Conclusions:

- South African fur seals have a ***well-developed discrimination ability*** for the odorant classes investigated.

  This suggests that olfaction may play an important role in foraging, social communication and reproductive behavior.

- Discrimination performance ***did not correlate with the frequency of occurrence*** of stimuli in their chemical environment.

  Still, further studies should investigate other odorant classes linked to prey and body odors.

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Olfactory discrimination of aliphatic aldehydes, carboxylic acids and acetic esters in South African fur seals (*Arctocephalus pusillus*)

Sandra Selin

Final thesis.
International Master Programme Applied Biology 2008, Linköping University

Aim:

- Determine the olfactory discrimination ability of South African fur seals for ***carboxylic acids, aldehydes*** and ***esters***

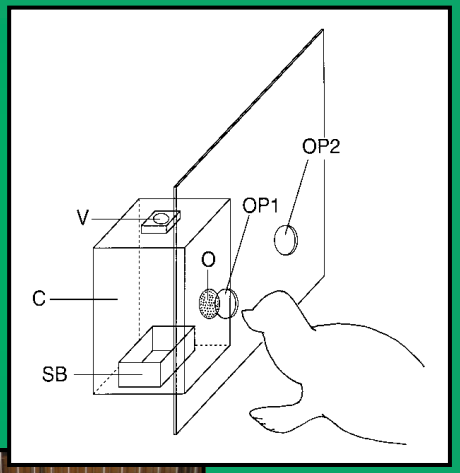
Background:

Marine mammals are traditionally considered to have poor sense of smell. However, studies that have observed their behavior suggest that sense of smell, also known as ***olfaction***, may play an important role in social communication, reproductive behavior and food selection.

The odorant classes used were chosen because they differ in frequency of occurrence in the marine environment, and are thus likely to differ in behavioral relevance. One of my hypotheses was that this difference in frequency of occurrence would correlate with the seals' discrimination performance.

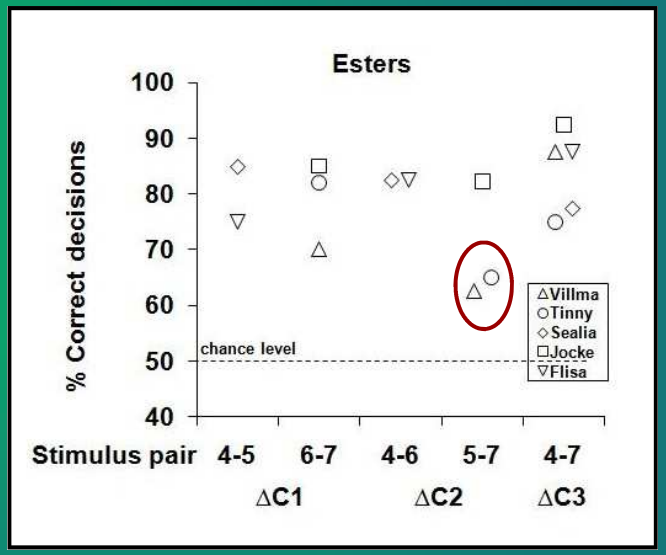
Materials and methods:

- **5 South African fur seals**
- **Odorants**: carboxylic acids, aldehydes and esters
- **15 odorant pairs**
- **Test method**: Food-rewarded two-choice instrumental conditioning paradigm



Results:

- All seals successfully discriminated **14 out of 15** stimulus combinations
- None of the odorant classes was significantly better or poorer discriminated



***Circled in red**: Two cases of failure to discriminate occurred, and both were within the same odorant pair.*