



## **Making Bone Broths for Wildlife Patients**

### **Task: Preparing chicken and fish bone broths**

**Objective:** These fluids can be prepared in bulk and frozen for use in many patients where gut microbiome issues are suspected.

**Note:** Many patients will not readily rehydrate through oral fluids, so the veterinary team should first begin rehydration using their SOPs for this issue. Bone broths can be used immediately to support by moistening the mouth and gastro-intestinal tract in conscious and swallowing patients, and to begin to support the gut microbiome. This fluid is also shown to be useful in cases of failure to thrive in youngsters e.g. eastern grey squirrels, songbird nestlings, etc. rapidly turning weight gain positive using chicken bone broth. Our teams have also observed grounded seabirds recovering and being released in shorter times when they are given oral fluid management of fish bone broths.

### **Procedures:**

#### **Chicken bone broth**

1. Try to use the best quality bones from reputable sources to reduce contamination issues from heavy metals e.g. lead (Pb), and antibiotic-fed birds. Lead will readily substitute for calcium in bones and tissues. Free-range chickens are often exposed to high levels of lead through their environment and are therefore to be used with caution. Organic does not mean free of unwanted products. Again, explore your options to ensure the bones will have the fewest non-nutritive residues as possible.
2. Submerge the bones in water using the most appropriate cooking method (see below) at your disposal and use the following guidelines. Add more water if the volume decreases significantly through the cooking process.
  - a. Large pot
    - i. Cover and bring to a boil, turn the heat down and very gently simmer 8 to 12 hours
  - b. Slow cooker
    - i. Cover, set to low and leave for 12 hours
  - c. Pressure cooker
    - i. Follow the manufacturers instructions
3. Cool the broth and strain off the liquid into a suitable container. It can be cloudy or have some solids in it with no issues. You can choose to strain it or leave the flocculant in the broth.

4. Freeze in ice cube trays, or freezer bags that are filled so the fluid is ½” or 1.5cm thick when lying flat – this way you can easily break off chunks as needed. This is likely to be reasonably stable for 6 months in your home or commercial freezer at -18C.

### **Fish bone broth**

1. Try to use the best quality bones from reputable sources. If fish and chip shops or restaurants serving fish meals are found locally, you can ask for the heads and back bones when they are filleting out their supplies of fish. Other options are your local community fisher folks who can save these for you, or commercial facilities that can do the same.
2. Submerge the bones in water using the most appropriate cooking method at your disposal and follow the guidelines. Ensure the cooking space is well ventilated unless you enjoy the smell of simmering fish bones!
  - a. Large pot
    - i. Cover and bring to a boil, turn down and very gently simmer 6 - 8 hours
  - b. Slow cooker
    - i. Cover, set to low and leave for 8 hours
  - c. Pressure cooker
    - i. Follow the manufacturers instructions
3. Cool the broth and strain off the liquids. It can be cloudy or have some solids in it with no issues.
4. Freeze in ice cube trays, or freezer bags that are filled so the fluid is ½” or 1.5cm thick when lying flat – this way you can easily break off chunks as needed. This is likely to be reasonably stable for 6 months in your home or commercial freezer at -18C.

### **Notes:**

You can use the bones and any cooked residue as fertiliser in your garden! Please avoid making them accessible to the local cats and dogs to avoid damage to their gastro-intestinal tracts if they eat them. Other disposal options may include grinding the bones down for fertiliser or disposing of them through your municipal waste facilities.

If you have access to other bones e.g. beef bones, from sources that you are aware are free from lead contamination, then do consider using them also. However, there is significant evidence that cattle (especially calves) will suck on painted surfaces that were often lead-painted, therefore acquiring significant levels of lead through their gastro-intestinal tract. That lead is then stored in their bones and other tissues. In human bones, the half-life is 10+ years. We can safely assume that cattle with high lead levels acquired as calves, will be slaughtered before the bone lead levels decrease significantly. Remember lead substitutes for calcium readily in biological systems!