# Numbing Factor: Natural vs. Synthetically Produced Anti-Inflammatories on the Behavior, Mortality, and Metabolism of Lumbricus terrestris

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It’s a reasonable and known human response to want pain reactions to end as fast as possible. The International Association for the Study of Pain (IASP; 1979) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. The usage of anti-inflammatories (painkillers) has gone up exponentially, and its usage in younger people has also increased. The focus of this project is to compare natural, synthetic, and semi-synthetic anti-inflammatories on the physical and neuro-response of earthworms over a 14-day period. Hypothetically the natural solutions should be gentler, with less physical and long-term responses, since the natural solutions break down sooner and are theoretically gentler. Earthworms were weighed, measured, and observed for color, movement, behavior, photosensitivity, and stimuli reaction, then exposed to capsaicin, turmeric, vitamin D, ibuprofen, naproxen, low and high dosage aspirin, green tea, diclofenac, fish oil, and compared to a control with nothing but corn starch feed. The hypotheses were nullified, as the worms exposed to natural solutions (green tea, capsaicin, turmeric, and fish oil) had more behavioral and neurofunction negative reactions than worms exposed to synthetic solutions (Ibuprofen, naproxen, Diclofenac) and partially synthetic solutions (high and low dose aspirin, vitamin D). The natural solutions had a higher mortality rate and were equal to synthetic on side effects.

**Awards Won:**