Aggression and social structure
What is aggression?

• Any behavior that cause injuries to other animal

• Social interaction with the intention to inflict damage

• Hostile, injurious or destructive behavior caused by frustration
What is Aggression?

"A forceful behavior, action, or attitude that is expressed physically, verbally, or symbolically. It may arise from innate drives or occur as a defense mechanism..."

Mosby’s Medical dictionary, 2009
Types of aggression

- Social
- Territorial
- Pain
- Fear
- Maternal
- Predatory
Categories of aggression

Social Aggression:
It occurs when animals live in groups. It serves to establish the order of the group, which animals are dominant or submissive.

Hierarchy: Alpha animal > beta animal > subordinates.
Categories of aggression

**Territorial Aggression:**

- Resources
  - Territory
  - Food
  - Mate
  - Owner
Categories of aggression

**Pain induced aggression:**

This aggression is based on induced pain or fear of the pain. The function is to reduce the pain by eliminating the source.
Categories of aggression

Fear induced aggression:

It is the fear of the unknown, or fear of a specific person or animal with no apparent cause.

Fear induced aggression
Categories of aggression:

**Irritable aggression:**

This behavior happens when the animal is hungry, tired, or sick. It has less tolerance for disturbing situations and will attack the source of the disturbing stimuli.
Categories of aggression

Maternal aggression:
It is directed to protect the offspring against a possible dangerous animal/human.

Maternal aggression
Maternal aggression Dog
Categories of aggression

Sexual aggression:

In some species mating behavior is accompanied by severe biting by the male. It can also include competition between animals for a sexual partner.
Categories of aggression:

Predatory aggression:

It is the aggression in order to get food, usually the animal attacking is interested in eating its prey.
Biological basis of aggression

Genetic factors:

- Breed
Biological basis of aggression

Environmental control of aggression:

Environment plays a main role in the level and frequency of aggression, smaller pens are directly related to the rates of aggression.
Biological basis of aggression

Neuroanatomical lesions:

The hypothalamus has an important role of regulating aggressive behavior and hypothalamic lesions can alter the rate of aggressive behaviors.
Biological basis of aggression

Neurochemical/Hormonal control of aggression:

Injections of certain substances as well as the presence of specific hormones, such as testosterone, increase aggressive behavior.
Cow
Social Behavior

• Free-Ranging cattle
  – Solitary bulls

• Confined cattle
  – Animals from the same farm

• Grooming
  – Few minutes per day
  – During feeding time
  – Hierarchical
Social aggression

Determinants of dominance:

• Height
• Weight*
• Horns
• Age*
• Sex
• Territory
Social aggression

Determinants of dominance:
• When moving submissive are first
• Dominant first to eat
• Estrus increase dominant behavior
• Dairy vs Beef
• Mounting
Aggressive behavior
Social aggression
Sheep
Social behavior

• Wild
  – Groups

• Flocking
  – Same breed
  – Familiar animals
  – Separation calls
Social aggression

• Determinant of dominance
  – Oldest
  – Leader
  – Push subordinates

• Sexual aggression
  – The most common type
Goat
Social behavior

• Wild
  – Groups

• Grooming
  – Scratching
  – With the canine or incisors

• Dominance
  – Horn size
  – More aggressive than Sheep
Horses
Social aggression

• Determinant of dominance
  – Oldest
  – Leader
  – Push subordinates

• Sexual aggression
  – The most common type
Social behavior

• Band
• Dominant female
• Female choose the band
• Bachelor band
• Aggression
  – Water holes
  – Vocalization assessment
Social behavior

• Big band have more than one male
• Daughter of dominant tend to be dominant
• Preference within herd
  – Share resources
  – Groom
• Grooming
  – Friend or similar rank
  – Coon during spring
Social aggression in Horses
Aggressive behavior in horses

- Running
- Chasing
- Circling biting
- Kicking
- Levade
Horses herd hierarchy

Adult male > Adult female > Young male > Young female > Male foal > Female foal
Treating horse aggression

- Stall guarding
- Reward non-aggressive behavior
- Drugs (side effects)
- Tryptophan supplementation
- Familiarize animals before mixing
- Castration
Pigs
Social aggression- Teat order
Social aggression- Hierarchy formation after mixing

• Behaviors
  – Sniffing
  – Vocalization
  – **Fighting**
    • Butt the head
    • Biting (ears, neck, shoulder)
Social aggression- Hierarchy formation after mixing

• How to prevent it?
  – Pen size and shape
  – Different in size
  – Keep littermates together
  – Enrichment
    • Toys
    • Pheromones
Social aggression - Sows

• Dominant Sows
  – More piglets
  – Dominant offspring

• Subordinate Sows
  – Lower litter size
  – Less estrus behavior
Social aggression in pigs

Fig. 2.6. Agonistic behavior in boars. (A) Pawing the ground during initial encounter, (B) strutting, (C) shoulder-to-shoulder contact and slashing, (D) perpendicular biting attack, (E) submission of pig on the right, (F) pursuit of the loser (Hafez and Signore 1969, copyright © 1969, with permission of W. B. Saunders Co.).
Dog
Social Behavior

• Urban dog
  – Small group

• Aggressive behavior
  – Ears pointing back
  – Male more than female
  – Spayed females more than intact
  – Biting head, ears, neck, thorax
The **canine LADDER of AGGRESSION**

Dogs communicate their discomfort with a situation and a desire to end an interaction by using visual cues. These are depicted on this ladder of aggression. Recognizing the lower-rung gestures is important so a perceived stress or threat to a dog can be removed sooner.

1. **Bites**
2. **Snaps**
3. **Growls**
4. **Stiffens, Stares**
5. **Lies down, leg up**
6. **Stands crouched, tucks tail under**
7. **Creeps, ears back**
8. **Walks away**
9. **Turns body away, sits, paws**
10. **Turns head away**
11. **Blinks, yawns, licks nose**

Social structure and aggression

Dogs:

In dogs size is important to establish dominance. However, territoriality is more important.

Males are usually dominants over females, but the opposite may happen.
Aggression in dogs

- Social aggression
- Territorial aggression
- Fear-induced aggression
- Irritable aggression
- Maternal aggression
- Predatory aggression
Aggression in dogs

Social Aggression

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Fig. 2.7. Dominant and submissive postures in dogs. The dominant dog (D) forming an intimidating T-position relative to the position of the subordinate (S) who attempts to avoid a confrontation by turning away (Fox, 1972, copyright © 1972, with permission of Coward, McCann and Geoghegan).
How to reduce aggression?

- Breed
- Socialize dog at early stage
- Diet
  - Tryptophan
- Castration
  - Do not affect territorial
Cat
Social Behavior

- Wild
  - Solitaries
- Urban cats
  - Group
  - Near a food source
- Grooming
  - Very important
  - Allogroming
Social Aggression in cats

Fig. 2.9. Dominant and submissive postures in cats. The dominant cat is on the right. The submissive cat moves slowly away and avoids eye contact (Leyhausen 1975, Katzen—eine Verhaltenskunde, 6th ed., copyright ©, 1982, with permission of Paul Parey, Berlin and Hamburg).
Sexual aggression in cats
Predatory aggression in cats

Predatory behavior