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**LIA Lifestyle Instruction Aid**

**a6. Optimal Nutrition**  
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Optimal nutrition implies people need higher levels of vitamins and minerals than what is required to prevent diseases. Governments have to set standards for the masses of people in their care. They generally decide to set rules based on disease processes. That is, they ask the question, “what is the smallest amount of this nutrient (vitamin or mineral), that will prevent a disease? If there are no human standards then animal standards are used, usually the mouse is chosen as the template then dosages are extrapolated to human sizes.

Humans can ‘operate’ very similar to machines, though. A car can run pretty poorly on a low grade, badly made fuel. Likewise humans can function very much below what their potential is on poor food. The question optimal nutrition tries to answer is, what amount of nutrients will allow humans to function at a ‘peak’ level, or at the best level possible? According to scientific studies, the amounts recommended will be much more than for the amount to prevent disease.

So why do we have to eat at all? What does food, do for us? We all know that food gives us energy and building blocks to grow and heal wounds, among other things. But, what is the nitty gritty on exactly why we have to eat? Here it is.

Think of it as though we eat to get batteries. We need batteries just like a flashlight does. And we use up the batteries just like the flashlight. We need to eat more little food batteries every day to replace those we use up. The batteries we eat are called food. The batteries are actually electrons. But, the electrons in food are very powerful. Think of them as if they were lightening. They are too powerful to use the way they come in foods so we have to send the electrons down a chain of molecular events that will take little bits of energy out at each step and store it somehow. The electron becomes a little less powerful at each step.

We store these little bits of energy in the form of a phosphate bond. One phosphate molecule attached to another one. When three molecules attach together and hook to another molecule then we call it Adenosine-Tri-Phosphate or ATP. This ATP is like a little battery to us. Our bodies can use this ATP by making and breaking the phosphate bond and thus, storing or releasing a little bit of energy each time. Multiply this process by millions and billions, and you see how we get this one type of energy from food. It is a very fast type of energy that is readily available to us, until that is, we burn it all up in about ten seconds of strenuous exercise.

Things are really much more complicated because we need fast kinds of energy, medium kinds of energy, and slow long lasting kinds of energy. If we put foods in our bodies that give us a lot of fast energy, like sugars and starches, then we can run into the problem that the body makes

more little batteries than it can use up. It tries to store the excess batteries. Our bodies store the batteries in several different ways.

ATP is one way that gives very fast energy. ATP is limited and can only store a few seconds of energy. Fat can store unlimited energy in its molecules so this is what the body stores when it takes in too much energy. The fat that results, though, causes a lot of health problems if it accumulates too much. Scientists have learned a few things about fat and thus, make recommendations to us for controlling the amount of fat in our bodies.

Getting back to the topic of optimal nutrition, it is necessary, in our day and age, to take food supplements if you want to function at an optimal level. There are many reasons for this. Science is showing that foods are protective for us, preventing cancers and heart disease. If we want optimal prevention then we have to eat higher levels of those nutrients that prevent aging and damage to our bodies.

Scientists are learning more and more every year about these nutrients. Different names are given to these nutrients. They do not call them vitamins any more. Phytochemicals or phytonutrients and antioxidants are two families of nutrients that are currently hot topics of research. The coloured fruits and vegetables are particularly important to our optimal health. Deep orange, red, and purple are all great for you. Eat some of them every day. This is a secret that is not very well known to the public.

Supplements are necessary in our day and age. The old fashion idea, not supported by research, is that if you eat a well balanced diet then you do not need food supplements like vitamins. Anyone who says this to you today is surely out of touch with current research. Take the LIA Lifestyle Questionnaire to find out more about antioxidants and some levels that may be good for you.

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