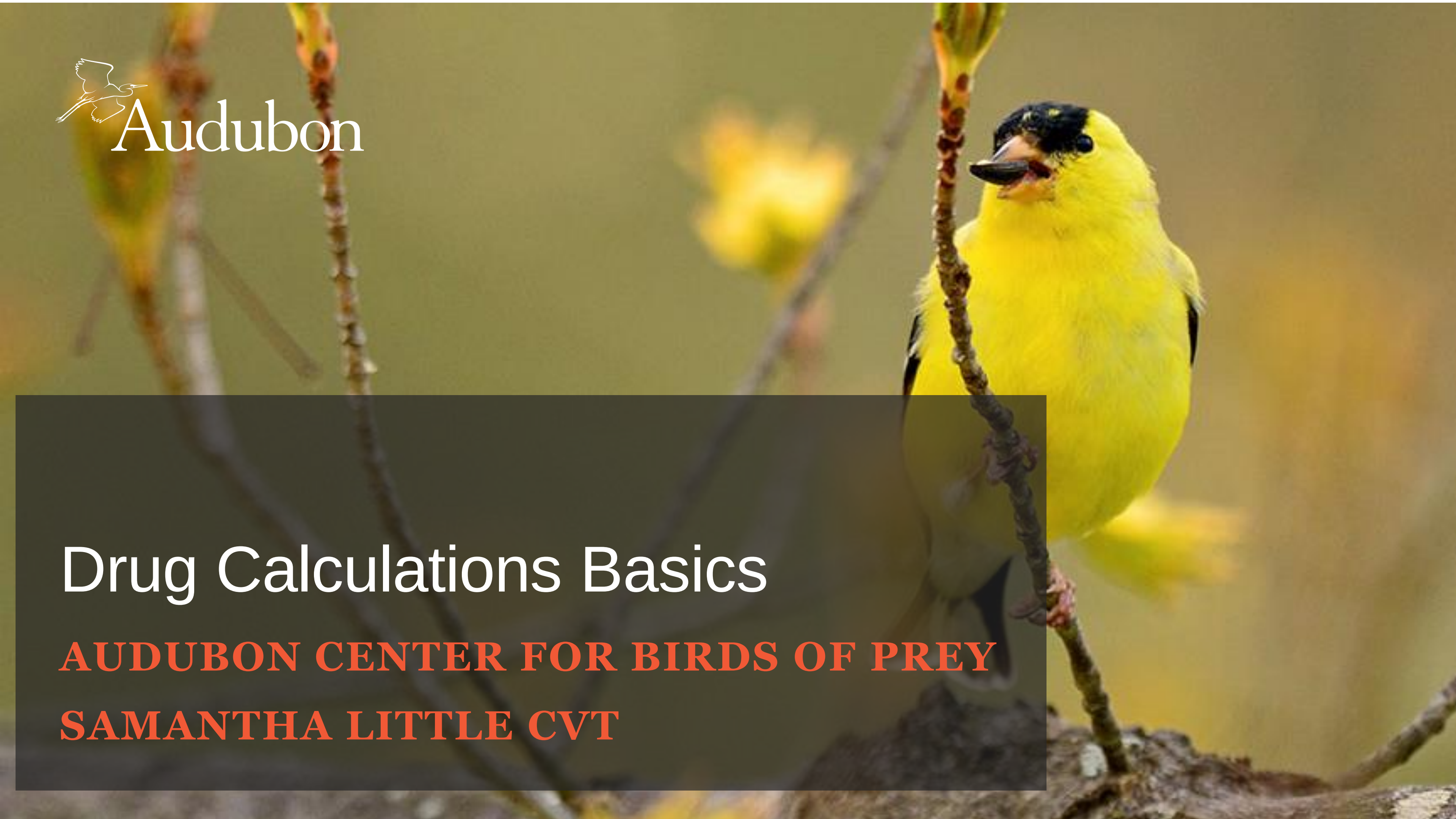

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Drug Calculations Basics

AUDUBON CENTER FOR BIRDS OF PREY

SAMANTHA LITTLE CVT

What can affect drug absorption?

- The dosage form: tablets, capsules, oral liquid, injection
- Blood supply to the area affected or lack of blood supply
- Hydration status
- Body temperature
- Status of the GI system
- How drug is absorbed
- The overall state of health of the animal
- The pH and ionization status of the drug

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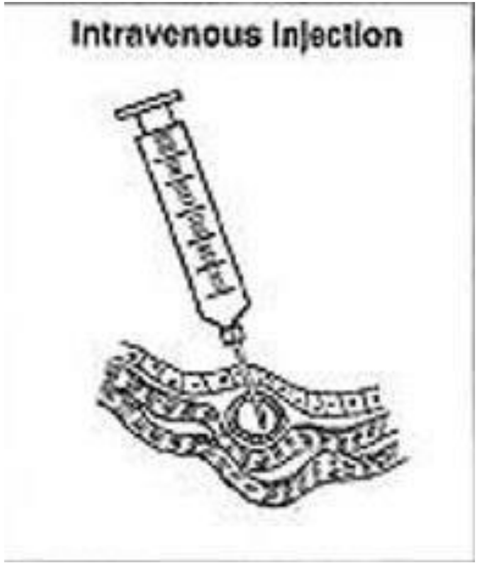
How medications are given- routes

- Oral (PO), Subcutaneous (SQ), Intramuscular (IM), Intravenous (IV)



Pros and Cons- routes of administration

Oral (PO)

- Convenience
- Less adverse reactions
- Not sterile
- May effect GI
- Slow onset/ longer duration

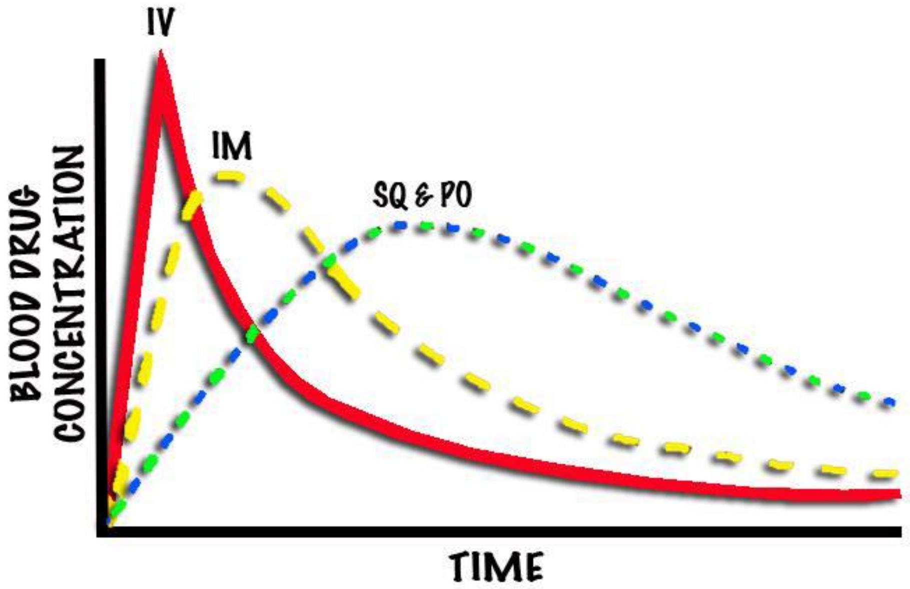
Subcutaneous (SQ)

- Less reliable blood levels
- Can irritate/ tissue damage
- Must be sterile
- Can give larger volume

Intramuscular (IM)

- Irritating/ tissue damage
- Must be sterile
- Rapid onset
- Longer duration than IV

ABSORPTION RATES



IV: BLOOD → CIRCULATE → FILTER → ELIMINATE

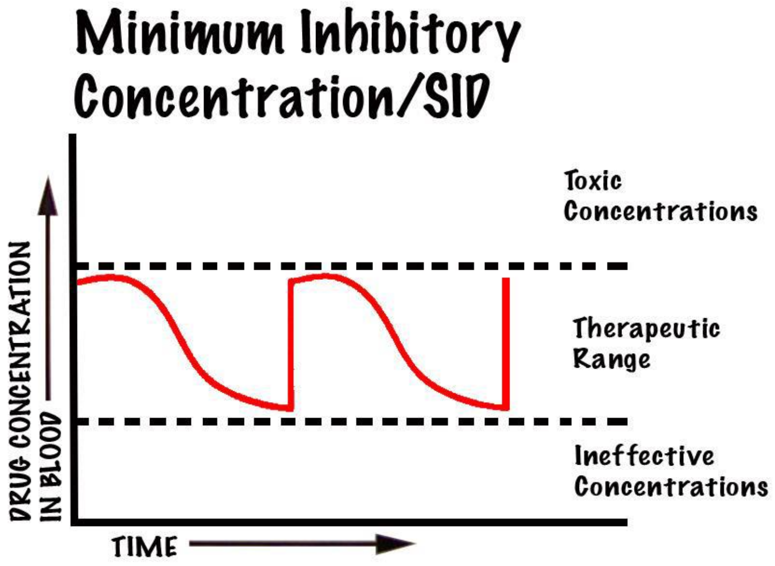
IM: MUSCLE → BLOOD → CIRCULATE → FILTER → ELIMINATE

SQ: SKIN → MUSCLE → BLOOD → CIRCULATE → FILTER → ELIMINATE

PO: MOUTH → DIGESTIVE SYSTEM → GI WALLS → CIRCULATE → FILTER → ELIMINATE

Always administer medications as directed

- Determine the frequency of the medication
- Medications are given at different times a day depending on the individual drugs therapeutic level
- SID, BID, or TID



Always remember Do No Harm

What does do no harm look like?

- Always get a proper weight
- Overdosing= adverse reactions
- Under dosing= No therapeutic dose
- Antibiotic resistance
- Pain

What does do no harm look like?

- Only give what is needed
- Correct forms and locations

How to calculate drug doses

Weight x Dose x Concentration = 1 dose

- Weight is in Kg
- Dose is from medication formulary
- Concentration is on the medication bottle
- Can make solutions from tablets to make liquid

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Calculating Meloxicam

500g Red-Shouldered Hawk

- Weight = 0.500kg
- Dose = 2mg/kg
- Concentration = 1.5mg/ml

$$0.500\text{kg} \times \frac{2\text{mg}}{\text{Kg}} \times \frac{\text{ml}}{1.5\text{mg}} = 0.67\text{ml}$$

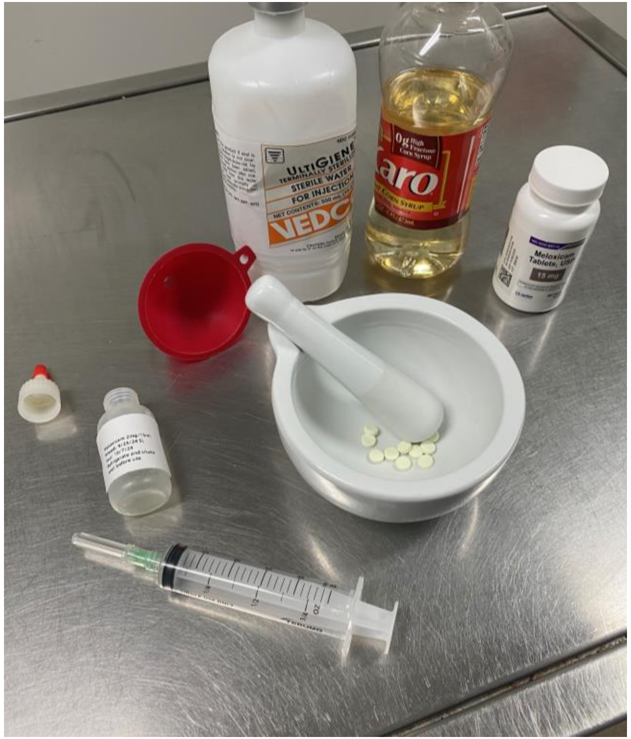
Calculation for Solutions

$$0.500\text{kg} \times \frac{2\text{mg}}{\text{Kg}} \times \frac{1 \text{ tab}}{15 \text{ mg}} = 0.067$$

- The dose is too small so we can make an oral solution
- Usually add 2-6mls to a tablet so the solution works for the size patient you are working with

$$0.500\text{kg} \times \frac{2\text{mg}}{\text{Kg}} \times \frac{\text{tab}}{15\text{mg}} \times \frac{2\text{ml}}{\text{tab}} = 0.13\text{ml}$$

- Mix 0.1ml karo syrup for every 0.9ml water



Options for Practice

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Patient/ Weight

- Get weight on patient or use one provided
- Convert weight to Kgs
- Determine what med you want to calculate

Med calculation

- Find dose in formulary
- Find medications concentration that works best for your patient
- Calculate:

Wt x dose x concentration

$$Kg \times \frac{mg}{Kg} \times \frac{\text{tab or ml}}{mg}$$

Oral solution/dilution

- Calculate as many meds you would like
- Utilize more than one patient to see changes in dose
- Calculate for solution
- Calculate:

x amt ml H2O

$$\times \frac{\text{H2O (2-6mls)}}{\text{Tab (mg)}}$$