

Consciousness, Pain & “Enhanced Awareness” in Nonhuman Animals:

Key Concepts, Evidence & Ethical Implications

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Preliminaries

- I speak for myself, not for NIH or any other part of the federal government
- No conflicts to declare

Plan

- Clarify some key concepts
- Consider relevant types of evidence
- Explore ethical implications

Key Concepts

Part 1

Consciousness

- **Consciousness** – what's common to all subjective experience
- In this broad sense, can be present even during sleep (dreaming)
- A precondition for **sentience**

Sentience

- **Sentience** = capacity for consciousness + affect
- **Sentience** = capacity for (un)pleasant experiences
- Basis for **quality of life**
- Plausible basis for **moral status**

Pain

- Pain – unpleasant sensory experience associated w/tissue damage
- Distinct from nociception
- Sufficient for sentience
- Not strictly necessary for sentience
- But probably all sentient animals can experience pain

“Enhanced or human awareness”?

- Asked to explore when animals might have ...
- Suggest dropping “human”
- Might think of “enhanced” awareness as self-awareness
- Many scientists & philosophers have assumed self-awareness is
 - A **single** phenomenon
 - Exclusively **human**
- **Wrong** on both counts



Self-awareness

- Different conceptions of self-awareness involve awareness of a self *as a self* and *existing over time*
- Four types
 - Bodily-agential self-awareness
 - Social self-awareness
 - Introspective awareness
 - Biographical self-awareness (narrative identity)



Evidence

Part 2

RE evidence for consciousness & sentience

- Will assume
 - all conscious animals are sentient
 - all sentient animals can feel pain
- So will focus on evidence for ability to feel pain
- Evidence for nociception will be important but not sufficient
- Note: my suggestions are only suggestions

Types of evidence for ability to feel pain

1. nociception or similar responsiveness to noxious stimuli
2. CNS with (suitable) brain
3. Protective behavior toward injured body parts
4. Learned avoidance
5. Opioid receptors, endogenous opioids, and/or responsiveness to anesthetics, analgesics, opioids
6. Trade-offs between noxious stimulus avoidance & other health-promoting behaviors

What kinds of animals?

- Note: PHS policy covers vertebrates
- EU Directive covers vertebrates + cephalopods
- Largely consonant with available evidence although ...
 - Evidence much stronger for bony fishes than jawless & cartilaginous fishes
 - Intermediate evidence for crustaceans
- Good working assumption: (at least) what EU covers

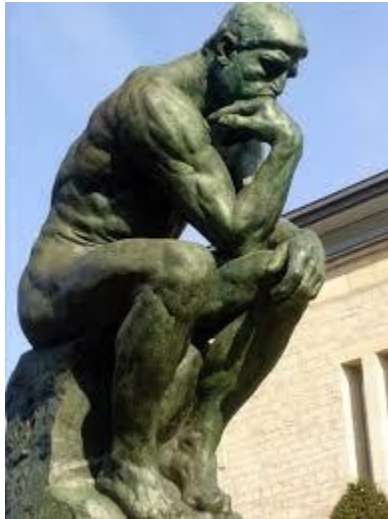


What about self-awareness?

- Relevant evidence is mostly behavioral
- Can't review here but in other work I've done so & argued:
 - **Bodily-agential** self-awareness: many animals
 - **Social** self-awareness: many mammals
 - **Introspective** awareness: a few species
 - A few—perhaps great apes and some cetaceans?—*might* have **biographical** self-awareness

Ethical implications for chimeras & animal research subjects generally

Part 3



Starting point

- Sentient animals have a welfare & moral status
- Intentionally harming them is permissible only for very compelling reasons

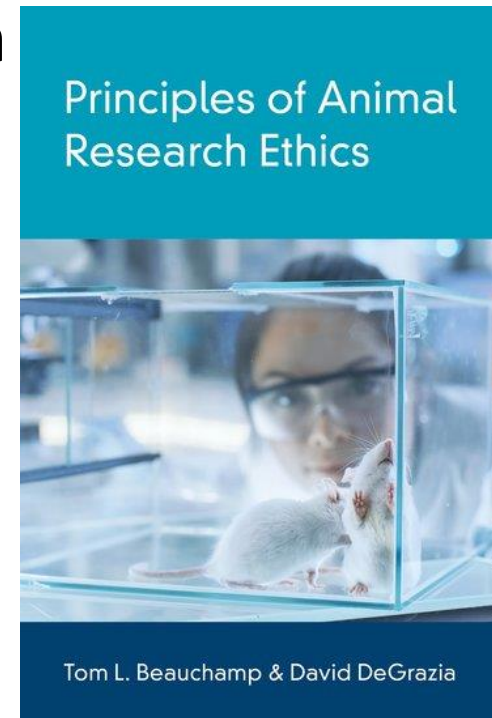
A framework for animal research ethics

Principles of Social Benefit

- No Alternative Method
- Expected Net Benefit
- Sufficient Value to Justify Harm

Principles of Animal Welfare

- No Unnecessary Harm
- Basic Needs
- Upper Limits to Harm



Implications for research animals in general

- Overall, an expectation of decent lives
- **Social Benefit:** Pursue the research only if
 - Information sought is so important that it justifies all associated costs & harms imposed on animal subjects
 - No other viable way of obtaining the information
- **Animal Welfare:** If so, then
 - Be responsive to subjects' basic needs & avoid unnecessary harm
 - Do not impose major suffering for an extended period of time

Further implications for prospective chimeric research subjects

- Animals with robust social self-awareness should be **exempt from social isolation**
- Animals who might have narrative identities—say, great apes, cetaceans, or chimeric animals who are comparable in self-awareness—should be **exempt from invasive, nontherapeutic research**



Thank you for your kind attention!