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### Broken Jaw Rehabilitation of Virginia Opossums

*Research into treatments for jaws broken at the hinge is ongoing.*

*New information will be included in this and other Sanctuari advisories as it becomes available.*

#### *AT A GLANCE*

- Jaw hinge breaks are not a “death sentence” and can be repaired by skilled veterinarians in numerous cases.
- Even if complete recovery is not achieved, Virginia opossums with broken jaws can live full, rewarding lives whether released or as non-releasables. If an opossum suffers a broken jaw requiring multiple surgeries and/or intensive aftercare, a permanent home should be secured under the assumption the animal will be non-releasable.
- The use of emerging additive manufacturing technology for medical applications may broaden treatment options in the near future.
- Nystatin is recommended after surgery involving the tongue. Using distilled water may help reduce stinging when cleansing tongue injuries.
- Great care must be taken in choosing enclosure and enrichment structures, for young opossums can easily fit their faces through certain wire kennel framings, which may cause broken jaws and other injuries. Only kennels with tight spacings between wires should be used for housing opossums who have not outgrown this danger.

#### *Broken Jaws in Opossums*

Fractured jaws are a common injury to opossums suffering human-induced trauma, whether by vehicular accident or direct intent to do harm. Thousands of opossums succumb yearly to complications from such injuries or are euthanized by rehabilitators incorrectly believing there to be no other option. While these injuries are serious and may look ghastly, there are avenues for recovery. Breaks along the mandible (jaw bone) are easier to treat, while fractures of the jaw’s temporomandibular joint (“hinge”) can be extremely challenging to repair and can demand the attention of a veterinary specialist. Depending upon the location and nature of the break, treatment for a fractured jaw may necessitate wiring the top and bottom jaws together, requiring subsequent tube feeding. While rehabilitating opossums with broken jaws is challenging, often just a few weeks of intensive care can make all the positive difference toward an animal’s survival and releasability.

Emerging additive manufacturing technologies provide promising avenues currently being explored and deployed in both human and veterinary medicine. As is the case with most opossum rehabilitation obstacles, fixing a broken jaw is a problem not of technology but of know-how. Achieving “perfect fits” with 3D-printed apparatus supplementing or replacing current fractured jaw treatments would require advanced imaging and other techniques that have only just begun to be attempted with animals such as the Virginia opossum.

**NOTE: All opossum rehabilitators and veterinarians should strive to be ready to handle broken jaw cases while also seeking continuous improvement of protocols, skills, and affiliates. Successes using a given technique, technology, or resource should be accurately and efficiently shared with the rehabilitation community to improve the standards of care for all wildlife.**

### *Treating Injured Tongues*

Some rehabilitators have had success using distilled water, rather than regular tap water or saline, to cleanse tongue injuries, as it seems to reduce stinging. In human studies, no appreciable difference has been found in the safety and/or efficacy of cleansing wounds using tap water, distilled water, cooled boiled water, or saline.<sup>1,2</sup> Any one of these which seems to work well and with minimal discomfort to the opossum is advisable to use. Of course, those that are reliably and directly observed to cause discomfort should be avoided.

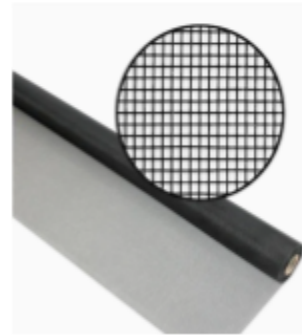
Thrush, a yeast infection of the mouth, is likely to follow medical procedures in the oral cavity involving manipulation of the tongue in an opossum. Thus, a three to five day course of the antifungal drug nystatin is advised following surgery to repair the tongue and/or jaw. Using the work of Dr. Henness of the National Opossum Society (NOS) and literature published for domestic species as references, recommended dosing of nystatin (oral suspension) for opossums is 25,000 units per pound, twice daily.<sup>3</sup>

### *An Example of Preventable Jaw Injury of Joeys & Jills*

An affectionate female opossum named Bella became non-releasable after a preventable accident which temporarily cost her some functionality of her jaw. As a jill, she and her siblings were housed in a kennel outfitted with a flexible screen, similar to the examples shown on the next page, to discourage them from climbing out. Bella became stuck after curiously biting at it and getting her teeth embedded in the screen. She then twisted her body in a manner which resulted in the fracture of her jaw. The use of materials like flexible screening, commonly sold at hardware stores, poses risk of severe injury in cases

like these, especially to babies. When covering a kennel for stress reduction or any other reason, heavy, intact fabrics are recommended to reduce the risk of teeth or nails becoming caught.

With their slim lower jaws and pointed noses, curious juvenile opossums are also very likely to become stuck between bars of kennels with narrow spacing. Their investigative nature should be encouraged safely, with climbing and housing structures that do not allow them to become trapped. Wire kennels of adequate size and outfittings are perfectly suitable as opossums grow to a larger size. As juvenile members of just about any species may find creative ways to injure themselves, eliminating preventable risks to an animal's health wherever possible is every rehabilitator's responsibility.



*CAUTION: Mesh, netting, or screens like the above may cause injury to juvenile opossums and should be considered hazardous to them. Opossum enclosures should be free of these materials or any others which may allow for juveniles to become stuck, twisted, or entangled, leading to injury.*

In less compassionate or progressive hands, Bella would have been killed over her injury. Fortunately, Bella was allowed to experience proper treatment and recovery, and she adapted to life as a non-releasable exceptionally well after her jaw healed. Her gentle temperament may have predisposed her to tameness, but any opossum exposed to increased human contact, and given intensive and competent medical attention, is more likely to become positively acclimated to handling. For this reason, a permanent home should be tentatively secured for any opossum undergoing such sequences of surgical procedures or medical treatments of similar scope.

*Sanctuari is always striving to keep its content current. If you have questions or additions you would like to ask or offer, contact us at [sanctuari.org@gmail.com](mailto:sanctuari.org@gmail.com) and reference the title of this piece.*

## **References**

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*Bella*