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Breast Cancer

At what age is a woman most at risk of breast cancer?

- ❖ In her 40s?
- ❖ In her 50s?
- ❖ In her 60s?
- ❖ In her 70s?
- ❖ 80 or above?
- ❖ Age does not matter?

The correct answer is 80 or above

It was chosen by 0.7 per cent of British women surveyed

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Perception and Reality

“There is no generally applicable dynamic relationship between actual and perceived risk” Loewenstein 1990


Risk perception and risk reality often don't match

Occasionally they differ dramatically

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The risk-reality chasm

- ❖ Silicone breast implants
- ❖ School violence post-Columbine
- ❖ GM foods
- ❖ Chemicals





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The fear marketers


- ❖ Politicians
- ❖ Officials
- ❖ NGOs
- ❖ Corporations



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The media


- ❖ Present risk information badly
- ❖ Emphasize the vivid, dramatic and emotional
- ❖ Biased toward bad news
- ❖ Man bites dog!



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Why do the media do it?


- ❖ Standard answer: to make money or push an agenda
- ❖ More fundamental explanation: journalists are human
 - ❖ Media biases are human biases
 - ❖ Novelty
 - ❖ Bad news
 - ❖ Dramatic stories
 - ❖ Bad with numbers



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Psychology

- ❖ All cognitions are products of the brain
- ❖ What produced the brain?
 - ❖ The Environment of Evolutionary Adaptedness




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The History of the Genus "Homo"




c. Two million years ago Today



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The History of Homo Sapiens




c. Two hundred thousand years ago Today

If the history of our species were written proportionately...

- ❖ Two hundred pages on the lives of hunter-gatherers
- ❖ One page for agrarian societies
- ❖ One short paragraph for the world of the last two centuries

We live in the Information Age but our brains are Stone Age




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Of two minds

System One

- ❖ The more ancient of the two
- ❖ Operates outside consciousness
- ❖ Delivers conclusions in form of feelings, hunches, and intuitions
- ❖ Fast and effortless: snap judgements

'Gut'




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Of two minds

System Two

- ❖ Conscious thought
- ❖ Capable of careful reasoning, numeracy, logic
- ❖ Delivers conclusions that can be fully expressed and explained
- ❖ Slow and laborious


'Head'



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Who does what?


- ❖ We are constantly bombarded with stimuli
- ❖ The brain sifts it and decides whether it should be handled by Head or Gut
- ❖ A small fraction is brought to the attention of consciousness, while the rest is handled by Gut



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How is the brain's work allocated?

- ❖ Often on the basis of familiarity
- ❖ Familiarity is a key factor in risk perception




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How do we judge?

- ❖ Gut is fast, head is slow, so Gut delivers first
- ❖ Head can then examine, adjust, or over-rule

But will it?




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Hello, Head?

A bat and a ball cost a total of \$1.10.
The bat costs \$1 more than the ball.


How much does the ball cost?



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Why is Gut so fast?


- ❖ Gut does not think carefully
- ❖ Instead, it applies information-processing rules
- ❖ These hard-wired processes are called "heuristics and biases"
 - ❖ Think of them as the tools in Gut's tool-kit



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The availability heuristic


- ❖ How easy is it to think of an example?
 - ❖ If it's easy, the thing is common
 - ❖ *Be concerned*
 - ❖ if it's hard, it's uncommon
 - ❖ *Don't worry about it*
- ❖ An excellent rule in the Paleolithic environment
 - ❖ Deeply flawed today



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The affect heuristic


- ❖ Emotion can be subtle
- ❖ We can even experience emotion unconsciously
- ❖ Emotion precedes thought
 - ❖ It influences perceptions and judgements much more profoundly than we realize



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The affect heuristic

- ❖ Should I worry about this thing? Depends how you feel about it
- ❖ A positive feeling?
Perceived risk is driven down. Perceived benefit goes up
- ❖ A negative feeling?
Perceived risk shoots up. Perceived benefit goes down
- ❖ The "risk/benefit see-saw": Raise or lower either end of the see-saw and the other end goes down or up



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Implications of the affect heuristic

Language is powerful

- ❖ Ground beef that is "75% lean"
- ❖ Ground beef that is "25% fat"


- ❖ Life insurance against "death caused by terrorism"
- ❖ Life insurance against "all causes of death"

- ❖ "20%"
- ❖ "20 out of 100 patients"




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The social animal



Which of these lines is longest?

- ❖ One-third ignored their own eyes and went with the group consensus
- ❖ When uncertain about the answer to a question, four out of five went with group consensus




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The social animal (continued)

- ❖ But will we conform when something important like risk is involved?

- ❖ Yes - In fact, we are **more** likely to conform


- ❖ And we will feel more confident that our peer-influenced judgement is right



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Group polarization


- ❖ When people who share a belief discuss it, their views do not coalesce around the average of the group
- ❖ Instead, people tend to adopt a view more extreme than the average within the group



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Confirmation bias


Once we believe anything, we will try to confirm it



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Conformity + confirmation bias + group polarization = A Stamping Herd

- ❖ Alan convinces Betty, which persuades Carl, which settles it for Deborah
- ❖ Biased screening of information begins
- ❖ Groups are formed and views become more extreme
- ❖ The fact that many people are strongly convinced convinces others
- ❖ A "cascade" effect is possible





Helping others get risk right

- ❖ Do not repeat numbers
- ❖ Do not tell people to be rational


Helping others get risk right

- ❖ Always be accurate and honest
 - ❖ Trust is essential
- ❖ Get ahead of information cascades
- ❖ Find and address real sources of perception
 - ❖ eg. "It's never happened so it never will happen."

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Helping others get risk right

- ❖ Speak to both Head and Gut
 - ❖ Be concrete
 - ❖ Use examples
 - ❖ Make appropriate emotional connections



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Helping others get risk right

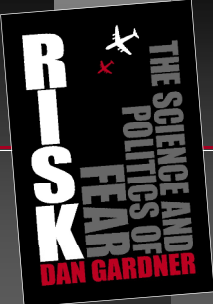
- ❖ Consider the possibility that you are wrong

George Soros

"I know that I am bound to be wrong and therefore am more likely to correct my own mistakes."

- ❖ Metacognition: thinking about thinking





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