

Against Fish Pain

Ouch..?

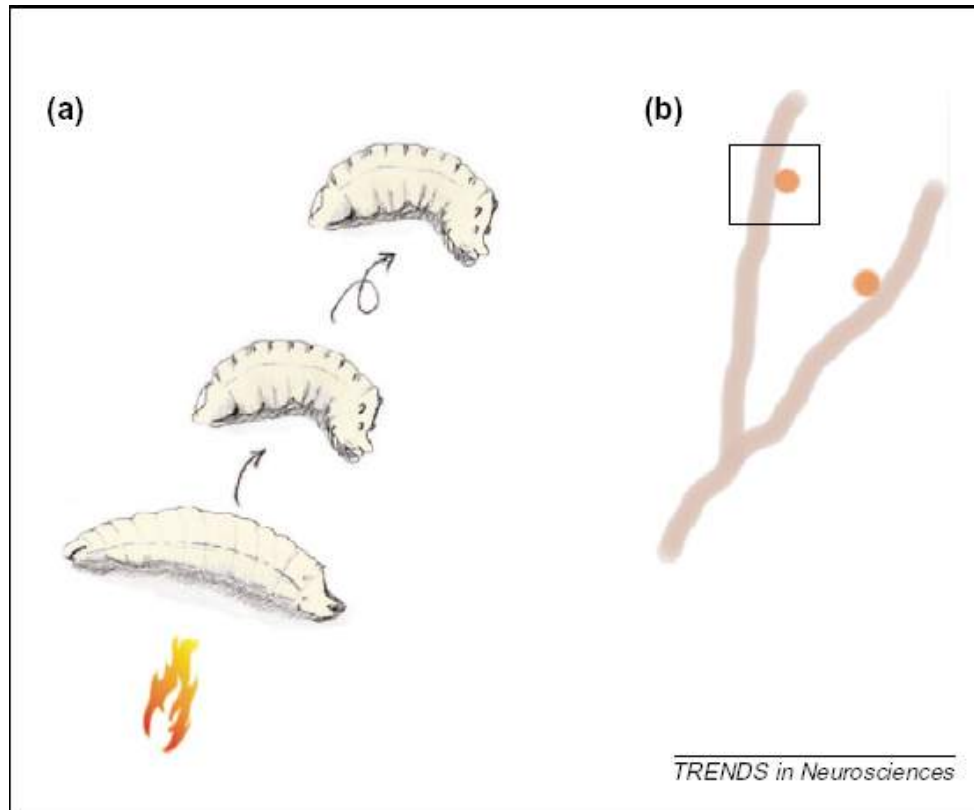
Stuart WG Derbyshire

Why Do We Care Whether Fish Feel Pain?

- Fishing
- General Welfare Issues
- Because it is interesting



Stimulus-Response, Stimulus-Response! Don't You Ever Think?!



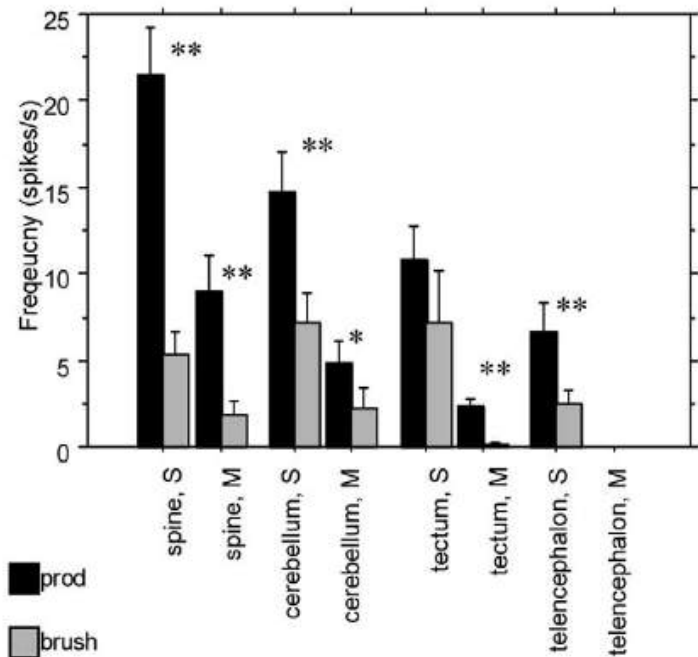
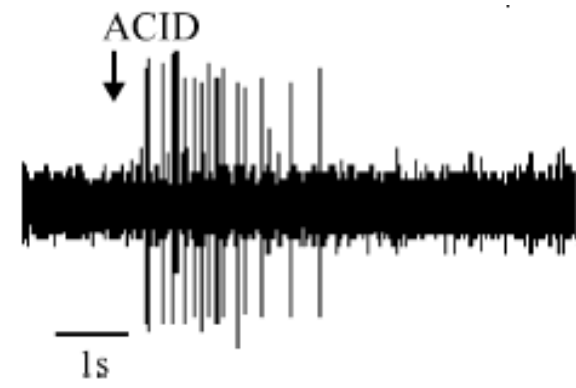
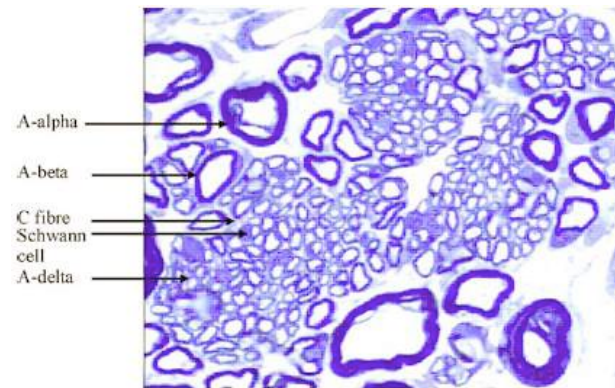
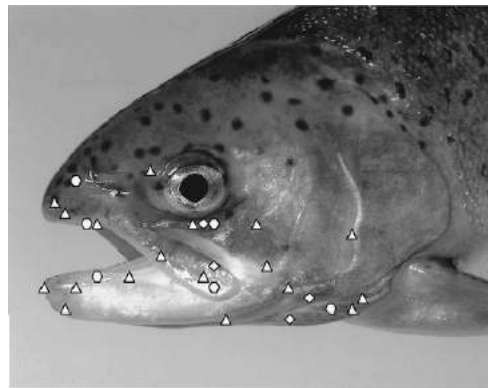
Drosophila larvae rapidly (latency <1 s) bend and roll away from a noxious heat source.

This reaction depends on intact multidendritic md-da neurons – free nerve endings embedded in the skin.

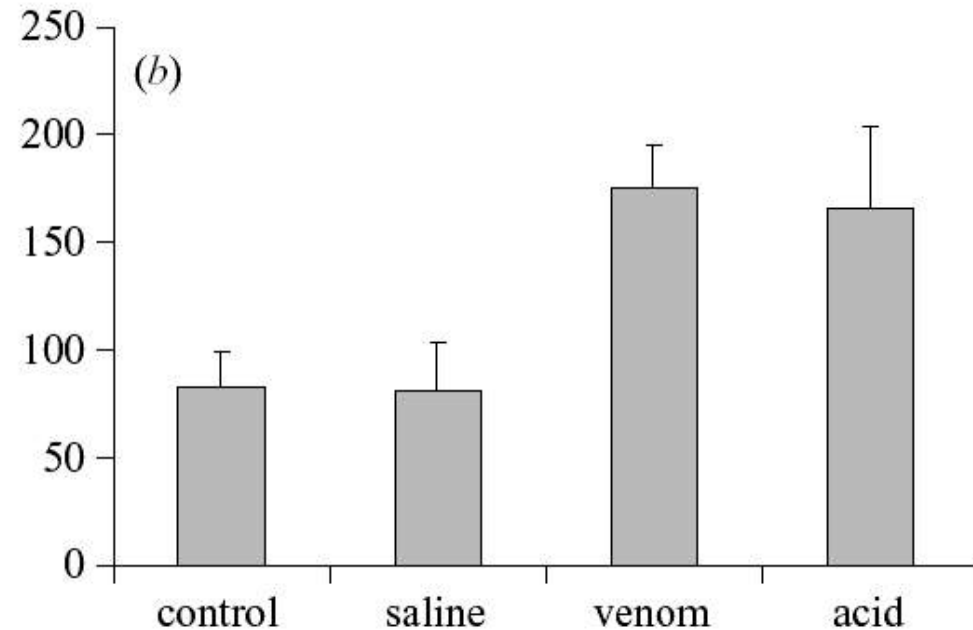
Goodman MB. *TINS* 2003; 26: 643-645

Would you call this response a “pain” response? Why?

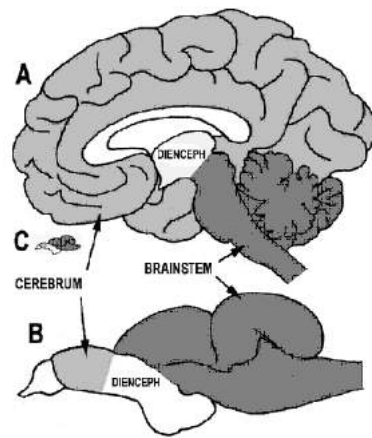
Fish Are More, Fish Do More



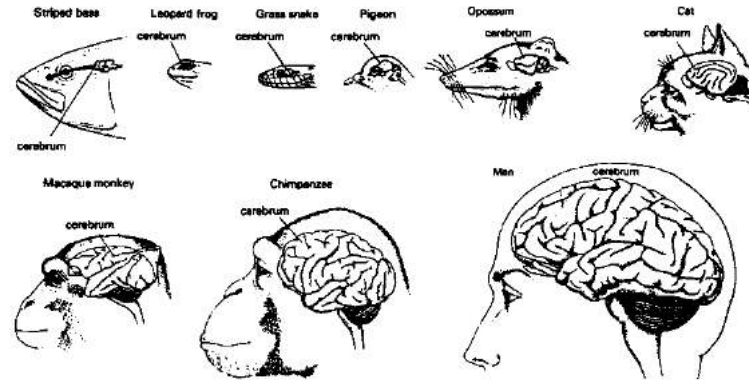
mean time to resume feeding (min)



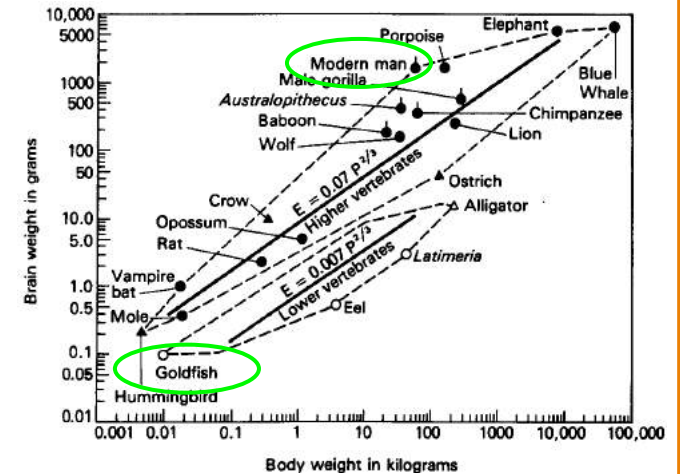
Still...



150 The functional organisation of the vertebrate brain



The functional organisation of the vertebrate brain 151



“...if the assumption that mental states reflect brain-states is taken at all seriously, then it is clear that the physical structure of animal brains must be taken into account in any theory about the existence of mental activity in animal species.” *Animal Thought*, Stephen Walker, 1983

The Definition of Pain From Specificity



Specificity defines pain in terms of the stimulus (“painful”) and the response (“pain”)

Tautological

Fails to account for the facts of pain

- Pain without injury
- Injury without pain
- Pain with interrupted “pain wiring”

Eliminates the subject who does the feeling

The IASP Definition of Pain

“...an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage... pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life.”

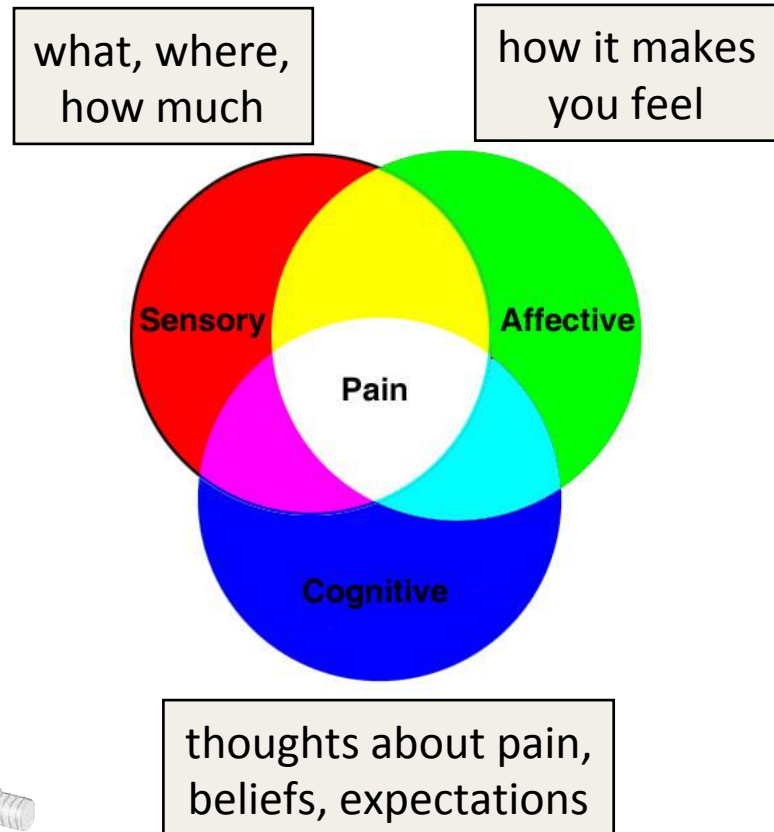
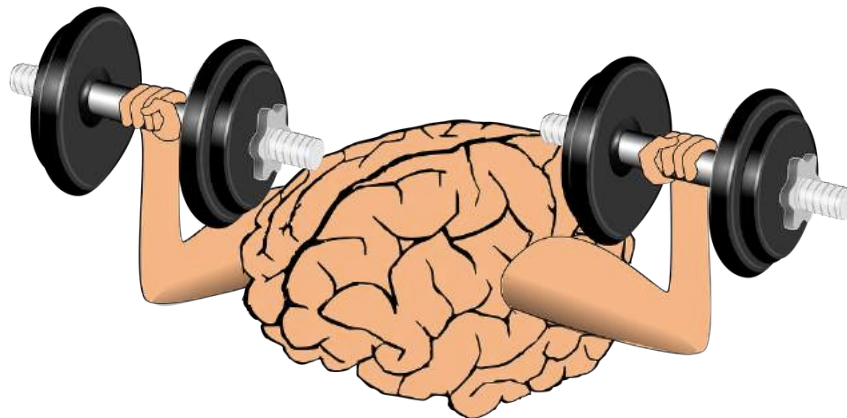
Merskey H. The definition of pain. *European Psychiatry* 1991; 6: 153-159

Implications of the IASP Definition

Pain emerges as a part of
general cognitive and
emotional development

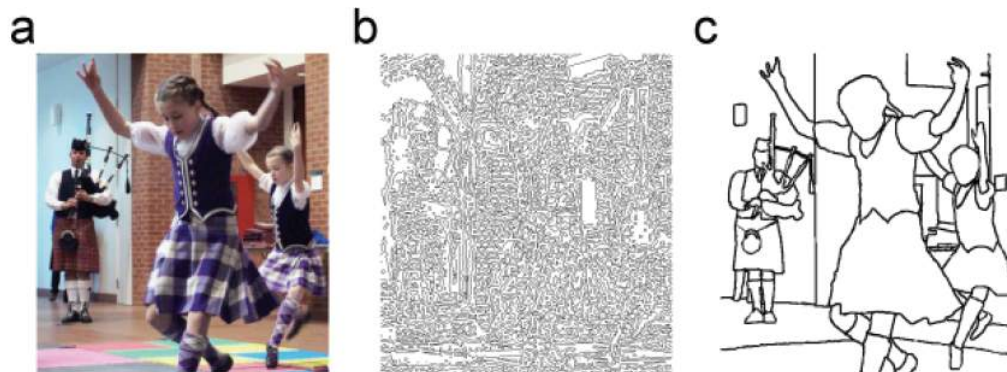
Pain is multidimensional

Pain will involve a lot of the
brain



We Don't Immediately *Perceive*

Three patients with early onset blindness or severe visual impairment corrected later in adulthood

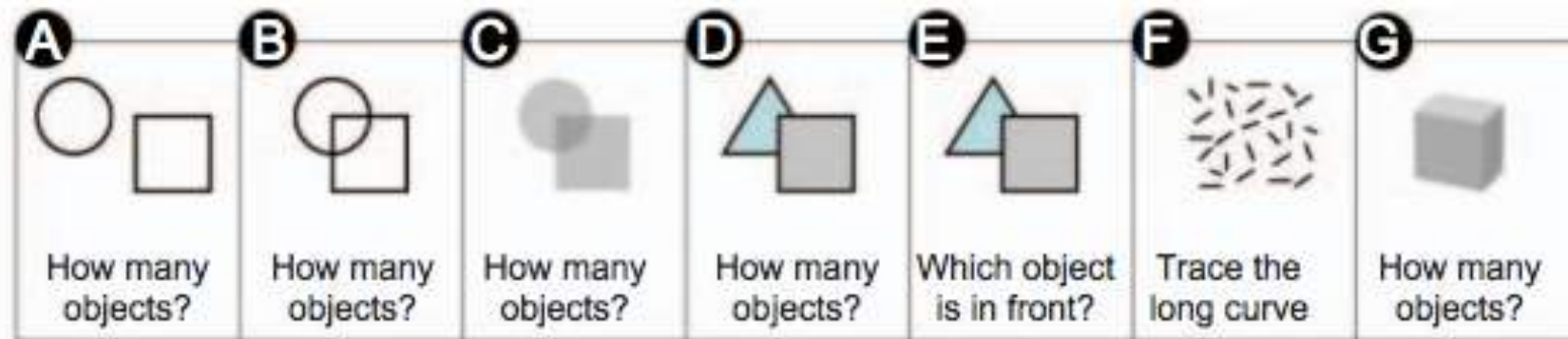


Research Article

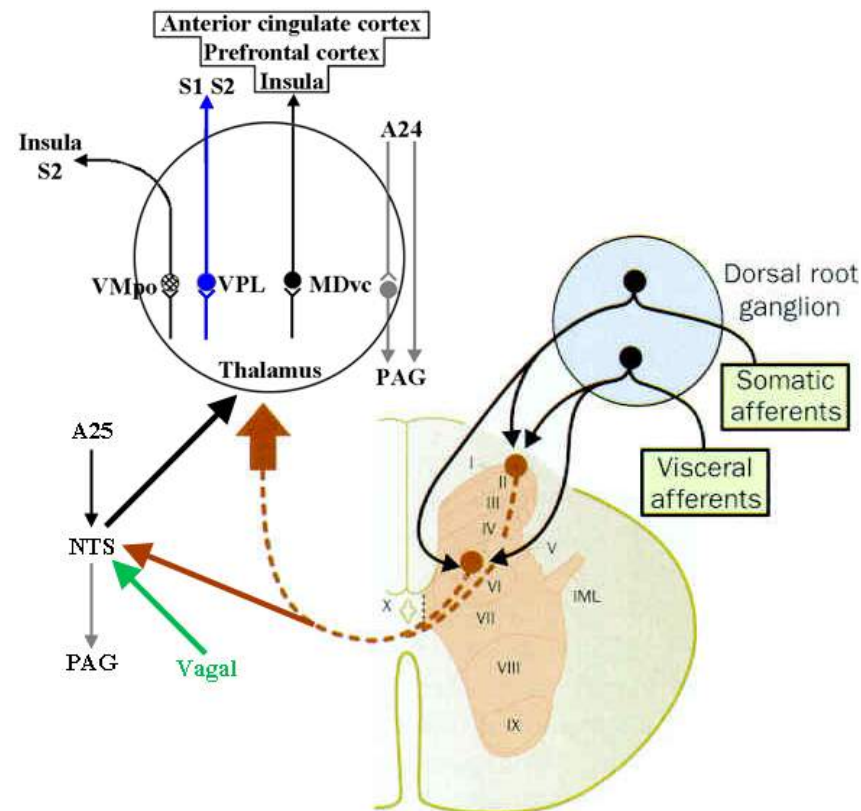
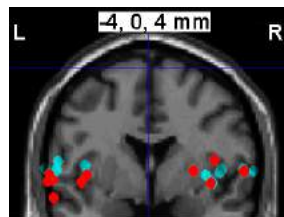
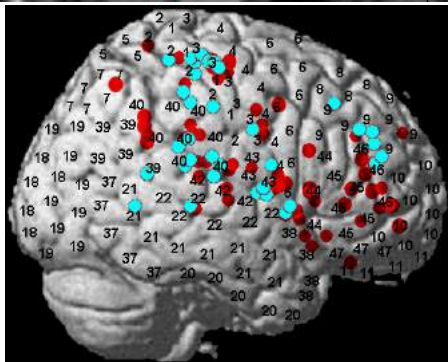
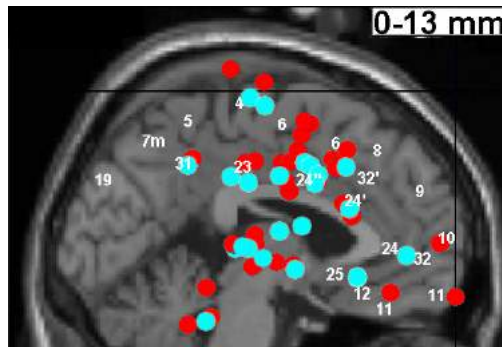
Visual Parsing After Recovery From Blindness

Yuri Ostrovsky,¹ Ethan Meyers,¹ Suma Ganesh,² Umang Mathur,² and Pawan Sinha¹

Fig. 1. Example illustrating how a natural image (a) is typically a collection of many regions of different hues and luminances (b). The human visual system has to accomplish the task of integrating subsets of these regions into coherent objects, illustrated in (c).



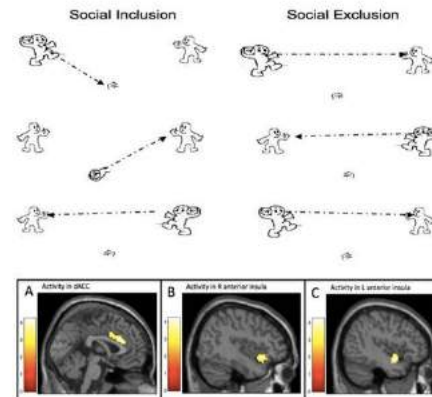
The Pain “Neuromatrix”



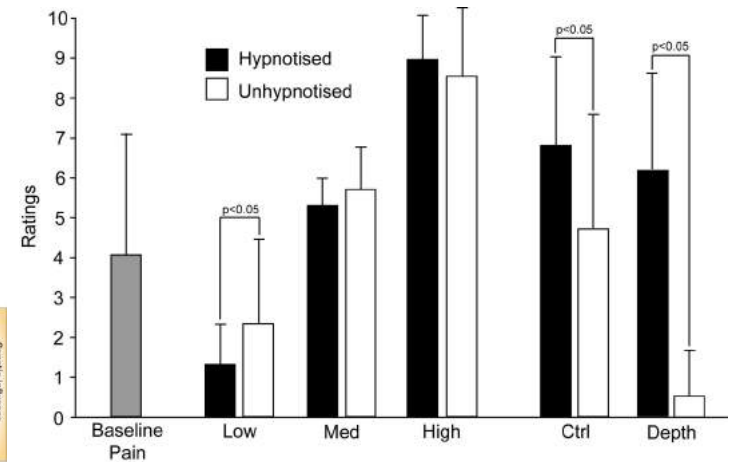
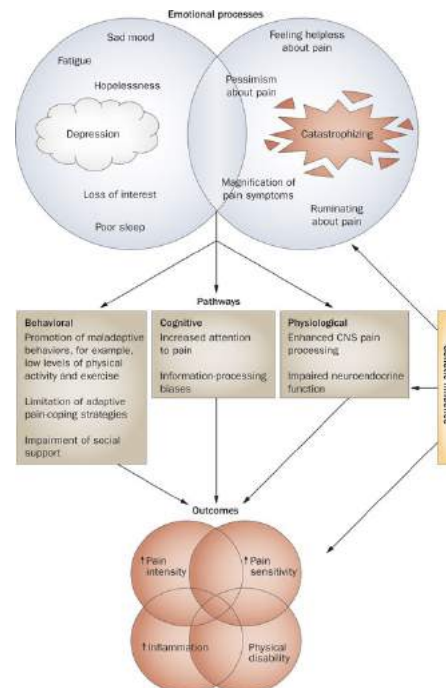
Cervero F, Laird J. *Lancet* 1999;353:2145-2148
 Derbyshire SWG. *Trend Neurosci* 2002;25:65-66

Subjective Pain & Subjective Treatment

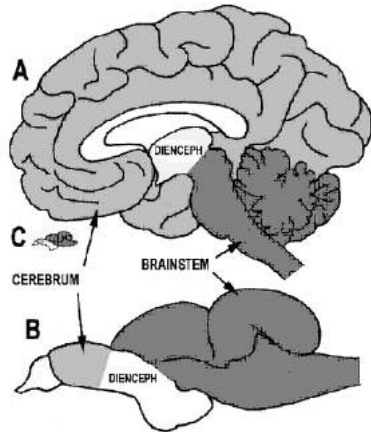
Pain without touch:
Social pain
Empathic pain



Treatment with thinking:
CBT
Hypnosis



In Summary



The cortex is necessary for pain and fish don't have (much of) one and so fish cannot feel pain

Subjectivity is necessary for pain and fish don't have (much of) one and so fish cannot feel pain

Derbyshire, Stuart W.G. (2016) [Fish lack the brains and the psychology for pain.](#) *Animal Sentience* 3(18)

Author Website

<https://nus.academia.edu/StuartDerbyshire>

Thread

Brian Key, [Why fish do not feel pain](#)

Abstract

Debate about the possibility of fish pain focuses largely on the fish's lack of the cortex considered necessary for generating pain. That view is appealing because it avoids relatively abstract debate about the nature of pain experience and subjectivity. Unfortunately, however, that debate cannot be entirely avoided. Subcortical circuits in the fish might support an immediate, raw, "pain" experience. The necessity of the cortex only becomes obvious when considering pain as an explicitly felt subjective experience. Attributing pain to fish only seems absurd when pain is considered as a state of explicit knowing.

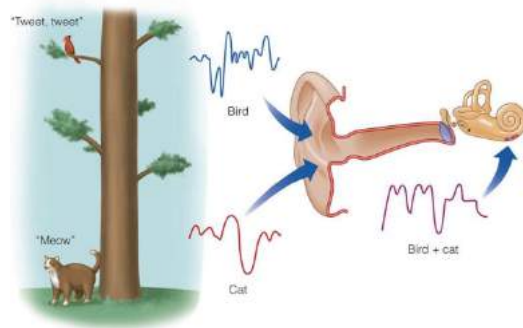
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Except, Wouldn't It Be Odd...

If you had a friend who sometimes insisted the sky was yellow when everyone else saw it as blue?

Or you had a friend who sometimes insisted they heard birds singing when a cat meowed..?



And if you had a friend who smashed his hand with a hammer but sometimes insisted it didn't hurt... and then occasionally collapsed in agony when stepping into sunlight?



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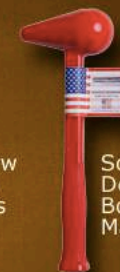
Soft Face
Dead Blow
Hammers



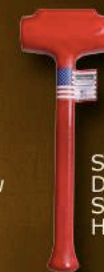
Soft Face
Dead Blow
Slimline
Hammers



Dead Blow
Ball Pein
Hammers



Soft Face
Dead Blow
Bossing
Mallets



Soft Face
Dead Blow
Sledge
Hammers

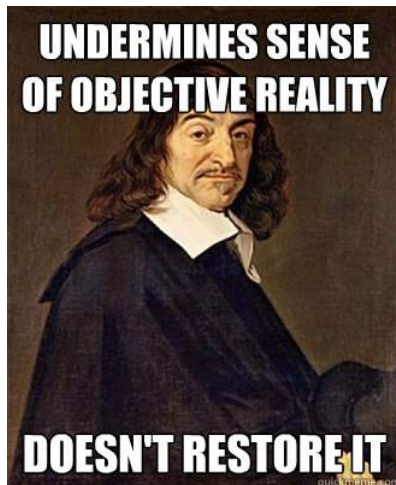
Except, Wouldn't It Be Odd...

Surely pain and injury are
not *arbitrarily* stacked
together?

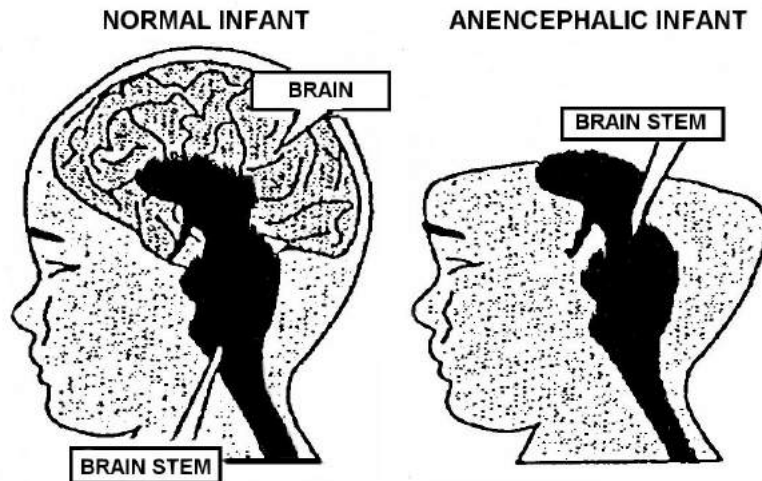
No Pain?

As Voltaire asked Descartes

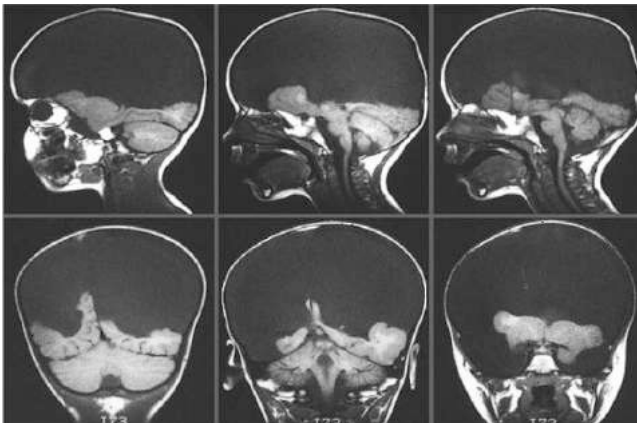
“Answer me, machinist, has nature arranged all the means of feeling in this animal, so that it may *not* feel?”



Is the Cortex Necessary?



Waking consciousness? Certainly
Emotional reaction? Yes...
Phenomenal consciousness?

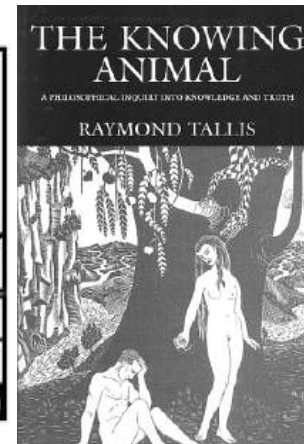
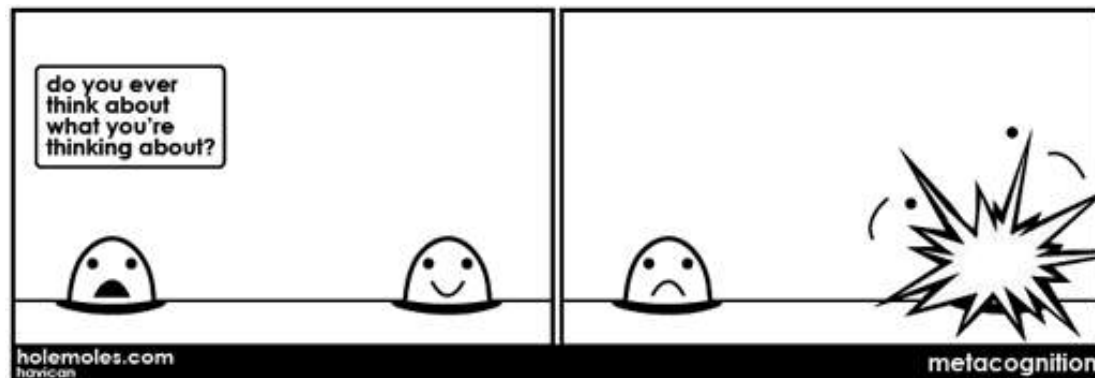


Merker B. *Behav Brain Sci*
2007; 30: 63-134



Two Pains

Pain as an entirely raw, *apprehended* but not *comprehended*, *sense-certain* type sensation

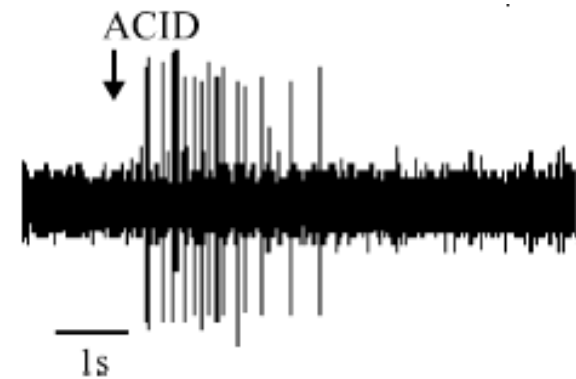
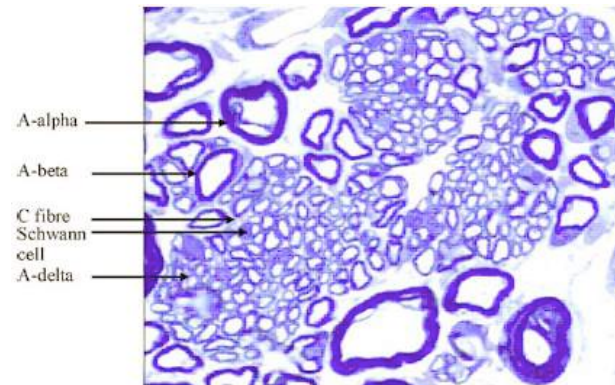
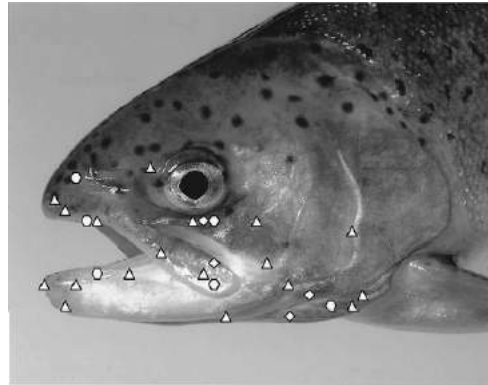


PAIN[®]

Is there a purely biological core to pain experience?

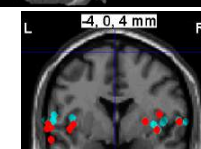
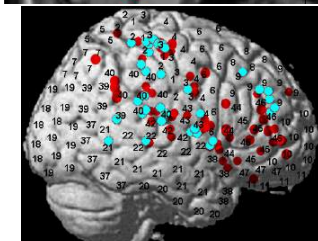
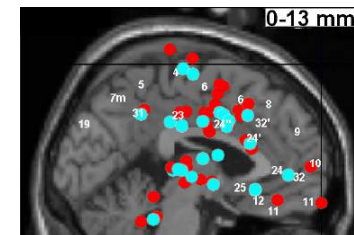
Mark D. Sullivan^a, Stuart W. Derbyshire^b

Fish Pain, Not Human Pain?



The “pain” of fish might be an immediate, raw, state of being: fish pain just *is*, and what it *is* is nothing more than what it *is* – qualia?

The “pain” of humans is embedded in a general belief system about bodies, functions, work and so on; in a general emotional framework that includes fear, anxiety, hope and so on; and in a general cognitive system that includes memory, attention, reflection and so on: human pain is extensive, it is *more* than what it just *is*.



Conclusions

Pain research appears trapped between the rock of objectivity and the hard place of subjectivity

- Boiling pain down to neural circuits boils out the person who feels
- Making pain subjective makes the relation of pain to injury unreasonably arbitrary

Neither position is satisfactory, perhaps both positions are wrong

We need to radically rethink the “objective” and “subjective”

But I still find fish pain too much of a reach!

Thank you for your attention 😊

