Thin Is Not In
Emaciation In Mammals

Lea Peshock, RT, LWR

Woodland Wildlife Consulting

Emaciation

Emaciation is a result of prolonged starvation. It is a loss of body mass by digesting fat, muscle, and organs. The body has a wasted away appearance with prominent hip, spine and rib bones.

The greater the percentage of normal body weight loss the worse the animal’s physiological condition and the more intensive the required care. It lessens the animal’s ability to fight infection, disease and to heal from injuries.

Know Your Species

There are many species and classes of mammals. You may need to do research, communicate with other rehabilitators and check in with your veterinarian.

Causes Of Emaciation In Young Mammals

- Illness
- Disease
- Trauma
- Loss of parental care
- Ecto and Endo Parasites
- Starvation
- Chronic malnutrition
- Can be a combination of things

Causes Of Emaciation In Adult Mammals

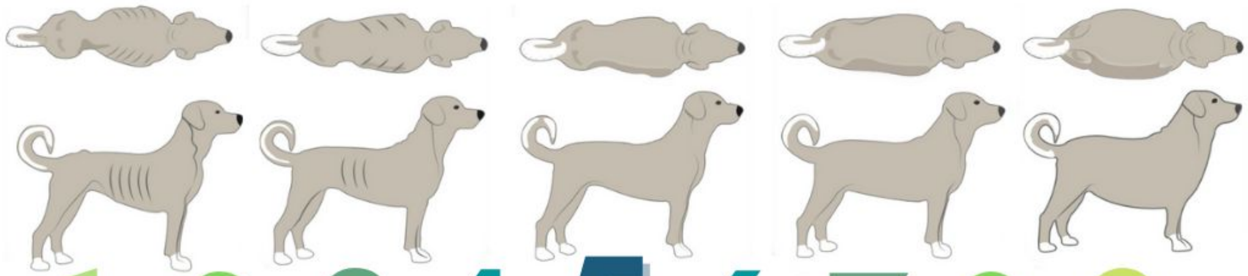
- Illness
- Disease
- Trauma
- Starvation
- Ecto and Endo Parasites
- Chronic malnutrition
- Can be a combination of things

Physical Exam

- Body Condition Score
- Dehydration level
- Eyes
- Mentation
- Parasites
- Urine and fecal output
- Hypothermia
- Injuries
- Consult with your veterinarian
- Euthanasia

Association for Pet Obesity Prevention

Body Condition Score (BCS) for Dogs



1 2 3 4 5 6 7 8 9

Very Thin

20% under ideal weight

- **Ribs, spine and hip bones are easily visible (coat may interfere with observation)**
- **Fat can not be seen or felt under the skin**
- **Obvious loss of muscle mass**
- **Extreme waist and abdominal tuck**

Thin

- **Ribs, spine and hip bones are easy to feel and visible**
- **Fat can not be seen or felt under the skin, especially around the ribs and lower back**
- **Obvious waist and abdominal tuck**
- **Some muscle loss**

Ideal

- **Ribs, spine and hip bones are easily felt and may be visible (coat may interfere with visibility)**
- **A waist and abdominal tuck are seen when viewed from above and side**
- **Fat can be felt around ribs, spine and hip bones**

Overweight

- **Ribs, spine and hip bones are not visible and difficult to feel**
- **Excess fat is felt around ribs, spine and hip bones**
- **Waist and abdominal tuck are minimal or absent**

Obesity

30% over ideal weight

- **Ribs, spine and hip bones are difficult to feel under a thick layer of fat**
- **Waist and abdomen distended when viewed from above and side**
- **Prominent fat deposits over lower spine, neck and chest**

German, A, et. al. Comparison of a bioimpedence monitor with dual energy x-ray absorptiometry for noninvasive estimation of percentage of body fat in dogs. *AJVR* 2010;71: 393-398.
Laflamme DP. Development and validation of a body condition score system for dogs. *Canine Pract.* 1997; 22: 10-15

First Things First

- Start with warm, dark, quiet
- Resist urge to feed (food can kill)
- Begin fluids (Lactated Ringers, Normasol, Pedialyte) and it may take time to be fully rehydrated
    - SC (most common)
    - IV
    - Oral if alert
- Assess injuries once more stable

Fluid Calculation

This calculation is for subcutaneous fluid administration:

Kg x percentage of dehydration= Amount of fluid needed to replace fluid loss

Not to be given all at once but divided throughout the day

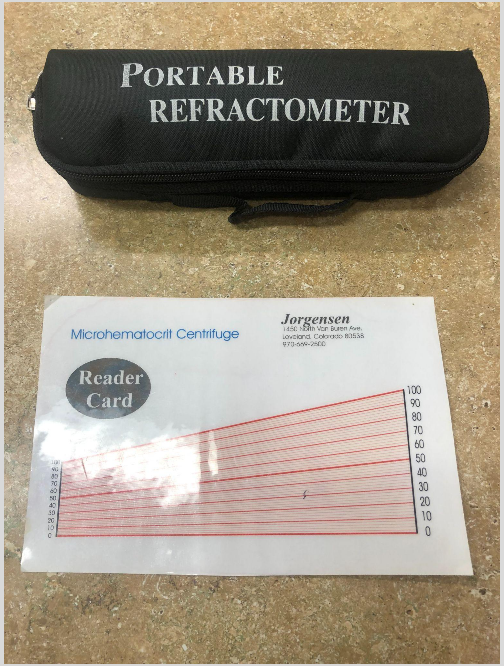
Importance of Fluid Replacement

- It is life saving
- Helps with thermoregulation
- Mentation
- Prevents permanent organ damage
- Increases GI function

Laboratory Workup

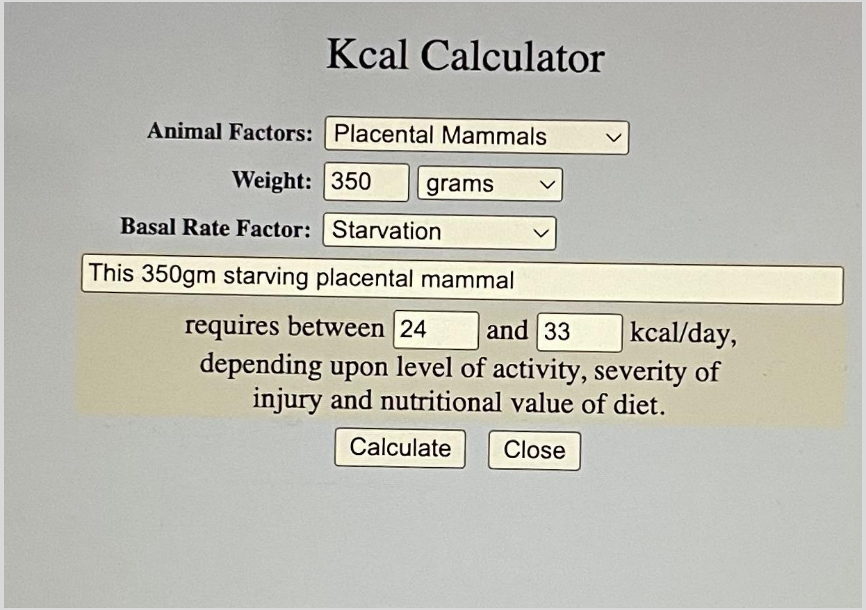
Stabilize the patient and consult with your veterinarian.

- PCV
- Chemistry
- Fecal



IDEXX

K-cal Calculations



*Need to find out how many calories are in the food you are getting ready to feed to make sure you are getting in all the calories required.

Refeeding Syndrome

Can appear hours to days after feeding begins

Definition:

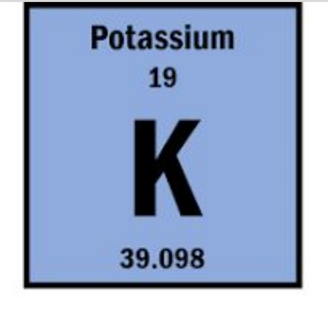
Medical complications that result from fluid and electrolyte shifts as a result of aggressive nutritional rehabilitation.

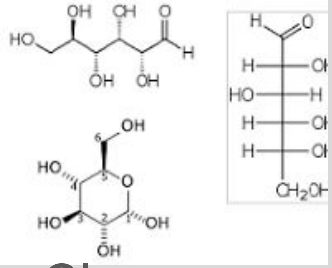
Why Carbohydrates Are Bad In Refeeding?

- The body uses fat and protein to survive not carbohydrates
- Suddenly food with carbohydrates is present
- Insulin is immediately released in response to carbohydrates
- Insulin drives glucose into the starving cell and also drives potassium and other phosphorus back into the cells.
- Now nothing in bloodstream for heart, muscle, brain because the body is so depleted
- Cells swell with fluid and triggers heart failure

Chemistry

- Phosphorus: helps maintain normal pH, kidney, muscle and nerve function
- Potassium: muscle contraction, balances fluids
- Glucose: energy for the body, essential for life
- Insulin: hormone, regulates blood sugar by absorbing glucose from bloodstream to the cell





Glucose

$C_{257}H_{383}N_{65}O_{77}S_6$. Molecular formula for Insulin

Who Can Get Refeeding Syndrome

Red Flags:

- Severely underweight
- Chronic Malnutrition
- Emaciation
- Rapid weight loss in a well-conditioned animal
- No food for 7-10 days or longer

Starting Food: Have a Plan

- Once warm and rehydrated start your plan:
    - Food needs to be given gradually and in small amounts and more frequently
    - Important to know the natural diet
    - 5% body weight for stomach capacity
-

Neonates

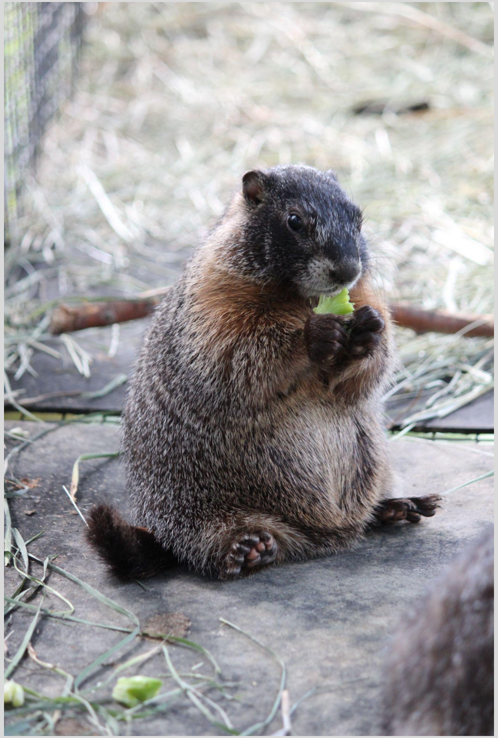
- Start with dilute formula depending on the severity of the emaciation
- No more than 5% body weight at one feeding
- Start slow with small amounts and more frequent, this is the patience part
- Gradually increase the concentration of formula to water

Weaned And Adult Mammals

- Make sure it is the right food for the species you are feeding
- Given like a soup or tube feed
- Emeraid Critcal Care
- Commercial dog food (A/D dog/cat food)
- Royal Canine Recovery canned
- Royal Canine Recovery liquid
- Chicken baby food

Gradually Add.....

- Food without skin, bones, organs
- Once at correct weight start natural foods for the species



Clinical Signs of Refeeding Syndrome

- Muscle weakness, head bent down, ataxic
- Initially eating well then stops or declines may regurgitate
- Breathing difficulty
- Cardiac arrhythmias, pale, weak
- Seizures
- Sudden death

Suspected Refeeding Syndrome

What do you do?

- Call your veterinarian!
- Stop all food until electrolytes have been restored
- Then feed 25% of normal amount of food
- Increase calories over 5-10 days
- Check PCV daily
- Check body weight daily to look for fluid overload and heart failure. May need to stop fluids
- Feed smaller more frequent meals

Final Thought

Recovery from emaciation is a slow process that may take weeks or months. The rehabilitation of emaciated animals is exacting and painstaking, and must be tailored and responsive to the animal's ever-changing condition.

IWRC

Bibliography

- **Wildlife Rehabilitation: A Comprehensive Approach** Second Edition
- **Alison Hazel, DVM**
- **Photos courtesy of Greenwood Wildlife Rehabilitation Center Longmont, Colorado**