Thank you for your attention!

Socialized dogs vs wolves:

- initiate vocal and visual interaction more frequently
- responds more human communicative signs
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=> adapt more easily to humans

=> *domestication: increased the length of the socialization period*
How can you tame a wolf? A comparative study of canine social cognition

Enikő Kubinyi
Eötvös Loránd University, Dept. of Ethology, Senior Family Dog Project
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Wolf hand-raisers:
Horkai Zoltán - Jimmy-Joe, Zed
Kubinyi Enikő - Minka, Ursula
Virányi Zsófia - Rebeka, Bogi
Ujfalussy Dorottya - Barnabás, Bence
Kurys Anita - Maja
Újváry Dóra - Tóbiás
Belényi Bea - Borisz
Takács Noémi - Zazi
Navratil Andrea - Léna

2001
13 wolves
2002
Dog hand-raisers:
Győri Borbála - Maugli,
Varga Orsolya - Arwen
Belényi Bea - Oskár
Lakatos Gabriella - Túcsök
Kubinyi Enikő - Stuka
Kurys Anita - Dodi
Ujfalussy Dorottya - Füles
Virányi Zsófia - Boróka, Tődor
Pásztor Attila - Zokni

Senior researchers:
Gácsi Márta, Miklósi Ádám, Topál József,
Csányi Vilmos

2001
2003

11 dogs
genetic

ontogenetic

domestication

dog

socialization

tame dog

tame wolf

natural selection

shorter, more specific socialization period

Wolf hand-raisers:
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2001

2003

11 dogs
Potential mechanism

domestication: mild neural crest abnormality during the embryonal development

-> decrease reactivity
-> longer socialization

Wilkins et al 2014
Phylogenetic tree
Colors: ecological niche
non-exclusive theories of domestication

1. individual based selection

2. population based selection
3. dog-human coevolution
4. human group selection

5. cultural-technological evolution
Archeology

THOUSAND YEARS
36 Belgium (Goyet)
33 South Siberia (Razboinichya Cave, Altai)
31.5 Czechia (Předmostí)
14 Germany (Oberkassel)
14 Israel (Kebara)
12 Iraq (Palegawra)
10 England (Seamer Carr)
9.3 USA (Texas)
8.5 Chile (Fell's Cave)
Genetic findings

THOUSAND YEARS
130 Vilá et al. 1997 (mtDNS): East Asia, diverse origin

vonHoldt et al, 2010 (GW SNP), Middle East
Ding et al, 2012 (Y) Europe

14-6.4 Frantz et al. 2016: dual origin "Old, deep split between East Asian and Western Eurasian dogs. Thus, dogs were domesticated from two separate wolf populations on either side of the Old World."

40-20 Botugué et al 2017: no genetic evidence for dual origins (Europe)
Miklósí, 2007
Budapest World BIS 2013

1873 1st Kennel Club (UK)
1899 Hungarian Kennel Club

Breed formation:
Parker et al 2004
vonHoldt et al 2010
Parker et al 2017: 23 clades
two-step process:
1) ancient breeders bred dogs for specific jobs
2) in the past 200 years people subdivided/crossed those larger groups into breeds by selection for physical attribute

- pug was used to shrink many other breeds
- mixing cause same disease in different breeds
Fox experiment is replaying domestication in fast-forward

New book recounts nearly 60-year effort to understand taming process

BY TINA HESMAN SAELY 8:00AM, APRIL 29, 2017

DOMESTICATION IN ACTION How to Tame a Fox tells the story of a long-running experiment to domesticate silver foxes (a wild silver fox is shown).
selectional criteria: approaching human, tolerating touch
original pop: 30 males, 100 females
5-10% bred to next generation
--> 10. gen: 18%, 30. gen: 70-80% approach

Belyaev, 1979, Trut, 2001

'domesticated' fox

'By-products': neuroendocrin system, morphology, other behaviour
• socialization/taming with hand raising - learning process

• reduce: stress, fear of humans; increase: trainability, affinity for humans (Price 2002)
• intensive and sensitive human care
• avoidance of aggressive, competitive interactions
• 1 individual-1 handraiser
• 22-24 h daily contact
- socialization with other animals

- 4 m-1y: gradual habituation to the pack: Horatius Ltd, Gödöllő

regular walks and tests until 2y
Trainability

1. Calling out from the pack
2. Sitting and lying down
3. Wearing dog accessories
4. Social and physical neophobia

- Calling: all animals approached the caretaker in less than 46 sec ($22.3 \pm 5.3$)
- Sitting as long as possible: $10.9 \pm 2.2$ s; no diff with unfamiliar woman
- Muzzle ($10.5 \pm 1.6$ s)
- Socks on two legs ($10.1 \pm 3.4$ s). Only 2 animals pulled off the socks in the subsequent 30 seconds. 1 became adventurous, the other one showed aggressive signs - we stopped the test.

- Unsocialized wolves are afraid of passing through a flag barrier (Musiani et al., 2003) but here all animals crossed the flag barrier < 1 min.
• Calling: all animals approached the caretaker in less than 46 sec (22.3 ± 5.3)

• Sitting as long as possible: 10.9 ± 2.2 s; no diff with unfamiliar woman

• Muzzle (10.5 ± 1.6 s)
• Socks on two legs (101.8 ± 34.3). Only 2 animals pulled off the socks in the subsequent 30 seconds
  • in case of unfamiliar woman 4 (from both age-groups) showed aggressive signs - we stopped the test.

• unsocialized wolves are afraid of passing through a flag barrier (Musiani et al., 2003) BUT here: all animal crossed the flag barrier <1min
Trainability similar to dogs (in some aspects) --> comparisons can be conducted
Communication

4 months old dogs gaze sooner and longer at the owner in both tasks

young wolves look less at the human upper part (face, hand)

control aggression less --> self-control develops later
4 months o wolves choose randomly in the pointing tests (short distal), but adults perform well

Virányi et al 2008, Gácsi et al 2009
8 week old wolves approach later the pots, struggle and bite more
4 months old dogs gaze sooner and longer at the owner in both tasks
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Communications

4 months old dogs gaze sooner and longer at the owner in both tasks.

Young wolves look less at the human upper part (face, hand)
control aggression less --> self-control develops later
Aggression

- wild wolves are peaceful (within the pack)
- captive wolves: less aggressive than captive giant poodles

- 9/13 growled, bit during tests, dogs never
- aggression can be avoided by following the rules, but still happened

6 months old wolf in the dormitory where she spent her first 8 weeks. 2 bite attempts in a short period
• 9/13 growled, bit during tests, dogs never
• aggression can be avoided by following the rules, but still happened

6 months old wolf in the dormitory where she spent her first 8 weeks. 2 bite attempts in a short period
Controllability

possessivity, obedience, persistence

dogs:
- less possessive with food
- more obedient if sg is forbidden
- although not less motivated in getting food during puppy hood...
Húselvétel tesztek
Social preference test

- Frank & Frank 1982: wolves prefer conspecifics, malamutes prefer humans
- Gáczi et al 2005: no dog preference, but owner preference in 3-5 week olds

Dogs approach and gaze at humans more frequently, wag their tails and are more vocal.
dogs approach and gaze at humans more frequently, wag their tails and more vocal
Attachment
Hall et al 2015

10 wolves 3, 5, 7 hetesek

not more approach but more greeting
4 month old wolves: no attachment

(Topál et al 2005)
Greeting humans

1. Group greeting

- 6 month
- Visitors:
- Unfamiliar 1st time
- Unfamiliar 2nd time
- Familiar person
- Foster parent

- spent more time with the foster parent
- jumped more on her

2. Individual greeting

- 12-24 months
- proximity
- jumps

- spent more time with the foster parent
- jumped more on her
- never crouched (sign of fear)

- obvious hand-raiser preference
- affiliation - without attachment
- unfamiliar persons: exploration instead of greeting

Ujfalussy et al, 2017
Részlet a Farkaslesen c. filmből
1. group greeting

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Ujfalussy et al, 2017
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=> domestication: increased the length of the socialization period
Founders/Leaders

FRIEDERIKE RANGE
Leader and Founder

KURT KOTRSCHAL
Leader and Founder

ZSOFIA VIRANYI
Leader and Founder

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