

# The sleep of reason produces monsters: the animal research debate continues

**I**s there an irreconcilable difference between homeopathic philosophy and mainstream science? Animal rights campaigners have been calling for a fundamental change to Society research policy, amounting to a ban on any mention of animal-related research. In this article, two members with very different backgrounds come together to consider questions and potential consequences arising from this call, along the way exploring homeopathic philosophy in relation to animals, historic links between homeopathy and the anti-vivisection movement and aspects of biomedical research with animals.

## 1. Against or against?

Animal rights issues invariably provoke strong reactions, but most people are uncertain, undecided and conflicted about the use of animals in laboratory research<sup>(1)</sup>. Calling the current discussion about animal research in homeopathy within the Society membership a "debate" is thus perhaps a misnomer: it implies that there is "for" and "against". Are there any members actively "for" the laboratory use of animals in homeopathy research? Not as far as we know!

A specific motion regarding the subject may yet be put to members to debate properly, but in the meantime, we are tasked with figuring out the complexities of this issue, disentangling fact and fiction amid emotion-tugging campaigning. Trying to make sense of available research literature is also part of this challenge, especially given that most of it is of limited accessibility with only all-too-brief abstracts or pre-digested opinion pieces available that can be short on checkable facts<sup>(2)</sup>.

## 2. The challenge

A group of Society members who are strongly committed to "animal ethics" (e.g. reference 3) are calling for the board to adopt an explicit research policy of actively condemning and rejecting all in vivo animal

experimentation in homeopathy. Suggestions for policy change propose a blanket ban on mention of any homeopathy research involving animal experimentation, as well as extending this ban to research where the authors have drawn on such experiments, even as references.

Some members have also demanded severing links between the Society and organisations/bodies that don't actively condemn animal experimentation too. Should this stance be adopted, the Society's positive and constructive relationship with the Homeopathy Research Institute, the 4Homeopathy group and other organisations would be significantly affected.

The Society research policy does not condone animal research in homeopathy<sup>(4)</sup>. The policy attempts to balance the ethical dilemmas around this topic and the difficulties that could result from principled non-citation of scarce and potentially valuable scientific facts. While the majority of members are in agreement with the standard set by the current policy, reasonable calls have been made for clarification of the wording and improvements in communicating to members the intention behind the policy<sup>(5)</sup>.

As the Society board and membership grapple with the idea of making policy changes, the moral outrage that many feel will hopefully fuel, and be balanced by, objective fact-finding and informed exploration of this difficult subject. Previous instances of changes to Society policy that have had complex, long-term consequences include a requirement to name the remedy unless "a patient expressly requests" otherwise, and tying members' promotional work into ASA restrictions. All well-intentioned, but making the commitment total has in each case caused a trail of unexpected consequences that do not serve homeopathy or our patients; but they can act as cautionary tales for us in this current discussion.

Another point to keep in mind: the UK homeopathic community is under threat from highly organized 'sceptic' activists. These homeopathy detractors have been increasingly active over the past 10 years, working to erode



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delight in lampooning meditative provings like the famous 'Berlin Wall', and some very popular homeopathic approaches use unproved remedies based on theoretical considerations, e.g. Scholten's 'Lanthanides'.

Proving is also not the only method of generating meaningful remedy information; there is no consensus over "correct" proving methodology and there is much discussion about the ethics of performing provings<sup>(12)</sup>. Proving does not provide definitive proof of a remedy's sphere of action.

It is unlikely that a remedy could ever be "proved" on an animal under experimental conditions in order to generate a clinical picture for our materia medica – Hahnemann certainly didn't think this possible (see Section 7 below). So, if animal usage in homeopathy is not essential to remedy testing or pre-clinical "provings" then can there be any excuse for it?

The purpose of a given piece of published animal-based research in homeopathy is rarely explicitly stated, leaving that question open to interpretation. Recent systematic reviews of animal papers published between 1999 and 2014, however, identified that the most common purposes were: testing the simillimum principle, isopathy, and explorations of the mechanisms underpinning remedy action<sup>(13, 14)</sup>.

While the purpose of such animal research is not typically to establish efficacy for clinical use, some identifiable clinical animal models of infection, physiology and behaviour are used. According to some views, such studies pander to the mainstream, as well as harming animals. But they are fully characterised and conventionally recognised models, meaning the confounding variables that plague fundamental homeopathy research can be minimised: this helps improve robustness of results, with enhanced confidence in their interpretation, and the possibility of attracting the sort of attention and credibility that might eventually garner some much-needed funding for homeopathy research.

**7. Hahnemann, homeopathy and animals**

Homeopathy is often referred to as a gentle and ethical medicine, primarily due to proving medicines on healthy people. These attributes appeal to homeopaths and patients alike. But where does the assertion come from that homeopathy is based on anti-animal-research principles?

Homeopathy was well-established in the UK – and already attracting controversy – by the time of the 1876 'Cruelty to Animals Act'. The anti-vivisectionists of the time found homeopathy congenial because of the lack of cruelty, and they found ready support among homeopaths<sup>(15)</sup>.

Hahnemann's considerations were not about animal cruelty per se: he focused on the needs

of the human patient. In 1796, he presented the "New Principle for Ascertaining the Curative Power of Drugs", which includes mention of animals and clarifies some core principles of homeopathy: "Thus much, at least, is certain, that the fine internal changes and sensations, which a man can express by words, must be totally wanting in the lower animals."

Hahnemann went so far as to consider whether testing his medicines on animals might make sense. He acknowledged that testing groups of animals could give some crude, basic results, but "never anything connected or decisive, that may influence our conclusions with regard to the proper curative virtues of the agent on the human subject. For this, [animal] experiments are too obscure, too rude and if I be allowed the expression, too awkward"<sup>(16)</sup>.

Thus, from the inception of homeopathy, animal testing was considered unsuitable for discovering how homeopathic drug actions might affect humans, pathogenetically or curatively. Most homeopaths would maintain that no matter the progress of science, those founding principles of putting human sensibility at the heart of the homeopathic process hold true. To what degree are we facing changing times that require a fresh look at the issues?

**8. What animal research is there in homeopathy?**

It is widely acknowledged that the size of the evidence base in homeopathy is minuscule compared to that available for conventional

biomedicine - and that this is predominantly due to lack of proper funding. In this context, how does the animal research evidence base compare numerically to the clinical evidence base in homeopathy? There are claims that "enough" high-quality clinical trial evidence is now available that animal-based research studies in homeopathy can be ignored.

By the end of 2014 there were 189 peer-reviewed randomised-controlled trials (RCTs) in homeopathy: the majority of these assess single remedies or combination remedies ('complexes') - not individualised homeopathy. Just 104 peer-reviewed placebo-controlled RCTs of sufficient quality to qualify for systematic review currently exist<sup>(17)</sup>. This academically accepted research covers more than 90 different clinical conditions: for many clinical conditions there may be just one published trial. Arguments continue about methodologies, and funding: most trials are small, and outcomes are typically at best 'cautiously positive'. But no matter how many clinical trials of homeopathy funding can be found for, the same arguments of "placebo effect" and "implausibility" that Hahnemann and friends had to listen to, are with us still, scintillating in modern high-tech science-speak.

Animal-based research in homeopathy goes back decades: for example, in 1955 two studies were published testing homeopathic *Arsenicum* for arsenic-induced hepatotoxicity in rats<sup>(18)</sup>. The number of published studies involving animals has steadily increased since then (Figure 2). There are now just over 100

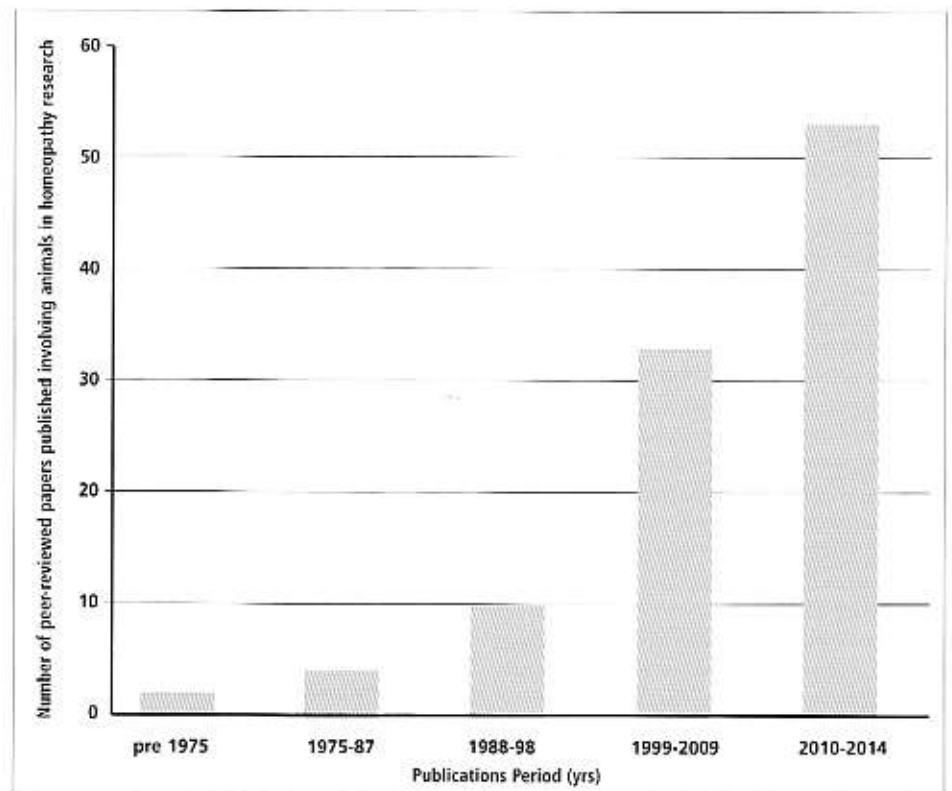


Figure 2. Bar chart of the estimated number of indexed peer-reviewed papers published in English involving animals in homeopathy research by decade: data extracted and adapted from references 13, 14.

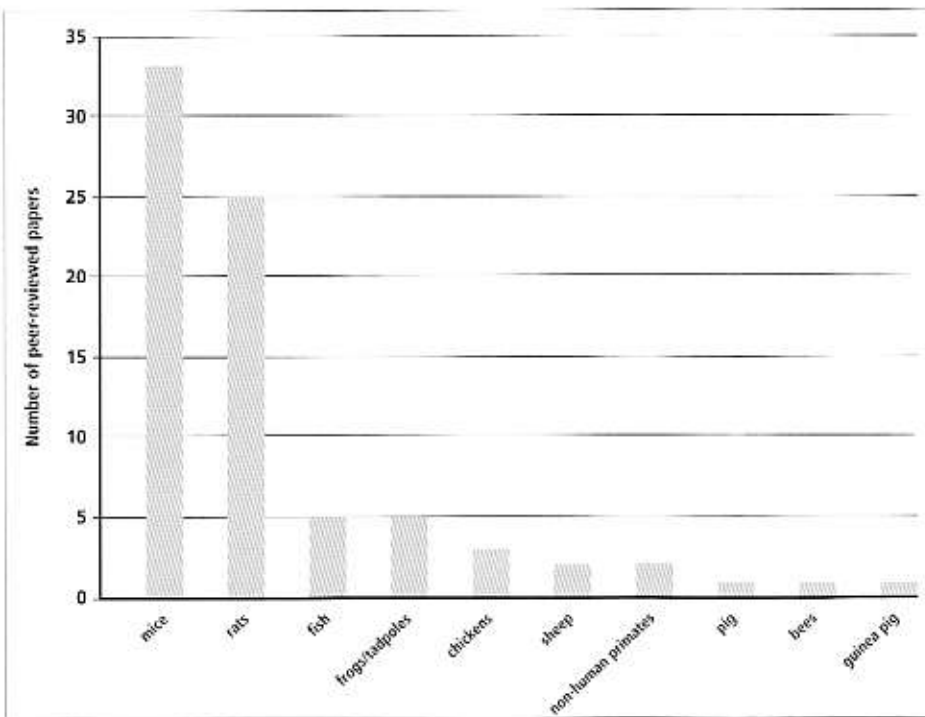


Figure 3. Number of indexed peer-reviewed papers published in English involving specific animal species in homeopathy research between 1999 and 2014; data extracted and adapted from references 13, 14.

published studies: half of which were published between 2010 and 2014 (Figure 2; <sup>19</sup>); most frequently, rats or mice are used (Figure 3).

Homeopathy is just one complementary and alternative therapy (CAM) with published animal-based research. In the online journal *Evidence Based Complementary and Alternative Medicine* (20) nearly a quarter of papers published in 2015 (23.5%; 232/983) had an animal species in the title. The most common CAM being investigated was Traditional Chinese Medicine (TCM)/herbal medicine.

So, to put animal-based research in homeopathy in perspective: there are over twice as many papers published in one CAM journal in one year using animal models than there have been published studies in homeopathy in the last 60 years.

In the last five years (2010 to 2014) animal research in homeopathy has expanded the range of animal species being used to include more non-mammals. There is now increasing use of ex vivo and in vitro cultures of tissues and cells derived from healthy animals (<sup>14</sup>). Experiments are becoming more refined; repetition of results - a cornerstone of modern scientific methods - is becoming more consistent and high throughput techniques mean more data can be generated from less tissue, with less cost to animal lives. It could thus be argued that overall, the basic research evidence base in homeopathy is getting stronger, animal-based research approaches included.

However, consideration of the number of studies alone does not show the numbers of individual animals involved in each of these

studies. For example, to date just one trial has used twelve capuchin monkeys (<sup>21</sup>) but thousands of fish have been exposed to homeopathy experimentally (<sup>22</sup>).

When the numbers of animals (primarily rodents) used in homeopathy research is compared with the total cost of animal lives in conventional animal research, for every one animal used in homeopathy research - 123,000 animals have been killed in pharmaceutical and biomedical research (<sup>23</sup>). As a percentage of the worldwide figure of animals killed or sacrificed in the name of medical research, at worst, 0.008 per cent died (since the year 2000) in the name of homeopathy.

This number is small - and likely an overestimate - but it does not negate the fact that those animals have been used or the need to prevent further costs to animal life and well-being, as homeopathy research moves forward.

### 9. Is there a place for animal research in homeopathy?

As shown above, the extent of clinical evidence and of animal-based research in homeopathy are orders of magnitude smaller than in some other CAM therapies, and vastly smaller still compared to conventional biomedical research. There is therefore legitimacy in the suggestion that, as the percentage is so small, and we already cite very few animal studies as part of the Society's work, why can't we do away with it entirely?

Animal testing is considered to be at the bottom of the wider clinical research evidence hierarchy, but all relevant papers taken together help synthesise a totality of current scientific understanding of the still-perplexing questions

around ultra-high dilutions. Animal research (not animal testing) stands alongside the clinical hierarchy of evidence on its own merits: there is no evidence hierarchy for basic research, with each paper being assigned a level of importance and value proportional to its quality.

Additionally, animal research is a significant part of one third of our whole evidence base in homeopathy. What would the impact be for the efforts of the Society in promoting homeopathy as a valid modality in an increasingly science-minded world, if we voluntarily cut off up to one third of the available evidence base? Would RCTs (with their many limitations) or the scant and patchy remaining studies in fundamental research cover all bases? The wider medical community, many homeopaths, and homeopathy's detractors are all calling for more and better-quality research. Adequate funding for suitably high-quality research in a 'beleaguered' modality like homeopathy is a rarity. Given these and other factors, a principled stance that amounts to self-imposed blindness to research, past, present or future, may be an approach the Society can ill afford.

The place animal research in homeopathy holds in the wider evidence base has little bearing on everyday clinical practice for homeopaths, who, like Hahnemann, are focused on the patient, not scientific endeavours. Why should the Society utilise resources tackling a complex issue that has little relevance for members' practice? Especially when there are other, larger, well-funded and staffed organisations campaigning vigorously against all animal research (including homeopathy) - is it really a judicious use of the Society's time and resources campaigning against this tiny aspect of it?

This brings us back to the central question: *As part of the Society's wider research policy, what position with regard to animal research would provide the greatest benefit to members, fulfil the remit of the membership call for action, and retain the spirit of unprejudiced enquiry - 'Aude Sapere'?*

### 10. What next for the Society?

As we have seen, "the Society does not condone or advocate the harming of animals used in research into homeopathic medicine" but "where necessary [...] may use, discuss and disseminate animal-based research in communications and general work in such a way that respects the sensitivity of the membership on this issue" (<sup>14</sup>).

Embedded in a more comprehensive statement about the Society's policy on research, this is clear and succinct: a sensitive and practical approach that leaves the Society free to limit itself with regard to this issue where possible, without being tied in knots.

Perhaps it is worth emphasising that the Society's remit is not research per se, as the full policy statement explains. Instead, there is a research committee, composed of

committed homeopaths with diverse science backgrounds, and the research consultancy position: the remit of which is supporting the Society's wider aims and supporting members, directly and indirectly (24).

A good basic knowledge of the science around homeopathy, as provided by the research committee, gives members the tools to engage. This can help when confronted with the multitude of questions that prevailing attacks on homeopathy may throw in our path: whether clients have heard news items denigrating homeopathy; or we need to work on our own websites with more than a weather eye on the ASA; whether we want to talk to people in our communities or write to our MPs; being well-informed about what is happening in homeopathy research adds credibility and empowers us. It is an important aspect of being a homeopath in the current climate of increasing emphasis on scientific data and evidence (21).

The research committee and consultants make the scientific knowledge base accessible to Society members (e.g. through the monthly bulletins); provides information to the board and chief executive; advises on copy for website information, TradCo leaflets and press releases; helps in dealing with sceptic attacks and the ASA; and recently was involved in

formulating the new Wikipedia statement (26).

Would we want to restrict ourselves, the Society, the research committee and the research consultant/s from all mentions of any kind of research where animal harm may be construed even indirectly, perhaps just through the references? What about the extra resources and costs required (more work in monitoring, more work in presenting 'permitted' material when such specific limitations are placed) – do we want the Society to cut corners in other aspects of its work, for example, to compensate for the extra cost?

When campaigning against animal research and defending animal rights, extensive citation of animal-based research is an essential part of the work (25,27). Do animal rights campaigners therefore condone or support such research by citing it? Are they implicated in the harm done to animals by drawing on relevant papers? If that seems to be a ridiculous idea, then it is also ridiculous to suggest that there should be a different, self-imposed, rule for the Society and its members, who need to be just as empowered as any animal rights group to work with all the research that is available.

Open enquiry, critical thought and freedom of action are disabled when rigid limitations are placed on what is 'mentionable'. It could be argued that such an approach would go against

the spirit of *Aude Sapere* – a crucial and central principle in homeopathy. Working with existing animal-based research is not only not condoning animal cruelty, it may at times even be highly necessary, for the very best of reasons: to look distasteful information fully in the face.

**11. Conclusion**

Hahnemann, when considering the question of testing remedies on animals, concluded that "with regard to the proper curative virtues of the agent [... animal] experiments are too obscure, too rude" (20). Similarly, Society members have no truck with animal experimentation. The majority understand the need to "discuss and disseminate animal-based research" with due respect to the sensitivity of this issue; those who would ban all mention of animal research are in a minority (8).

In furthering the aims of the Society and of the homeopathic profession, engagement with biomedical research does not condone animal cruelty any more than it rejects homeopathic principles. Homeopaths need the fullest possible information base and freedom to act and think in order to continue homeopathy's great tradition of unprejudiced enquiry. Silence has never yet made a wrong go away, and ignorance is not bliss.

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[7] The fatpale metamorphosis work by Endler is cited in one TradCo leaflet; some studies of experimentally induced erythema in rodents were cited in the skin Homeopathy Awareness Week leaflet in 2014 (there was no clinical trial evidence available and reference was kept to the barest minimum); the Society's submission to the House of Commons Select Committee on the role of homeopathy in combatting antimicrobial resistance involved all evidence available on infectious diseases, including infections in animals (natural and experimental).

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[22] There are a number of papers studying the effects of homeopathy in fish farming, specifically Nile tilapia – some with hundreds of individual fish involved. For example: <http://www.ncbi.nlm.nih.gov/pubmed/27616161>

[23] Getting accurate figures for in vivo animal research overall is not straightforward. The best estimates are still hampered by limited data collection. The most recent figures available (2012) estimate deaths of animals worldwide resulting from in vivo experiments as 115 million per year, with a downward trend overall. Given under-reporting and exclusions (e.g. animals bred for experiment but killed as 'surplus', animals killed for tissue harvesting, breeding animals, countries that don't report or where reported figures are doubtful), the true number of animals killed will be much higher (Source: Humane Society International). Taking the official estimate for all research-related animal deaths, and comparing these to the figures for in-vivo studies counted as 'homeopathic' by the mainstream: Over 15 years, plus/minus 1,725,000,000 animals killed for research; more than 1.7 billion animals. It is unclear how many animals died in the 200 in vivo experiments involving potentized substances. To arrive at a rough estimate, I searched for 'homeopath' and 'Wistar rat' (bred as a model organism for laboratory research since 1906). Most relevant abstracts don't provide figures. In those that do, numbers fluctuate from under 30 to over 100. Taking a rough average, I thought it reasonable to assume 70 animals per experiment. This gives an estimate of 14,000 laboratory animals that died for published studies, in experiments involving potentized remedies of all types, in the last 15 years.

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