Spiders capture attention especially when you are afraid of them

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Introduction

When searching for fear-related stimuli (e.g. spiders or snakes) they seem to be prioritized in visual selection, especially in phobic participants.

This hypervigilance appears to be followed by an avoidance of the feared stimuli.

See e.g. Fox et al., 2007; Pflugshaupt et al., 2005; Rinck & Becker, 2006.

Some studies show no differential processing of fear stimuli when neutral animals are used as controls.

Lipp et al., 2004.

→ **Do fear-related stimuli capture attention in a *bottom-up* fashion when they are completely irrelevant for the search task?**

→ **Do they differentiate from equivalent neutral stimuli?**

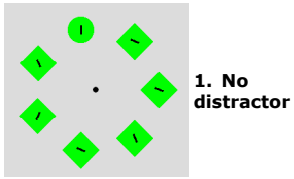
→ **Is the capture effect modulated by the actual fear experienced by the observer?**

Method & Results

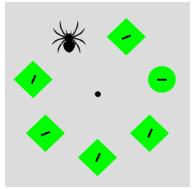
▪ **Additional singleton paradigm (Theeuwes, 1992):**

High spider-fear (n=21) and low spider-fear (n=21) participants.
On half of the trials an animal distractor was present.

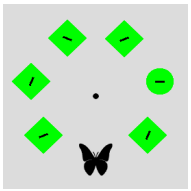
Examples of stimuli displays:



1. No distractor

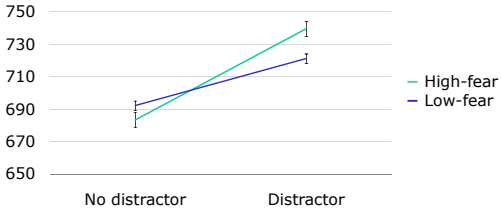


2. Spider distractor

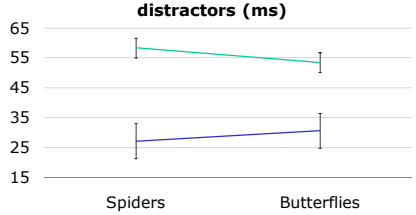


3. Butterfly distractor

Mean RTs to the orientation task (ms)



Interference caused by animal distractors (ms)



Capture effects:
Animal distractors slowed RTs, $F(1,39)=64$, $p<0.001$.

No group effect, $F<1$.

Group x condition interaction, $F(1,39)=6.5$, $p< 0.02$.

Fear-related effects:
More interference in high-fear than in low-fear Ss, $F(1,39)=6.4$, $p<0.02$.

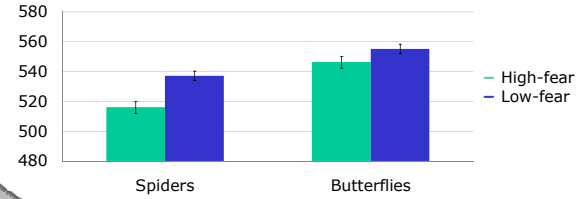
No main effect of animal type, $F<1$.

Spiders tended to interfere more than butterflies in high-fear than in low-fear Ss but the interaction was not significant, $F<1$.

▪ **Identification task:**

Ss had to discriminate animals from the centre on displays « 2 » and « 3 ».

Mean RTs to the identification task (ms)



Spiders were overall recognised faster than butterflies, $F(1,40)=23$, $p<0.001$.

No group effect, $F<1$, and no interaction, $F(1,40)=1.5$, $p=0.23$.

Discussion

All Ss were more efficient to find spiders than butterflies in the identification task where animals were task-relevant.
→ **threat superiority effect.**

When they were irrelevant, insects captured attention in both groups.
→ **replication of the classical capture effect.**

Both animals caused more interference in people that feared spiders than in other people.
→ **role of fear** (a high-level individual characteristic) **in bottom-up capture**.

Why did spiders not cause more interference than did butterflies in the high-fear group?
→ **Not a clinical sample?**
→ **The fear of spiders induced extensive monitoring of all distractors?**

A difficulty to disengage attention from feared stimuli might also contribute to the interference effect.
See Gerdes et al., 2008.

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