



You'll either love them or hate them – and I'm not talking about 'marmite'.

Maggots!

Yes, you heard correctly ... maggots; Dipteran larva or simply 'grubs'.

The mere mention of maggots will make your stomach churn like an out-of-balance washing machine and without a second thought, you've labelled them as vile and repulsive. Whilst their beige and unassuming looks seems unthreatening and are often the perfect practical joke whenever rice is on the menu, when they are munching on your open wounds, you can't help but scream, "ewwwwww!"

At any given time, the common greenbottle fly (*Lucilia sericata*) can smell decaying flesh from up to 10 miles away and can lay up to 150-200 eggs¹ (a total of 2000-3000 eggs in her lifetime!). Maggots feed for the next 3-5 days and if you thought they needed teeth – you're in for a surprise! They are "nothing more than a basic eating machine," as Erica McAllister, author of 'The Inside Out of Flies'² simply puts it. They exude antimicrobials and digestive enzymes which liquefy decaying tissue and kill any harmful bacteria. They rub their entire rough exterior like gooey 'brillo'-pads and extend their mandibles or 'mouth hooks' to burrow into and scrape off any decaying tissue they can slurp up³.

Try to imagine these small squirmy creatures as tiny healers: who, when all else fails, work tirelessly to treat wounds, remove dead tissue, and combat bacteria. Moreover, with increasing rates of diabetic ulcers and superbugs sweeping hospitals, it's no surprise they're making a comeback.

A 2009 UK study of 267 persons with venous leg ulcers found that maggots outperformed conventional therapies at debriding infected wounds⁴. Furthermore, according to a study conducted at the West Cumberland Hospital, all infected ulcers recovered after just one session of maggot therapy, but 66% of patients who received conventional therapies remained in hospital for an additional month. Needless to say, maggot therapy was more effective and vastly more cost efficient!^{5,6} More recently, a team of surgeons at the University of Southern California demonstrated the potential of maggot therapy via telemedicine.

Right about now, you may be asking yourself: why are we just hearing about it? The short answer is – we're not. Maggots have been used to treat wounds as far back as man could write (5000 years!), with some of the earliest accounts dating back to ancient Native American, Aboriginal and Mayan societies.

Mayans would soak their bandages in cattle blood and wait for them to squirm underneath. Legends states that Genghis Khan never entered battle without a wagon full of larvae close behind. But it wasn't until the American Civil War when Dr J.F. Zacharias, a confederate medical officer purposefully exposed his patients' wounds to maggots, that the first documented therapeutic use of maggots occurred. Fast-forward to the golden age of maggot therapy: the 1930s, when maggots were widely used by thousands of physicians and mass produced by renowned pharmaceutical conglomerates like Wyeth (currently Pfizer). However, this was short-lived as Alexander Fleming's 1928 discovery of penicillin became commercially available in the mid-1940s, forcing maggots into early retirement – “a therapy the demise of which no one is likely to mourn” said microbiologist, Milton Wainwright.^{7,8}

It wasn't until 50 years later, when parasitologist Mumcuoglu saved a patient's left leg from amputation by advising the physician on the possibility of maggot therapy. And just like that, maggots were resurrected from the history books.⁷ Maggot factories were soon established in Wales, Germany, and Belgium and in 2004, maggots became the first living creature and only one of two (the other being leeches) to be approved for medical use by the Food and Drug Administration.⁹

Even so, maggots can't seem to get past their own *grossness*! According to Swansea University's newly launched campaign, 'Love a Maggot!', only 30% of people would agree to maggot therapy whereas many were only willing if the pain was too great¹⁰. In contrast, as part of shocking investigation conducted by Dutch physicians in 2002/3, 94% of patients who had received maggot therapy said they would recommend it to others despite the itching and the odour.

So, the real question is: how can we make maggots more appealing? The solution, according to researchers at BioMonde in Bridgend, South Wales is maggot 'tea-bags'. Maggots can be delivered for next-day delivery to hospitals and health facilities across the country through suspending the larvae in saline and concealing in a net dressing or 'biobag'¹¹.

Still, maggot therapy is rarely used despite studies having linked pre-amputation maggot therapy to saving 40-50% of limbs. With an increase in diabetes-related lower limb amputations by over 18% across England, that's more than 176 leg, foot or toe amputations being carried out on a weekly basis¹², should we really be so squeamish and give nature's miniature healers a fighting chance.

References

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