

Acupuncture (PDQ®)–Patient Version

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Questions and Answers About Acupuncture

1. What is acupuncture?

Acupuncture applies needles, heat, pressure, and other treatments to certain places on the skin, called acupuncture points (or acupoints), to cause a change in the physical functions of the body. The use of acupuncture is part of traditional Chinese medicine (TCM). TCM is a medical system that has been used for thousands of years to prevent, diagnose, and treat disease.

Acupuncture is based on the belief that qi (vital energy) flows through the body along a network of paths, called meridians. Qi is said to affect a person's spiritual, emotional, mental, and physical condition. According to TCM, qi has two forces, yin and yang. Yin and yang are opposite forces that work together to form a whole. The forces of yin and yang depend on each other and are made from each other in an unending cycle, such as hot and cold, day and night, and health and disease. Nothing is ever all yin or all yang, both exist in all things, including people. Many of the major organs of the body are believed to be yin-yang pairs that must be in balance to be healthy. When a person's yin and yang are not in balance, qi can become blocked. Blocked qi causes pain, illness, or other health problems. TCM uses acupuncture, diet, herbal therapy, meditation, physical exercise, and massage to restore health by unblocking qi and correcting the balance of yin and yang within the person.

Most acupuncturists in the United States practice acupuncture according to the traditions of Chinese medicine. However, there are other types of acupuncture, including some used for medical treatment, that have different theories about meridians and acupoint locations.

2. What is the history of the discovery and use of acupuncture as a complementary treatment for cancer?

The oldest known medical book in China (second century BC) describes the use of needles to treat medical problems. The use of the treatment spread to other Asian countries and to other regions of the world, including to Europe by the 1700s. In the United States, acupuncture has been used for about 200 years.

Research on acupuncture began in the United States in 1976. Twenty years later, the US Food and Drug Administration (FDA) approved the acupuncture needle as a medical device. Many illnesses are treated with acupuncture. In cancer treatment, its main use is to control symptoms, including the following:

- Pain.
- Fatigue.
- Nausea and vomiting caused by chemotherapy.
- Weight loss.
- Anxiety.
- Depression.
- Insomnia.
- Poor appetite.
- Dry mouth.
- Hot flashes.
- Nerve problems.
- Constipation and diarrhea.
- Failure of gastrointestinal (GI) muscles to move food through the GI tract following surgery.

For cancer patients, acupuncture is used as complementary therapy, which is treatment given in addition to conventional (standard) therapy.

3. What is the theory behind the claim that acupuncture is useful in treating cancer?

According to TCM, qi can be unblocked by using acupuncture at certain places on the skin, called acupoints. Acupoints are places where the meridians come to the surface of the body. There are more than 360 acupoints on the human body, with specific acupoints for each condition being treated.

4. What physical effects may acupuncture have when used in cancer patients?

Acupuncture may cause physical responses in nerve cells, the pituitary gland, and parts of the brain. These responses can cause the body to release proteins, hormones, and brain chemicals that control a number of body functions. It is proposed that, in this way, acupuncture affects blood pressure and body temperature, boosts immune system activity, and causes the body's natural painkillers, such as endorphins, to be released.

5. How is acupuncture administered?

The acupuncture method most well-known uses needles. Disposable, stainless steel needles that are slightly thicker than a human hair are inserted into the skin at acupoints. The acupuncture practitioner determines the correct acupoints to use for the problem being treated. The inserted needles may be twirled, moved up and down at different speeds and depths, heated, or charged with a weak electric current. There are other acupuncture methods that do not use needles.

Some acupuncture techniques include the following:

- Auricular acupuncture: The placing of acupuncture needles at acupoints on the outer ear that match up with certain parts of the body.
- Electroacupuncture: A procedure in which pulses of weak electrical current are sent through acupuncture needles into acupoints in the skin.
- Trigger point acupuncture: The placing of acupuncture needles in a place on the skin that is away from the painful part of the body. Trigger points have to do with referred pain, pain that is not felt at the site of injury, but is sent along nerves and felt elsewhere in the body.
- Laser acupuncture: The use of a weak laser beam instead of an acupuncture needle to stimulate an acupoint.
- Acupuncture point injection: The use of a syringe and needle to inject drugs, vitamins, herbal extracts, or other fluids into the body at an acupoint.
- Microwave acupuncture: The use of a microwave device attached to an acupuncture needle to deliver microwave radiation to an acupoint.
- Acupressure: A type of massage therapy in which the fingers are used to press on an acupoint. In cancer patients, acupressure has been used to control symptoms such as pain or nausea and vomiting.
- Moxibustion: A type of heat therapy in which an herb is burned above the body to warm a meridian at an acupoint and increase the flow of blood and qi. The herb may be placed directly on the skin, held close to the skin for several minutes, or placed on the tip of an acupuncture needle. Heat lamps may also be used to warm the acupoints.
- Cupping: A procedure in which a rounded glass cup is warmed and placed upside down over an area of the body, making a vacuum that holds the cup to the skin. Cupping is used to increase the flow of blood and qi. It is believed to open up the skin's pores and allow toxins to leave the body.

6. What do patients feel during acupuncture?

Patients may have a needling feeling during acupuncture, known as de qi sensation, making them feel heaviness, numbness, or tingling.

7. Have any preclinical (laboratory or animal) studies been conducted using acupuncture?

Scientific studies on the use of acupuncture to treat cancer and side effects of cancer began only recently. Laboratory and animal studies suggest that acupuncture can reduce vomiting caused by chemotherapy and may help the immune system be stronger during chemotherapy. Animal studies support the use of electroacupuncture to relieve cancer pain.

Laboratory and animal studies have also looked at how acupuncture works for cancer treatment, such as the role of acupuncture in stimulating nerve cells that trigger the release of hormones into the blood and immune functions, including increasing blood cell count and enhancing lymphocyte and natural killer cell activity.

8. Have any clinical trials (research studies with people) of acupuncture been conducted?

In 1997, the National Institutes of Health (NIH) began evaluating the safety and effectiveness of acupuncture as a complementary therapy for relieving cancer-related symptoms and side effects of cancer treatments.

Studies of acupuncture in cancer care also have been done in China and other countries, including England, France, Australia, Japan, and Sweden.

• Studies of the effect of acupuncture on the immune system

Human studies on the effect of acupuncture on the immune system have been done and suggest that acupuncture may improve immune response.

• Studies of the effect of acupuncture on pain

In clinical studies, acupuncture reduced the amount of cancer pain in some patients. In one study, most of the patients treated with acupuncture were able to stop taking drugs for pain relief or to take smaller doses. The findings from these studies are not considered strong, however, because of weaknesses in study design and size. Studies using strict scientific methods are needed to prove how acupuncture affects pain.

In four of five randomized clinical trials on pain after surgery, acupuncture reduced the pain. The studies included small numbers of patients and unknown additional treatments, and there was no placebo treatment in some of them. More trials are needed to answer all questions.

• Studies of the effect of acupuncture on muscle and joint pain from aromatase inhibitors

Aromatase inhibitors, a type of hormone therapy for postmenopausal women who have hormone-dependent breast cancer, may cause muscle and joint pain.

Studies of acupuncture for pain caused by aromatase inhibitors include the following:

- Four randomized controlled trials compared the effects of real and sham acupuncture in reducing these symptoms. In sham acupuncture, needles do not go as deep and are not used at the same points on the body. All four trials showed no side effects from either real acupuncture or sham acupuncture. One trial showed real acupuncture was much better than sham acupuncture in relieving joint and muscle pain, but the other three trials did not show that. In one of the studies, patients receiving real acupuncture had more pain relief than a control group of patients who were waiting to receive treatment later.
- An observational study showed that acupuncture is safe, patients are helped by both real and sham acupuncture, and both real acupuncture and sham acupuncture may relieve pain more than standard care.
- A review of 17,922 patients reported that real acupuncture relieved pain much better than sham acupuncture.

An ongoing randomized clinical trial of 228 patients is comparing real acupuncture, sham acupuncture, and standard care in breast cancer survivors with muscle and joint pain from aromatase inhibitors.

• Studies of the effect of acupuncture on nausea and vomiting caused by cancer therapies

The strongest evidence of the effect of acupuncture has come from clinical trials on the use of acupuncture to relieve nausea and vomiting.

Nausea and vomiting caused by chemotherapy, surgery, and morning sickness:

- A 2013 review that included 41 randomized controlled trials found that acupuncture was helpful as a complementary treatment for nausea and vomiting caused by chemotherapy.

- Another review, of 11 randomized clinical trials published between 1987 and 2003, found that fewer chemotherapy patients in the acupuncture groups had vomiting. Not all of the studies had a sham acupuncture group as a control.
- A comparison of studies suggests that the specific acupuncture point used may make a difference in how well acupuncture works to relieve nausea caused by chemotherapy.

Nausea and vomiting caused by radiation therapy:

- Patients who received either true acupuncture or sham acupuncture were compared to patients who received only standard care to prevent nausea and vomiting. The study found that patients in both the true and sham acupuncture groups had less nausea and vomiting than those in the standard care group.

• Studies of the effect of acupuncture on hot flashes in patients treated for cancer

Hormone therapy may cause hot flashes in women with breast cancer and men with prostate cancer.

- Six randomized clinical trials studied the use of acupuncture to prevent hot flashes in breast cancer survivors. These trials found that acupuncture was safe and decreased hot flashes significantly. It was not clear in these trials whether real acupuncture works better than sham acupuncture.
- A 2015 randomized trial of electroacupuncture in breast cancer survivors with hot flashes had four groups for treatment: electroacupuncture, sham acupuncture, medicine, and a placebo. The trial looked at how well sham acupuncture worked compared to the placebo and also compared hot flash relief in all groups. The study found that sham acupuncture worked much better than the medicine or the placebo, and both electroacupuncture and sham acupuncture gave longer-lasting relief than the medicine did.
- Some studies have reported that acupuncture may relieve hot flashes in prostate cancer patients on androgen-deprivation therapy.

• Studies of the effect of acupuncture on fatigue in patients treated for cancer

Fatigue is a common symptom in patients with cancer and a frequent side effect of chemotherapy and radiation therapy.

- Several randomized clinical trials have studied the use of acupuncture in reducing cancer-related fatigue. These trials found that acupuncture significantly improved fatigue when compared to standard care alone. It is not clear whether real acupuncture works better than sham acupuncture.

• Studies of the effect of acupuncture on xerostomia (dry mouth) in patients treated for cancer

Several clinical trials have been done to study the effect of acupuncture in the treatment and prevention of xerostomia (dry mouth) caused by radiation therapy given to patients with nasopharyngeal carcinoma and head and neck cancer.

- Two studies compared acupuncture with standard care for preventing xerostomia in patients being treated with radiation therapy. The studies found that patients treated with acupuncture during radiation therapy had fewer symptoms and increased saliva flow.
- In studies that compared acupuncture to standard care for treating xerostomia caused by radiation therapy, acupuncture improved xerostomia symptoms better than standard care.
- Two randomized controlled trials compared real and sham acupuncture for the prevention and treatment of xerostomia. These trials found that both real and sham acupuncture increased the flow of saliva.
- A prevention study compared acupuncture to standard care for xerostomia and found that patients treated with acupuncture reported fewer symptoms and had better saliva flow than the standard care group.
- A study on the long-term effects of acupuncture on xerostomia found that patients had better salivary flow at 6 months compared to before treatment. Patients who received additional acupuncture had increased saliva flow at 3 years compared to patients who did not continue acupuncture treatment.

Other trials are ongoing.

- **Studies of the effect of acupuncture on peripheral neuropathy caused by anticancer drugs**

Peripheral neuropathy is a nerve problem that causes pain, numbness, tingling, swelling, or muscle weakness in different parts of the body. It usually begins in the hands or feet and gets worse over time. Peripheral neuropathy may be caused by chemotherapy or other treatments or conditions. It can become serious enough that cancer treatment has to be reduced or stopped. If left untreated, it can disable the patient and lower the quality of life.

Several small studies have been done on the use of acupuncture in treating peripheral neuropathy caused by chemotherapy or other anticancer drugs. Most of these studies found acupuncture decreased pain and improved nerve function. A randomized controlled trial, however, found that acupuncture did not work better than a placebo. Larger randomized controlled trials are needed.

- **Studies of the effect of acupuncture on lymphedema in breast-cancer patients**

Lymphedema is a condition in which lymph fluid builds up in tissues and causes swelling. It may occur in an arm or leg if lymph vessels are blocked, damaged, or removed by surgery. Lymphedema is a lifelong concern for many breast cancer patients.

There have been a number of case reports and studies that show acupuncture is safe and may decrease swelling and relieve symptoms in patients with lymphedema in the arms and legs. In one randomized clinical trial, acupuncture was found to keep lymphedema from getting worse but did not decrease swelling or symptoms. More studies are needed.

- **Studies of the effect of acupuncture on ileus caused by cancer surgery**

After cancer surgery, some patients develop ileus, the failure of gastrointestinal (GI) muscles to move food through the GI tract. Three randomized clinical trials studied acupuncture for this condition and had different findings:

- A trial that compared acupuncture to standard care reported that acupuncture was not effective.
- A trial that compared real and sham acupuncture found no difference between the two.
- A trial that compared real acupuncture, sham acupuncture, and no acupuncture found that real acupuncture shortened the length of time ileus lasted.

- **Studies of the effect of acupuncture on sleeping problems**

A study that compared acupuncture with the drug fluoxetine (used to treat depression) found that acupuncture worked better in relieving depression and improving sleep. Another study found that acupuncture improved sleep slightly better than standard care. More studies are needed.

- **Studies of the effect of acupuncture on other symptoms of cancer and side effects of cancer treatment**

The aim of most acupuncture clinical observation and clinical trials in cancer patients has been to study the effects of acupuncture on cancer symptoms and side effects caused by cancer treatment, including weight loss, cough, coughing up blood, fever, anxiety, depression, proctitis, speech problems, blocked esophagus, and hiccups. Studies have shown that, for many patients, treatment with acupuncture either relieves symptoms or keeps them from getting worse.

9. **Have any side effects or risks been reported from acupuncture?**

There have been few complications reported. Problems are caused by using needles that are not sterile (free of germs) and from placing the needle in the wrong place, movement of the patient, or a defect in the needle. Problems include soreness and pain during treatment; feeling tired, lightheaded, or sleepy; and infections. Because chemotherapy and radiation therapy weaken the body's immune system, a strict clean needle method must be used when acupuncture treatment is given to cancer patients. It is important to seek treatment from a qualified acupuncture practitioner who uses a new set of disposable (single-use) needles for each patient.

10. **Is acupuncture approved by the US Food and Drug Administration (FDA) for use as a cancer treatment in the United States?**

The FDA approved acupuncture needles for use by licensed practitioners in 1996. The FDA requires that sterile, nontoxic needles be used and that they be labeled for single use by qualified practitioners only.

More than 40 states and the District of Columbia have laws regulating acupuncture practice. The National Certification Commission for Acupuncture and Oriental Medicine (www.nccaom.org) certifies practitioners of acupuncture and traditional Chinese medicine (TCM). Most states require this certification.

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