

THE TORAH OF LIFE

An Integrated Torah-biology Textbook For Jewish High Schools

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About the Authors



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Introduction

Biology is the study of life. In the Garden of Eden there were two trees: the Tree of Life and the Tree of Knowledge. A tree, with its roots, trunk, branches, foliage, and fruit, symbolizes a developmental program that starts with a germinating seed and culminates in fruits and new seeds. The Tree of Life symbolizes the creation of life, and the evolution of life from the perspective of the Torah.

“Knowledge” in Hebrew also means “consciousness.” The Tree of Knowledge of Good and Evil symbolizes the “tree” of conscious living forms, the pinnacle of which is man. The Torah is both the unfolding story of life and the unfolding story of human consciousness. It bestows life on those who walk in its path and corrects our state of consciousness, teaching us to know what is good and what is not, and to focus on what is good. Thus we may say that the Tree of Life is the “tree” of integrated Torah-biology and the Tree of Knowledge is the “tree” of integrated Torah-psychology and the understanding of human consciousness.

Integration of Torah and science requires a common frame of reference, a model that fits both Torah and science. The foundation of this model is the essential unity of the Creator and His creation. The language of this model is provided by Kabbalah, the most “scientific” aspect of the Torah. Kabbalah provides the language that reveals the correspondence

between key Torah concepts and their scientific counterparts. At the core of this unifying language are the *sefirot* (often referred to themselves as the Tree of Life), the lights and channels of both life and consciousness that flow from the Creator to His creation.

In contrast to the all-encompassing unity of the Creator and His creation, ordinary reality appears fragmented and devoid of purpose. Biology courses in Jewish schools often reflect this fragmentation, describing a reality in which the presence of the Creator is completely hidden.

We present here a pilot chapter of a Torah-biology textbook aimed at properly reflecting the true unity of creation. Biology, the science of life, is optimally suited for that purpose. This pilot chapter deals with nutrition, the science that describes the food the body needs and the process of its assimilation. The chapter alternates between science and Torah knowledge, always aiming at their integration. The ultimate purpose of this approach is to create a divinely oriented consciousness, which should help bring us back to the unadulterated consciousness state of the Garden of Eden.

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Nutrition



IN THIS CHAPTER

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◀ FIGURE 1

Typical Foods Served on Jewish Holidays

Clockwise: matzah (unleavened bread), for Passover; “blintzes” traditionally served stuffed with a cheese filling on the festival of Shavuot; apples dipped in honey served at the first meal of Rosh Hashanah; “latkes” fried in oil served during Chanukah; we drink wine and eat hamantaschen on Purim; and challah bread prepared in honor of Shabbat and holidays.

To see how important food is for most people, have a look at the groups of people eating in a park on a national holiday. Eating is a primary human activity. We all need to eat because we feel hungry if we don't. Plus, prolonged periods without eating result in starvation and bodily damage.

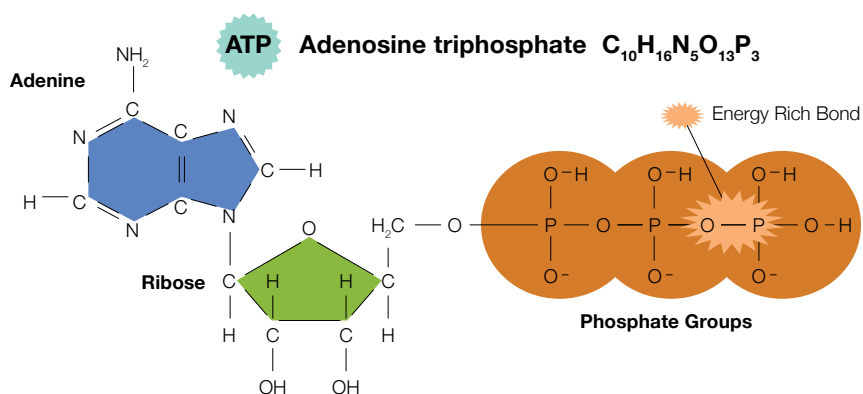
But food is even more than the nutrition it provides. Food is a basic aspect of human culture. In many celebrations, such as Thanksgiving Day, a meal serves as the focal point for a festive gathering of people.

Food is primarily nourishment, but to the human psyche, physical nourishment suggests the need for spiritual nourishment as well. Expressing Thanksgiving nourishes the soul, just as food nourishes the body. If we sit together, enjoy the presence of each other, tell stories, make plans, and then join in a meal, a snack, or a drink, our hearts can open. Sharing food together makes us more receptive and able to interrelate productively with one another.

In Jewish tradition each holiday has a special food that symbolizes the inner meaning of the day (FIGURE 1). While eating the food, we consciously internalize that meaning. On Pesach, the holiday commemorating our liberation from Egyptian slavery, we eat matzah—unleavened bread—symbolizing bondage and redemption. On Shavuot, the time of the Giving of the Torah, we eat dairy products, for the Torah is likened to milk. On Rosh Hashanah, the New Year, we eat an apple dipped in honey to symbolize our desire for a sweet year. On Chanukah, we eat latkes and cheese, reminding us of the heroism of Yehudit and the Maccabees. On Purim, we drink wine and eat hamantashen, commemorating the feast of Esther and the hanging of Haman.

Food and Energy

Why is food so important for our physical well being? Everything we do during the day, such as walking, working, playing, or even thinking, requires energy, and food is the substance which fuels our daily activities. A major component of food is the chemical glucose. We learned in an earlier chapter that cells convert glucose and other molecules into ATP, and ATP is the chemical fuel of the cell (FIGURE 2).



◀ FIGURE 2

ATP, Adenosine triphosphate

ATP is a chemical compound consisting of the nucleotide adenine, the five-carbon sugar, ribose and three phosphate groups. The breaking of the chemical bond between the second and third phosphate group releases a relatively large amount of energy that is used by the cell to fuel many energy-requiring processes

Most people go about their daily routine of providing for their bodies what nature requires—eating, drinking, sleeping etc.—without paying much attention to what these activities and functions mean on a spiritual plane. The questions that we need to ask are: *Why did God create me this way? Why do I have to eat in order to obtain energy?*

The Torah teaches us: “Man does not live on bread alone, but rather man lives on the word of the mouth of God.” In the Torah, the word “bread” refers to food in general. What the above verse is teaching us is that the “bread” we eat contains a Divine life force, and moreover, that it is important for us to know that this life force is coming directly from God, the Creator and Sustainer of all life (and indeed, of all reality).

If we eat our food with this realization in mind, we can extract the Divine life force or Divine spark that is the inner essence of the food. As a result, the level of nutrition—both physical, as well as cognitive and spiritual nutrition—that we gain from the food will be much greater than if we eat without this understanding.

In Hebrew, “bread” (food), *lechem*, is cognate to “war,” *milchamah* (both words come from the same root *l-ch-m*). The sages instruct us to eat “with a sword in hand.” What does this mean?

The “sword” is the consciousness necessary to pierce through the outer “shell” of the food and reveal, i.e., redeem, the Divine spark trapped within it. On the physical plane, the “sword” symbolizes the enzymes present along the digestive track that chemically break down the food and allow for the body to absorb its nutrients. The Torah teaches us to be conscious of what takes place within our bodies, to recognize the spiritual implications of the physiological processes that are responsible for our life and health. The Torah wants us to connect in our consciousness that which is taking place on the spiritual plane with that which is simultaneously taking place on the physical plane, thus enriching both—more spiritual nourishment and more physical nourishment.

If I am trying to avoid overeating and I have the choice between eating a bag of potato chips or a cheese sandwich, which one should I choose? One way to quantify the energy content of food is, surprisingly, to burn it! In the body, food is processed very slowly by enzymatic reactions that metabolize the food, step by step. In an automobile, the hydrocarbons in gasoline are burned to power the car’s engine.

If we want to quantify the available energy in potato chips or a cheese sandwich, we burn comparable amounts of the two types of food in an instrument called a calorimeter (FIGURE 3), and measure the amount the heat released in units called calories. One calorie is the amount of heat needed to raise the temperature of 1 gram of water by 1 degree Celsius. It is convenient to express the energy in food as kilocalories (kcal); one kcal equals 1000 calories. In food, one kcal is referred to as a dietary Calorie, with a capital C. If you are an average-sized teenage girl, you will burn about 2200 Calories per day (2,800 Calories per day for males). If you are playing in a tournament and you engage in vigorous physical activity, you will burn more calories.

▼ FIGURE 3

Calorimeter

A calorimeter measures the heat released by a substance, in our case, food, when the substance is burned. From that information it is possible to calculate the calorie content of the food being burned. One ounce of regular potato chips contains 150 calories. One ounce of cheese sandwich made with commercial white bread, cheddar cheese, and margarine contains 115 calories.

