

**In-Line PH Nine Stage
Purification Process**

PH AND ORP CELLULAR HYDRATION

pH

pH stands for "potential hydrogen" and is a measurement that provides an indication of the level of hydrogen in a substance. It is measured by the pH scale. Proper body pH is an important factor in good health.

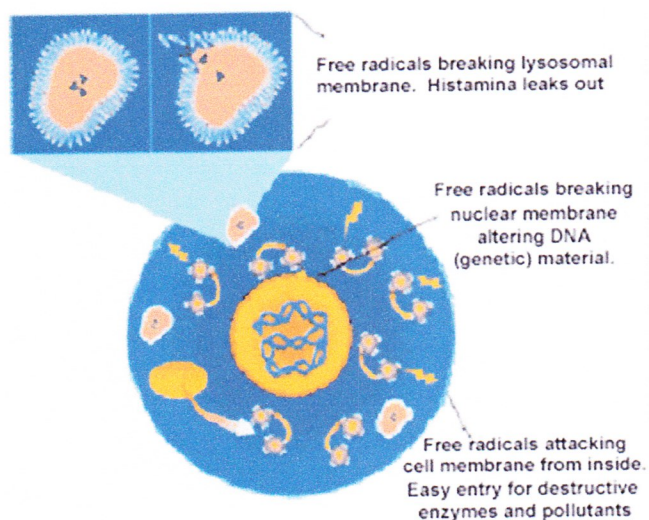
ORP

Oxidation is what turns an apple brown after it is cut or causes metal to rust. Rust weakens metal and signifies the deterioration of the apple. The process of oxidation "steals" electrons from the surface being oxidized. When we measure something's oxidizing potential, it is expressed in +ORP and measures the concentration of ions or oxidizing agents.

A "reducing" agent is simply something that inhibits or slows the process of oxidation. The reducing agent does this by "donating" an electron. When we measure a solution's oxidation reduction potential, it is expressed in terms of ORP and measures the concentration of ions or reducing agents. In its most basic form a reducing agent is an "antioxidant" ~ reducing oxidation.

Most drinking water can be unhealthy because it is too acidic and has been stripped of valuable electrons. According to many health professionals an acidic body can lead to dramatic health problems.

The next problem with most water is that it has been stripped of valuable electrons during filtration, purification and generally moving through pipes. This results in water molecules competing for remaining electrons and clumping together.



These molecules now have a positive charge and can be measured by an Oxidation Reduction Potential (ORP) meter.

These positively charged water molecules (positively ionized) are actually **free radicals** that want to steal electrons from healthy cells.

This is called oxidation and causes cellular damage and premature aging.

Besides causing free radical damage, positive ionized water molecules are rejected by our cell's aquaporins. Aquaporins are little channels that transport water and nutrients through the cell wall. They let good water in and keep bad water out.

"Scientists now believe that free radicals are causal in nearly every known

disease."

- Dr. Lester Packer, University of California

You Could Be Drinking But Not Hydrating Your Cells

When a molecule is positively charged and clumped, the aquaporin rejects it. It won't let it in, and for good reason!

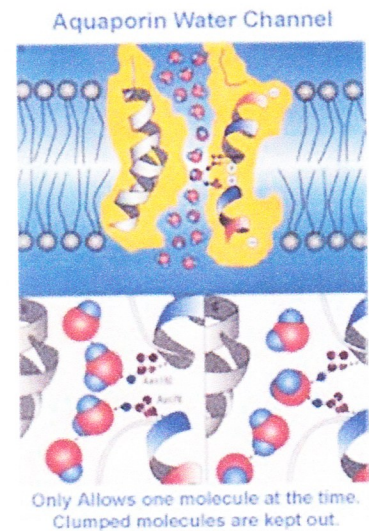
The cell doesn't want a free radical running around inside causing damage or even killing the cell.

Since aquaporins are very selective, you could be drinking a lot of water, but not really hydrating on a cellular level.

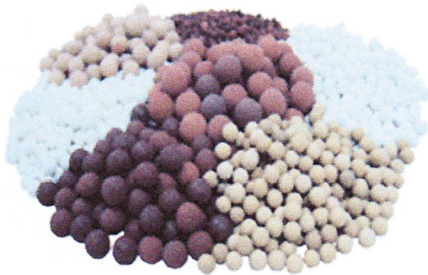
The body then has to "leach" minerals from our bodies to compensate and it normally is from calcium and magnesium in our bones.

THE SOLUTION

By replacing the missing electrons, the water molecules "unclump" so they can be absorbed on a cellular level. The aquaporins allow the activated alkaline water to enter. In addition, the extra electrons in the Far Infrared activated, alkaline water act as an antioxidant, neutralizing free radicals in the body. As bodies become hydrated completely at the cellular level, the cells can now release harmful toxins that have been stored because of the lack of cellular hydration. Once toxins are completely eliminated, we more completely realize a better state of wellness.



ZEO-Z1 ANTIBACTERIAL PH FILTER PLUS



- CALCINATED CALCIUM (OYSTER SHELLS): Eliminated food poisoning in Japan of bacteria "O-157" Enterohemorrhagic.
- NATURAL ZEOLITE SYNTHASIZED CERAMIC: Antibacterial, removes heavy metals and bacteria and provides immune boost
- COLLOIDAL SILVER: One of strongest antibacterial, controls over 450 forms of virus
- HYDROXY APETITE: Main element of the vertebrae. Medically used bone building supplement, has superior absorption to calcium and activates water molecules for FIR benefits of better molecular absorption. Contributes more than 12 minerals such as: calcium, magnesium, potassium, sodium, phosphorous and zinc. Increases, pH levels,

provides a nutrient boost with up to 12 minerals and provides a detox from the antioxidants provided.

[Test 1] Oxidation-Reduction Potential Test

We can see the lowness of oxidation-reduction potential through observation of nail's oxidation / corrosion after soaking of nails in the water as below picture 1.

This test is a good test for confirming of ZEO-Z1's efficiency to prevent and suppress aging of cells.

Also this test can be an inference test for SOD(Super Oxide Dismutase) activity to prevent excessive production of active oxygen in human body.



<Picture 1> Left: BCT / Right: Ultrapure Water

[Test 2] Measurement of Cluster

Cluster means the size of water particle.

In case of small sized cluster, the movement of water particle is active so it improves water's dissoluble capacity and absorbable capacity. Therefore, you can confirm to the naked eyes that coffee, green tea or others can dissolve in ZEO-Z1 forming water rapidly. And that means this test can confirm not only the improvement of the capacity of water particle's movement but also the capacity of rapid absorption into the body.

[Test 3] Measurement of pH(Hydrogen ion Concentration)

Injection of reagent for pH measuring shows that ZEO-Z1 forming water changed alkali ion water. It helps to prevent various adult diseases(EX: cancer, high blood pressure, hardening of arteries, diabetes, etc.) by body's acidification.

[Test 4] Antibacterail/Sterilization Test

It can be approved by test results by researchers in domestic and foreign.

TEST 4



ZEO-Z1

pure water

TEST 2



pure water

ZEO-Z1

Antibacterial Ceramic Ball

Antibacterial Ceramic ball is composed of a variety of functional ceramic materials such as Hydroxyapatite, Al_2O_3 , SiO_2 and Ag etc. Antibacterial ceramic ball, as a kind of porous material to be made specially by processing at a high temperature, filters harmful impurities and heavy metals for human body, animals and plants as well as changes from polluted water in drinking to pure water which remove harmful bacteria like Escherichia coli(O-157), Salmonella, Legionella and etc. by the sterilizing ability of the pure Ag component of antibacterial ceramic ball.

■ SPECIFICATION

ANTIBACTERIAL CERAMIC BALL	
Appearance / Color	Ball / White
Components	Hydroxyapatite, Al_2O_3 , SiO_2 , TiO_2 , Ag
Size(Φ)	3mm, 5mm
Heat resistance($^{\circ}C$)	>1,200
pH(5% addition to Water)	7.0 ± 0.5
Bulk density(g/cm^3)	0.85 ± 0.5
Main Function	Antibacterial & Disinfection to harmful E.Coli and Bacteria Absorption & Remove impurities and harmful heavy metal Elution of a large quantity of mineral ingredient

■ Antibacterial Mechanism

- The Sterilizing operation by the pure Ag ingredient contained in Antibacterial Ceramic Ball.
 - Remove E. Coli(O-157) & Bacteria, 99% over
- Absorption & Remove impurities and harmful heavy metal for human body
 - Remove 97% of Cu, Cd, Pb, Fe, Mn, Zn and etc
- Elution of a large quantity of mineral ingredient
 - Contain Ca, Mg, Na

Antibacterial Ceramic Ball

■ Antibacterial Test result of Antibacterial Ceramic Ball in water

MICROBE TYPE	INDICATION	START	6hr	24hr	48hr
<i>E. coli</i>	TEST	2.0×10^5	<1	<1	<1
	CONTROL	2.0×10^5	3.1×10^5	6.3×10^5	7.6×10^5
<i>S. aureus</i>	TEST	1.0×10^5	<1	<1	<1
	CONTROL	1.0×10^5	1.8×10^5	1.0×10^5	2.0×10^5
<i>P. aeruginosa</i>	TEST	1.8×10^5	<1	<1	<1
	CONTROL	1.8×10^5	3.0×10^5	1.0×10^5	2.4×10^5

Antibacterial Ceramic Ball is added to 1.0×10^5 cells culture in water. The solutions are shaken 150 times per minute at 25 C for 6hrs, 24hrs, 48hrs and dilutions of cultures are divided by agar pour plate method to determinate bacteria cell growth inhibition rate.

■ Purifying Test result of Antibacterial Ceramic Ball

Function	Test items	Unit	City water ¹	Treated Water ²	Test method
Absorption & Remove (Heavy Metal)	Fe	ppm	1.2	0.03	KS M 0100
	Cu		1.8	No detection	
	Zn		1.6	0.1	
	Cr		0.9	No detection	
Elution of Mineral	Ca	ppm	30.6	67.8	

Note) 1. City water : The water not to pass through Antibacterial Ceramic Ball

2. Treated water : The water to pass through Antibacterial Ceramic Ball

■ Package

- 20kg Carton box (Inside PE film)

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Relation between Various Diseases and Biocera Ball and Mineral

1. Features of Mineral

- A Nobel Prize winner Dr. Linus Pauling indicated that every disease could be generated even by one or two mineral deficiency, and actually mineral plays a crucial role in the human body as such that he alleged that most diseases are deeply connected with mineral deficiency.

- Mineral does not have its own calories itself and it is like a catalyst that several enzymes create chemical reaction.

- We have been thinking that we can take mineral only through foods rather than the drinking water. It is because water in Korea is a soft water whose mineral content is small compared with European water its mineral content such as magnesium, calcium etc is abundant.

- Mineral taken by foods is absorbed only 20%~30% into our body, or 50% at best. However, since mineral in water is melted in a complete colloid state and one of the ideal mineral intake methods as its absorption rate is high in the body.

- There is no mineral that acts independently and it is used by mutual cooperation and antagonism with other minerals, vitamins, hormones in the body.



2. Primary Function of Mineral

① Constitutional portion (bone, teeth; Ca, P, Mg) is the richest in volume.

- Hard tissue construction: As main ingredients like Ca, P, Mg for the skeletal structure, teeth etc, takes charge of boosting hardness of the connected tissue

- Soft tissue construction: Muscle, skin, blood, internal organs, nerve etc exists in a combined state with inorganic substance. Ex) Fe of hemoglobin

② Equilibrium of acid-base (major electrolyte of cell's inner liquid and outer liquid; K, Cl, Na, Mg, P)

- Exists at the cell's inner liquid and cell's outer liquid as an ion and plays an important action such as osmotic pressure action by acid and alkali, tension sustenance of nerve and muscle etc.

③ Catalyst for physiological reaction (function control of Fe, Cu, Mn, Co, I, Mo, S, Zn, Se), constitutional element of hormone and enzyme

- Inorganic substance is a crucial catalyst that facilitates action of various enzymes in the body, and Zn, Cu, Fe etc engages in enzyme constitutional ingredients, and Mg^{2+} , Mn^{2+} , Cu^{2+} , Fe^{2+} engages in enzyme reaction when saccharinity, protein etc metabolize, and Ca^{2+} engages in hematic coagulation etc. Calorie metabolism control = Thyrosine hormone (Iodine supply to the thyroid gland is a must), saccharinity metabolism control = insulin (Zn is essential in production and storage), stomach inside enzyme activation = hydrochloric acid (depends on chlorine)

④ Affection to the living body membrane's electro-chemical property by substance transportation's electric charge ion, transmission of nerve impulse

- Once nerve receives a stimulation from outside, it causes a crash then transmits to the brain and at this moment natrium and kalium, moving toward in and outside, helps make the nerve impulse fall down.

1) Calcium, Ca^{++}

- Deficiency symptom : Constipation, hypersensitive colitis symptom, osteoporosis, growth problem, convulsions, decayed teeth, nerve anxiety.

- Formation of bone and teeth, controller role in the muscle, nerve and heart's function, hematic coagulation facilitation, indispensable element to the body fluids' suitable pH sustenance, calcium is good to frequently take by small amount as far as possible, once take at night it helps sleeping action too.

- Daily recommended amount: 800-1200mg

- Containing foods: Milk, vitellus, cheese, soybean, fish meat, raw oyster, seaweeds, anchovy, sesame, shrimp etc

- Excessive symptom: When in excessive amount intake with vitamin D, high calcium thrombosis, calcium precipitation to the joint and kidney, mineral imbalance

☞ **Biocera Ceramic Ball: Biocera SP ball, Biocera IP ball, Biocera CA ball, Biocera PI ball, Biocera TO ball, Biocera AG ball, Biocera RC ball, Biocera AA filter, etc**

2) Magnesium, Mg⁺ - Deficiency symptom : Heart disease, high blood pressure, renal calculus, insomnia, before-menstruation-syndrome, arrhythmia, low blood pressure, mental storm, anorexia, bone formation trouble, hands & feet coldness, waling trouble, perceptual abnormality, infant convulsions, muscular pain, anemia etc

- Function: Required for both mineral that is important as a raw material of enzyme and strong bone and tooth, good to mental nervous system too (melancholy, schizophrenia, insomnia), muscular atony, strength balance sustenance in the blood vessel muscle, energy generation, calcium absorption assistance in the internal organs, assist metabolism of vitamin C, B, E - particularly important to metabolism of B6

- Daily recommended amount: Adult 300-400mg, 450mg on nursing, 6mg per child weight 1kg (required amount becomes remarkably different depending on the stress extent)

- Containing foods: Pea bean, seawater

- Excessive symptom: Diarrhea, dangerous to the kidney function abnormality patient when in excessive amount intake of over 30000 mg

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3) Potassium, K⁺ - Deficiency symptom : Arrhythmia, decrease of appetite, muscular convulsions, constipation, fatigue, powerlessness, low blood sugar

- Function: Cell inside acid-base equilibrium control, body fluids control, ingredient necessary to enzyme action, engages in stimulation of the nerve transmission and contractile action of the muscle. Important to the nerve function, and assist oxygen supply action of the brain. It is an indispensable ingredient of chemical reaction in the cell and controls cell wall passage of the nutritive substance. It makes the heartbeat keep uniformly by electrolyte, and also has an action to strongly tie other electrolyte like natrium, chlorine. Blood vessel expansion, arrhythmia prevention, constipation prevention, blood pressure sustenance.

- Daily recommended amount: There is no designated one though, in case of adult it is presumed to be required 2000-3000mg extent a day. In case of USA, adult 1.5-5.0mg

- Containing foods: Vegetables, particularly gourd plant, fruit, tangle, yeast, white bean, banana etc

- Excessive symptom: When in excessive amount intake of 25000mg, fatal to the real insufficiency patient.

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Biocera TO ball, Biocera AG ball, Biocera AO ball, Biocera AA filter, etc.

4) Sodium, Na⁺ – Deficiency symptom : Vomiting, respiratory trouble, powerlessness

- Function: Control the body fluids so that keep the acid-alkali balance. Osmotic pressure sustenance, nerve function sustenance, antagonism with kalium, control the amount of the cell's outer liquid inclusive of the blood
- Daily recommended amount: There is no designated one though, it is not advisable to take over 1500mg a day
- Containing foods: Paste food, salt
- Excessive symptom: High blood pressure, migraine, dropsy etc

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5) Phosphorus, P- Deficiency symptom : Rickets of child, skeletal mollification of adult, nerve and brain function trouble

- Function: Amount is the second richest among the mineral being existed in the body, and makes the bone and tooth strong. Use for every important biochemical reaction inside the body, and increase the use ratio of fat, protein, carbohydrate. It makes a phosphatide combining with fat in the blood. Role to screen waste material in the kidney, relief of muscular pain, buffer action when in the acid-alkali equilibrium sustenance, energy generation, vitamin B activation assistance, nerve stimulation transmission role
- Daily recommended amount: Specifically designated one is none in our country though, it is acceptable with 900-1200mg extent. In case of USA, adult 800mg
- Containing foods: Plum, bean, meat, sunflower seed, fish etc
- Excessive symptom: Specific side-effect is none. Mineral imbalance could be arisen when in excessive amount intake compared with calcium

☞ Biocera Ceramic Ball: Biocera CA ball, Biocera SP ball, Biocera AG ball, Biocera AO ball, Biocera AA filter, etc.

6) Zinc, Zn⁺⁺ – Deficiency symptom : Embryonic malformation, under-weight infant, growth development suspension, genital organs development dullness, wound healing trouble, palate and olfactory sense function abnormality, anemia, liver and spleen hypertrophy

- Function: Constitutional element of over 70 kinds enzyme required for biochemical reaction, necessary to produce insulin, required for enzyme activation, affects to the eye's color classification ability, cataract and inflammation of the eye nerve etc. Deeply related with function of the spleen, thymus, lymphatic gland in the body, and increase immunity. Helps men's generative power, smoker's virility. Helps anti-inflammation action of the rheumatoid arthritis. Protects copper that is excessively accumulated in the body. Engages in taste, wound cure and digestion, required for nucleic acid and protein synthesis, required for development and sustenance of skin and skeletal structure
- Daily recommended amount: Daily recommended amount is not being designated in our country, and 15mg in USA
- Containing foods: Meat, seaweeds, milk etc
- Excessive symptom: In case of intaking over 50mg a day, cause copper deficiency and mineral imbalance, over 2000mg a day is dangerous

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7) Iron, Fe⁺⁺, Fe⁺⁺⁺ - Deficiency symptom : Anemia, fatigue, weakening of body inside oxidizing action, hair breakage, indigestion, sleepiness, fatigue, loss of hair, stomatitis, obesity, oversensitiveness, slow-down of mental function(judgment)

- Function: Use for hemoglobin (blood protein) creation, engages in oxygen transportation, foods metabolism
- _ Daily recommended amount: Women 18mg, men 10mg, and 20mg in case of pregnancy, nursing
- Containing foods: Exists with various shape in meat, egg, milk, vegetable and fruit etc
- Excessive symptom: When take iron of excessive amount a day, affect to the liver, pancreas, heart etc, resisting force weakening against infection, indigestion, constipation

☞ Biocera Ceramic Ball: Biocera PI ball, Biocera IP ball, Biocera TO ball, Biocera AA filter, etc.

8) Manganese, Mn⁺⁺ - Deficiency symptom : Testicles contraction, milky juice secretion drop, weight decrease, dermatitis, vomiting

- Function: Enzyme activation catalyzer, sustenance of bone, connective tissue and cell
- Daily recommended amount: 2.5-5.0mg
- Containing foods: Yeast, bean kind, wheat, apricot, greenish yellow vegetable, wheat embryo bud etc
- Excessive symptom: Precipitated to the liver yet no harm. May possibly be a mineral imbalance.

☞ Biocera Ceramic Ball : Biocera PI ball, Biocera AA filter, etc

9) Copper, Cu⁺⁺ - Deficiency symptom : Development abnormality of embryo's brain, hair, skeletal structure and blood vessel etc

- Function: Facilitates absorption and storage of iron, engages in skeletal structure system or cardiac blood vessel system sustenance, engages in synthesis of enzyme or protein with vitamin C, required for hemoglobin synthesis.
- Daily recommended amount: 2-3mg
- Containing foods: Meat, internal organs, seaweeds, vegetables and nuts
- Excessive symptom: Excessive amount intake for a long time could be poisonous. Unusually Wilson's disease could occur, in this case absorption of Cu is good but is a hereditary disease that shows a nervous symptom or symptom of the liver, kidney as cellular plasmin is conspicuously low.

☞ Biocera Ceramic Ball : Biocera PI ball, Biocera AA filter, etc

10) Sulfur (S)- Deficiency symptom : Fingernail crack, loss of hair, eczema, eruption, freckles

- Function: Engages in detoxification in the body, cell's protoplasm protection, bile secretion promotion, aging delay, collagen formation, assists action of insulin, Anterior pituitary hormone, Cystine, Methionine etc, hair skin fingernail health sustenance, required for the interior body oxidation reduction process
- Daily recommended amount: 30-40mg
- Containing foods: Bean, fish, radish, cabbage, young antler

☞ Biocera Ceramic Ball: Biocera AG ball, Biocera AO ball, Biocera RC ball, Biocera AA filter, etc.

11) Silicon (Si)– Deficiency symptom : Amnesia, lack of perseverance, osteoporosis, aging

– Function: Makes the skin build up in the body and gets elasticity better. Makes the bone structure strong. Makes the connective tissue, tendon, cartilage solid. Prevents arteriosclerosis and heart disease in the blood vessel. Protects from infection displaying anti-inflammation effect. Prevents aging of the cell and tissue. Required for mental activity

– Containing foods: Seaweeds, apple, strawberry, onion, grape, brown rice, barley etc

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12) Germanium (Ge)– Deficiency symptom : Disease caused by oxygen deficiency, geriatric disease

– Function: Makes the blood pH neutral. Helps anti-oxidation supplementing the oxygen into the body, prevents acidification of the physical constitution and prevents aging too. Facilitates immune function, purifies blood, improves blood circulation and controls blood pressure. Discharge out of the body in combination with heavy metal, excellent to anti-cancer, anti-virus action and pain alleviation, improves osteoporosis promoting the mineral absorption, improves senile dementia Alzheimer’s disease and black spot, blood pressure rise suppression, fever removal ·pain alleviation, calcium metabolism improvement

– Containing foods: Yeast, dried fruit of the Chinese matrimony tree, fresh herb, ginseng, garlic, ginger etc

☞ Biocera Ceramic Ball: Biocera PI ball, Biocera AA filter, etc.

Disease name	Deficient elements	Biocera Ceramic Ball
Colon cancer	Ca, Se ,Zn	Biocera SP ball
Rheumatism(similar rheumatism)	Ca, Mg, Zn, F, P, Fe	Biocera IP ball
Kidney disease	Ca, Zn ,Cu, Co, Fe, Se	Biocera CA ball
Bronchitis	Ca, Ni, Zn	Biocera PI ball
Neurasthenia	Ca, F, Co	Biocera TO ball
Psoriasis	Ca, Fe	Biocera AG ball
Retinal pigment metamorphosis	Ca, Mg, Cu,Zn,Mn	Biocera RC ball
Tubular arteriosclerosis	Ca, Mg, K, Se, Zn, Co	Biocera AO ball
High blood pressure	Ca, Mg, K, Se, Mo, Zn, Co	Biocera AA filter
Cerebral blood vessel disease	Ca, Mg, Zn, Fe, Cu, Mn, Se	

Diabetes	Mg, K, Cr, Zn, Mn, Se	Biocera SP ball
Menopause comprehensive symptom	Mg, B, Li, Zn, Cu, Se, Mn	Biocera IP ball
Hepatitis, hepatocirrhosis	Mg, Zn, Mo, Mg, Co, Se	Biocera CA ball
Angina pectoris	Mg, K, Cu	Biocera PI ball
Cardiac infarction	Mg, K, Zn	Biocera TO ball
Heart asthenia(cardiac insufficiency)	Mg, K, Co, Zn	Biocera AO ball
Lung heart disease	Mg, K, Co, Zn	Biocera AG ball
Arteriosclerosis	Mg, Al	Biocera AA filter
Mammary gland cancer	Mg, Zn, Cu, Se, I	
Splenitis	Mg, Mn, Cr, Co, Ni, Se, Zn	
Pyorrhoea alveolaris	Mg, Mn, Fe, Cu, Zn	
Cardiac disease	Mg, K, Se, Co	
Pimple	Zn	Biocera SP ball
Circular alopecia	Zn	Biocera IP ball
Leucoderma	Zn	Biocera AG ball
Cataract	Zn, I, Se	Biocera PI ball
Child's excessive exercise trouble	Zn, Li	Biocera AO ball
Cancer of the esophagus	Zn, Se, Mo, Mn, Cr	Biocera AA filter
Lung cancer	Zn, Fe, Mn	
Liver cancer	Zn, Fe, Mn, Se, Ba	
Leukemia	Zn, Li, Cr, Se, Fe, Mn	
Gastric cancer	Zn, Mo, As, Bi	
Yellow spot	Zn, Al	
Cavity ulcer	Zn, Fe	

<Relation between various diseases and mineral deficiency>

3. Mineral by the disease

Mineral's efficacy is diversified by its kind like the vitamin, and if mineral supply is not balanced, diseases or symptoms could be arisen. In case that is tired or sick without an apparent reason or diagnosis or in case that have an uneasiness symptom or receive a lot of stress, and for those who have anemia or would frequently take processed food, need to take mineral properly. Especially it is helpful for those who have an abnormality in palate or who intend to prevent high blood pressure, osteoporosis, heart disease etc.

1) High blood pressure

- Calcium: High blood pressure, it is effective particularly to reduce the contractile

apparatus blood pressure.

- Magnesium: Mineral's interior body balance is crucial to cure high blood pressure.
 - Kalium: Ratio of natrium and kalium could give a fixed influence to the blood pressure.
- ☞ Biocera Ceramic Ball: Biocera SP ball, Biocera IP ball, Biocera CA ball, Biocera PI ball, Biocera TO ball, Biocera AG ball, Biocera AO ball, Biocera RC ball, Biocera AA filter, etc.

2) Angina pectoris

- Selenium: If take with vitamin E, could reduce an angina pectoris pain.
- Calcium and magnesium: Calcium deficiency is related with arteriosclerosis, and magnesium decrease is related with angina pectoris.
- Copper and zinc: Copper deficiency could affect to the cardiac disorder generation. Zinc normalizes the density of the lipid levels in the blood.
- Chrome: Reduces cholesterol value and prevents arteriosclerosis.

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3) Dementia (Alzheimer)

- Calcium and magnesium: Stabilizes central nervous system.
- Zinc: Zinc deficiency is connected with a lot of cerebral diseases.
- Selenium: Prevents cerebral tissue damage owing to anti-oxidation action.

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4) Pimple

- Chrome: Improves saccharic metabolism and decreases skin inflammation.
- Selenium: Helps deal with activated oxygen generation on the inflammation and infection region.
- Zinc: As a very important ingredient to heal pimple, is functioning such as hormone normalization, tissue restoration, immunity, vitamin A action assistance etc.
- Calcium and magnesium: Act on adrenal function so that affect to the immune function.

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5) Atopic dermatitis

- Zinc: Once zinc is lacking, skin is supposed to decrease its own natural cure ability.
- Copper: If copper that suppresses zinc's absorption is excessively absorbed, copper toxicity is generated so that induces atopic dermatitis featuring red spot and itch that occurs on face, neck, waist, thigh, knee's rear region etc.

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6) Headache

- Copper: The reason why women are used to suffer from migraine is because copper is excessively accumulated in the body and magnesium is lacking.
- Magnesium: As a mineral that acts on contraction, laxity of the blood vessel and

muscle, once magnesium lacks it acts to a reason of migraine since blood vessel or muscle going to the brain is contracted and subsequently blood current reduces.
-Iron: Excessive iron content absorption too could be a reason of headache. For instance, there is a case that headache happens on the brain after drinking red wine, this is a phenomenon that happens for the iron content of the red wine is high and alcohol promotes iron's absorption.

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7) Chronic fatigue

- Vitamin B6, chrome, iron, zinc, copper, manganese: As a mineral that engages in energy metabolism, should pay attention to intake. Furthermore, since excessive accumulation of calcium, natrium, kalium is a phenomenon that appears frequently to a chronic disease syndrome patient, always balanced intake is crucial.

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8) Insomnia

- Iron: Once iron is lacking, quality of sleeping becomes inferior even if sleep.
- Magnesium: Once take at night it is effective on insomnia for it has an effect to make the muscle relax.

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9) Obesity

- Iron: Sufficient iron supply helps activate function of the thyroid gland. Even with iron deficiency only, metabolism rate becomes lowered and temperature goes down then reduces energy consumption so that could induce obesity.

- Due to mineral imbalance, cell inside efficiency of the thyroid gland is lowered and its consequent basic metabolism rate is lowered, and then recommend comprehensive mineral supplement to the obesity patients whose weight increased easily so that correct the mineral imbalance effectively. As of this, once increase the cell inside efficiency of the thyroid gland that controls the body metabolism and raise the basic metabolism rate, weight control is possible without side-effect (yoyo phenomenon and nutrition imbalance).

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10) Anemia

- Iron and copper: As iron is a constitutional ingredient of hemoglobin, even if iron is lacking, anemia could appear though, even if iron is excessive, anemia could appear. Furthermore, as copper is a constitutional ingredient of enzyme that assists iron's metabolism, if copper lacks, iron can hardly play its own role in orderly fashion. It is because why when copper and iron are absorbed to the body they are in a competitive relation to each other.

- Lead: As a heavy metal, interrupts hemoglobin formation. If excessive amount of lead is accumulated in the body, anemia could happen too.

☞ **Biocera Ceramic Ball: Biocera PI ball, Biocera IP ball, Biocera TO ball, Biocera AA**

filter, etc.

11) Aging

- Vitamin C, vitamin E, selenium: It is an anti-oxidation nutrient not only suppress creation of Free Radical that becomes a reason of aging but also protect the cell from the created Free Radical.

- Mn, Zn, Cu: As a primary constitutional ingredient of anti-oxidation enzyme, once lacks, promotes aging.

☞ Biocera Ceramic Ball : Biocera SP ball, Biocera IP ball, Biocera AG ball, Biocera AO ball, Biocera AA filter, etc.

12) Diabetes

- Magnesium: For most of diabetes patients the magnesium content is being investigated less than normal, particularly in case of the patient who complicated with retinitis the magnesium deficiency appears more remarkably, this is a case that shows that mineral's deficiency induces diabetes.

☞ Biocera Ceramic Ball: Biocera SP ball, Biocera IP ball, Biocera CA ball, Biocera PI ball, Biocera TO ball, Biocera AO ball, Biocera AA filter, etc

Besides, recent research results reveals that autism, learning trouble of child are also one of the typical mineral deficiency symptoms.