8 USEFUL THINGS YOU DIDN'T KNOW ABOUT MAGGOTS IN WOUND HEALING

by Carl Baptista, Founder and Inventor of Medifly

In medieval times, maggots, the larvae of flies, were regularly found in festering wounds, feeding on the decaying flesh. At first glance, the repulsion of this activity would cause a frantic removal. However, ancient tribesmen realised that, if left alone, these maggots cleaned the wound rather nicely.

With the rise in the prevalence of type 2 diabetes, a huge rise in diabetic foot ulcers and non-healing wounds associated with diabetes has become a common sight in hospitals around the world. Coupled with infections of antibiotic-resistance (MRSA), clinicians are finding it more and more challenging to heal difficult wounds. Unfortunately, the outcome of some of these wounds is amputation, the removal of the limb with necrotic non-healing wound. In Singapore, approximately 700 diabetics undergo lower limb amputations every year as a result of diabetic foot complications.

It was not until the French Revolution that Emperor Napoleon's surgeons documented the beneficial effects of maggots on battle wounds. They discovered that wounded soldiers from the battlefields who had maggots in their wounds tended not to die from septic shock. In fact, wounds that contained maggots were cleaner and had better healing and recovery potential. Let's take a look at eight things about maggots you probably didn't know. You might have a new-found respect for these little creatures!

#1

Maggots are **fly larvae**, or **immature flies** that have hatched from eggs laid by females flies. The life cycle comprises four stages: egg, larva (maggot), pupa and adult.

#2

Within 24 hours, the egg hatches and the fly enters the maggot stage. The maggot **gorges** itself with food until it is ready to enter the **pupae stage**, after which an adult fly emerges.

#3

Maggots only feed on unhealthy tissues by removing of slough, infected and necrotic tissues such as diabetic ulcers, pressure ulcers, venous stasis ulcers, neuropathic and ischemic ulcers, infected post-surgical wounds and malignant wounds. Maggots leave healthy tissue untouched yet stimulated for growth and granulation. The process of removing of unhealthy tissue is called **debridement.**

The procedure is called **Maggot Debridement Therapy (MDT).**

#4

Studies have shown that maggots require oxygen and food to survive. They don't have teeth. They use **hooks** to move over the surface of the wound secreting a powerful mixture of **proteolytic enzymes** which break down dead tissue, liquidising it. The maggots will then 'suck up' this liquid, ingest and digest the bacteria (including Methicillin-resistant Straphylococcus Aureus or MRSA) within the devitalised tissue in the wound, thus killing them in their gut.

#5

The maggot's **secretions, excretion and the action of 'micromassage'** (mechanically stimulating tissue) will alter the pH of the wound to approximately 8 to 8.5 due to the production of ammonia (excreted), thereby inhibiting the bacterial growth by destroying a wide range of pathogenic bacteria including MRSA, group A and B streptococci, gram-positive aerobic and anaerobic strains. Because of this amazing ability, MDT has become an extremely potent tool against antibiotic-resistant bacteria.

#6

Medical grade maggots that are hatched from eggs laid by laboratory-reared flies are of the Lucillia Cuprina variety. The infected eggs will go through a sterilisation process and become **sterile eggs**. Next, the sterile eggs will be placed into sterile vials (container) to be sent for patient application. Maggots are a **safe, effective and even low-cost** method for the treatment of non-healing wounds.

#7

Can maggots turn into flies in wounds? Thankfully, no! The next stage of the life cycle for the maggot before it becomes a fly is the pupae stage. This process takes eight days. Maggots can **only pupate in dry areas** and not in a moist wound. Therefore, the maggots will not turn into flies while inside the wound.

#8

MDT is introduced to the wound via a **simple dressing**. A slight pain might be felt occasionally, but it can be controlled with simple painkillers.

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