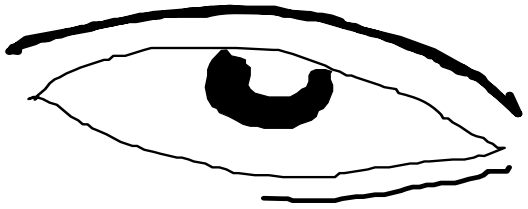

JOYFUL LIVING SERVICES

Certified Health & Nutrition Counselor Online Course Instruction Manual

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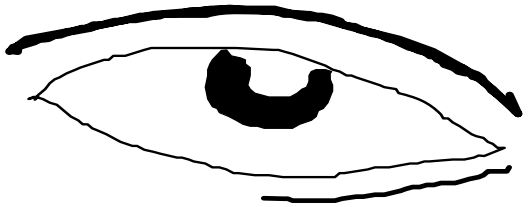

JOYFUL LIVING SERVICES

Certified Health & Nutrition Counselor Online Course Rules & Conditions

1. To be a part of this course you need to print each session. Be sure to write your name, telephone, e-mail address, and shipping address at the top of each page of **the Question and Answer page before you e-mail or fax it back to us for grading. You will receive a Question and Answer session at the end of each session. Fax it back to us at 530-878-1119 or e-mail it to us at iridology@netzero.net. There is no time limit as to when the Question and Answer session must be completed. However, we do recommend that you complete each session within the week you receive it so you do not get behind in the study**.

2. To be eligible for Certification you must complete all 16 sessions of the online course. You also need to let us know that you want to become certified. At the end of the 16 sessions you will be given a test. You must give correct answers to 80% of the questions in **the Test**. Scores are **not** averaged for an overall grade.

3. You must not loan, sell or reproduce this online course in any form. **To do so is cause for expulsion from certification from Joyful Livingl Services**. This provision is to protect the integrity of the certification. Such protection is further assured by periodic rotating and changing of the questions.

4. You must not edit or share the instruction sessions or test. You must e-mail or fax your Question and Answer session to us as well as the final test where they are maintained as part of your permanent file.

5. In the event of failure: If you should fail the final test, you may repeat the test after a wait of 30 days. There will be a re-examination fee of $15.00 to cover the costs of new materials, regrading and filing. Should you fail on this second attempt, you must then wait 60 days before making a third attempt. These mandatory delays are for the purpose of continuing study and preparation on your part.

6. When you have completed all sixteen sessions and question and answers, you will receive a bound final test. You must fill out the box at the bottom of the First Page of the Test Packet and have it notarized. There is a notarization form provided.

7. There is no time limit on the completion of this Online Course. Most candidates are full-time practitioners with little time to be able to rush through this course. So please take your time and get it correct the first time.

8. You may drop the online course at any time by notifying us. No refunds will be given if the course is dropped in the middle of any given month.

9. If you have any questions at any time, please e-mail your questions to iridology@netzero.net, fax them to 425-955-4639, or call us at 530-878-1119. We will answer your questions and spend as much time as necessary to help answer your questions.

10. The time you need to study and answer the questions for each session will vary on the amount of iridology you already know and understand and the amount of information we decide to send you. Each session can take you anywhere from one-half to three hours but should not take you longer than three hours to study and answer the question and answer.

NOTE: Joyful Living Services reserves the right to change the test questions for any test repeated.

NOTE: All information regarding a candidate's grades, or the fact of any failures, is kept strictly confidential and is not released to any person.

CERTIFIED HEALTH & NUTRITION COUNSELOR ONLINE COURSE - SESSION 1:

- **COURSE OVERVIEW**
- **COURSE DEFINITION**
- **INTRODUCTION TO NUTRITION**
- **NATURAL FOODS**

Course Overview

This course runs for 16 weeks. It contains 16 lessons on the web as an online course. You will be e-mailed notification every week that the next lesson is ready for you to download. You will receive a certificate at the end of this course. There will be weekly homework and there will be a test at the end of the course. The homework and test will be graded and returned to you. They will need to be mailed, faxed, or e-mailed to us. Each week offers a different subject. You will have one week to study the lesson and turn in your homework IF you choose to follow our timeline. This course is on your own time so you can complete the lessons at your own pace. If you are going on vacation, are ill, or don't have the time every week to read the lesson and complete the homework, you will not be penalized. Because this course is online and is on your own time, you are responsible for turning in your homework when it is complete. You will receive your certificate once all the homework has been turned in and once your final exam is graded and passed. You will then be listed on our web site to receive referrals from us if you choose.

Course Definition

The science of nutrition is the study of the nutrients in food and the body's handing of these nutrients. You are made entirely of what you have eaten. Your skin, which has reliably covered you from the time you were born, is not the same skin that covered you seven years ago, it is made entirely of new cells. The fat beneath your skin is not the same fat that was there a year ago. Your oldest red blood cell is only 120 days old, and the entire lining of your digestive tract is renewed every three days. To maintain your "self", you must continually replenish the energy you burn and replace the cells you lose. This course is designed to teach you about proper nutrition and the role it plays in your health and the health of others.

Introduction to Nutrition

You are a collection of molecules that move. All these moving parts are arranged into patterns of extraordinary complexity and order – cells, tissues, and organs. The arrangement is constant, but its parts are continuously being replaced by a process using nutrients, and using energy derived from nutrients. Your skin, which has reliably covered you from the time you were born, is not the same skin that covered you seven years ago, it is made entirely of new cells. The fat beneath your skin is not the same fat that was there a year ago. Your oldest red blood cell is only 120 days old, and the entire lining of your digestive tract is renewed every three days. To maintain your "self", you must continually replenish the energy you burn and replace the cells you lose.

All these pieces have come from your food. You are made entirely of what you have eaten. Amazingly, though, whether you ate spaghetti or apple pie last night, the nutrients supplied by these foods are handled the same way by your body, so that in the end there is no way to know which food you ate. Only if the spaghetti and the apple pie, together with the other foods you choose to eat, do not contain the nutrients you need, do you fail to function as well as you might. For optimum health, you need not only adequate amounts of the essential nutrients but, ideally, an assortment of nutrients in good proportion to each other. The science of nutrition is the study of the nutrients in food and the body's handling of these nutrients.

Science of Nutrition

The science of nutrition is the study of nutrients and of their ingestion, digestion, absorption, transport, metabolism, interaction, storage, and excretion. A broader definition includes the study of the environment and of human behavior as it relates to these processes.

Nutrient

A nutrient is a substance obtained from food and used in the body to promote growth, maintenance, and/or repair. The essential nutrients are those that the body cannot make for itself in sufficient quantity but has to obtain from food.

Six Classes of Nutrients

- Carbohydrate
- Fat
- Protein
- Vitamins
- Minerals
- Water

The Nutrients

Almost any food you eat is composed of dozens or even hundreds of different kinds of materials, atoms and molecules – tinier by far than the smallest things that can be seen with the most powerful microscope. The complete chemical analysis of a food such as spinach shows that it is composed mostly of water (95 percent) and that most of the solid materials are organic compounds: carbohydrate, fat, and protein. If you could remove these materials, you would find a tiny residue of minerals, vitamins, and other materials. Water, carbohydrate, fat, protein, vitamins, and some of the minerals are nutrients. Some of the other materials are not.

A complete chemical analysis of your body would show that it is made of similar materials. If you weigh 150 pounds, your body contains about 90 pounds of water and (if 150 pounds is the ideal weight for you) about 30 pounds of fat. The other 30 pounds are mostly protein, carbohydrate, related organic compounds made from them, and the major minerals of your bones: calcium and phosphorus. Vitamins, other minerals, and incidental extras constitute a fraction of a pound. Thus you, like spinach, are composed largely of nutrients.

If you burn a food such as spinach in air, it disappears. The water evaporates, and all the organic compounds are oxidized to gas (carbon dioxide) and water vapor, leaving only a residue of ash (minerals). This leads us to a definition of the word organic.

An organic compound is one that contains carbon atoms. The first organic compounds known were natural products synthesized by plants or animals; indeed, it used to be thought that only living things contributed organic compounds to our world. The term has since been expanded to include all carbon compounds, whatever their origin. Actually, in a sense, all organic compounds are produced by living things. Some of them, like petroleum (which comes from the remains of microorganisms, plants, and animals that grew in prehistoric times), began and ended their lives millions of years ago. Others are produced by plants and animals that are alive today. Still others come from laboratories where chemists (who are also living things) produce them in the test tube

In any case, four of the six classes of nutrients – carbohydrate, fat, protein, and vitamins – are organic, while the other two (minerals and water) are not. On being oxidized during metabolism, three of these four (carbohydrate, fat, and protein) provide energy the body can use. In contrast, minerals and water are inorganic and are not oxidized in the human body to yield energy (they can oxidize, however, as iron does when it rusts).

At this point it is clear that molecules account both for your body's structure and for its activities. You are made of atoms taken from some of the molecules of food and rearranged into the molecules of your body. You are able to go about your various pursuits thanks to the energy released when other food molecules are taken apart.

Oxidation

Oxidation is often a reaction in which atoms from a molecule are combined with oxygen, usually resulting in the release of energy. Chemical oxidation of nutrients differs from oxidative combustion (burning) in that the energy released is largely chemical and mechanical, rather than heat and light energy.

Metabolism

Metabolism is the set of processes by which nutrients are rearranged into body structures or broken down to yield energy.

The Energy Nutrients

You can metabolize all four classes of organic nutrients, but derive energy from only three. These three are the energy nutrients. They are vital to life, for without continual replenishment of the energy you spend daily, you would soon die. When oxidized in the body, the energy nutrients break down; that is, their carbon and hydrogen atoms (and others) come apart and are combined with oxygen, yielding carbon dioxide and water, waste minerals that must be excreted.

If you burn a pot full of food on the stove, the same kind of thing happens. Heat is released together with carbon dioxide and water vapor, and you are left with a ruined pot, blackened with the carbon and mineral residue from the food. But when you oxidize food in your body, the energy is not all released as heat. (You aren't

left with a black carbon residue, either!) Some energy is transferred into other compounds (including fat) that compose the structures of your body cells, and some of the energy that holds the atoms of the energy nutrients together is used as fuel for your activities.

The amount of energy the energy nutrients release can be measured in calories (or more properly, kilocalories), which are familiar to everyone as those things that make foods "fattening." The calorie content of the food thus depends on how much carbohydrate, fat, and protein it contains. If you don't use these nutrients immediately after you eat them, your body rearranges them (and the energy they contain) into storage compounds such as body fat and puts them away for later. Thus an excess intake of any of the three energy nutrients can lead to overweight. Too much meat (a protein-rich food) is just as fattening as too many potatoes (a carbohydrate-rich food).

It is important not to forget the organic compound found in some beverages: alcohol. Alcohol is not properly called a nutrient by the definition given earlier, because it doesn't promote growth, maintenance, or repair in the body. Still, people do consume it, and it shares several characteristics with the energy nutrients. Like them, it is metabolized in the body to yield energy. When taken in excess of energy need, it, too, is converted to body fat and stored. But when alcohol contributes a substantial portion of the energy in a person's diet, its effects are damaging.

Practically all foods contain mixtures of all three energy nutrients, although they are sometimes classified by the predominant nutrient. Thus it is not correct to speak of meat as a protein or of bread as a carbohydrate; they are foods rich in these nutrients. A protein-rich food like beef actually contains a lot of fat as well as protein; a carbohydrate-rich food like corn also contains fat and protein. Only a few foods are exceptions to this rule, the common ones being sugar (which is pure carbohydrate) and oil (which is almost pure fat).

The energy nutrients are (by molecular standards) tremendous in size. A single molecule of carbohydrate may be composed of 300 sugar (glucose) units, each containing 24 atoms, for a total of some 7,000 atoms. Fats and proteins are similar in size. Even when they are broken down during digestion, they are absorbed as sizable units – and these are often reassembled back into macromolecules in the cells. Only if they are oxidized for fuel do they diminish in size to tiny molecules of carbon dioxide and water (three atoms each). When this occurs, they release tremendous quantities of energy for your use.

Furthermore, you eat (by molecular standards) tremendous quantities of the three energy nutrients. Some people eat a hundred or more grams a day of each. If you could purify the carbohydrate, fat, and protein in your daily diet, they would fill two or three measuring cups.

Energy Nutrients
The energy nutrients are:

- Carbohydrate
- Fat
- Protein

Calorie
A calorie is a unit in which energy is measured. Technically, a calorie is the amount of heat necessary to raise the temperature of a gram of water one-degree Centigrade. Food energy is measured in kilocalories (thousands of calories), abbreviated kcalories or kcal, or capitalized: Calories. Most people, even nutritionists, speak of these units simply as calories, but on paper they should be prefaced by a k. (the pronunciation of kacalories ignores the k, but some people when speaking pronounce it "KAY-calories" or "KAY-cal.")

Carbohydrate, Fat and Protein
Carbohydrate, fat, and protein are large, organic molecules.

Macromolecule
A macromolecule is a huge molecule, composed of hundreds or thousands of atoms. (A molecule of water, by contrast, is composed of only three atoms: 2 Hs and 1 O.)

Grams
Most people don't think of foods in terms of grams. It's easy to learn to do so, though, and a good idea for those who plan to work with foods in the future. The United States and Canada are both in the process of a shift from the old British system of measurement to the metric system, so grams can be expected to become more and more a part of our lives. Food scientists already use 100 grams of foods as standard sizes for analysis, so 100 grams is a good size to learn to visualize. For a start, remember first that 100 grams is (very roughly) the weight of a normal serving (1/2 cup) of most vegetables or ½ cup of milk or juice. Second,

remember that a teaspoon of any dry powder such as sugar, salt, or flour weight (very roughly) 5 grams.

The Vitamins
The vitamins, the next class of nutrients, differ profoundly from the first three classes in almost every way: in their size and shape, in the roles they play in the body, and in the amounts you consume. Perhaps the only characteristics they share with the first three classes of nutrients are that they are vital to life, they are organic, and they are available in food.

The vitamins are organic compounds generally much smaller than the energy nutrients. Their use in the body is not to be metabolized for energy; in fact, if they do happen to be broken down, they yield no usable energy. Their role is to serve as helpers, making possible the processes by which the other nutrients are digested, absorbed, and metabolized or built into body structures. There are 15 different vitamins, each with its own special roles to play.

The fact that vitamins are organic has several consequences. For one thing, vitamins are destructible. They can be broken down, oxidized, altered in shape. They must therefore be handled with care. The body makes special provisions to absorb and transport them, providing many of them with custom-made protein carriers. A vitamin may be useful in one form here and another there, so special metabolic equipment is provided that can subtly alter the characteristics of a vitamin to allow it to perform a particular task.

The destructibility of vitamins also has implications for food handlers and cooks. You are well advised, when working with food, to keep in mind that excessive acid, alkali, air, heat, or light can destroy them.

The vitamins are divided into two classes: some are soluble in water (the B vitamins and vitamin C) and others in fat (vitamins A, D, E, and K). This fact has many implications for the kinds of foods that are found in, and the ways the body absorbs, transports, stores, and excretes them.

<u>The Fat-Soluble Vitamins</u>
- Vitamin A
- Vitamin D
- Vitamin E
- Vitamin K

<u>The Water-Soluble Vitamins</u>
- B Vitamins - Thiamin
- B Vitamins - Riboflavin
- B Vitamins - Niacin
- B Vitamins - Vitamin B_6
- B Vitamins - Vitamin B_{12}
- B Vitamins - Folacin
- B Vitamins - Biotin
- B Vitamins - Pantothenic Acid
- Vitamin C

The Minerals
The minerals are inorganic compounds, smaller than vitamins and found in even simpler forms in foods. Sodium, for example, can exist as a single charge atom (ion), tiny in comparison to starch, which may be composed of hundreds or thousands of atoms. Some minerals may be put together into orderly arrays in such structures as bones and teeth – but only with the help of the body's lively metabolic machinery, which itself is composed of protein and assisted by vitamins and some minerals. When minerals are withdrawn from bone and excreted, they yield no energy. When they float about in the fluids of the body, they give the fluids certain characteristics, but they are not metabolized – arranged and rearranged – in the complicated ways or in the same extent as the energy nutrients are. You consume small amounts of minerals daily, roughly similar to the amounts of vitamins in your diet. There are 21 different minerals important in nutrition.

The Major Minerals

- Calcium
- Phosphorus
- Potassium
- Sodium
- Chloride
- Magnesium
- Sulfur

The Trace Minerals

- Iron
- Iodine
- Zinc
- Chromium
- Selenium
- Fluoride
- Cobalt
- Molybdenum
- Copper
- Manganese
- Vanadium
- Tin
- Silicon
- Nickel

The minerals are elements, whereas the other nutrients are all compounds. This means the minerals cannot lose their identity; they exist "forever," like the carbon, hydrogen, and oxygen of which the energy nutrients are composed. When you cook a food containing vitamins and minerals, the vitamins can come apart or be altered in shape as their elements undergo rearrangement. Thus the vitamins can "disappear" (lose their chemical identity), but the minerals remain unchanged. Calcium, for example, enters the body as an ion with two positive charges. It may be combined with any of a number of negative ions (phosphate, sulfate, and the like) to form salts in foods, or it may become part of a large, organic molecule, but it never loses its identity as calcium. Iron may vary, in the sense that it may exist in two different ionic states, but it, too, retains its identity and cycles repeatedly within and through living things.

Because they are indestructible, minerals in food need not be handled with the very special care that vitamins need. You do need to make sure, however, not to soak them out of food or throw them away in cooking water.

Water

Water, indispensable and abundant, forms the major part of every body tissue. It is often ignored – because, like air, it is everywhere and we take it for granted. Water is inorganic, a single molecule being composed of three atoms (H20). The amounts you must consume relative to the other nutrients are enormous: two to three liters (about two to three quarts) a day. That's 2,000 to 3,000 grams, nearly ten times the amount of the energy nutrients you need. Of course, you need not drink water as such in these quantities; it comes abundantly in foods and beverages.

Water provides the medium in which nearly all the body's activities are conducted. It participates in many of the body's metabolic reactions, and supplies the medium for transporting vital minerals to cells and waste products away from them.

In addition to the obvious dietary source – water itself – virtually all foods contain water. In addition, water is generated from the energy nutrients in foods. Daily water intake from these three sources, which amounts to about 2-1/2 liters or quarts a day, normally balances perfectly with daily water excretion, which takes place by way of four routes – urination, evaporation from the lungs, losses in the feces, and evaporation from the skin.

Dietary Guidelines and Suggestions for Food Choices

- Eat a variety of foods daily. Include these foods every day: fruits and vegetables; whole grain and enriched breads and cereals; milk and milk products; meats, fish, poultry, and eggs; dried peas and beans.
- Maintain ideal weight. Increase physical activity; reduce kcalories by eating fewer fatty foods and sweets and less sugar, and by avoiding too much alcohol; lose weight gradually.
- Avoid too much fat, saturated fat, and cholesterol. Choose low-fat protein sources such as lean meats, fish, poultry, dried peas and beans; use eggs and organ meats in moderation; limit intake of fats on and in foods; trim fats from meats; broil, bake, or boil – don't fry; read food labels for fat contents.
- Eat foods with adequate starch and fiber. Substitute starches for fats and sugars; select whole-grain breads and cereals, fruits and vegetables, dried beans and peas, and nuts to increase fiber and starch intake.
- Avoid too much sugar. Use less sugar, syrup, and honey; reduce concentrated sweets like candy, soft drinks, cookies, and the like; select fresh fruits or fruits canned in light syrup or their own juices; read food labels – sucrose, glucose, dextrose, maltose, lactose, fructose, syrups, and honey are all sugars; eat sugar less often to reduce dental caries.
- Avoid too much sodium. Reduce salt in cooking; add little or no salt at the table; limit salty foods like potato chips, pretzels, salted nuts, popcorn, condiments, cheese, pickled foods, and cured meats; read food labels for sodium or salt contents especially in processed and snack foods.
- If you drink alcohol, do so in moderation. For individuals who drink – limit all alcoholic beverages (including wine, beer, liquors, and so one) to one or two drinks per day. NOTE: use of alcoholic beverages during pregnancy can result in the development of birth defects and mental retardation called Fetal Alcohol Syndrome.

Natural Foods

Organic foods are grown in soil fertilized only with natural waste materials such as manure and compost (rotted vegetables matter and garbage). Like "chemical" fertilizers, these materials are composed of chemicals, and they support the growth and health of plants only to the extent that they provide the chemicals the plants need: potassium, nitrogen, phosphate, and others. There may be fringe benefits to the use of natural fertilizers like compost. For example, such fertilizers affect the structure (tilth) of the soil to give a mechanical advantage to the plant. Moreover, organic material returned to the soil is recycles in the natural way. It might otherwise be burned (polluting the air) or dumped to wash into the rivers, lakes, and oceans (polluting the water). The recycling aspect may be one of the most significant differences between organic and conventional farming, and its chief advantage may be not to the nutrition of the individual consume but to the ecology.

CERTIFIED HEALTH & NUTRITION COUNSELOR ONLINE COURSE - SESSION 1 **– QUESTION & ANSWERS**

NAME: _____

ADDRESS: _____

PHONE: _____

FAX: _____

E-MAIL: _____

Please be sure to fill out the information above, complete the test and e-mail or fax it back to us at iridology@netzero.net or 530-878-1119. We will grade your question & answer session and will let you know if we have any questions or concerns.

1. List the fat-soluble vitamins:

2. List the water-soluble vitamins:

3. List the major minerals:

4. List the trace minerals:

5. What is a kcalorie?

6. How much water should you drink daily?