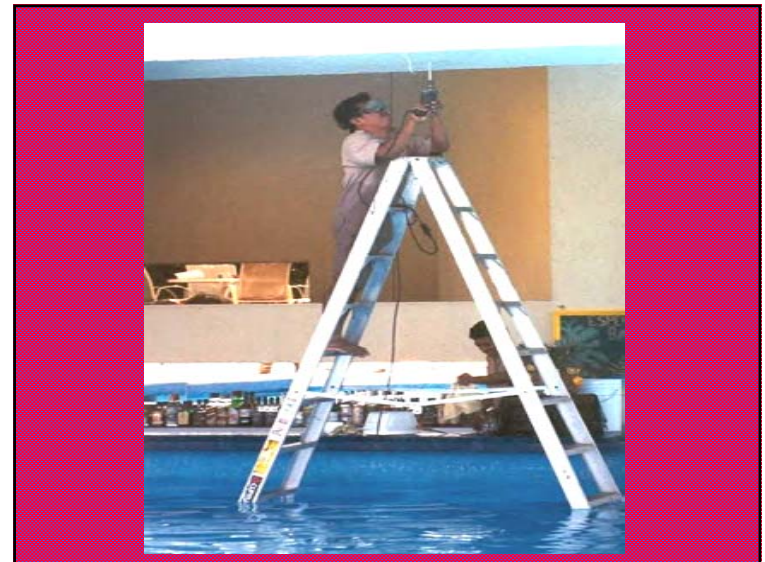




# The Need For Better Risk Communication

Presented by David Ropeik at the March 2, 2004 combined meeting of the Massachusetts Licensed Site Professional Association (LSPA) and the New England Chapter of the Society for Risk Analysis (SRA-NE).

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## RISK PERCEPTION

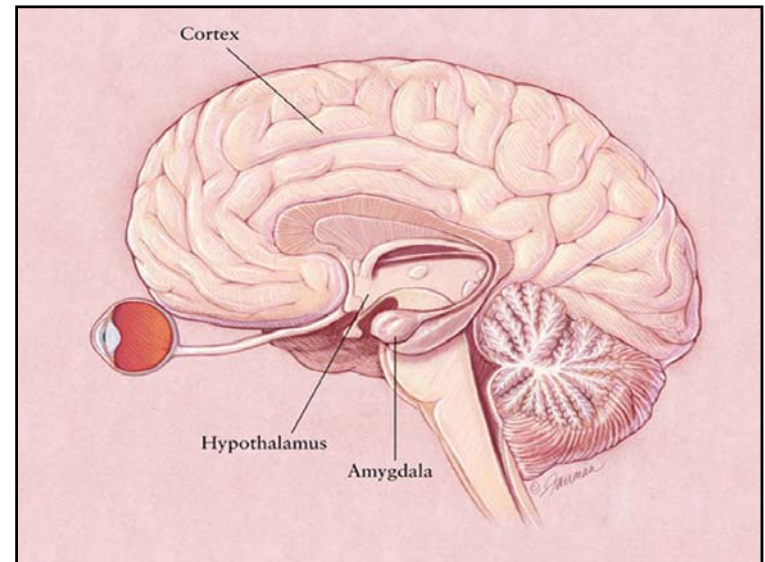


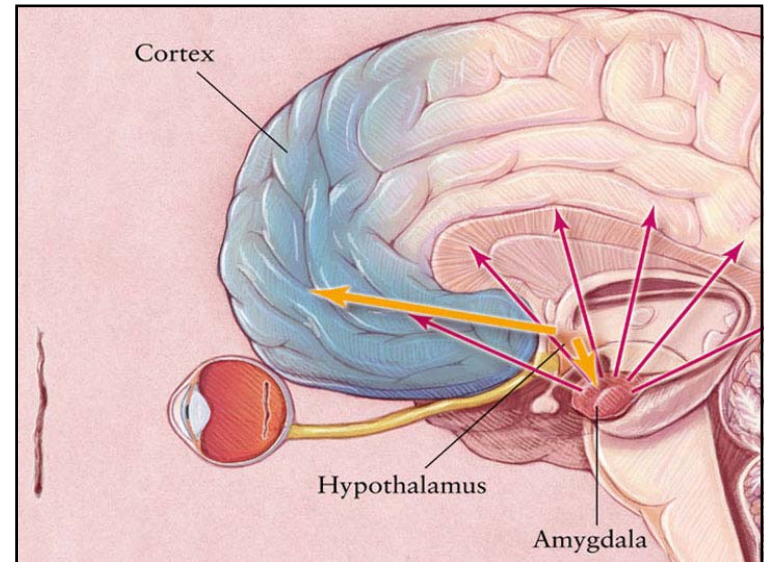
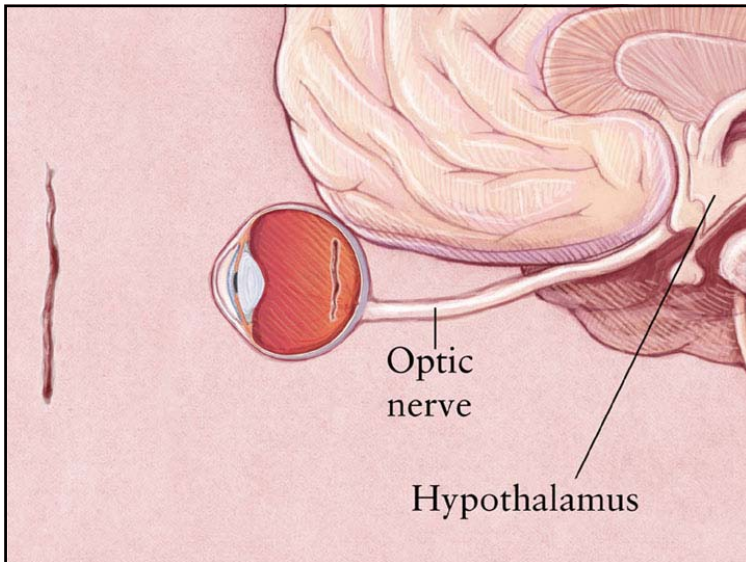
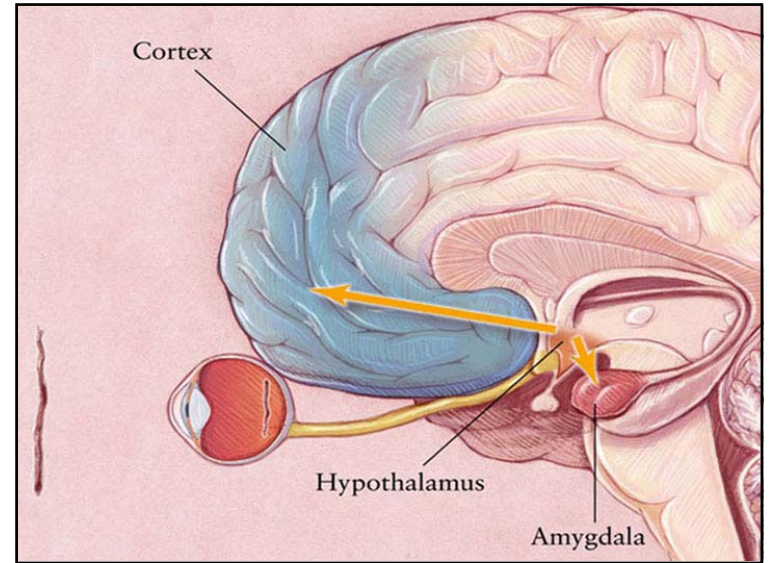
Our brains are biologically constructed to fear first, and “think” second.


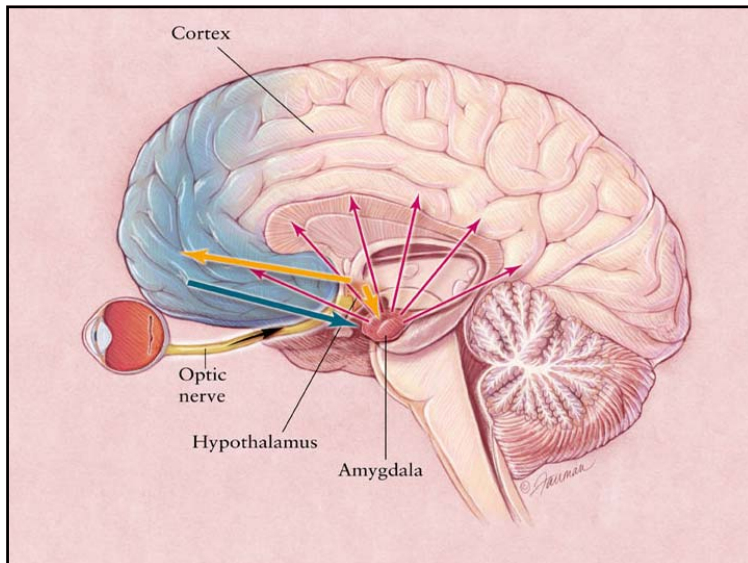
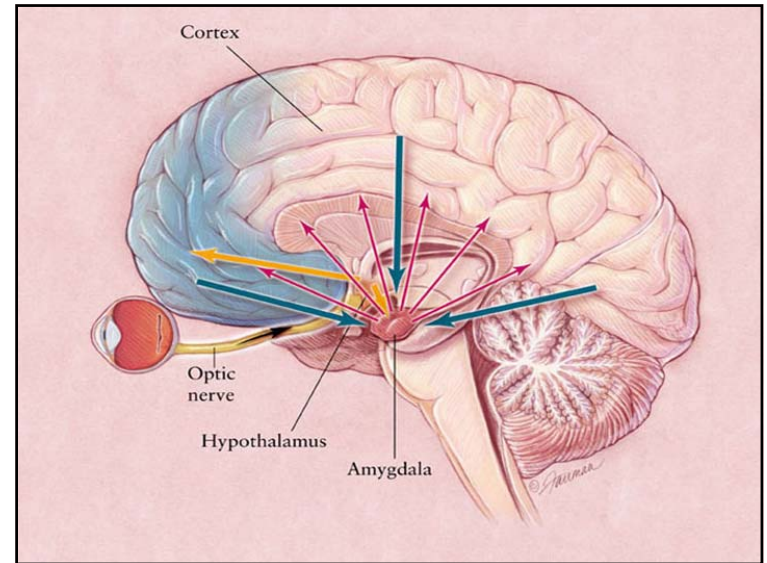
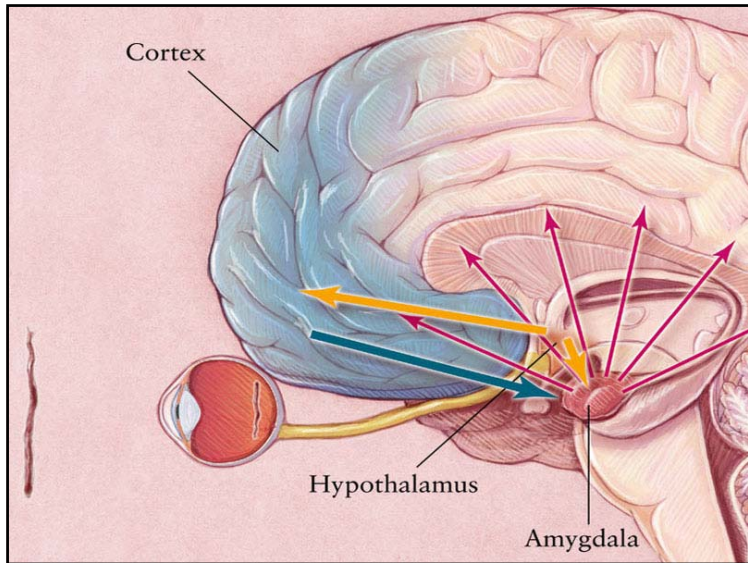


## A risk quiz....

- ◆ Bioterrorism is a serious threat to public health.
- ◆ Pesticides are a serious threat to public health.
- ◆ Cell phones and driving are a serious threat to public health.



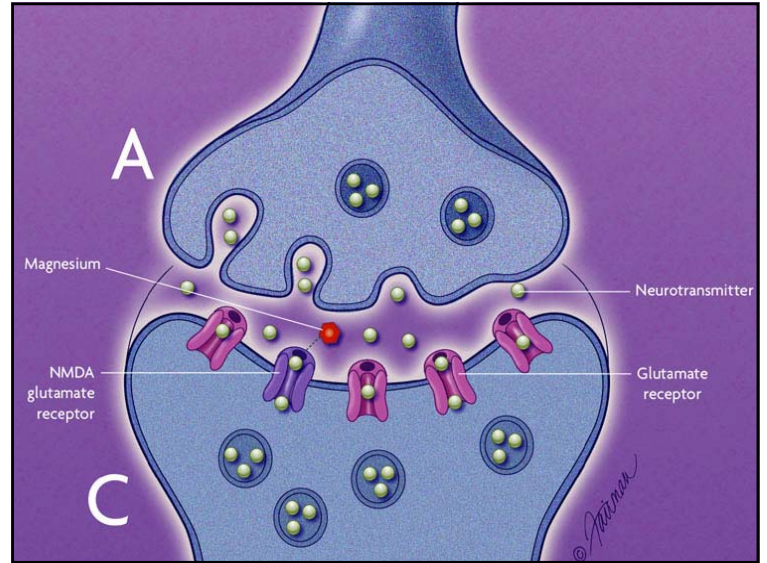
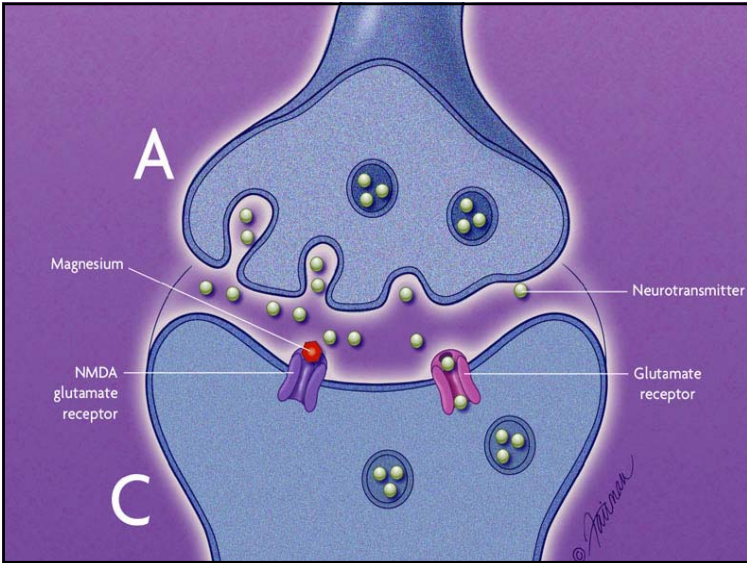
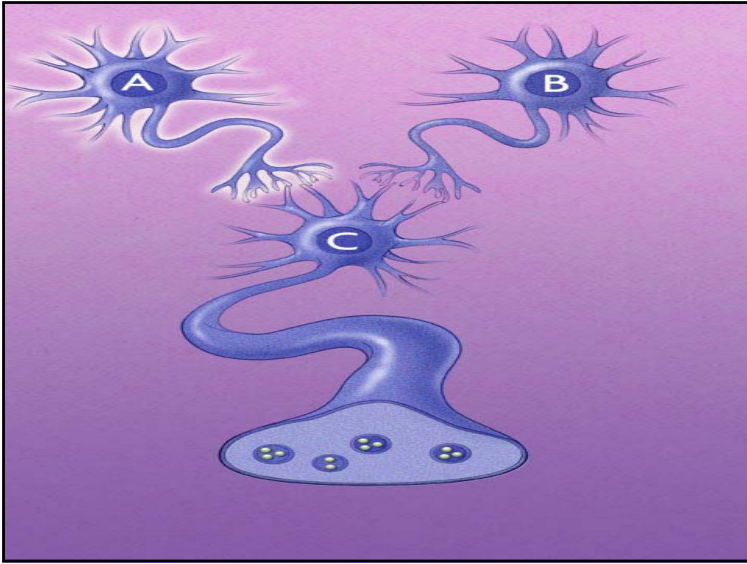


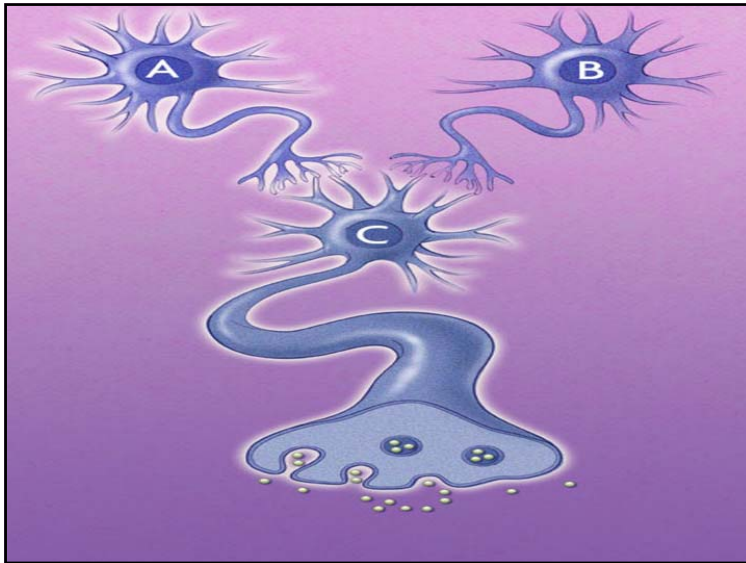


## The Biological Framing of Risk Perception

Long Term Potentiation.

Sensory inputs that evoke strong reactions, including fear, form strong new neural circuits.





## RISK PERCEPTION

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“People are disturbed, not by things,  
but by their view of them.”

Epictetus



## The Biological Framing of Risk Perception

Our first impressions of a risk form physical  
circuits that represent “safety”.  
Subsequent information has to fight to undo,  
or modify, those neural circuits.

## RISK PERCEPTION

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The patterns of psychological  
factors by which we  
subconsciously ‘decide’ what to  
be afraid of and how afraid to be.



## RISK PERCEPTION

### Some General Rules

- ◆ Perception factors are like seesaws. They can either make the fear go up, or down.



## RISK PERCEPTION

### Some General Rules

- ◆ Perception factors are like seesaws. They can either make the fear go up, or down.
- ◆ Their effect changes over time.
- ◆ For any given risk, several factors are usually involved.



## RISK PERCEPTION

### Some General Rules

- ◆ Perception factors are like seesaws. They can either make the fear go up, or down.
- ◆ Their effect changes over time.



## 1. TRUST

- ◆ The more we trust, the less afraid we will be.
- ◆ The less we trust, the more afraid we will be.



## 1. TRUST

(More Afraid)

- ◆ Anything connected with industry.
- ◆ Communications from politicians.
- ◆ A decision making process that's closed.

(Less Afraid)

- ◆ Anything connected with consumer groups.
- ◆ Communications from neutral experts (doctors, academics)
- ◆ A decision making process that's open.



## 3. CONTROL v. LACK OF CONTROL

*(Physical control, not choice)*

(More Afraid)

- ◆ Flying.
- ◆ Riding as a passenger in the front seat of a motor vehicle.
- ◆ A government process in which you can NOT participate.

(Less Afraid)

- ◆ Riding a bike.
- ◆ Driving a motor vehicle.
- ◆ A government process in which you CAN participate.



## 2. RISK v. BENEFIT

- ◆ Vaccinations
- ◆ Artificial sweeteners
- ◆ Medical X rays
- ◆ Prescription drugs



## 4. IMPOSED v. VOLUNTARY

*(Choice)*

(More Afraid).

- ◆ A food with a potentially hazardous ingredient NOT listed on the label.
- ◆ A nuclear waste repository which a company wants to build in your town.

(Less Afraid)

- ◆ A food with a potentially dangerous ingredient which IS listed on the label.
- ◆ INVITING the nuclear waste repository to locate in your town.



## 5. NATURAL v. HUMAN-MADE

(More Afraid)

- ◆ Industrial chemicals
- ◆ Technologies (cell phones, GM food, nuclear power)

(Less Afraid)

- ◆ Organic food
- ◆ Herbal remedies



## 7. CATASTROPHIC or CHRONIC

(More Afraid)

- ◆ Terrorism
- ◆ Plane crashes
- ◆ Mass murders

(Less Afraid)

- ◆ Heart disease
- ◆ Motor vehicle crashes
- ◆ “Everyday” murders



## 6. DREAD

(More Afraid)

- ◆ Plane Crash
- ◆ Anything associated with radiation (cancer)
- ◆ Pesticides (cancer)

(Less Afraid)

- ◆ Heart disease
- ◆ Accidents (fourth most common cause of death in U.S.)



## 8. UNCERTAINTY

*(When we don't have all the answers.)*

(More Afraid)

- ◆ Untested chemical products
- ◆ New technologies
- ◆ Terrorism

(Less Afraid)

- ◆ Artificial Sweeteners
- ◆ Microwave ovens
- ◆ Electrical and magnetic fields



## 9. ME OR THEM

*(Personal vs. Statistical.)*

- ◆ Fear of shark attack goes up when you go in the ocean.
- ◆ Terrorism, to Americans in “The Homeland”, after September 11, 2001.
- ◆ Radiation from high voltage power lines when such a line is installed near your home.



## 11. CHILDREN

- ◆ Plastics in children’s toys.
- ◆ Wood preservatives in playground equipment.
- ◆ Pollution problems in schools.



## 10. FAMILIAR v. NEW

*(More Afraid)*

- ◆ West Nile Virus
- ◆ Mad Cow disease in Japan
- ◆ Severe Acute Respiratory Syndrome (SARS)

*(Less Afraid)*

- ◆ Other insect-borne diseases
- ◆ Mad Cow disease in England
- ◆ The flu



## 12. PERSONIFICATION

*(When a statistical risk acquires a human face.)*

- ◆ A child abduction in the news.
- ◆ Fear of war rises after we see pictures of the dead and injured.
- ◆ Medical errors when we learn of someone harmed by a doctor’s mistake.



## 13. FAIRNESS

(More Afraid)

- ◆ Risks to the sick, the elderly, the handicapped, the poor.

(Less Afraid)

- ◆ Risks to workers, the rich, the powerful.



## 14. AWARENESS

(More Afraid)

- ◆ Terrorism
- ◆ Biological Weapons

(Less Afraid)

- ◆ Crime
- ◆ Ozone Depletion
- ◆ Heart disease