

# OUTLINE

## **CHAPTER 17: HEALTH PSYCHOLOGY**

- Role of Health Psychologists
- Stress & Illness
- Pain Management

## **CHAPTER 18: NEUROPSYCHOLOGY**

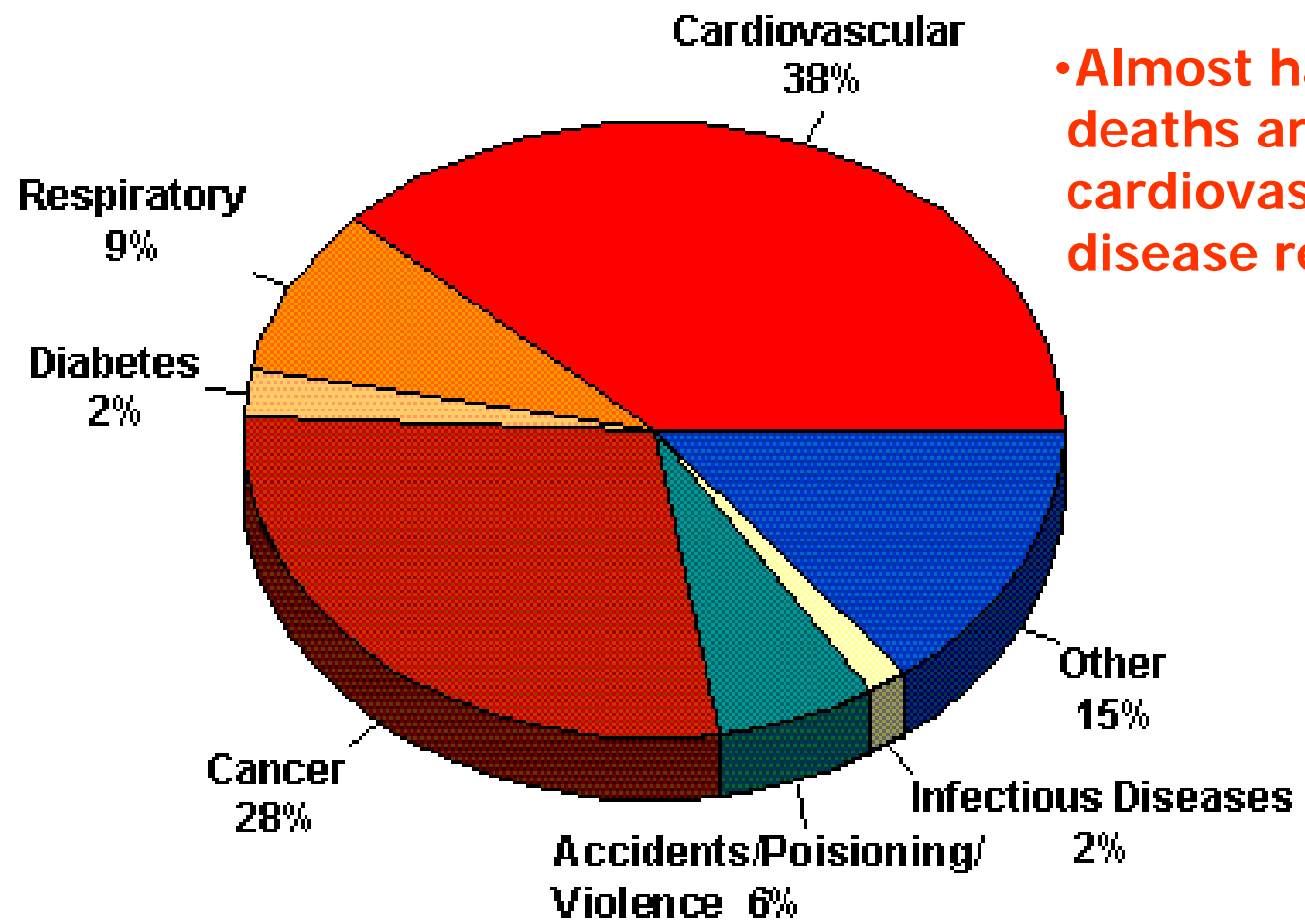
- Brain trauma
- Disorders of brain atrophy
- Neuro-assessment

# The Emergence of Health Psychology

- Causes of mortality-1890
- Influenza, pneumonia, tuberculosis
- Infectious diseases
- Causes of mortality today
- Heart disease, cancer, stroke, diabetes, lung disease
- Behavioral/lifestyle factors in development & treatment
- Cannot be cured
- Management is complex & long-term

# Leading Causes of Death

Percentage by Subgroup: Canada, 1994



• Almost half of deaths are cardiovascular disease related

Total Number of Deaths in 1994: 207,066

SOURCE: Laboratory Centre for Disease Control, 1996 - using Statistics Canada data

# Health Psychology..

Focus on:

- Quality of life
- Prevention of illness
- Cost of health care
- Physical illnesses have emotional & psychological components

# What is Health Psychology?

- Psychology in:
- Etiology, promotion, & maintenance of health
- Prevention, diagnosis, treatment, & rehabilitation of illness
- The improvement of the health care system & health care policy

# Where do health psychologists work?

- Hospitals / Medical Centers
- Universities
- Government agencies (e.g., NIH, CDC)
- Private practice / Consulting
- Outpatient health services
- Mental health agencies
- Corporations / businesses

# What do health psychologists do?

- Clinical work / intervention
- Examples:
- Health behavior change
  - Smoking, weight loss, exercise
- Stress management
- Preparation for surgery & medical procedures
- Adjustment to chronic illness
- Compliance with medical regimens

## Example from Pediatric Oncology

- As a psychologist you might be involved with:
  - Psychoeducational assessment re: treatment effects
  - Pain management for intrusive procedures
  - Behavioural modification for adherence to treatment / management of illness
  - Family therapy / work with siblings
  - Preparing a family for death of a child (acceptance versus premature disengagement)
  - Individual therapy – lesson from childhood leukemia

# JCCP Recent Issue

- Smoking cessation: Progress, priorities and prospectus
- Psychoneuroimmunology: Psychological influences on immune function and health
- Psychosocial influences on the development and course of coronary heart disease: Current status and implications for research and practice
- Diabetes and behavioural medicine: The second decade
- Biobehavioural outcomes following psychological interventions for cancer patients
- Assessment and psychological management of recurrent headache disorders

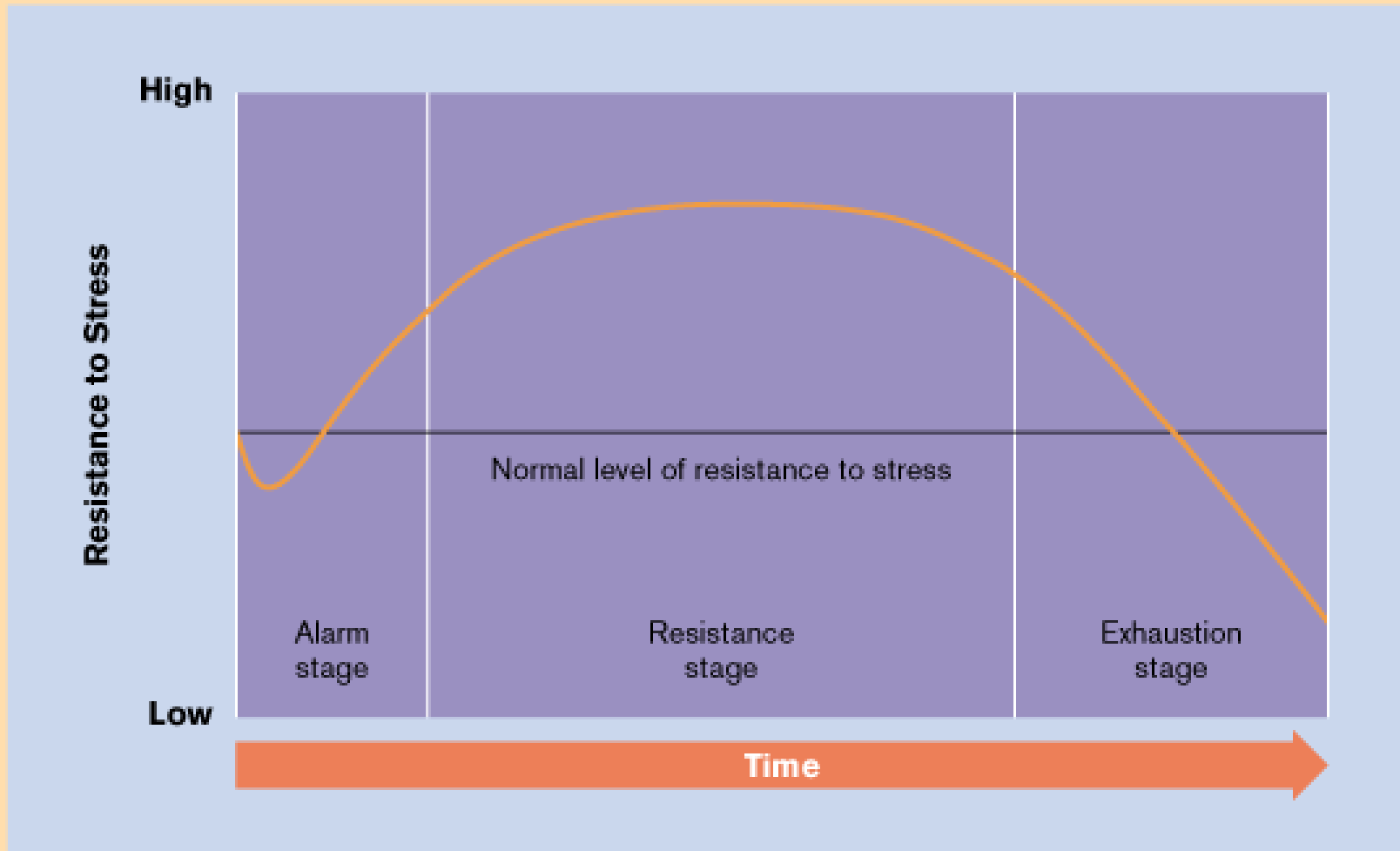
# JCCP Recent Issue

- Behavioural research in HIV/AIDS primary and secondary prevention: Recent advances and future directions
- Psychological aspects of asthma
- Psychological aspects of assessment and treatment of irritable bowel syndrome in adults and recurrent abdominal pain in children
- Emotional disorders in primary care
- Genetic testing: psychological aspects and implications
- Psychological aspects of selected issues in women's reproductive health: Current status and future directions

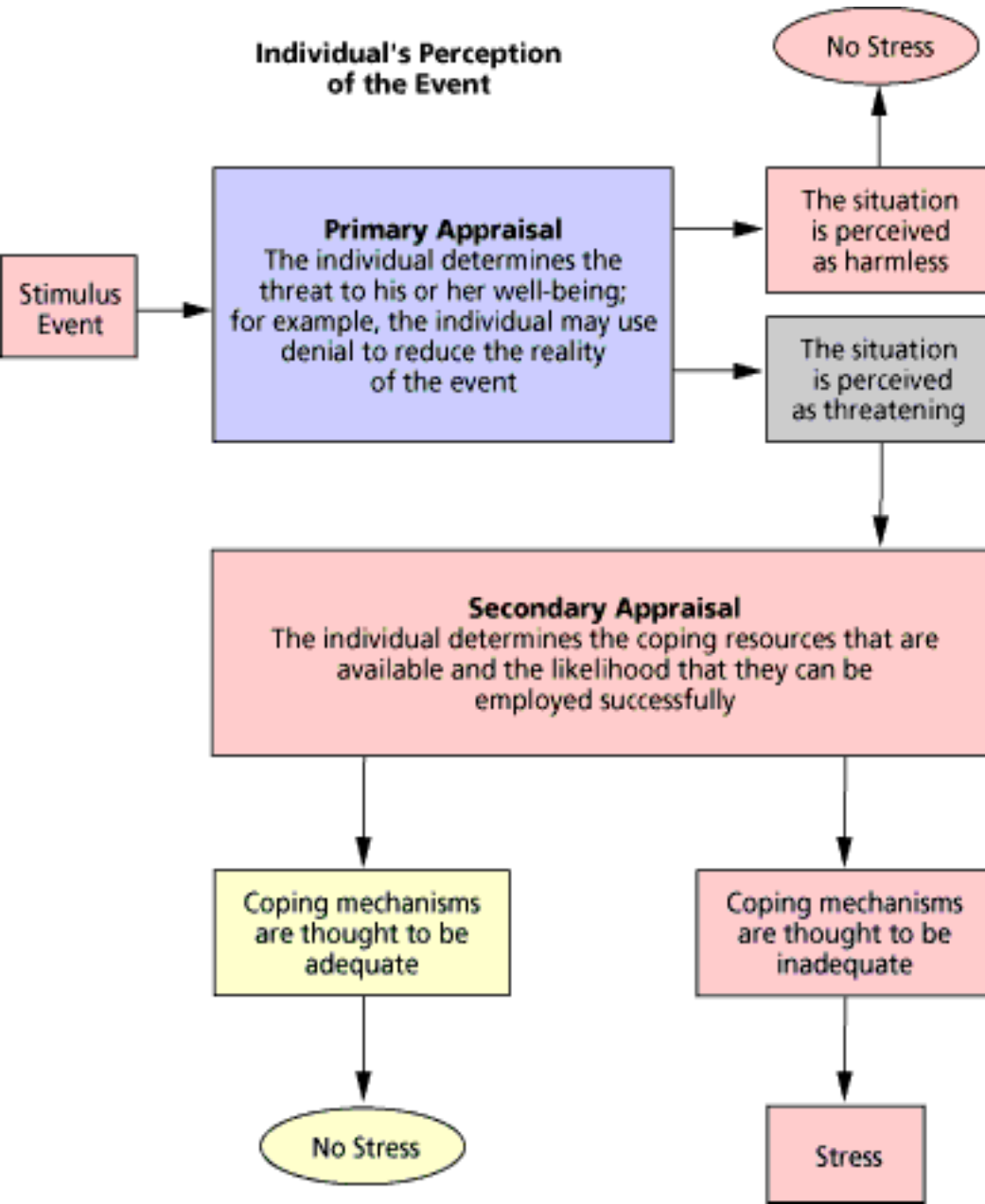
# Stress is:

- Negative emotional experience
- Predictable physiological, cognitive, and behavioral changes
- Directed either toward altering stressful circumstances or accommodating to its effects.

## ► The General Adaptation Syndrome



# STRESS-ILLNESS RELATIONSHIP



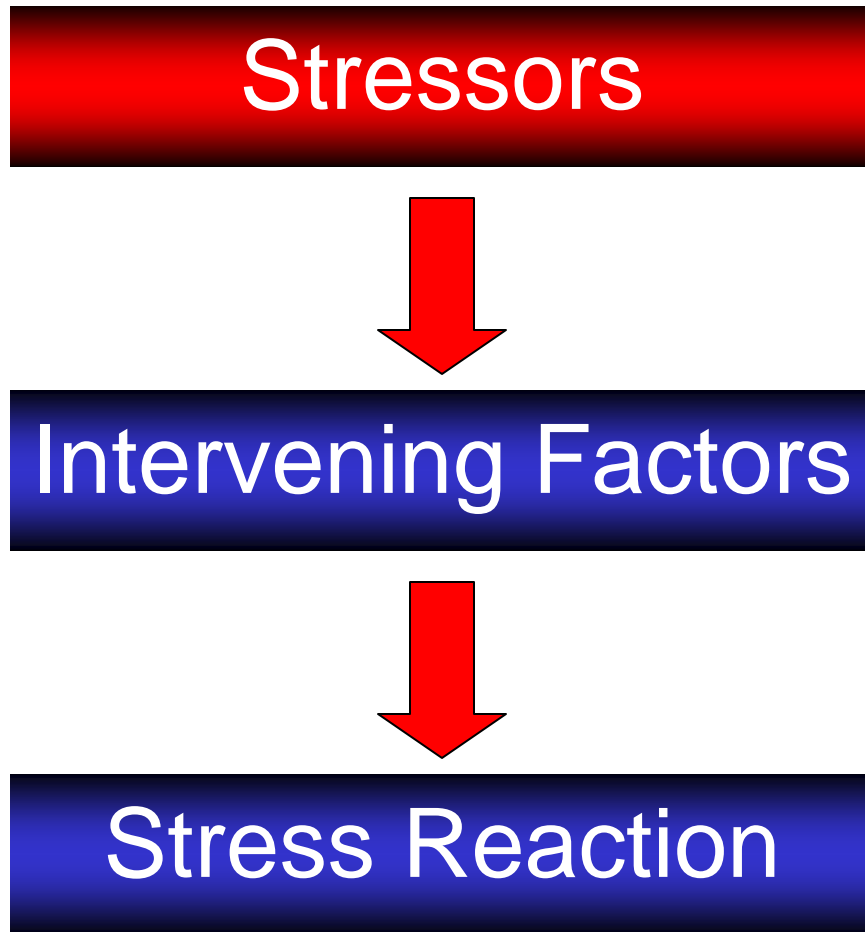
## PSYCHOLOGICAL FACTORS

## STRESS

### The Role of Cognitive Appraisals

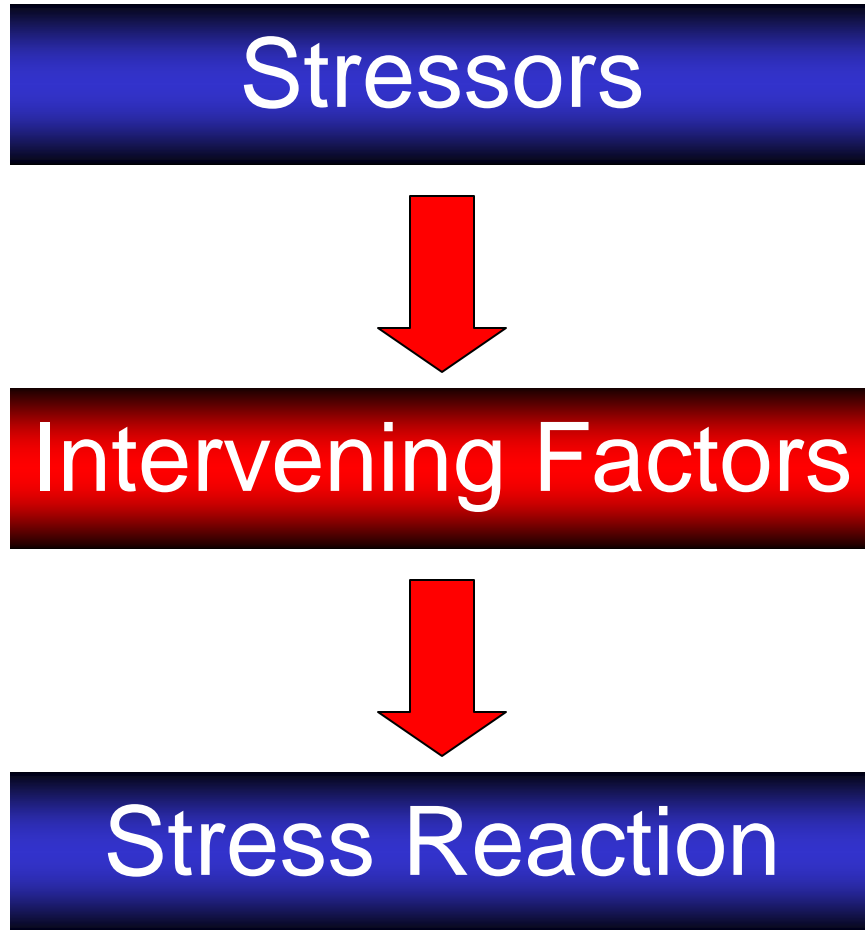
- 1. Primary Appraisal**  
- perceive a situation as threatening ?
- 2. Secondary Appraisal**  
- believe that you will be unable to cope ?

# Stress Process



- catastrophes
- life changes
- daily hassles

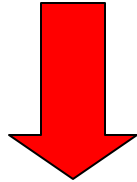
# Stress Process



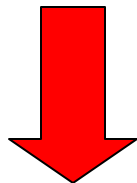
- appraisal
- perceived control
- personality
- social support
- coping

# Stress Process

Stressors



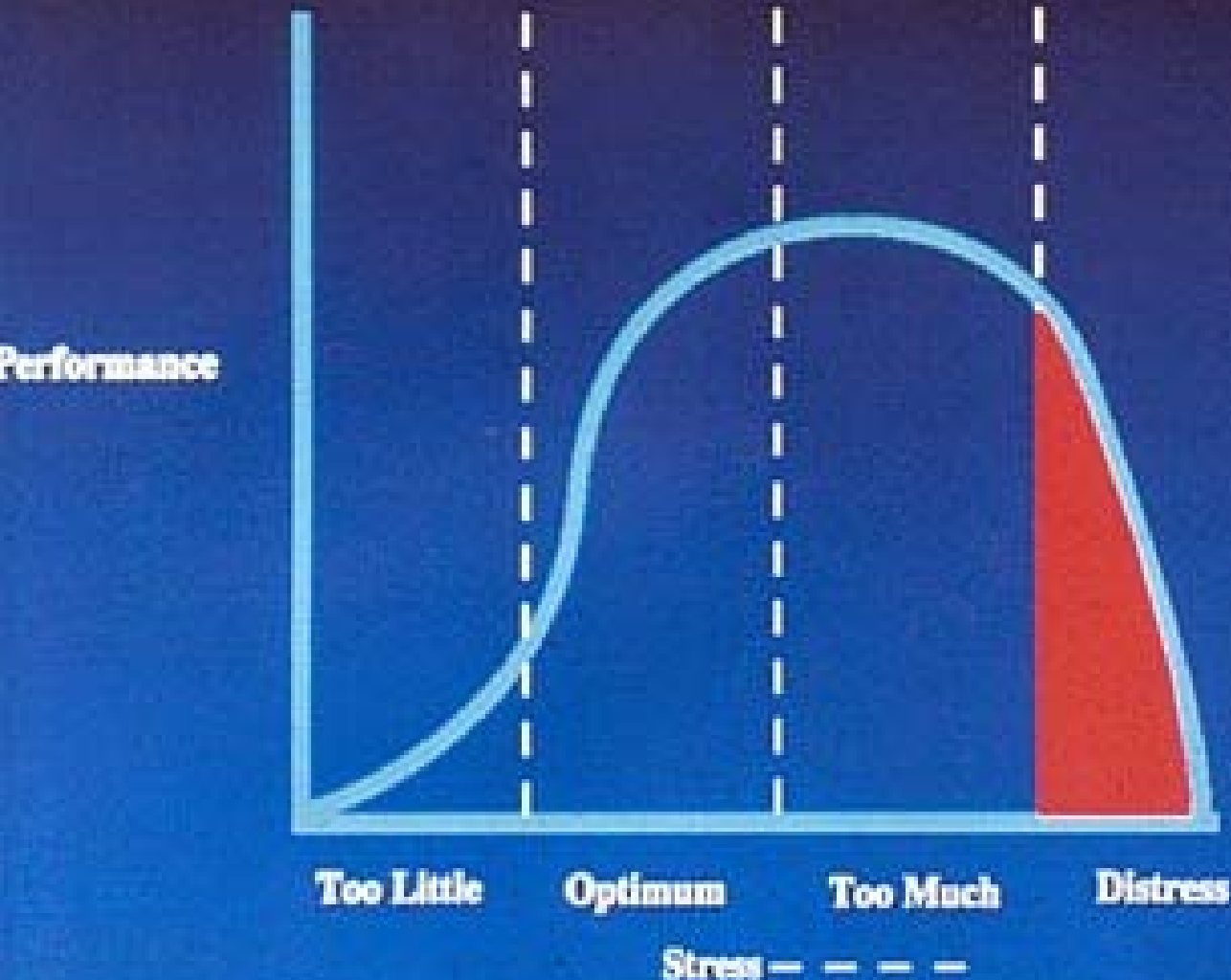
Intervening Factors



Stress Reaction

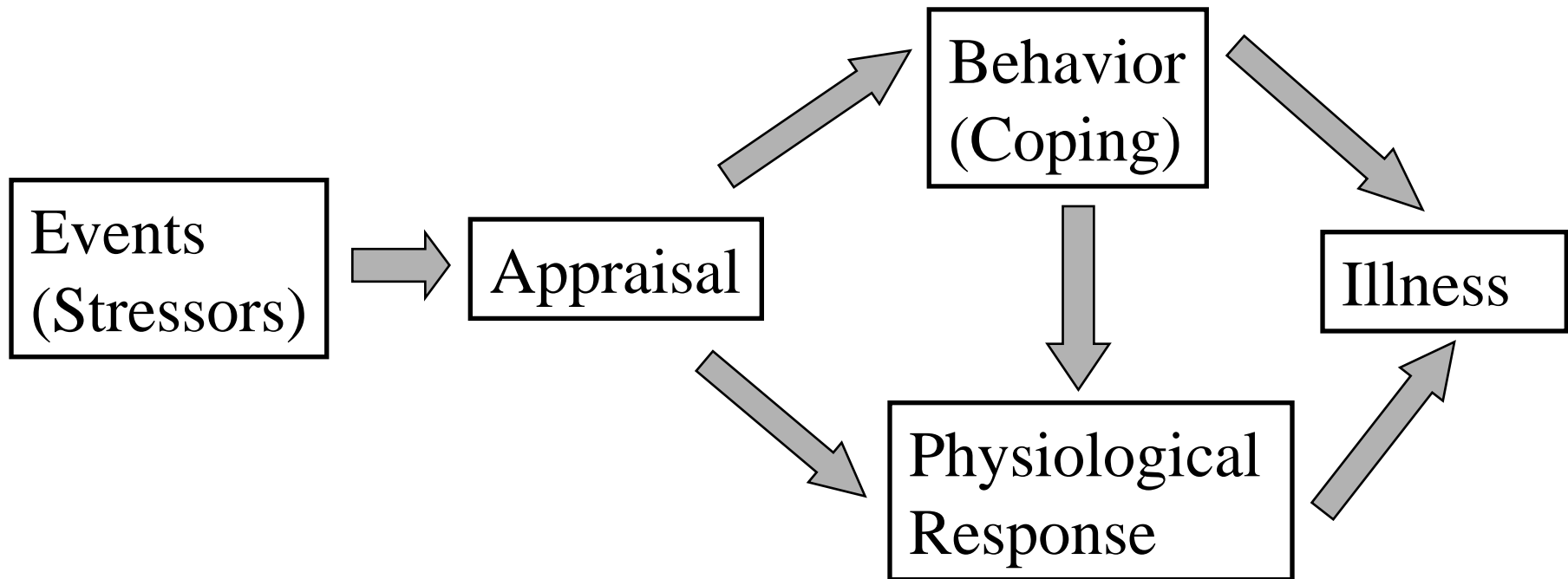
- physiological
- emotional
- behavioral

# Human Performance Curve



- Low to moderate levels of stress or anxiety enhance performance
- High levels impair performance

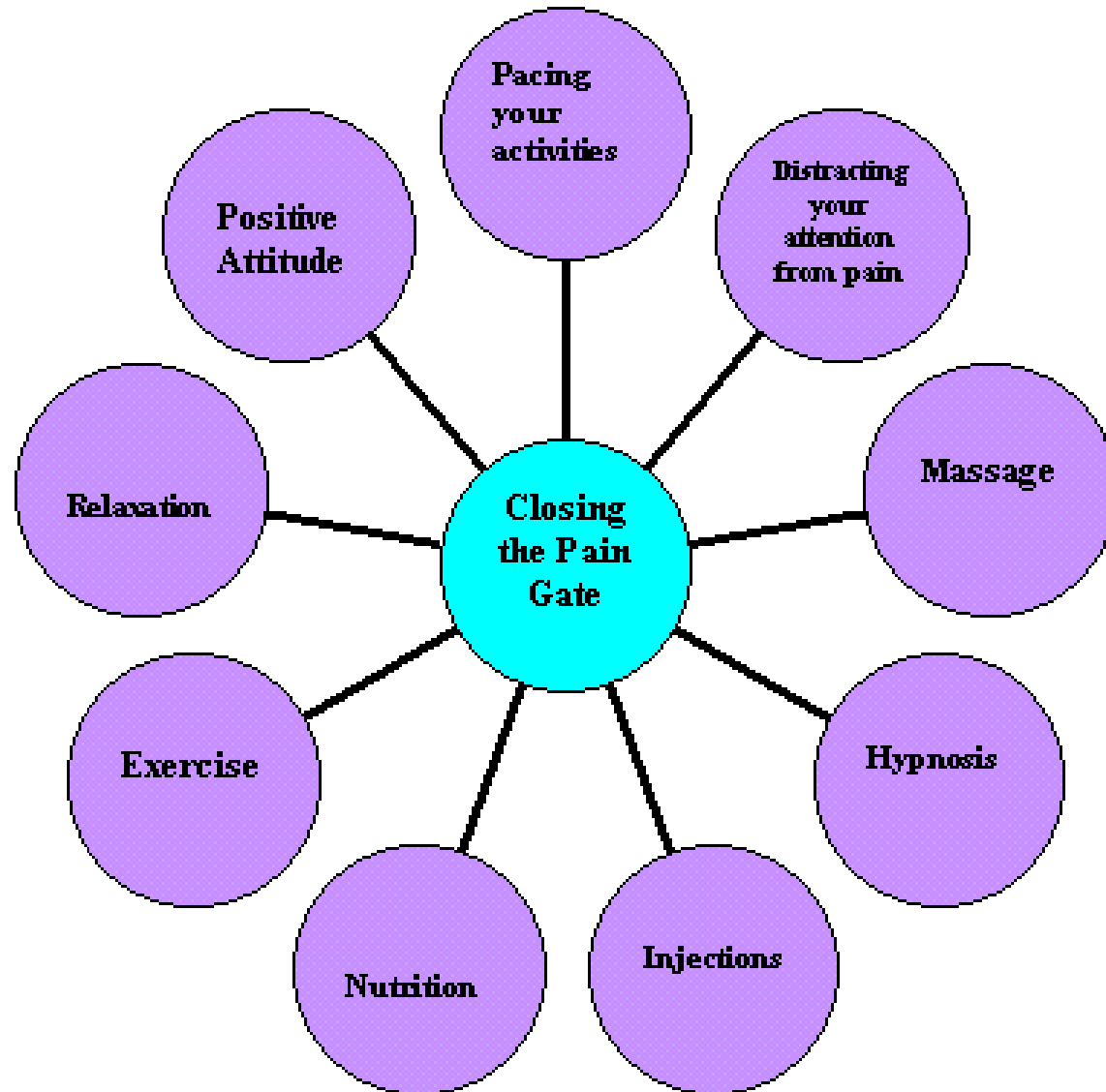
# The Current View of Stress



# What should you do to manage stress?

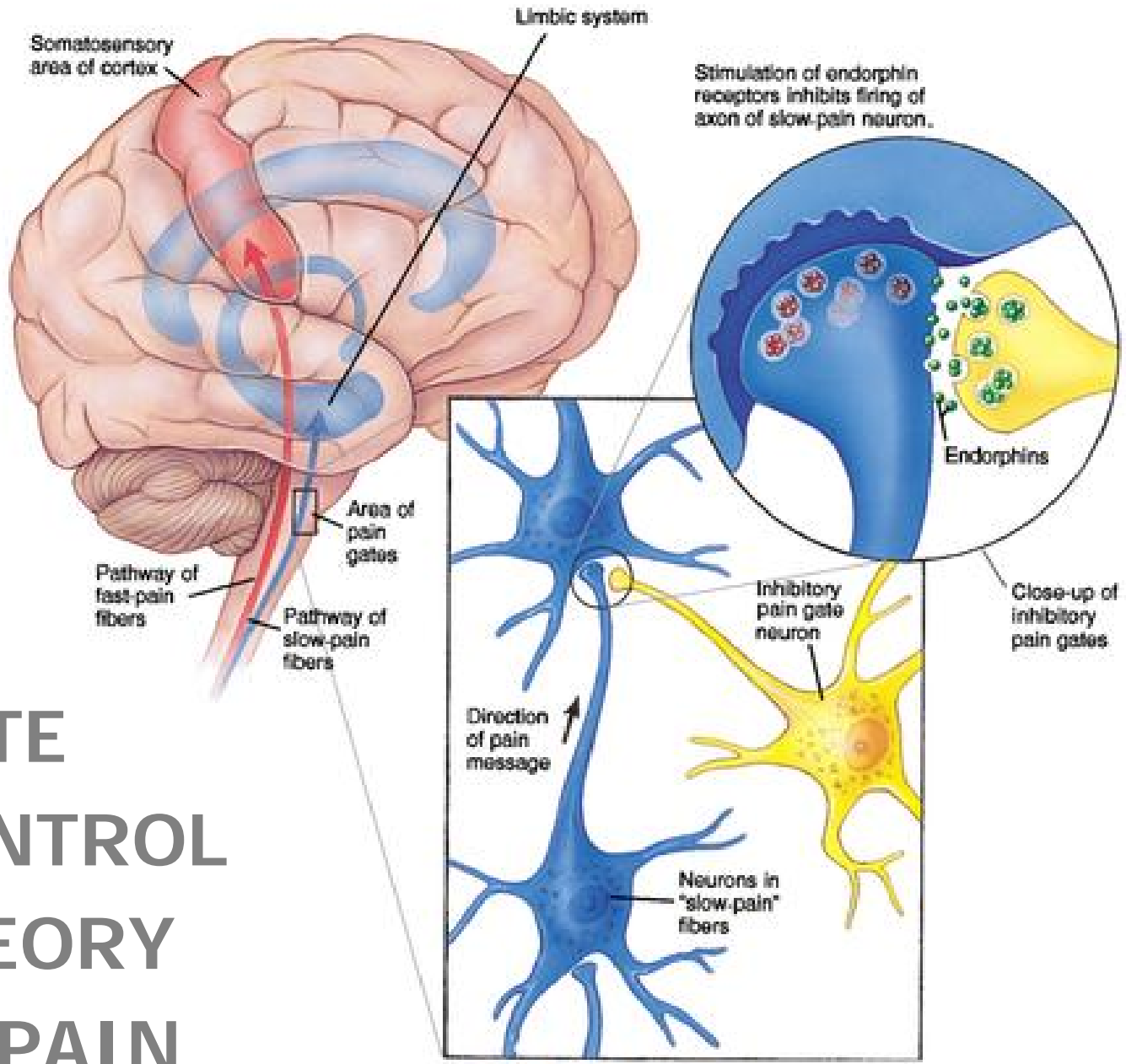
- Know your own physical, cognitive, & emotional signs of stress
- Determine the sources of stress
- What can you change? The circumstances? Your appraisal?
- For each source of stress: How do you cope? Is it adaptive?
- Learn a relaxation strategy
- Buffer stress with rewarding experiences & utilize your social support network
- Commit to positive health behavior & maintain it during times of stress

# PAIN MANAGEMENT



# Chronic Pain

- Pain is adaptive
- Chronic pain affects 97 million Americans and costs about \$100 billion each year
- Many of the standard medical procedures are intrusive, ineffective, or lose their effectiveness over time
- Psychological interventions provide a viable alternative, in part due to the gate control theory of pain



# GATE CONTROL THEORY OF PAIN

# What affects the experience of pain?

- Patient beliefs have been associated with psychological functioning, physical functioning, coping efforts, behavioural responses, and response to treatment
- Central beliefs include:
  - Meaning of symptoms
  - Patient's ability to control pain and the impact of pain on his or her life
  - Worry about the future

# Management of Chronic Illness: Pain

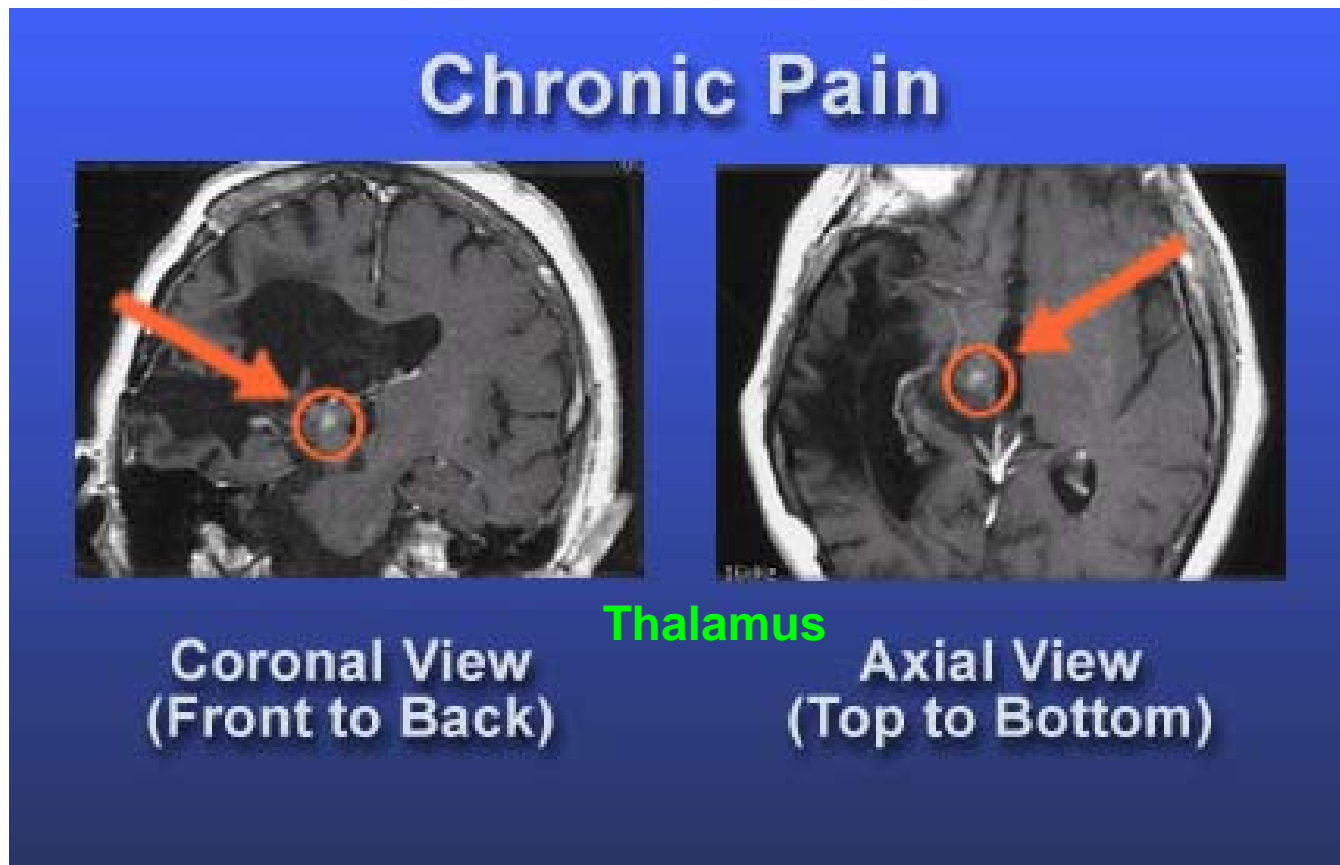
- #1 reason for physician visits
- Cost of health care, missed work, disability
- Acute vs. Chronic pain

# Pain Management

- Behavioral/Psychological factors to address:
- Direct (positive) reinforcement
  - Secondary gain
  - Narcotic use
- Indirect (negative) reinforcement
  - Masking family/marital distress
  - Avoiding life decisions
- Depression
- Poor stress coping
- Pain masking primary psychological problem

# Management of Chronic Pain

Gamma Knife treatment - small portions of the thalamus are destroyed with focal gamma rays



# PAIN MANAGEMENT

- Cognitive Behavior therapy
- Relaxation techniques
- Meditation/visualization
- Mastery/control
- Hypnotherapy
- Coping skills

# PAIN MANAGEMENT

- Cognitive Behavior therapy
- Relaxation techniques
- Meditation/visualization
- Mastery/control
- Hypnotherapy
- Coping skills

# Neuropsychology

- Typical Referral Questions
- Does the client show deficits that suggest organic brain damage?
- How severe is this client's impairment and what is the prognosis or likely course?
- Can impairment be localized to certain areas of the client's functioning
- What are the recommendations for rehab?
- Is the impairment progressive?
- Is the damage focal or diffuse?
- What will the client be capable of in the future?

# Definitions

- The study of the relation between brain function and behavior
- Neuropsychological assessment:
- Non-invasive method of describing brain functioning
- Based on performance on standardized tests that are accurate indicators of brain-behavior relationships

# The role of Neuropsychologists

- Establish or rule out diagnoses (e.g., neurological vs. emotional disorder)
- Prognosis for recovery
- Informing intervention & rehabilitation
- Evaluate cognitive impairment in patients with mental disorders

# Continued...

- **Functional model**
  - Behaviour results from several functions/systems of the brain
  - Deficits depend on the functional system affected and localization of damage
  - Reorganization of function may lead to recovery from brain damage

# Brain functioning: Theories

- **Theory of Cortical Localization**
  - Specific brain areas
  - associated with specific
  - behaviours
- **Theory of Equipotentiality**
  - Cortex functions as a whole
  - Lashley noted that one part
  - can take over for another
  - if damaged

# Head Injury

- Cause of death in 25% of trauma patients
- Cause of death in 50% of MVAs
- Significant long term disability
- Prompt recognition and treatment can improve outcome

# High Risk Populations

- Young people
- Low-income individuals
- Unmarried individuals
- Members of ethnic minority groups
- Residents of inner cities
- Men (2:1 vs. women)
- Individuals with previous history of substance abuse
- Individuals with previous TBI

# Glasgow Coma Scale

## *Glasgow coma scale*

		Score
<b>Eye opening</b>	spontaneously	4
	to speech	3
	to pain	2
	none	1
<hr/>		
<b>Verbal response</b>	orientated	5
	confused	4
	inappropriate	3
	incomprehensible	2
	none	1
<hr/>		
<b>Motor response</b>	obeys commands	6
	localises to pain	5
	withdraws from pain	4
	flexion to pain	3
	extension to pain	2
	none	1
<hr/>		
<b>Maximum score</b>		15

# Assessment

- Originally: detect and localize brain ailments
- Current: assess functional strengths and weaknesses

# Dysfunctions Assessed

- Amnesia and memory deficits (dementias)
  - Working memory (frontal lobe lesions)
  - Short-term memory (malnutrition)
- Long-term semantic memory
- Long-term biographical memory
- Short-term procedural memory
- Long-term procedural memory

# Continued...

- **Aphasia**
  - Problems understanding or producing language
    - Productive (Broca's)
    - Receptive (Wernicke's)
- **Agraphia** (can't write)
- **Acalculia** (arithmetic)
- **Apraxia**
  - Doing things
- **Agnosia**
  - Problems with knowing
    - E.g. Prosopagnosia***
      - inability to identify***
      - or name faces***

# Factors affecting performance

- Premorbid functioning
  - Sex
  - Age
  - Educational level
- Biological
  - Non-neurological conditions
  - Chronicity of condition
- Psychological
  - Motivation
  - Psychiatric disorders
  - Malingering

# OBJECTIVE TESTS of cognitive functioning

- **Intellectual functioning**
- Abstract reasoning
- Memory
- Visual-spatial processing
- Language functioning
- **Batteries:**
- Halstead-Reitan
- Luria-Nebraska

# OBJECTIVE TESTS of cognitive functioning

- **Intellectual functioning**
- Abstract reasoning
- Memory
- Visual-spatial processing
- Language functioning
- **Batteries:**
- Halstead-Reitan
- Luria-Nebraska

# BRAIN SCANS

1. **EEG** – records electrical activity in the brain
2. **CT scan** (Computerized Axial Tomography)
  - X-ray of brain to study brain structure
3. **PET SCANS** (Positron Emission Tomography)
  - Patterns of activity based on glucose metabolism
4. **MRI** (Magnetic Resonance Imaging)
  - Study brain structure & neurotransmitter
5. **fMRI** (Functional Magnetic Resonance Imaging)
  - “Live” presentation of brain function