

Orthomolecular Medicine / Intracellular Nutrition - FAQs

Q1.

What is Orthomolecular Medicine or Intracellular Nutrition?

Answer:

Orthomolecular Medicine is a concept created by Nobel Laureate Linus Pauling in 1968. Linus Pauling used high doses of vitamin C for the treatment of the common cold. Such high doses of vitamin C were later on also used by him for other illnesses. In 1968, he postulated that people's needs for vitamins and other nutrients vary markedly and that to maintain good health, many people need amounts of nutrients much greater than the Recommended Dietary Allowances (RDAs). He further postulated that megadoses of certain vitamins and minerals are the treatment of choice for some forms of mental illness. For this science, he coined the term "orthomolecular," meaning "right molecule." After that, he steadily expanded the list of illnesses that could be influenced by "orthomolecular" therapy and the number of nutrients suitable for such use. Thus the science of Orthomolecular Medicine was born.

Q2.

What is nutrition?

Answer:

Nutrition is the use of vitamins and minerals identical to those found in the human body. Some of the important vitamins are A, B-Complex, C, D, E and K. Some of the important minerals are Calcium, Iron, Zinc, Magnesium, Manganese, Chromium, Selenium, Sodium, Potassium, Phosphorous, etc.

Q3.

Why is nutrition so important for good health?

Answer:

Due to the over cultivation of land and the use of synthetic fertilizers, the nutrition in the soil has been depleted to the point where the nutrition in our food supply has greatly diminished and presently is approximately just 25% of what it was 50 years back. These are the findings of the US Department of Agriculture (USDA) and are similar to the situation presently being encountered all over the world. This has resulted in a host of chronic diseases worldwide.

Q4.

How is normal nutrition different from Orthomolecular Nutrition?

Answer:

Normal nutrition, as is found in supplements in health food stores and pharmacies for example, has lower (prophylactic) doses of vitamins and minerals, which temporarily affect the blood serum level and are readily excreted by the body. These are mainly inorganic in nature and not identical to those found in the human body. Hence, these do not have any lasting effect on the human body and are not optimized to alter nutritional levels inside the cell wall (intracellular spaces / levels).

On the other hand, Orthomolecular Nutrition comprises of prescription strength doses of organic minerals and vitamins which have a therapeutic effect on the human body and are optimized to alter intracellular levels of nutrition – this is where the nutrition is really required. These type of nutrients are not only readily absorbed, but are also retained by the human body for extended periods of time. Once nutritional levels are correct inside a cell, they have a more lasting effect and this can help to reduce the severity of a lot of chronic diseases, which are aggravated due to nutritional deficiencies.

Altering intracellular nutritional levels is very difficult to achieve. It requires the use of nutrients in a synergistic manner, be organic in nature and at therapeutic dose levels. These nutrients are optimized to quickly alter nutrition inside the cell wall and are hence know as intracellular nutrients or Orthomolecular Nutrition and the science as Orthomolecular Medicine. Hence, Orthomolecular Nutrition comprises of very complex formulations and are different from standard off the shelf nutritional supplements available at health food stores and pharmacies, which are low dose and prophylactic in nature.

Q5.

What are some of the practical benefits of using Orthomolecular supplements?

Answer:

Orthomolecular supplements have therapeutic benefits on the human body. For example, they can be used to reduce the severity of the symptoms of depression / anxiety, high blood pressure, type 2 diabetes, enlarged prostate, hormone imbalance, thyroid problems, to name a few.

Almost all chronic diseases can benefit from the use of therapeutic doses of nutrition formulated as per the principles of Orthomolecular Medicine.

Q6.

Coming back to the depression and anxiety, what are some of the main nutrients that are found deficient at intracellular levels?

Answer:

Zinc, magnesium and the whole range of B-Complex vitamins are some of the most popular intracellular nutritional deficiencies found in people suffering from depression and anxiety. To be really effective, these need to be administered with a host of other nutrients in the correct proportions to ensure intracellular optimization and extended retention in the human body.

Q7.

Why do nutritional deficiencies occur in the human body?

Answer:

a) Over cultivation of land and the use of synthetic fertilizers has resulted in the depletion of soil nutritional levels. This has resulted in reduced level of nutrition in the food supply to less than 25% of what it was about 50 years back.

b) Weak digestive system which does not efficiently absorb and retain nutrition from the food we eat and the supplements that we take.

An efficient digestive system is the foundation and should be optimized for efficient use of nutrients for the treatment of chronic diseases. To achieve this, a good detoxification of all the excretory organs like the kidneys, colon, lungs, skin, blood and also the liver is very important, along with the rejuvenation of the entire digestive tract. This will ensure proper flow of digestive gastric acids in the stomach, enzymes from the pancreas required for the digestion of proteins, carbohydrates and fats, and adequate flow of bile from the liver to digest the food in the small intestine.

Optimizing the digestive system will ensure that our body receives nutrition not only from the orthomolecular supplements we take but also from the food we eat. Once a treatment is carried out using Orthomolecular Medicine, the body should rely on food alone aided by an optimized digestive system to ensure that the good effects of the therapeutic doses of Orthomolecular Nutrition taken are maintained into the future.

Q8.

How safe are Orthomolecular nutritional supplements?

Answer:

- a) They are safe as they are just nutrition, same as is found in a healthy human body. Hence they are biocompatible.
- b) Special care is taken not to use extremely high doses of any one nutrient or in isolation which can imbalance the body.
- c) The nutrients are at safe dose levels and are in addition synchronized with other nutrients to closely mimic the nutrients found in naturally occurring food. This ensures that they are compatible with the human body and are as close as possible to nutrition found in nature.

Q9.

How long does it take to show some positive results?

Answer:

If your body has begun to manifest serious symptoms like depression or anxiety, high blood pressure, type 2 diabetes, it means that these intracellular deficiencies are large and need your immediate attention. It is estimated that it will take about six months of continuous supplementation to reduce these deficiencies. However, it is very important to also monitor your blood levels periodically, once symptoms reduce, to ensure efficient use of the nutrients being taken.

The human body has a safety mechanism to excrete nutrients not required for its operation. This is the reason why it is very difficult to poison the human body with food taken even in excess of our daily requirements.

Q10.

What are the recent advances in Orthomolecular science?

Answer:

During the last few decades, further research in this science has resulted in a plethora of nutritional supplements which are optimized to safely enhance intracellular nutritional

levels, by carrying nutrition to the center of the cell where it is really required. Ordinary nutritional supplements, available in health food stores and pharmacies, are designed to only temporarily alter serum nutritional levels and are weak prophylactic doses, which are not capable of therapeutic action on the human body. These prophylactic doses will therefore not be found effective for the purpose of reducing symptoms or severity of depression and / or anxiety and other chronic diseases such as high blood pressure, type 2 diabetes, etc.

Quite often carrier mechanisms are used coupled with cell membrane permeability enhancing mechanisms to help achieve intracellular penetration more efficiently at extremely low dose levels. The need to administer say 30 grams of vitamin C (at mega dose levels) to saturate the blood serum levels, to try and raise intracellular levels is no longer required, due to these recent advances in Orthomolecular Medicine.

Hence, Orthomolecular Nutrition comprises of very complex formulations and are different from standard off the shelf nutritional supplements available at health food stores and pharmacies, which are basically low dose and prophylactic in nature.

Q11.

If I decide to take Orthomolecular supplements, should I discontinue my present prescription medication?

Answer:

You should not discontinue your present medication prescribed by your doctor. Orthomolecular nutritional supplements can be added to the present prescription medication and are best taken that way keeping your safety in mind. As your symptoms reduce in severity your physician who prescribed these medications will be happy to review these prescription doses for you and make necessary changes.

Q12.

What is the basic difference between prescription drugs and orthomolecular nutritional supplements?

Answer:

Prescription drugs are synthetic chemical molecules designed to treat the symptom and give immediate relief. This is the advantage of pharmaceutical preparations. They create immediate order in a chaotic situation. They are also very useful to save lives of people. However, when used on a long term bases, they tend to manifest numerous side effects which may need to be treated with other prescription medication, thereby actually increasing the number of side effects. In order to control the symptoms, these drugs need to be administered daily for the rest of your life. If you stop, the symptoms return.

On the other hand, orthomolecular / intracellular nutritional supplements are designed to treat the root causes of the symptom and do not give immediate relief as they are slow acting in nature. You may need to take them for a few months to a year depending on the severity of the chronic disease you are treating. The advantage is that there are hardly any side effects when administered correctly. Once the symptoms are corrected you should

not need to take them daily for the rest of your life. Since we are treating the root cause of the problem the symptoms normally do not return when these nutritional supplements are stopped. So the cost of the treatment is lower in the long run.

It is highly recommended not to stop your prescriptions drugs when you commence taking orthomolecular supplements. These should be taken in conjunction with each other and are best taken that way in order to ensure your safety. As the severity of your symptoms subside, your physician will be more than happy to review the doses of your prescription medication.

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Appendix - I

Do I Need To Take Multivitamin / Mineral Supplements?

Frequently Asked Questions

Pramod Vora, Holistic Educator & Natural Health Counselor to Doctors
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Due to the over cultivation of land and depleted soil conditions the Nutritional value of the food produced has gone down substantially during the recent years. It is sad state of affairs (and it will certainly alarm most people) that during the course of the last 57 years the Nutrition in food is approximately 25% of what it originally was in 1950.¹ The unfortunate part is that, there are no standards set up as yet, to certify the actual nutritional value of our groceries for the guidance of consumers. Today, everyone talks about Organic Food, but this, still does not guarantee its nutritional value or make it nutritionally superior. Organic may be healthy, because no pesticides are used, but that does not mean it is Nutritious.

More information on this massive problem that is affecting the health of billions of people worldwide can be found in the paper read at the Seminar on Alternative Medicine, sponsored by the Ministry of Health, Tamil Nadu Agricultural College, in March 2006.

Info: <http://www.space-age.com/conference-tnau.html>

or directly download the paper on Nutritional Farming from:

<http://www.space-age.com/nutri-farm-seminar.doc>

or

for Power Point Presentation go to:

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For abstract go to:

www.space-age.com/nutri-farm-abstract.doc

This shortage of Nutrition in the food has resulted in a growing number of chronic ailments like high blood pressure, high cholesterol, diabetes and all kinds of Cardiovascular Diseases, to name a few, which plague modern society today.

To the educated class of people, for whom health is more valuable than money, for the Celebrities for whom their body and health is their profession and passion, for Airline Pilots / Flight Attendants who stand the risk of being grounded, and for CEO and Senior Executives, there is a growing rise in the use of Dietary Supplements like Vitamins and Minerals in the form of easy to swallow tablets or capsules. Many imported Multivitamin and Mineral Supplements like Centrum Silver, Centrum Performance, etc. are now available in regular grocery stores around the corner.

Vitamins A, D, E and K are fat soluble vitamins. Vitamin B-Complex and C are water soluble vitamins.

Minerals like Iron, Calcium, Magnesium, Zinc, Copper, Chromium, Cobalt, Selenium, Vanadium, Phosphorus, Potassium, Molybdenum, Manganese, Boron, Silicon, to name a few, are required by the body in conjunction with Vitamins.

To give an example, B-Complex Vitamins work more efficiently when administered with Magnesium. If Magnesium levels are depleted in the human body then Vitamins B-Complex would not work efficiently at all and would mostly be excreted unused from the human body.

Antioxidants like Vitamin A, E and C also work in conjunction with each other and potentate the effect of each other. They work more efficiently and effectively in conjunction with Minerals like Zinc and Selenium.

Minerals need to be absorbed and most importantly retained in the human body for proper and effective therapeutic action which results in repair and healing of the body, including its organs. Organic compounds of Minerals like Calcium Ascorbate, Calcium Orotate, Calcium Lactate are better absorbed and retained in the human body as compared to Calcium Carbonate which is poorly absorbed and readily excreted by the human body. When selecting Mineral supplements one should therefore avoid selecting inorganic compounds like Calcium Carbonate (even if they are from natural sources like Oyster Shells), Ferrous (Iron) Sulfate, Zinc Sulfate, etc. as their absorption and retention in the body is very poor. Hence, these can only be used for prophylactic purposes and not for any serious therapeutic effect. Supplements like Centrum mentioned above are also prophylactic doses only and have little therapeutic action on the human body.

Majority of the population today, immaterial of the social or economic background, suffers from malnutrition and would benefit from Multivitamin and Mineral Supplements. Looking for a perfectly nutritionally balanced body today, is like looking for a needle in a hay stack. The proper use of good quality synergistically balanced Multivitamin / Mineral supplements can result in higher mental and physical energy levels, assist in weight loss, can make one feel and look years younger than ones physical age and help reduce the severity of numerous chronic ailments.

The severity of a lot of chronic ailments that we see today like High Blood Pressure, Diabetes, Cardiovascular diseases, to name a few, can be reduced by proper therapeutic doses of Nutritional Supplements, properly administered at Intracellular Levels. This means that, Prescription Strength Therapeutic doses of Nutrition must be administered to penetrate the cell wall and reach the center of the cell where it is really required. This science is known as **Orthomolecular Medicine**. This term was coined by the double Nobel Laureate Linus Pauling way back in 1968, about 40 years back. Since then, this Medical Science has grown over the years and the evolved over many generations of technical refinement and has reached the point where it can be used to treat

many chronic ailments and also repair and rebuild damaged organs of the body with a fair degree of accuracy. For **Intracellular Nutrition** to work effectively, we must have at our command two technologies; one to alter cell membrane permeability and the other, a carrier mechanism to carry nutrition to the center of the cell where it is really required. It is today possible to improve the Ejection Fraction (LVEF) of the Heart for instance. This can therefore be called a drugless therapy as it uses only Nutrition. Our Natural Health Center in Mumbai specializes in Intracellular Nutrition / Orthomolecular Medicine. Info: at:
<http://www.space-age.com>

Multivitamin injections are cumbersome method of administration of Vitamins today as it involves trips to the Doctors Clinic or Hospitals which would be time consuming for the lifestyle of people in the city. Injections do not guarantee retention in the body or Intracellular penetration. Oral supplements available today and which are specially designed to work at Intracellular levels and have proper retention the body can be more effective than injections. For those who do not prefer injections, nor do they want to swallow tablets or capsules, these formulations are available in the form of Nutritional drinks which come in Orange or Vanilla flavor and are fully loaded with low fat, low calorie and high protein content. Celebrities, models, actors, all those who form a part of the "Lens Culture" and all those who work out in the Gym and are fitness conscious today also prefer to have their Nutrition in this manner, as it is quick and easy to administer. One glass in the morning and / or at lunch and you are all set for the day.

Prolonged use of Multivitamin and Mineral supplements, without proper and periodic Nutritional analysis of the Blood, can be quite dangerous. Blood Serum levels are no indication of Intracellular levels. This makes it harder to monitor Nutritional levels with some accuracy.

For example, Calcium taken continuously for years altogether, because you were told it prevents Osteoporosis, can result in formation of Kidney Stones and will result in Calcium deposits in various tissues of the body can also cause joint pain and osteoarthritis. This problem is enhanced by taking Calcium in isolation without the other supporting Nutrients needed for bone formation like: Magnesium, Zinc, Boron, Phosphorus, Manganese, Copper, Vitamin K, D and Vitamin C in correct proportions.²

Iron Supplements should also be Organic compounds like Ferrous Ammonium Citrate (not inorganic like Ferrous Sulfate) and must be properly fortified with Folic Acid, Vitamin B12 and Vitamin C and Copper if Hemoglobin levels are to be corrected with lasting effects and retained at youthful Optimum Levels throughout one's lifetime.

Prolonged use of Vitamin D can result in toxicity, body aches and pains and

can mimic the condition of Osteoporosis. For more information please refer my article on Calcium and Osteoporosis which appeared in the My Doctor Magazine November, 2002 which can be download from:

http://www.space-age.com/calcium_osteoporosis.pdf

Prolonged use of large doses of Vitamin C (Ascorbic Acid) can result in the depletion of Minerals from the body through urinary excretion. The acidic pH of Ascorbic Acid can damage the arteries around the heart and enhance the deposition of plaque on the arterial walls to speed up and promote blockage. One should always use buffered Vitamin C with a neutral pH like Ascorbates. Ascorbic Acid was wrongly called Vitamin C about 50 years back. It really does not exist in the human body in this manner but is always found chelated with Minerals.

One of the biggest deficiencies that we have begun seeing during the last decade is Magnesium. Deficiency in Magnesium at Bone, Tissue and Intracellular levels is at the Root Cause of High Cholesterol Levels, High Blood Pressure, all types of Cardiovascular Diseases, Diabetes and Osteoporosis. Calcium in the absence of adequate levels of Magnesium and other nutrients cannot arrest or reverse Osteoporosis.³

Calcium, taken in isolation, results in brittle bones, which can break easily on impact. When Magnesium enters the lattice structure, it results in flexible bones that do not break easily on impact.⁴ Boron imparts strength and hardness to the bones.⁵

Gone are the days, when Calcium deficiency used to cause Osteoporosis. Today, we need to preach that Magnesium deficiency causes Osteoporosis.⁶ Now a days, the soil and consequently the food we eat is highly deficient in Magnesium which is the leading cause of Osteoporosis and Bone Fractures. Bone Density Tests are not a measure of bone flexibility or strength or brittleness.⁷

Deficiency in Zinc is at the Root of all Hormonal and Endocrine System Imbalances (including Thyroid diseases) and Diabetes.

Deficiency in Chromium causes Insulin resistance which leads to non-insulin-dependant Diabetes (NIDDM) with elevated Insulin levels. High Insulin levels cause Body Fat Mass to increase rapidly leading to Obesity. Obesity in turn leads to Hypertension and Diabetes at a later stage.

Correcting these Nutritional deficiencies with Therapeutic doses of Supplements designed to work at Intracellular levels will lead to long healthy life free of chronic diseases.

Severe malnutrition is spreading nationwide at a very rapid pace with Hypertension now affecting even a significant number of young school children. This was unheard of a few years back.

It is time for the Ministry of Health, Ministry of Agriculture, Ministry of

Women, Child and Family Welfare and the FDA to wake up to this grave health hazard of Pandemic proportions which has affected the life of billions of people nationwide and worldwide. Steps need to be taken to inform the consumer about the Nutritional values of the produce and food they purchase and to encourage farmers to grow Nutritious crops instead of just Organic Food.

Very Important Note for Mineral / Vitamin Dietary Supplement Users:

Do not use low cost Mineral / Vitamin Dietary Supplements available at your local Health Food Store or those produced by Pharmaceutical Companies. These are low dose prophylactic preparations. You need Prescription Strength Mineral / Vitamin Supplements, Organic in nature and fortified with other balancing nutrients which are equipped to deliver nutrition at intracellular levels, if one is to experience their therapeutic effect.

Low Cost Dietary Supplements generally available at your local chemist/ health food store are low dose types, invariably have poor absorption and retention in the body and have exceedingly poor chances of reaching intracellular levels where the nutrition is really required.

Health Centers where expert advice on Orthomolecular / Intracellular Nutrition is available:

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For References please go to next page:

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(Info: <http://www.space-age.com/conference-tnau.html>
or directly download the paper on Nutritional Farming from:
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For abstract go to:
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2. For more information please refer my article on Calcium and Osteoporosis which appeared in the My Doctor Magazine November, 2002 which can be download from:
http://www.space-age.com/calcium_osteoporosis.pdf
3. For more up to date information on Osteoporosis and Magnesium deficiency, please download “Osteoporosis Revisited 2007” from:
<http://www.space-age.com/OsteoporosisRevisited.doc>
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