ashwagandha is a major medicinal herb in Ayurvedic tradition of medicine with a wide body of scientific research to back up its efficacy. Its use has traditionally focused on stress and anxiety mitigation, but during the last years its performance-supporting capabilities have received some well-earned attention.

With regards to Overpower and performance support, Ashwagandha pretty much does it all and does it well, as it has been shown to accelerate cell renewal, to decrease levels of stress hormone cortisol, to suppress inflammation, the levels of 'bad' LDL-cholesterol and the overall cholesterol levels.

In addition, Ashwagandha has been shown to, when used in conjunction with exercise, to decrease the body's fat percentage, to increase the formation of muscle mass in resistance training and to speed up the recovery of muscles after exercise.

Ashwagandha modulates the resting heart rate, power output and aerobic capability of the body and suppresses the subjective feelings of exhaustion

while active. In resistance-training males, Ashwagandha supplementation has been shown to increase the levels of testosterone more than resistance training without it.

Ashwagandha in Overpower is Sensoril®, an extract made with a patented water extraction process from roots and leaves of Ashwagandha and whose glycoside, oligosaccharide and Withaferin A contents are standardized.

Shilajit

Shilajit is a natural substance formed over centuries by the gradual decomposition of certain plants by the action of microorganisms. It is a potent and very safe dietary supplement which has been utilized for thousands of years in the Himalayas, India, China and the Caucasus. The name Shilajit comes from sanskrit, where the word 'shilajitu' means rock tar. In Eastern Europe, the Caucasus and Arabic countries Shilajit is known in variations of the word 'Mumiyo'.

Shilajit contains tens of minerals in ionic form, including iron, molybdenum, zinc, manganese, calcium, strontium, copper and magnesium; organic acids such as humic and fulvic acid, as well as amino acids and hormone precursors. The ionic state of the elements enables them to bond readily with water, making it possible for the body to efficiently absorb it.

Shilajit has been shown to increase the anabolic effect of resistance training by increasing the expression of genes which regulate muscle growth and by efficient delivery of micronutrients into deep muscle tissue. Shilajit has been shown to support performance levels in extreme conditions such as high altitude. In addition, Shilajit has been shown to modulate testosterone synthesis.

Shilajit on Owerpower is organic and due to a specific purification process, very clean. Its levels of fulvic acid is standardized at 50% or over.

Green Coffee bean

Coffee originates from a berry grown on trees. Its green seeds become coffee beans. Many compounds (and benefits) in coffee beans are destroyed during the roasting process.

Caffeine, despite its mundane status, is an excellent booster of mental and physical performance, which has been shown to increase vigilance, modulate the energy metabolism of the body, suppress exhaustion and to increase reaction speed and accuracy. In addition to caffeine, green coffee beans contain chlorogenic and ferulic acids, which have been shown to exert beneficial effects on blood pressure and blood sugar.

Green Coffee bean in Overpower is an extract from organic green coffee beans with its caffeine content standardized at 95%.

OMEGA

Eleuthero

Eleuthero, *Eleutherococcus senticosus*, also known as Siberian Ginseng, is a small shrub that grows in northeastern Asia, and which has been traditionally used by Siberian natives to cope with the harsh conditions.

Eleuthero has been shown to improve oxygen intake, raise the anaerobic threshold, maintain healthy blood sugar levels and suppress lactic acid accumulation in active muscles. In addition, Eleuthero has been shown to lower the average resting heart rate and speed up heart rate's return to normal rate post-exertion.

Eleuthero in Overpower is an extract with eleutheroside B and E content standardized at 0.8%.

Rhodiola Rosea

Rhodiola Rosea, also known as golden root, roseroot and Arctic root, is a perennial flowering plant which grows naturally in Arctic regions of Europe, Asia, and North America. It has been traditionally utilized in its native habitats to stave off tiredness and depression. In Scandinavia, first written remarks about medicinal use of Rhodiola are from the 18th century, but according to folklore, its utilization there started much earlier.

Rhodiola has been shown to be a fairly universally effective in mitigating symptoms of mental and physical tiredness and therefore in improving the level of performance while stressed.

In studies implemented with athletes, Rhodiola has been shown, among other effects, to lower the average resting heart rate, to improve concentration and lower the number of mistakes in execution, to increase the body's use of fats as an energy source, and to support cellular energy production and blood sugar balance. Rhodiola also suppresses the activity of MAO-B enzyme, which is responsible for dopamine reuptake, therefore maintaining dopamine levels in the central nervous system.

Rhodiola may be of interest to practitioners of contact sports, gamers and of other ventures requiring good reactions, as it has been shown to improve reaction speed.

Rhodiola in Overpower is an extract with its salidroside content standardized at 3% and rosavins at 5%.

Panax Ginseng

'Ginseng' typically refers to plants from genus Panax which grow natively across a wide area; Panax Ginseng in the Korean Peninsula, northern China and Russian Far East, American Ginseng (*Panax quinquefolius*) in the USA and Canada,

South-China Ginseng (*Panax Notoginseng*) in southern China and Vietnamese Ginseng (*Panax Vietnamensis*) in Vietnam. Ginseng has been revered and utilized in Korea, China and Japan for over 2000 years. Commercial cultivation of Ginseng started already in early 18th century.

All Ginsengs share some common bioactive compounds called ginsenosides, of which over 100 different types have been identified. Panax, or Korean Ginseng is considered to be the most efficacious of the Panax family of plants.

With Ginseng, its root is typically utilized. There are two types of processed Ginseng root - white and red. White Ginseng is washed and peeled and then dried. Red Ginseng is steamed, and its red colour is the result of a Maillard reaction between carbohydrates and amino acid contents of Ginseng. In addition, Ginseng is fermented and its leaves are utilized in certain Ginseng extracts.

Traditional uses of Ginseng have focused in providing energy, improving male sexuality and maintaining a Zen mindset. With regards to performance, Ginseng has been shown to boost sugar metabolism, improve oxygen delivery to muscle tissues, spare muscles from excess damage, and to increase the body's use of fats as an energy source at the onset of activity. Several ginsenosides share structural similarities with human sex hormones.

Ginseng in Overpower is white, air-dried Panax Ginseng root, with its ginsenoside content standardized at 30%.

ALPHA + OMEGA

Acerola

Acerola, *Malpighia emarginata*, which is also known as Barbados cherry is an excellent natural source of vitamin C, but also of amino acids (including alanine, serine and GABA), anthocyanins, carotenoids and catechins (which it shares with

tea), as well as polyphenols such as quercetin, luteolin and rutin. The combination with vitamin C and anthocyanins make Acerola an effective natural antioxidant to reduce oxidative stress and suppress inflammation.

The vitamin C has been shown to increase the absorption of other key constituents in Overpower - L-DOPA, zinc and iron (from Shilajit), as well as beta glucans from Cordyceps. Vitamin C has also been shown to support efficient blood circulation.

Acerola in Overpower is an extract from bio-organically grown Acerola, with its vitamin C content standardized at 25%.

Piperine

Piperine is the alkaloid responsible for the pungency of black pepper, *Piper Nigrum*. Piperine can inhibit key liver enzymes that would otherwise break down other molecules faster. Due to this, it is ingested alongside supplements to increase their absorption rates.

The purpose of piperine in Overpower is to increase the absorption and bioavailability of other bioactive compounds and therefore make Overpower more effective.

Piperine in Overpower is extracted from black pepper and has 95% purity.

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