

# Apples: From Holidays to Every Day

By Doreen Khakshour

Many grow up singing, “Dip the apple in the honey...” at their Rosh Hashanah sedarim. Why specifically is an apple, rather than another fruit, dipped into honey on Rosh Hashanah? Is dipping challah into honey insufficient? Interestingly enough, this holiday is not the only time apples make an appearance in Jewish life. There is no question that the apple tree and its fruit have a much deeper meaning than is apparent.

## Symbolism of Apples

An apple has four distinguishable components: a sweet taste, an attractive appearance, a beautiful fragrance, and a remarkable power to heal. The Shulchan Aruch notes in Orach Chayim (Hilchot Rosh Hashanah, 3) that the four properties of apples symbolize the blessings of “children, life, and sustenance throughout the new year.” Hence, apples are most appropriate to consume at the Rosh Hashanah meals. A hint of the blessings of apples is mentioned in the Talmud (Pesachim 116a; Sotah 11b), in which a note is made that in Egypt, the Jewish women delivered their babies under apple trees.

Not only does the apple allude to blessings, but it also symbolizes the Jewish people. Most fruit-bearing trees have their leaves grown before the fruit blossoms. However, apple trees blossom before their leaves are fully developed. As such, the apple is a representation of na-aseh v’nishma, when B’nei Israel agreed to follow the Torah’s commandments even prior to hearing them (Shabbat 88a). The natural sequence is to hear what must be done and then to accept the command. In this case, however, B’nei Israel simply accepted the Torah prior to being told what laws it contained. In this way, apples embody the essence of the Jewish people.

Ultimately, the apple symbolizes the Jewish nation’s connection to Hashem, as taught by a parable found in the Talmud (Ta’anit 5b). A hungry, worn-out, and thirsty traveler passed through a desert and happened upon an apple tree with sweet fruit that provided satisfying shade, with a stream of water at its base. The traveler stated how this apple tree had everything he desired, and blessed the tree that its offspring should be just as satisfying. In this parable, the stream symbolizes the Torah, allowing all those who yearn for Hashem’s words to satisfy their thirst. The fruit symbolizes the Jewish people who grow in holiness, paralleling the blessing the traveler made to follow in the ways of the parent tree. In the month of Nissan, the apple tree blossoms, and its fruit ripens fifty days later. This can be equated to Hashem giving the Torah. He redeemed B’nei Israel from Egypt in Nissan, and gave them the Torah fifty days later, in the month of Sivan. Therefore, the Jewish people sit in the shade of

Hashem and are protected by Him and the Torah, as the apple tree tended to the traveler.

## Health Benefits of Apples

Ibn Ezra, one of the most distinguished Jewish scholars of his time, interprets King Solomon’s words, “Sustain me with flagons of wine, spread my bed with apples, for I am lovesick” (Shir HaShirim 2:5) to mean “invigorate me with apples.” Rashi comments that our Sages recommended apples to heal the sick. Today, a constant reminder of this suggestion is found in the hackneyed saying, “an apple a day keeps the doctor away.” The Zohar (Acharei Mot; Ziv ha-Zohar, Va’etchanan) also connects the various and vibrant colors of apples to one’s physical health. The plentiful colors of apples - white, red, and green - represent the varied attributes of Hashem, corresponding to chesed (kindness), gevurah (strength), and tiferet (glory). In kabbalah, the Zohar explains that the color green is associated with healing. Additionally, tiferet derives from the root pe’er, which is reflected in the word for healing, refuah. Yaakov Avinu is associated with the attribute of tiferet, and represents the balance between kindness and strength, as stated in the Talmud (Ta’anit 5b). When Yaakov came to receive a blessing from his father Yitzchak, Yitzchak smelled the fragrance of apples (Ta’anit 29b). Most riveting is the Ben Ish Chai, a leading Sephardic scholar and kabbalist, who writes that the apple tree is the only fruit tree that has an association with tiferet, or healing, further implicating the connection between apples and health (Halachot Nitzavim).

Current research corroborates the idea that apples have healing power. Apples contain various phytochemical nutraceuticals, i.e. plant chemicals that have protective or disease preventative properties. Apple phytochemicals include phenolics and flavonoids, which have antioxidant properties. Apples also contain indigestible fiber, which has anti-constipation and anti-cancer potential, as well as soluble fibers including pectin, which lowers serum levels of fats, including cholesterol and triglycerides. [1].

The antioxidants within apples have the ability to fight and delay aging, while their flavonoids lower blood cholesterol levels, prevent blood clotting, and decrease heart disease mortality rate. Today, many people are terrified of aging; in 2014 alone, Americans underwent a total of 6.7 million injections for botulinum toxin type A, a type of botox, which is a 6% increase from 2013 [2]. Anti-aging creams, botox, filler injections, and cosmetic surgery have gone from a luxury to a modern day necessity. A study utilizing the yeast *Saccharomyces cerevisiae* demonstrated that exposure to solutions of whole apple extracts prolonged

the cellular life span of yeast cells by 100 percent [1]. A study done on Pink Lady apples found that when exposure included the peel, cellular life span increased by 40%, which was associated with the antioxidant polyphenol content of the peel [3].

Scientists have discovered the beneficial value of apples towards intestinal health. Pectin, a soluble fiber present in apples, modifies the human gut microbiota, which is the collection of microorganisms in the human colon. These bacteria play an important role in human health because they increase the efficiency of “energy harvest” from the diet, maintain homeostasis, and synthesize vitamins. Apple ingestion correlated with an enhancement of growth of gut microbiota, which in turn correlated with a direct positive effect on intestinal health. Fiber, the main source of energy for the gut microbiota, plays a significant role in the immune system and in lipid metabolism [4]. In another study, apples were shown to prevent oxidative damage from oxidizing agents to human cells lining the gastrointestinal tract. The study demonstrated that apple extract decreased impairment of human gastric epithelial cells *in vivo* by 50% and injury to the rat gastric mucosa *in vitro* by 40%. It is also important to note that the use of catechin, or chlorogenic acid, the main phenol component of apple extract, was shown to be equally as effective as apple extract in preventing damage to the gastric cells. The study concluded that apple extract protected the gastrointestinal cells by permeating cell membranes and increasing intracellular anti-oxidant activity [5].

Colon cancer is the third leading cause of cancer-related deaths in the United States. Fortunately, apples may function as both a cancer preventative and a cancer-fighting agent. In one study, rats were treated with azoxymethane, a chemical carcinogen that causes morphologic changes typical of cancer cells. Rats that were fed with apple phytochemicals had azoxymethane-induced lesions reduced by as much as fifty percent, as compared to the untreated group. Gossé and colleagues [6] suggested that, by extension, a similar effect could potentially be induced in humans, as the amount (per kg body weight) of polyphenols ingested by the rats was comparable to the daily consumption of two apples by an average-weight human. Kern et al. [7] demonstrated that polyphenol-rich apple extract played an important role in suppressing human colon cancer cell growth. The level of protein kinase C (PKC), which plays an important role in colon carcinogenesis, was shown to decrease when colon cells were treated with the apple juice extract. There was also an increase in activated caspase-3 and DNA fragmentation, both signs of apoptosis, or programmed cell death.

Breast cancer is the most commonly diagnosed cancer in women in the United States. Increased fruit intake,

particularly of apples, has been consistently linked with a reduced risk of breast cancer. Cancer cells become resistant to NF-kappa B activation, a transcription factor that plays an important role in cell proliferation, apoptosis, and immunity. The phytochemicals in apple extract inhibited the NF-kappa B activation and significantly inhibited proliferation of human breast cancer MCF-7 cells [8]. Additionally, a study conducted in 2015 found that the pectin in apples induces apoptosis in human breast cancer cells [9]. Pink Lady Apples, with or without their peels, are cytotoxic to human breast and colon cancer cells tested *in vitro*. Cytotoxicity to cancer cells was greater for apple extract with peels than those without their peels, which were attributed to the flavonoids in the peels [3].

Studies conducted in the *in vitro* toxicology laboratory at Stern College for Women have thus far corroborated the positive health benefits, and particularly the anti-carcinogenic effects, of apples. Oral carcinoma is one of the most common head and neck cancers, with over 30,000 new cases each year. The cytotoxicity, or quality of being toxic to cells, of an apple extract derived from the species *Malus pumila* Mill was significantly greater towards human squamous oral carcinoma (HSC-2) cells than to normal fibroblast (HF-1) cells from the tissues of the mouth; comparative cytotoxicity was evaluated with the neutral red assay (Figure 1). Microscopic analysis and flow cytometry demonstrated that upon treatment with apple extract, apoptotic death was induced in the HSC-2 cells. Further studies are still necessary to determine the mechanism by which the apple extract induces apoptotic cell death [10].

Apples have great significance in the Torah for maintaining health. Spiritual health goes hand-in-hand with physical health. Through building a stable spiritual connection with Hashem and providing proper nutrients to the body, apples not only shape a “healthy” person, but also someone who is stronger both mentally and physically.

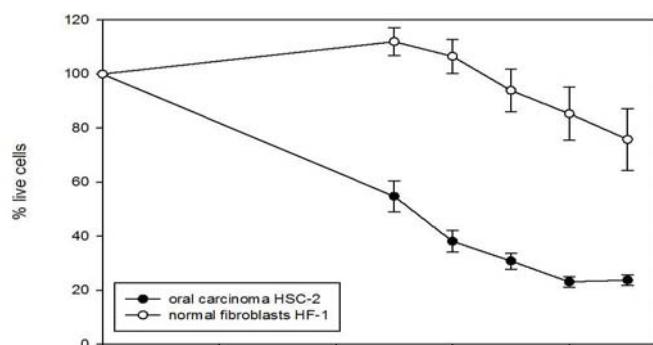


Figure 1: Cytotoxicity of apple extract to HSC-2 oral carcinoma and HF-1 normal gingival fibroblasts after a 24-hr exposure.

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