Don’t move! – Training dogs to conduct fMRI studies while they are awake

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Introduction

Humans and dogs share a long period of close interaction and co-habitation, shaping each other’s socio-affective behavior. Hence, investigating possible similarities in the socio-affective processes and brain activities by using fMRI (functional magnetic resonance imaging) in humans and dogs is an important research goal [1]. Dogs have evolved specialized social skills similar to humans through convergent evolution [2], thus representing a particularly good model. To date, most studies have focused on dog behavior, but little is known about how their brains function or how similar their brain mechanisms are to humans’.

Methods

- **Pre-training** with a mock scanner equipped with loudspeakers and a monitor in front
- For the entire training procedure we used **positive reinforcement** and food reward for the correct behavior
- **Subjects**: N1 = 4 previous pilot dogs, N2 = 16 newly trained dogs; various breeds; age range: 1-11 years
- **Scanner environment**: after successful pre-training the dogs passed a medical check and proceeded to further training with the real human knee coil and fMRI scanner (3T, Siemens Skyra)
- **Dog training frequency**: pre-training = 1x/week scanner training = 2-3x/month
- **Average time span of**: pre-training = 21 sessions (S) scanner training (until first scan) = 2-3 S scanner training (until first test) = 4-6 S

References