

symptoms as an objective manner of addressing the question. The aim of the present study is to establish the sensitivity and LR of 35 common symptoms attributed to Lycopodium, comparing good respondents to this medicine to good respondents to other medicines.

Methods: In order to select which symptoms to be evaluated, a survey was conducted with 110 homeopaths -47 from Argentina and 63 from other countries- inquiring on the 10 most important symptoms they use to prescribe Lycopodium in their clinical practice. In a second phase of the study, the presence of selected symptoms was retrospectively assessed in the clinical records of the first visit of patients to the Homeopathic Outpatient Clinic of the Faculty of Medicine of Maimónides University. Patients with one only visit, no homeopathic prescription or more than one prescription, less than 18 or more than 65 years old or acute complaints were excluded. Only patients with good response attributable to the homeopathic treatment were included for analysis. Sensitivity (S) -or prevalence in Lycopodium responding cases- Likelihood Ratio (LR) and their 95% Confidence Intervals were calculated for each symptom.

Results: Twenty five homeopaths answered the survey and 35 symptoms were selected for the study. 875 records were assessed -about one fourth or the archive- and 564 excluded for different reasons. Of the remaining 311, 76.6% were females and 28.6% were prescribed Lycopodium. Females were more frequently prescribed Lycopodium than males (32.8% vs. 15.1%, P 0.003). Good response was seen more frequently in Lycopodium cases than in other medicines cases (75% vs. 62%, P <0.027). 205 good responding cases were included for symptoms analysis. LR of symptoms' prevalence were calculated between Lycopodium (n=67) and other medicines (n=138) good responding cases.

A group of symptoms emerged as being important pointers to Lycopodium prescription, having high sensitivity and higher than 1 statistically significant LR: *anger from (or intolerant of) contradiction* (S 50.7%, LR 2.7), *dictatorial* (S 40.3%, LR 7.9), *lack of self-confidence* (S 32.8%, LR 3.2), *irritability on waking* (S 20.9%, LR 4.1), *irritability before menses* (S 28.2%, LR 3.9), *helplessness* (S 20.9%, LR 2.2), *haughty* (S 10.4%, LR 4.8), *anticipation* (S 31.3%, LR 2.1), *conscientious* (S 32.8%, LR 1.6), *desire of chocolate* (S 22.4%, LR 2.1), *desire of sweets* (S 46.3%, LR 1.6) and *abdominal distention after eating* (S 34.3%, LR 2.2). The symptom *contemptuous* had a sensitivity of 7.5%, and it was only found in Lycopodium cases.

A second group of symptoms had a sensitivity between 3 and 12% and LR higher than 1, but statistically non significant: *reproaches*, *egotism*, *contrary*, *critical*, *fear of failure*, *suspicious*, *constipation alternating with diarrhoea*, *lack of vital heat* and *sensitive to clothing in abdomen*.

A third group of symptoms had very low sensitivity (S 1.5): *flatterer*, *hurry*, *nose obstruction during night*, *aversion to onions*, *past or present gallstones* and *sleeps on abdomen*.

Two symptoms had good sensitivity but LR lower than one, though statistically non significant, probably indicating a contraindication of Lycopodium: *reserved* (S

11.9%, LR 0.7) and *desire for open air* (S 7.5%, LR 0.4). Finally five symptoms were not recorded in Lycopodium cases but in one or two of the other medicines cases: *contemptuous -hard with subordinates and agreeable to superiors-*, *past or present renal calculi*, *fear of narrow places*, *easy satiety* and *worse at 4 pm*.

Conclusions: Retrospective asses of symptoms' sensitivity and LR could have an important place before performing more accurate prospective research about the same matter.

Highland amphibians and extremely diluted thyroxine

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Introduction: After more than two decades of experimental work on a model with amphibians and extremely diluted thyroxine, we now can refer to an independent meta-analysis by B. Harrer from Berlin on the international replication record of that model. A detailed account of the difficulties of this line of research has been published previously. One experiment found to be reproducible both by ourselves (i.e. the initial team) and by independent researchers inquires into the effect of thyroxine (T30x) (an ultra-high dilution obtained by 30 successive steps of tenfold dilution according to instructions of homeopathy) v analogously prepared water (W30x) in amphibians from *highland* biotopes. The purpose of Harrer's study was to replicate this experiment and to perform a metaanalysis reanalyzing the results reported by the initial team and by the independent researchers between 1991 and 2012.

Methods: (A): The experiment was replicated by Harrer himself. *Rana temporaria* were taken from an alpine biotope and were treated with T30x or W30x from the 2-legged stage on by adding 3microL of probe dilutions per animal to the basin water at intervals of 48h. Two end-points were considered: first, entry into the 4-legged stage, and second, tail reduction. The experiment was performed blind.

(B): A reanalysis was performed of the results reported by the initial team (based at that time at Graz University and the Graz Boltzmann Institute) and the independent researchers including Harrer himself (R. van Wijk from Utrecht University, H. Lassnig from the Federal Institute of Veterinary Medical Investigation Graz, C. Zausner-Lukitsch from Vienna University, G. Bach, at the suggestion of KIKOM, Bern University, Harrer from Patienteninformation fuer Naturheilkunde Berlin).

Results: (A) As in previous experiments, a clear trend was found of T30x animals developing more slowly (i.e. up to 6 h within 3 days) than W30x animals. Due to the small number of animals, the differences were not statistically significant (p > 0.05). The effect size, however, was large (d > 0.8).

(B) A total of 22 experiments were performed between 1991 and 2012, 15 by the initial team and 7 by altogether 5 independent researchers. In most of these experiments (the sole exception being two performed and reported by ourselves) a trend was found of T30x-animals being slower than W30x-animals. The differences in the individual sub-experiments, each involving 60–100 animals per group, were mostly not statistically significant ($p > 0.05$). The pooled results of the initial team and those of the independent researchers did show significant differences ($p < 0.01$ in either case). Pooled T30x values obtained by the initial team were 10.1% smaller than W30x values (100%) ($p < 0.01$ and $d > 0.8$), and pooled T30x values from the 5 independent researchers were 12.4% smaller ($p < 0.01$ and $d > 0.8$). Analogously, the number of animals entering the juvenile stage with reduced tail was smaller for T30x than for W30x.

Conclusion: A metamorphosis hormone diluted beyond Avogadro's limit using a process derived from homeopathy produced a clear trend of metamorphosis inhibition. This was observed by 7 researchers from Austria, Germany, Switzerland and the Netherlands.

Amelioration of pain and distress in tail-ringed lambs using homeopathy

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Introduction: To reduce the incidence of blowfly strike in dirty fleece, lowland lambs in England usually have their tails docked at between 1 and 7 days old. A small and very tight rubber ring is applied to the tail 35 to 50 mm from the base of the tail, thereby constricting the blood supply. The distal part of the tail falls off 2 or 3 weeks afterwards. Whilst it is in the long term welfare interests of the sheep, this routine operation results in short term pain and discomfort for between 15 and 30 minutes. This experiment was conducted to see if homeopathy could be used to ameliorate the discomfort.

Methods: This triple blind controlled trial randomised 54 Dorset Down lambs into equal groups of both sexes. The verum group received a homeopathic complex of Aconite, Arnica and Hypericum, all at 200c, administered by mouth from a further diluted preparation in a spray bottle. The placebo group received an apparently similar preparation.

The behaviour of each lamb was recorded on a standardised form, every minute for 20 minutes. Every movement was categorised and counted using check marks, each time that type of movement occurred in each minute.

At the end of the study, the recording sheets were transferred onto a spreadsheet via a scoring system of 0 to 3, where 0 is "no stress" and 3 is "maximum stress". For example, standing, or lying down with head up would score 0 for "no stress"; whilst lying down on its side and thrash-

ing all four legs would score 3 for "maximum stress". Other categories of movement scored intermediate values.

Results: The spreadsheet for each lamb was scored for each movement and each minute. The scores for each minute were then totalled to give a score for the whole 20 minutes of study, to give the Area Under the Curve. This is an assessment of the total distress experienced by each of the lambs under study.

Frequency histograms were plotted for both groups; mean AUC scores for the verum group were 228.3 and for the placebo group were 320.7; giving an effect size score of 92.4 (c.i. 66.15 to 118.65; $P < 0.001$). This amounts to a reduction in distress (reduced score) of 29% for the verum group.

Mean Distress Scores for each minute were also plotted for both groups. The peak distress for the verum lambs occurred about 3 minutes earlier than the placebo lambs and was 28% lower than the peak score for the placebo group. At the end of the 20 minute recording period, the final distress scores for the verum group were about 35% lower than the placebo group.

Conclusions: A reduction of approximately one third in total distress was achieved using homeopathic Aconite, Arnica and Hypericum 200c and is a practical and cost effective means of improving animal welfare on the farm.

Is homeopathic treatment as an effective intervention for children with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD)?

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How to demonstrate Homeopathic effectiveness is an ongoing question. Pragmatic trials have high external validity, representing homeopathic treatment as it is practised in real life, and may provide a solution. Two studies provide examples.

A consecutive case series investigated whether homeopathic treatment is effective for children with ADHD. Twenty children received adjunctive homeopathic treatment and were compared with ten children not receiving homeopathic treatment at baseline and after 24 weeks, on DSMIV characteristics (Conner's Parent Rating Scale - CPRS) and a self-selected-item scale (Measure Your Own Medical Outcome Profile - MYMOP).

An analysis of variance (ANOVA) found a significant interaction between time and the treatment received. A long term analysis of treated children after one year found that they continued to improve, with half the participants registering improvement in their DSMIV scores of over 10 points. Different methodologies were explored to ascertain optimum treatment protocols, and CEASE