1. What are Negative Ions?

Simply put, they're oxygen atoms with an extra electron. And they can help you feel better.

Remember that feeling you've experienced near a waterfall or high in the mountains? Those are two places that thousands of negative ions occur. They create an effect on human biochemistry.

Here is what some of the experts say about Negative Ions:

"The normal ion count in fresh country air is 2,000 to 4,000 negative ions per cubic centimetre (about the size of a sugar cube). At Yosemite Falls, you'll experience over 100,000 negative Ions per cubic centimetre. On the other hand, the level is far below 100 per cubic centimetre on the Los Angeles freeways during rush hour."

Technically Speaking:
Ions are charged particles in the air that are formed in nature in different ways. One way is when enough energy acts upon a molecule such as carbon dioxide, oxygen, or water to eject an electron from the molecule leaving a positively charged ion. The displaced electron attaches itself to a nearby molecule, which then becomes a negatively charged ion. In other words, an ion is any small particle, molecule or atom carrying a positive or negative electrical charge due to the loss or acquisition of one or more extra electrons. Every breath you take contains a few hundred ions per cubic centimetre. It is the negative ion of oxygen that affects us the most.

Note: Ions are not just static electricity! Some web sites claim that, but that is not accurate.

2. How do positive and negative ions affect humans?

An excess of positive ions can have unpleasant physical effects such as: body pains, headaches, dizziness, twitching of the eyes, nausea, fatigue, respiratory difficulties, allergies, asthma, heart and circulatory disorders. It can also have psychological side effects such as: emotional unbalance, irritation, exhaustion, apathy, listlessness, anxiety, and depression.

Negative ions counter the effects of positive ions, and provide key benefits such as: detoxification, alertness, improved concentration, better breathing, sounder sleep, tension relief and vitamin utilization.

3. What research supports this theory?

Over 5000 medical and scientific studies utilizing negative ion generators have been done, including those by Oxford University, the U.S. Air Force, RCA Laboratories and Mercedes Benz, to name but a few sources. As further evidence:

- U.S. Navy uses active negative ion generators on the bridges of ships to increase alertness and concentration
- Russian Olympic and Red Army hockey teams use similar generators during training.
- Research conducted by the Swiss Bank with 600 employees, it was observed that sick days were drastically reduced for those people working in negative ion enriched air.

4. But why in the world are they called NEGATIVE ions?

After all, Negative ions can have a positive effect on people. But positive ions can have a negative effect on people.
Furthermore, an atom that has one of its normal orbiting electrons removed is called a positive ion. (Doesn't "positive" imply that something has been added?)
But an atom that has an extra electron added is called a negative ion. (Doesn't "negative" imply that something has been removed?)
So you see, it's really kind of backwards; the terms Negative and Positive are actually reversed, in this context. It's a misnomer that we can blame on Benjamin Franklin (so we hear) who lived in the 1700's. Back in his time, electrons (with a "negative" charge) and atoms were not understood correctly. But the word negative is still being used this way; to this day, an atom with an extra electron is still called a negative ion.

So, we're all still stuck with this 18th century terminology, and that's why they're called "negative ions".

5. How does Negative Ion benefit to human body?

Negative ions are beneficial to human body in four major ways:

- Strengthen the functions of autonomic nerves.
- Reinforces collagen (tissues that are resilient and tension-related).
- Improves the permeability of the cell's prototype plasma membranes (improves metabolism).
- Strengthens the body's immune system.

John Heinerman, Ph.D says: “Negative ion regeneration for youthfulness and longevity. Negative ions neutralize pollutants and provide positive effects on health to:

Stimulate the reticulo-endothelial system, a group of defence cells in our bodies that marshal our resistance to disease;
Act on our capacity to absorb and utilize oxygen. Negative ions in the bloodstream accelerate the delivery of oxygen to our cells and tissues; and Speed up oxidation of seratonin (5-hydroxtryptamine) in the blood. This is well known to have far reaching effects on mood, pain relief and sexual drive.

6. What are some of the other benefits experienced with the use of Negative Ions?

- Less susceptibility to colds and flu.
- Natural detoxification of the body.
- Improvement in breathing through the more efficient operation of cilia (little hairs on the windpipe).
- Improved sleep, relaxation and meditation.
- Increased lung capacity.
- Improved learning ability for children. (Normal children 8.4%; Learning disabled 23.6%, mildly retarded 54.8%)
- Increased utilisation of Vitamins C and B.
- Relief from allergies and hay fever.
- Relief from migraine headaches.
- Relief from sinus congestion and inflammation.
- Reduction in the severity of asthma attacks.
- Enhanced immune system.
- Relief from discomfort caused by excess serotonin and histamine in the body.
- Relief from sore throat, bronchial cough and nausea.
- Normalization of hormone imbalances.
- Decreased depression, irritability and tension.
- Increased alertness.

- Increased work productivity.
- Improved concentration.
- More effective functioning of all body systems.
- Increased blood flow with resultant increased oxygen-carrying capacity, both of which are basic to help the body healing itself; Changes in migration of calcium ions which can either bring calcium ions to heal a broken bone in half the usual time, or can help move calcium away from painful, arthritic joints.
- The pH balance (acid/alkaline) of various body fluids. (Often out of balance in conjunction with illness or abnormal conditions).
- Hormone production from the endocrine glands can be either increased or decreased by Negative Ion stimulation. Altering of enzyme activity and other bio-chemical processes.
- Circulation is improved.
- Autonomic nerves are excited.
- Immune system is strengthened.

7. Method in Checking Negative Ion.

Method 1: Connect Negative Ion Air Purifier to a power socket in a room with an open space. At the distance of 20 to 30 cm, use an Ion Detector to detect the amount of Negative Ions.

Method 2: After switch ON the Negative Ion Air Purifier, just put you hand about 5 cm away from the product, you will feel cool wind.

Method 3: Obtain a transparent box of the size 20x30x20cm, put smoke into it. Put the Negative Ion Air Purifier into the box, after 3 to 8 seconds, you will see the smoke in the box disappear.

8. How much Negative Ion in our surrounding?

In our surrounding, the amount of Negative Ion in the air more or less depends on the weather, geographical conditions, pollution and other factors. On the earth surface, Negative Ions are usually around a few hundred or thousands per cc.

The following are some measurements of Negative Ion in various locations:

Outdoor

Location*	Waterfall	Forest	Park (Windy weather)	Busy Traffic Road	Industrial Park	Along the River side of Major City
Negative Ion per cm3	> 2,800	2,000	1,000	1,800	500	270
Positive Ion cm3		1,000	500	2,700		40

Indoor

Location*	Beside Window during lighting	Room in Wooden house*	Luxury Condo.	Well-ventilated Office	Game Room	KTV Room	Enclosed Office
Negative Ion per cm3	>3,000	2,000	1,500	380	30	5	0
Positive Ion cm3		1,400	2,200	120	5	500	

* Weather condition: Sunny day with humility at 40 to 60%

Negative Ion (per cm3)	>= 2100	2100 -1800	1800 - 1500	1500 - 1200	1200 - 900	900 - 600	<= 600
Grade	1	2	3	4	5	6	7
Health related	Excellent	Very good	Rather Good	Good	Slight Good	Normal	Not healthy
Pure and Fresh Air	Very clean	Clean	Slight Clean	Slight Clean	Average	Average	Not clean

9. What is Negative Ion Generator or Ionizer?

Negative Air Ionizer or Purifier supposedly purifies air by generating negative ions. Negative ions occur naturally near waterfalls and after heavy thunderstorms and have the effect of cleaning the air. The negative ions are attracted to positively charged dust and smoke particles. These new heavier combined particles then precipitate (fall) out of the air leaving purified air.

The use of negative ions continues to be a more accepted mainstream therapy in Eastern Europe and the Far East than in Western Europe or the United States. Although problems with nosocomial infections (hospital acquired "super-bugs") have led the National Health Service (NHS) in the UK to do extensive research into the effect of negative ions on this area of hygiene. The results were very positive (see this article at http://www.newscientist.com/article.ns?id=dn3228). Recent SARS outbreaks have fuelled the desire for personal ionizers in the Far East, and in Japan everything from toothbrushes to fridges and washing machines have negative ion generators in them.

What are the some performance standards for Negative Ion Air Purifier?

To measure the performance of Negative Ion Air Purifier as follows:

(a) Negative Ion Density: Number of Negative Ion per cubic centimetre (cc). Index requirement: Based on 30 centimetres from the Negative Ion outlet of the Ionizer. A healthy human requires a minimum 2000 negative ions/cc/second.

(b) Ozone Content: Maintain small amount of Ozone at Indoor is good for the health, but not too much. Based on United States National Primary and Secondary Ambient Air Quality Standard, the Ozone generated must not exceed 0.12 parts per million (ppm) in one hour average concentration (EPA standard). Nevertheless, most good Ionizer produced less than 0.015ppm Ozone. (1.0 ppm = 1958 microgram m-3 ozone.)

(c) Noise Standard: Most Noise is considers around 45 – 60 decibel.

(d) Power Consumption: Most Ionizer should use around 0.5 to 5W.

(e) Area coverage: 10 to 60 square meter for most Ionizers

(f) Operating duration: Continuously or “non-stop” working