

Is MDT for Me?

**A guidebook about maggot therapy
written by doctors, nurses,
and patients like you.**

What is “maggot therapy”?

Maggot Debridement Therapy (MDT) is an accepted, effective method of treating chronic (non-healing) wounds with live, germ-free fly larvae (“maggots”). It is also called “larval therapy,” “biodebridement,” or simply “maggot therapy.”

In maggot therapy, disinfected (germ-free) fly larvae are applied to wounds for 2 or 3 days within special dressings that prevent the maggots from wandering off.

What is Maggot Therapy used for?

Medicinal maggots are regulated by the U.S. Food and Drug Administration (FDA) and are available only with a doctor’s prescription. Maggot therapy is used to treat non-healing necrotic skin and soft-tissue wounds (“gangrene”) including pressure ulcers, venous stasis ulcers, neuropathic foot ulcers, and non-healing traumatic or post surgical wounds.

History and Current Status of maggot therapy

For centuries, maggots have been known to help with wound healing. During the late 1920's, Dr. William Baer at Johns Hopkins (Baltimore) began treating his patients with specially grown maggots. His treatments were so successful that soon thousands of doctors were treating their patients with maggot therapy, too. By the mid-1940's, with the advent of modern antibiotics, maggot therapy was thought no longer to be necessary. Indeed, many of the types of wounds that had been treated successfully with maggot therapy were no longer common. But microorganisms developed resistance to the antibiotics, and non-healing wounds are once again a serious problem.

Recent scientific studies indicate that maggot therapy is just as useful for treating wounds today as it was 70 years ago. Studies show that maggot therapy quickly removes the dead, infected tissue from the wound (debridement) and leads to rapid growth of healthy tissue to fill the defect.

Maggot therapy is applied using only specially selected, tested, disinfected larvae. When dressings are removed 2 or 3 days later, the wound may be completely cleaned or it may require additional treatments. After maggot therapy, your doctor will be able to suggest the best treatment to follow.



Frequently asked questions

✓ **How does maggot therapy work?**

The literature identifies three primary actions of medicinal maggots on wounds:

- They clean ("debride") the wounds by dissolving dead ("gangrenous" or necrotic) and infected tissue;
- They disinfect the wound (kill germs);
- They speed the rate of healing.

✓ **How do you keep the maggots on the wound?**

Because the natural tendency of the maggots is to wander off before and after they have finished working, they must be kept in place by dressings that allow air to enter, allow the liquefied necrotic tissue to drain out, and still keep the maggots securely over the wound. This can be done with a porous, mesh-like covering (i.e., nylon netting) affixed to the wound border. The dressing and maggots are removed 48-72 hours later.

✓ **How do you get all of the maggots out?**

Once the dressing is removed, all of the maggots should crawl out of the wound and away from the host because they will be satiated and ready to migrate. Any remaining maggots can be wiped off with a wet gauze pad, or washed out with sterile water or saline. If there are any young larvae still there that you can not remove, simply cover the wound with moist gauze and replace it 3 or 4 times/day. Any remaining maggots will leave the wound within 24 hours and hide in the gauze pad.

✓ **How do I dispose of unused maggots?**

Unused maggots are germ-free. They may be discarded in regular trash bins. Seal their container so that they can not escape.

✓ **Can medicinal maggots spread through the body?**

Medicinal maggots are obligate air-breathers. They must remain where there is air. What's more the species used medically are not capable of dissolving living tissue; they only dissolve dead, infected tissue. They do not bury into healthy tissue nor migrate through the body.

✓ **How do I dispose of the maggot dressings?**

Maggots are germ-free when applied, but become contaminated when they contact a patient's wound. Therefore, MDT dressings should be handled like all other infectious dressing waste. Place the maggot dressings in a plastic bag and seal the bag completely. Then place the sealed bag into a second plastic bag and seal completely. Place the bag with the other infectious dressing waste in an appropriate infectious waste container and autoclave or incinerate within 24 hours, according to waste management policies.

✓ **What if some of the maggots escape?**

If some of the maggots escape during treatment or during dressing removal, they will likely hide on the floor in a corner, under furniture, or between the mattresses. There they may pupate and then emerge two weeks later as full grown adult flies. Still, they will likely die or be killed long before they are mature enough to lay eggs. The adult flies pose no real danger, but they can carry germs from the wound. Every effort should be taken to prevent or capture escaping maggots.

✓ **How many treatment cycles are necessary?**

The number of treatment cycles depends on the size of the wound, the response, and the ultimate goal of treatment (cleaning or complete closure). The average course is 2-4 cycles. Examine the wound after treatment to determine if another treatment is necessary.

✓ **Does maggot therapy hurt?**

Patients who feel wound pain may also feel pain or discomfort during maggot therapy when the maggots become large enough to be felt crawling over exposed nerves (about 24-30 hours into the treatment cycle). Use pain medication as needed, and remove the dressings if the medication fails to control the pain. The pain will stop immediately after the dressing is removed.

✓ **Do maggots bite?**

Maggots do not bite. They do not have teeth. Instead, they have modified mandibles, called “mouthhooks,” and they have some rough bumps around their body which scratch and poke at the dead tissue, helping to remove it from your body. When applied, the maggots are so small that they can not even be felt. But over time, as the larvae grow, they might be felt moving by people who have sensitive wounds.

✓ **If maggots are sterile, can they still reproduce?**

Larvae are immature, and can not reproduce. They will not multiply in the wound. The use of the word “sterile,” however, refers to their being *germ-free*, not incapable of maturing.

✓ **Does Insurance or Medicare cover maggot therapy?**

Most private and public third-party payers of health care (“insurance”) will cover the cost of maggot therapy and medicinal maggots. If coverage is denied and wound care is otherwise covered by your policy, then appeal the decision because the insurance company may not be familiar with this accepted method of care. If still not covered, or if you do not have health insurance, then apply for a Patient Assistance Grant from the BTER Foundation (www.BTERFoundation.org) to cover the cost of the maggots. And ask your doctor to provide the treatments at a reduced cost.

✓ **Can I use *any* maggots? Do they have to be germ-free?**

While it is true that the species used to make medical grade maggots are found in the wild, so, too, are thousands of other species. Not all species are safe and effective; some are outright dangerous. Even different strains of the same species may not be equally safe or effective. What’s more, wild maggots may carry pathogens that are even more harmful than the ones already on the wound. Therefore, it is important to use only medical grade maggots that are proven to be disinfected (germ-free), safe, and effective.



How to find a therapist

If you want a therapist to evaluate your wound for maggot therapy, first ask your current physician or surgeon to consider it. S/he knows you already, and can provide local care and follow-up. The procedure is simple enough that most licensed therapists can do it with ease. Your current doctor or wound care therapist may already have experience. If not, courses are available (some sponsored by the BTER Foundation) and many experienced therapists are available to assist your therapist.

If your current therapist is not able to help you in this, or if your therapist would like to speak with other therapists who have more experience, a list of referrals and consultants may be available through the BTER Foundation, or through the internet resources listed below.



A few final words from a former patient

1. Maggots may seem very gross at first, especially if this is your first time. But you will soon be amazed, as I was, to see and learn how well they can work at dissolving dead, infected tissue so that the wound can heal.
2. Sometimes the maggots need watering if the wound is very dry. If you do not see any wetness coming out of the wound, moisten the gauze over the dressing.
3. If the wound is on a part of the body where you usually put pressure (for example, the bottom of your foot): *don't!* You must not put pressure on the maggots because you may kill them. More importantly, you shouldn't put pressure on your wound because pressure prevents blood and nutrients from getting to your wound to repair it.
4. It is very important to work *with* your therapist during your care and treatment. If you can not follow your doctor's advice, *tell* him or her. Perhaps there are alternatives that can then be offered.
5. Whatever treatment you select for yourself, always make sure that your wound is getting better. If it is not getting better, move to a different treatment method. Most specialists expect to see improvement every two weeks, or else they change treatments. The longer your wound stagnates without improvement, the more your health or circulation can deteriorate, and the less likely it is that your wound will ever heal.
6. Above all, be your own advocate. Nobody knows you like *you* know you. And nobody *will* know you if you don't speak up and make yourself heard.



For More information

For more information, contact the BTER Foundation, or any of the internet resources, below:

- BioTherapeutics, Education & Research Foundation:
www.BTERFoundation.org
- University of California, Irvine, Maggot Therapy Project:
www.ucihs.uci.edu/som/pathology/sherman/home_pg.htm
- Wound Care Information Network
www.medicaledu.com/



Need to speak to someone?
Contact our Patient Advocate at:
info@BTERFoundation.org

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