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# Mental Disorders in Older Adults

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# A Key Question

How is it that one individual may seem to be able to integrate painful conditions of old age into a new form of psychosocial strength, while another may respond to similar conditions in a fashion that seems to inhibit effective integration and healthy, ongoing development? (*Erikson, 1986*)

# Components of Successful Aging

- Low risk of disease and disease-related disability
- High mental and physical functioning
- Active engagement with life

# Best Estimate 1-year Prevalence Rates Based on ECA, Age 55+

	<u>Prevalence (%)</u>
Any anxiety disorder	11.4
Simple Phobia	7.3
Social Phobia	1.0
Agoraphobia	4.1
Panic Disorder	0.5
Obsessive-Compulsive Disorder	1.5
Any Mood Disorder	4.4
Major Depressive Episode	3.8
Unipolar Major Depression	3.7
Dysthymia	1.6
Bipolar I	0.2
Bipolar II	0.1
Schizophrenia	0.6
Somatization	0.3
Antisocial Personality Disorder	0.0
Anorexia Nervosa	0.0
Severe Cognitive Impairment	6.6
Any Disorder	19.8

# Developmental Considerations

Important to distinguish among:

- (a) Those who had the disorder earlier in life and are experiencing a continuation or recurrence
- (b) Those with a vulnerability from earlier in life that is exacerbated in old age and only then results in mental disorder
- (c) Those who experience a new disorder in later life
- (d) Older adults who had a disorder earlier in life but do not show any evidence of disturbance in old age

# The Big Three: Depression, Delirium, and Dementia

- Most diagnostically challenging of mental disorders experienced by adults
- Failure to accurately assess these disorders can lead to substantial long-term consequences for older adults
- Symptoms of depression, delirium, and some dementias can be decreased or eliminated with proper diagnosis and treatment

# When cognitive function goes bad: Dementia

- A syndrome
- A global deterioration of cognitive function in clear consciousness
- Multiple etiologies: most common form is Alzheimer's disease (AD)
- Typically progressive or irreversible
- About 10-20% of cases are treatable or reversible (e.g., depression, drug intoxication, thyroid disease and vitamin deficiencies, neurosyphilis, chronic infections, tumors)

# Depression As a Risk Factor for Dementia

- Depression associated with significant cognitive deficits
- Depression may co-occur with dementia
- In population samples, demented persons appear to have a higher prevalence of depression
- Several plausible hypotheses about nature of the depression-dementia relationship

# Delirium

- Frequently overlooked or misdiagnosed
- Characterized by a disturbance of consciousness and a change in cognition over a short period of time (usually hours or days)
- Several different etiological mechanisms
- Diagnosed independently of dementia

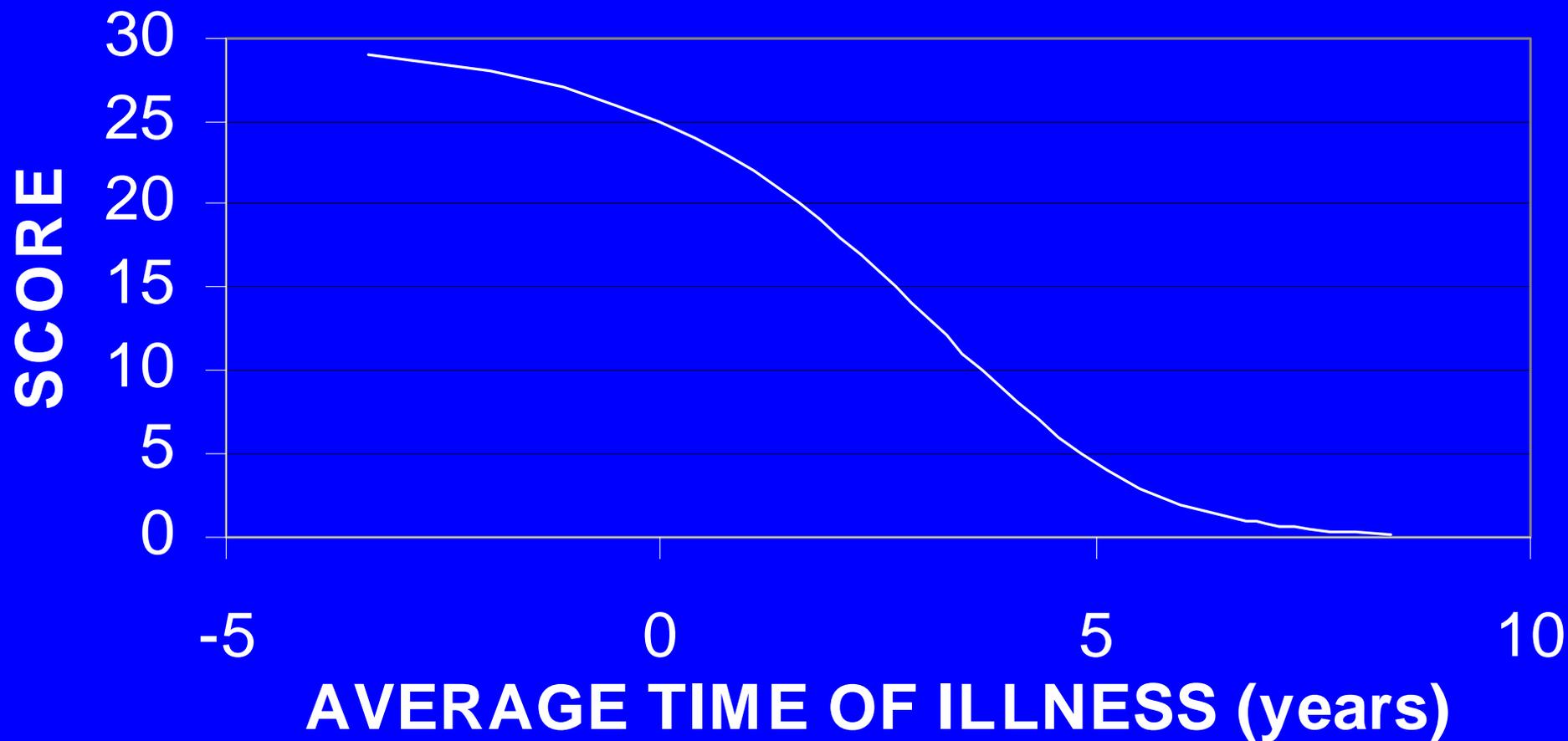
# *DSM-IV* Criteria for Diagnosis of Alzheimer's dementia

- Gradual onset and continuing decline from a previously higher level, resulting in impairment of social and occupational function (i.e., IADLs)
- Impairments in memory and 1 other cognitive domain:
  - Language
    - Word-finding difficulties
    - Disturbance of praxis
    - Disturbances of visual processing
    - Visual agnosia
    - Constructional disturbances
    - Disturbances in executive functioning, including abstract reasoning and concentration
- Cognitive deficits are not due to psychiatric disease, neurological diseases, or systemic disease
- Cognitive deficits do not occur exclusively in the setting of delirium

# Epidemiologic Implications of Progressive Dementias

- People  $\geq 65$  years projected to represent 20% of US population by 2030
- Paradox of increasing longevity – dementia a byproduct of successful aging
- Incidence of dementia rises steeply with age, doubling every 5 years after age 65
- Long duration: 10 years from diagnosis

# ALZHEIMER DETERIORATION ON THE MINI-MENTAL STATE EXAM OVER TIME



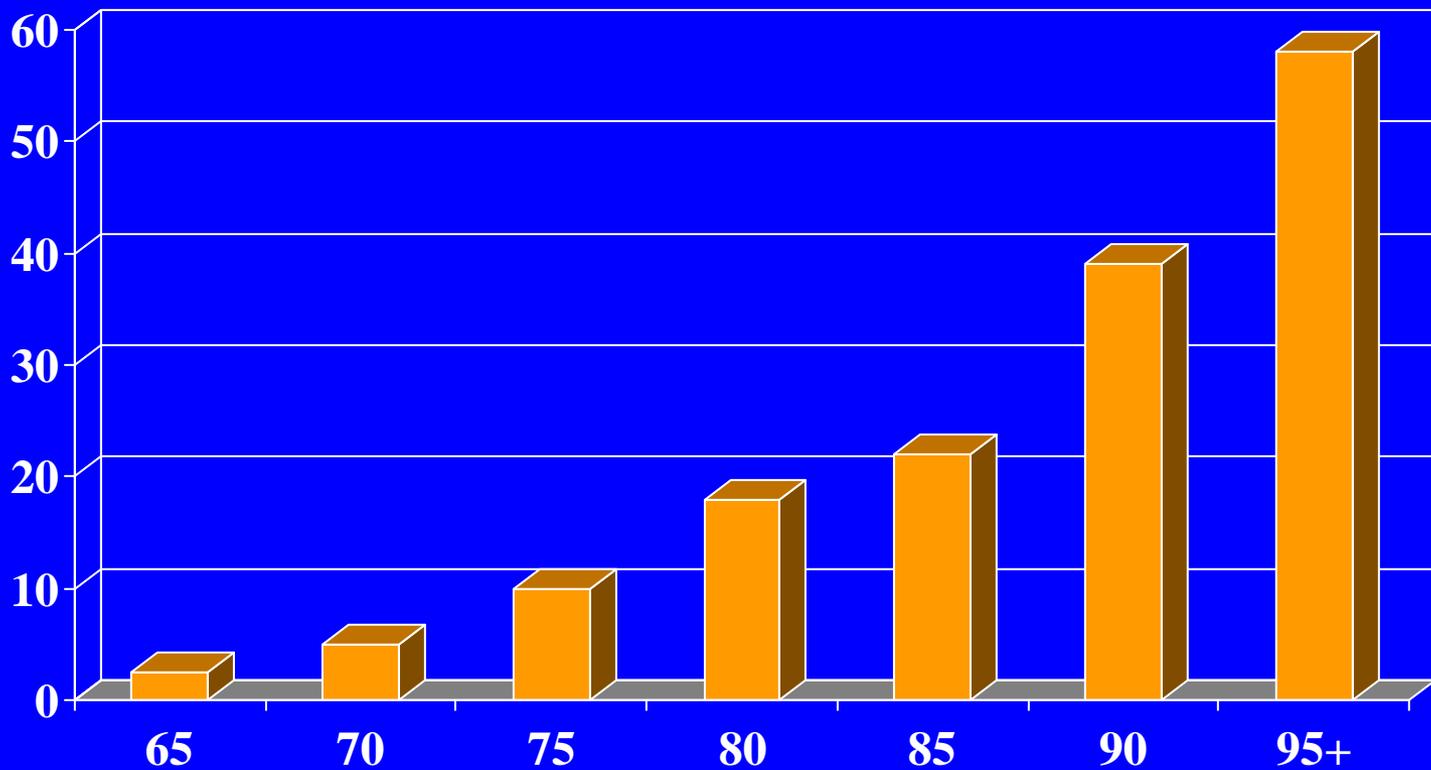
# Prevalence and Incidence of AD increase exponentially with age

- Anchor point: Annual incidence is ~1% between ages 75-79
- Incidence doubles every 5 years
  - 0.25% between 65-69, 0.5% between 70-75
  - 2% between 80-84, 4% between 85-89
  - 6-8% (!) between 90-94
  - May stabilize or decline thereafter

# Looming growth in the Prevalence of AD

- World populations are aging rapidly
- Prevalence is a function of both incidence and duration
- Duration of prevalent cases is being extended
- Unintended consequences of new drugs that stabilize and prolong life after onset of AD

# Percent/Prevalence increases with age: Canadian data



# Looming growth in prevalent cases of AD (USA – millions)

- Present            1.6 - - 2.3 - - 4.3
- 2010                1.7 - - 2.9 - - 5.7
- 2030                2.1 - - 4.8 - - 9.8
- 2050                4.0 - - 8.7 - - 15+

Brookmeyer R, et al. Am J Pub Health 1998;88:1337

# Potential Effects of Intervention to Delay Onset - - Prevalent Cases (USA)

<u>Risk Ratio</u>	<u>Mean delay</u>	<u>2007</u>	<u>2027</u>	<u>2047</u>
1.00	0	2.89	4.74	8.64
0.90	1.0	2.68	4.31	8.26
0.75	2.0	2.32	3.64	6.70
0.50	5.0	1.74	2.49	4.60

Brookmeyer, R. et al. Am J Publ Hlth, 1998, 88:1337

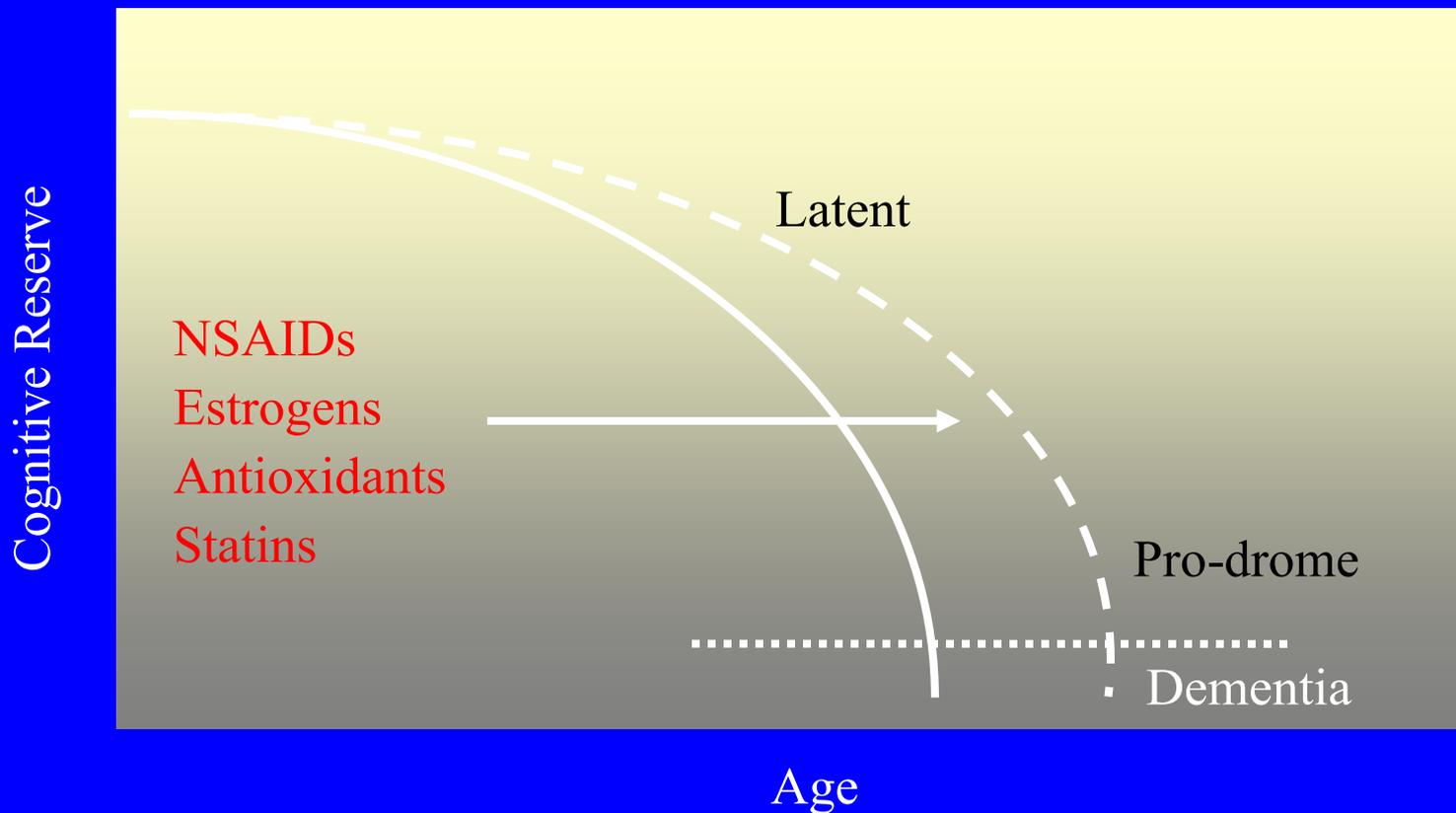


# Economic Impact of Delaying AD Onset

- Total costs associated with AD estimated about \$47,000/yr in 1990 dollars (includes direct costs of nursing care and paid home care as well as unpaid home care) .
- An average 1-year delay in disease onset would result in annual savings of about \$10 billion at 10 years after initiation of intervention.
- Even a 6-month delay would correspond to an annual savings of about 4.7 billion at 10 years, and nearly \$18 billion annually after 50 years.
- Estimates may be biased

# Cognitive Reserve Hypothesis

- Cognitive reserve refers to the total cognitive resources available to the individual
- Having greater cognitive resources may help buffer against decline
- Protects against damage of early stages of decline
- Delays onset of symptoms of decline



AD has an insidious onset and a slow, progressive course that leads to a decline in cognitive capacities. Recent studies suggest that the neuropathogenesis of AD may begin as early as midlife and can be characterized as passing through 3 phases as shown by the solid curve. During the latent phase, neuro-degenerative events proceed without apparent symptoms. As damage to the brain accumulates, the latent phase gives way to a prodromal phase, and mild cognitive impairments begin to emerge. Eventually, cognitive reserves are depleted, and the worsening symptoms cross a threshold that fulfill the criteria for the diagnosis of dementia. A growing body of evidence suggests that several commonly used medications may disrupt the pathologic events of AD and thereby delay or even prevent the onset of clinical dementia. This is shown by the dashed curve. The most promising of these candidates are non-steroidal anti-inflammatory agents (or NSAIDs), estrogen replacement therapies, antioxidant vitamins and statins.

# Factors Influencing Alzheimer's Disease

(age at onset, rate of progression)

- Age\*
- Genetic influences\*
- Genotype (presenilin, *APOE*)\*
- Female gender
- Lack of education
- Environment (head injury)
- Medications: NSAIDS, statins, female HRT
- Vascular disease

## *APOE* and AD (cont.)

- Those with  $\epsilon 4/\epsilon 4$  tend to get AD between 65 – 80 and have 15-fold risk, (vs.  $\epsilon 3/\epsilon 3$ ) after adjustment for age.
- Those with  $\epsilon 4/\epsilon 3$  get AD between 75 and 90 and have 3-4 fold risk.
- The  $\epsilon 2$  allele may confer decreased risk.

# Candidate “protective” factors associated with delayed onset

- Estrogen/Hormone Replacement Therapy
- Non-Steroidal Anti-Inflammatory Drugs:
  - over 20 observational studies, almost all showing inverse association with AD.
- Histamine H2 blocking drugs
- Antioxidant vitamins & Red Wine
- “Statin” drugs

# Moving Toward Prevention of AD: Rise of Mild Cognitive Impairment

- Often a preclinical stage of progressive dementias, such as AD and now, Vascular Dementia
- How to identify subclinical cognitive impairment?
- Varying definitions and prevalences
  - Age-associated Memory Impairment (Crook, 1986).  
More than simply memory loss
  - MCI (Petersen, 1989). Emphasis on memory
  - Differential reliance on presence of objective as well as subjective memory problems
  - Differential reliance on presence of IADL difficulties, by self-report

# Conclusions

1. AD a prevalent disorder with growing public health implications.
2. A large majority, but not all, of the population will develop AD by age 100+
3. Incidence and prevalence increase exponentially through 90+ but decline thereafter.

## Conclusions (cont.)

4. Potential interventions at 3 stages – primary, secondary, and tertiary prevention
5. Primary prevention may be possible with HRT (seems doubtful), NSAIDS, H2 blockers, Anti-oxidants, Statins
6. Trials needed. No agent has yet to halt or reverse symptoms of AD in randomized trials.

## Conclusions (cont.)

7. Need for preclinical detection for prevention or delay of symptom onset.
8. Presently, focus is on earlier detection of memory and cognitive declines (i.e., MCI)

# Main Areas of Prevention in Old Age

- Prevention of skill loss and promotion of competency
- Prevention of psychological and physical conditions associated with dementia
- Prevention of major depression
- Prevention of suicide and relapse
- Stress and anxiety prevention
- Prevention of loss of control and self-esteem enhancement
- Prevention of institutionalization
- Preventive health
  - Diet
  - Nutrition
  - Exercise

# “Use it or Lose it” Hypothesis

- Has great popular appeal but has seldom been empirically tested
- Effortful cognitive activities appear to be protective against dementia in some studies
- Results of cognitive training studies show evidence for considerable cognitive plasticity
- Controlled trials are needed to assess effects of cognitive leisure activities on risk of dementia

# ACTIVE

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## Advanced Cognitive Training Intervention for Vital and Independent Elders

ACTIVE Steering Committee

Funded by the National Institute on Aging  
and the National Institute of Nursing Research

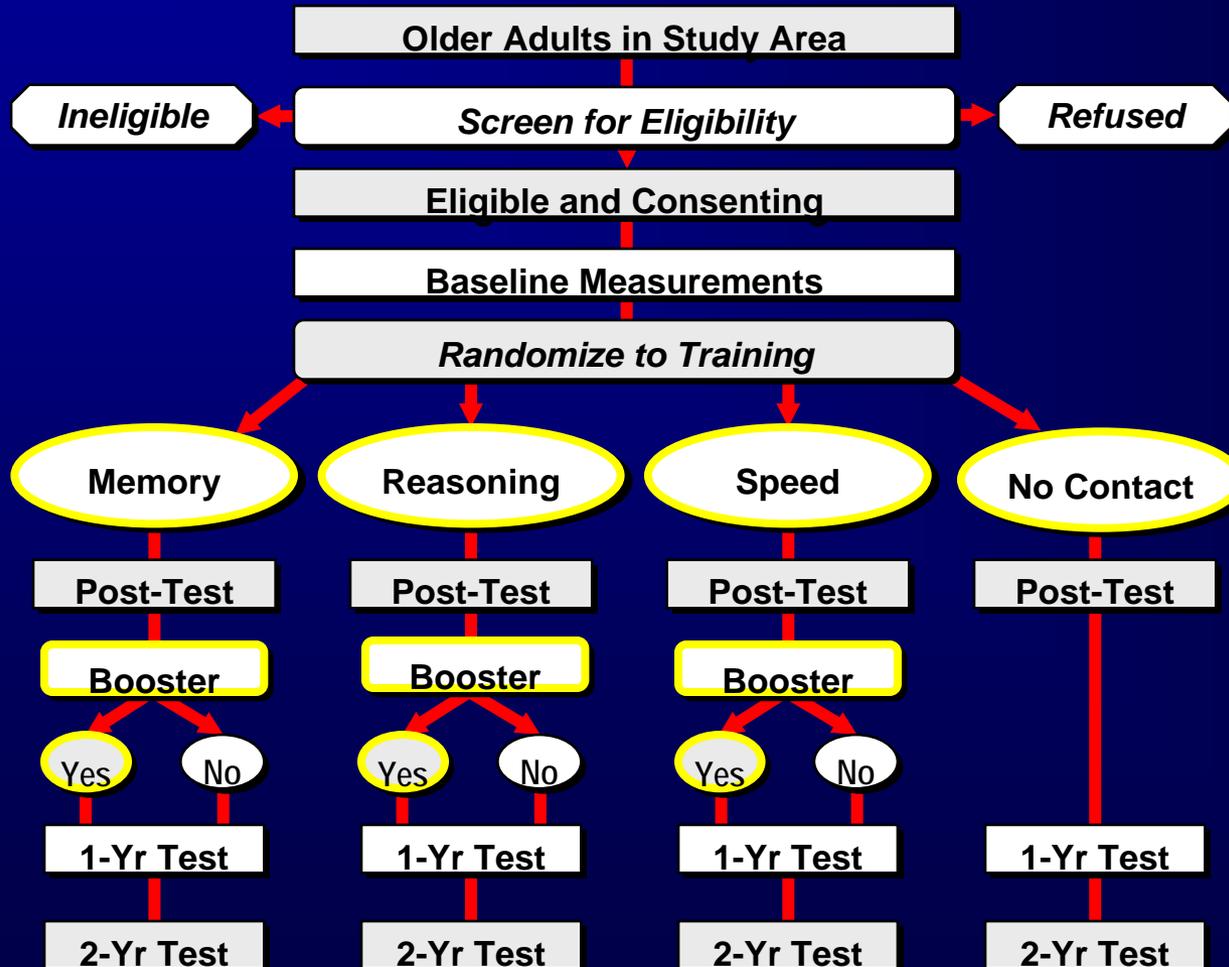
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# ACTIVE: Primary Aim

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To test the efficacy of three cognitive interventions, to improve or maintain the cognitively demanding activities of daily living.

# Study Design

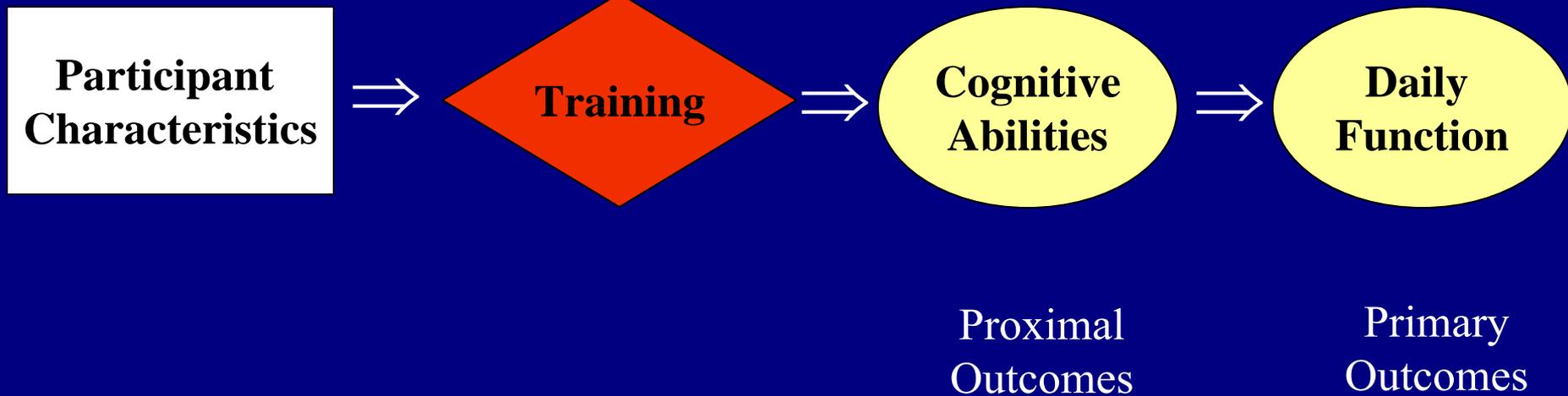


# Baseline Characteristics (n=2,802)

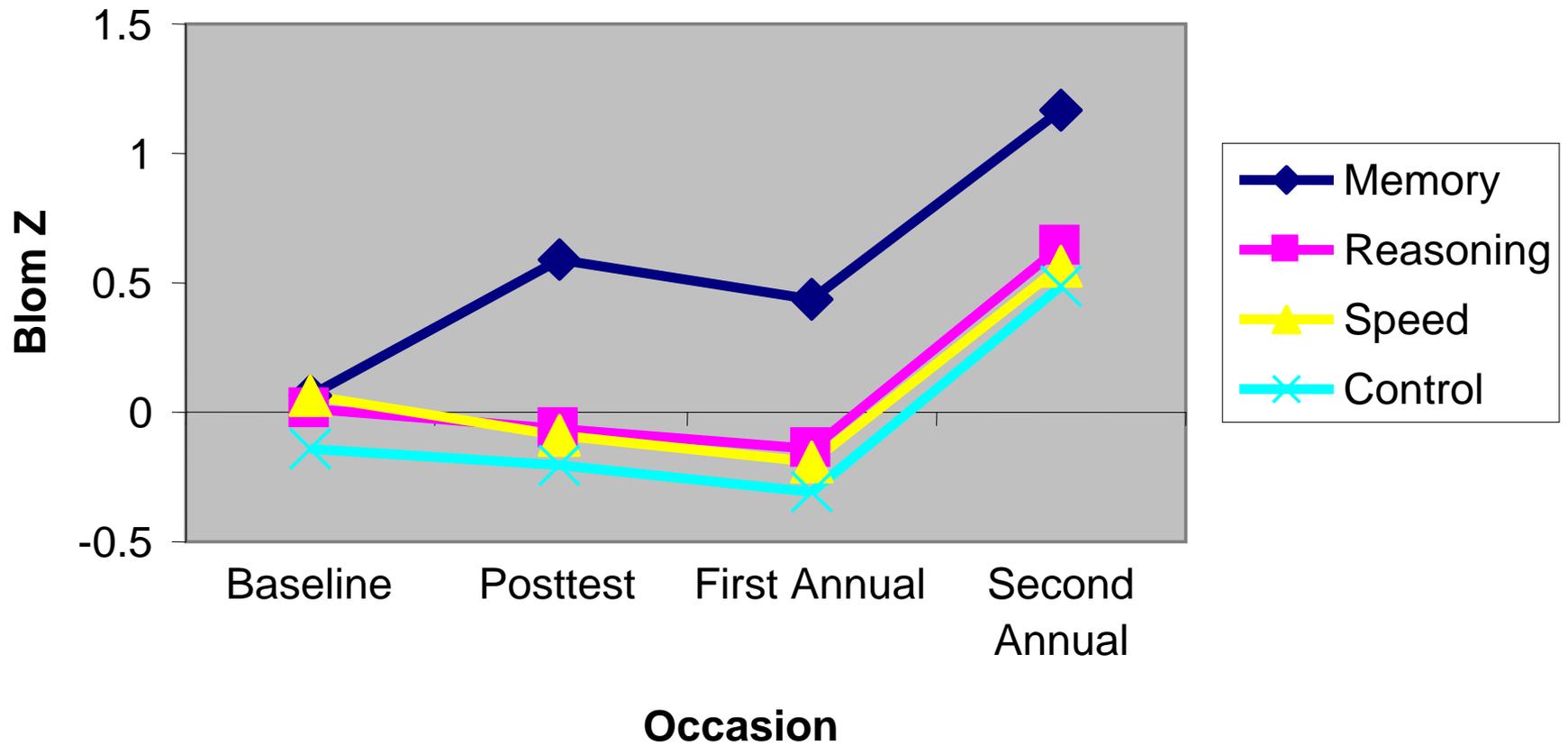
- Mean Age: years 73.6 (5.9) Range 65-94
- Gender: Female 75.9%
- Race: African American 26.0%
- Education: H.S. diploma 88.6%
- Marital Status: Married 35.9%
- Cognitive Status: MMSE score 27.3 (2.0)

# Simplified Conceptual Model

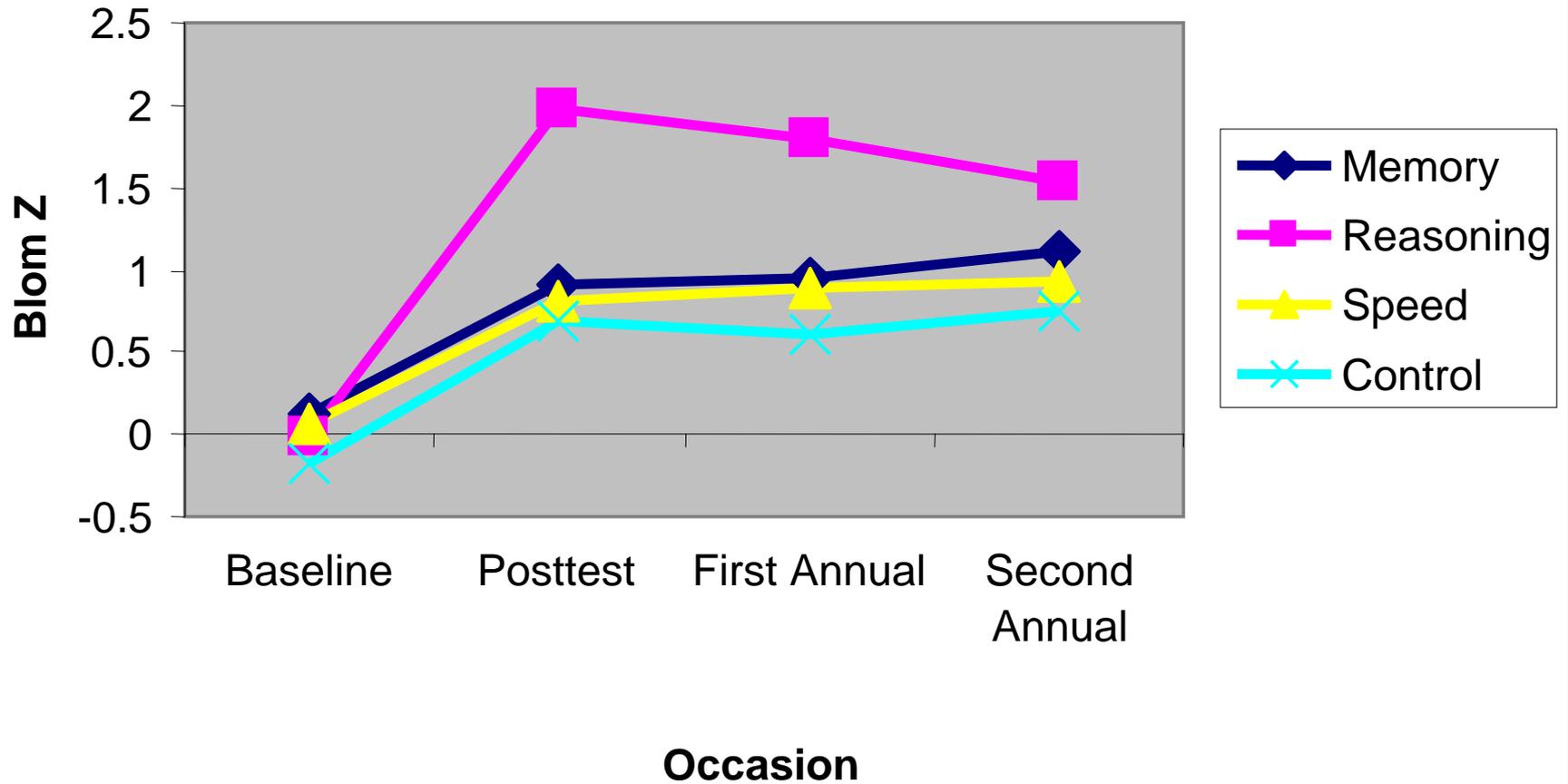
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## Memory Proximal Composite

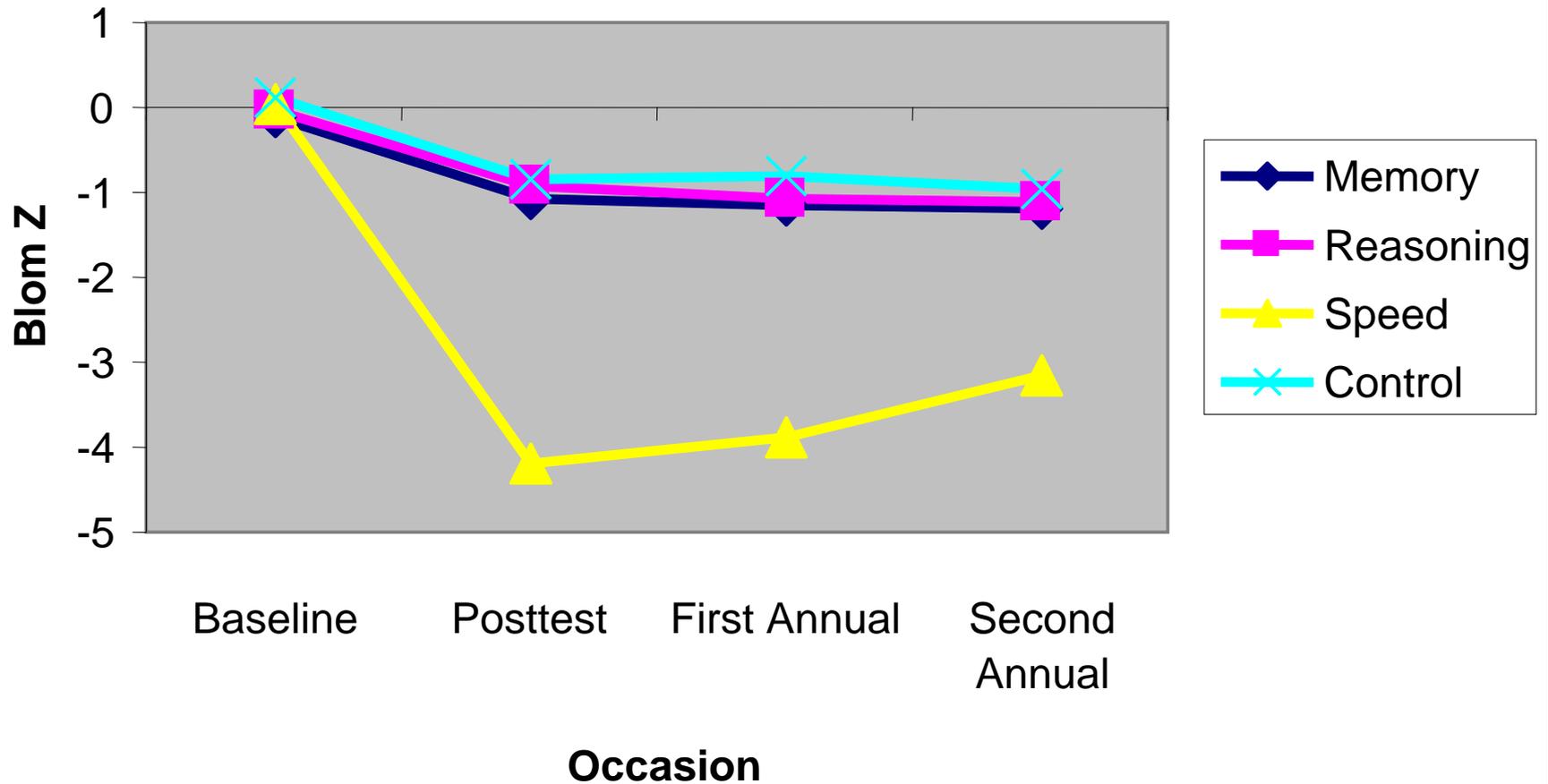


## Reasoning Proximal Composite



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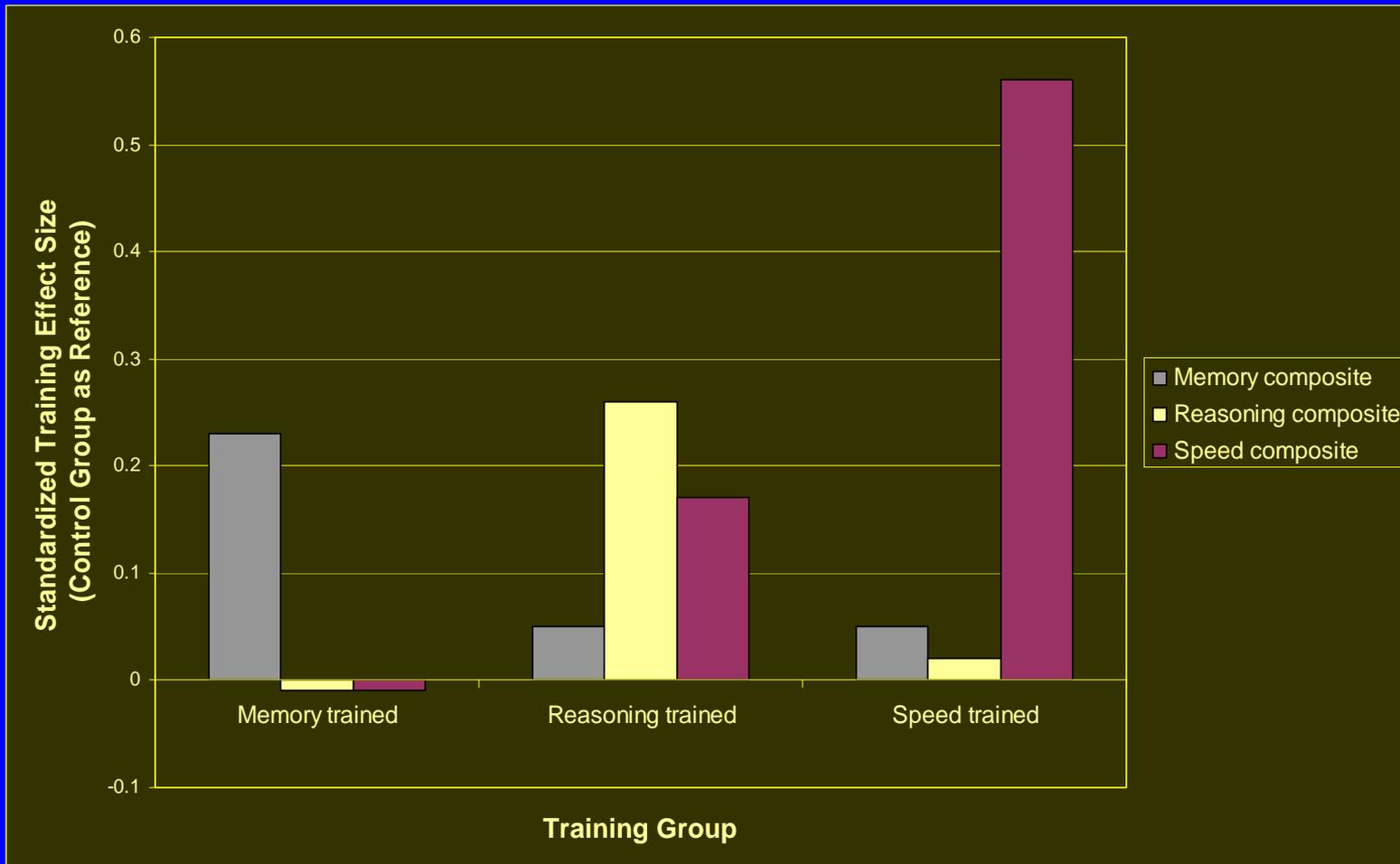
## Speed Proximal Composite



# Training Effects on Proximal Outcomes

- Immediate effect
- Durable to 2 years
- Specificity of training effects confirmed
- Effect sizes as expected

# Effect of Training on Cognitive Abilities -5 yrs

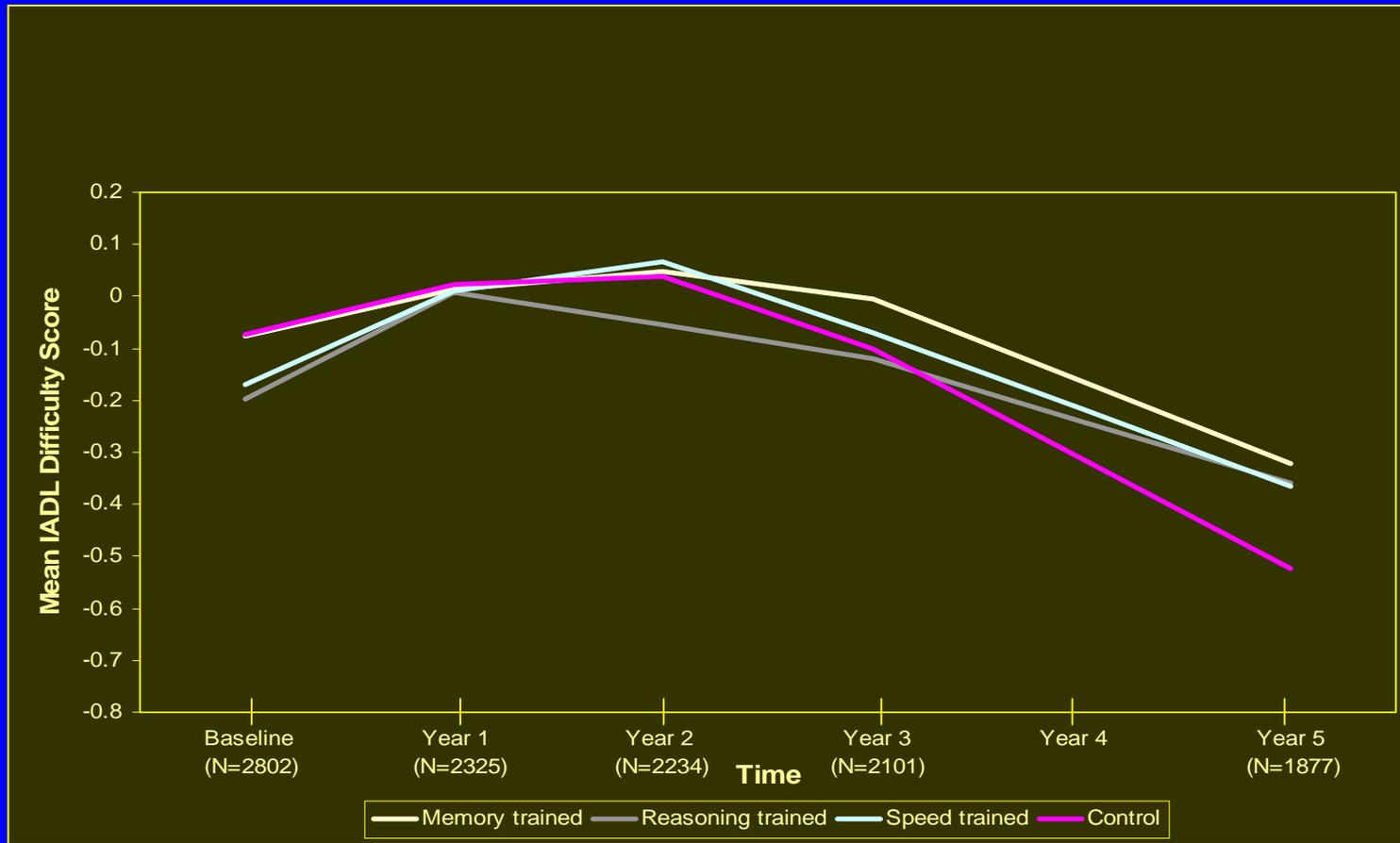


# Training Effects on Daily Function - 5yrs

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- All trained participants reported less difficulty with IADLs compared to control group; Significant only for Reasoning training.
- Training had no effect on performance-based measures of function. However, booster speed training improved performance in Everyday Speed.
- Training effects were modest, however have not been reported previously.

# Effect of Training on Function: Self-Reported IADLs – 5 yrs

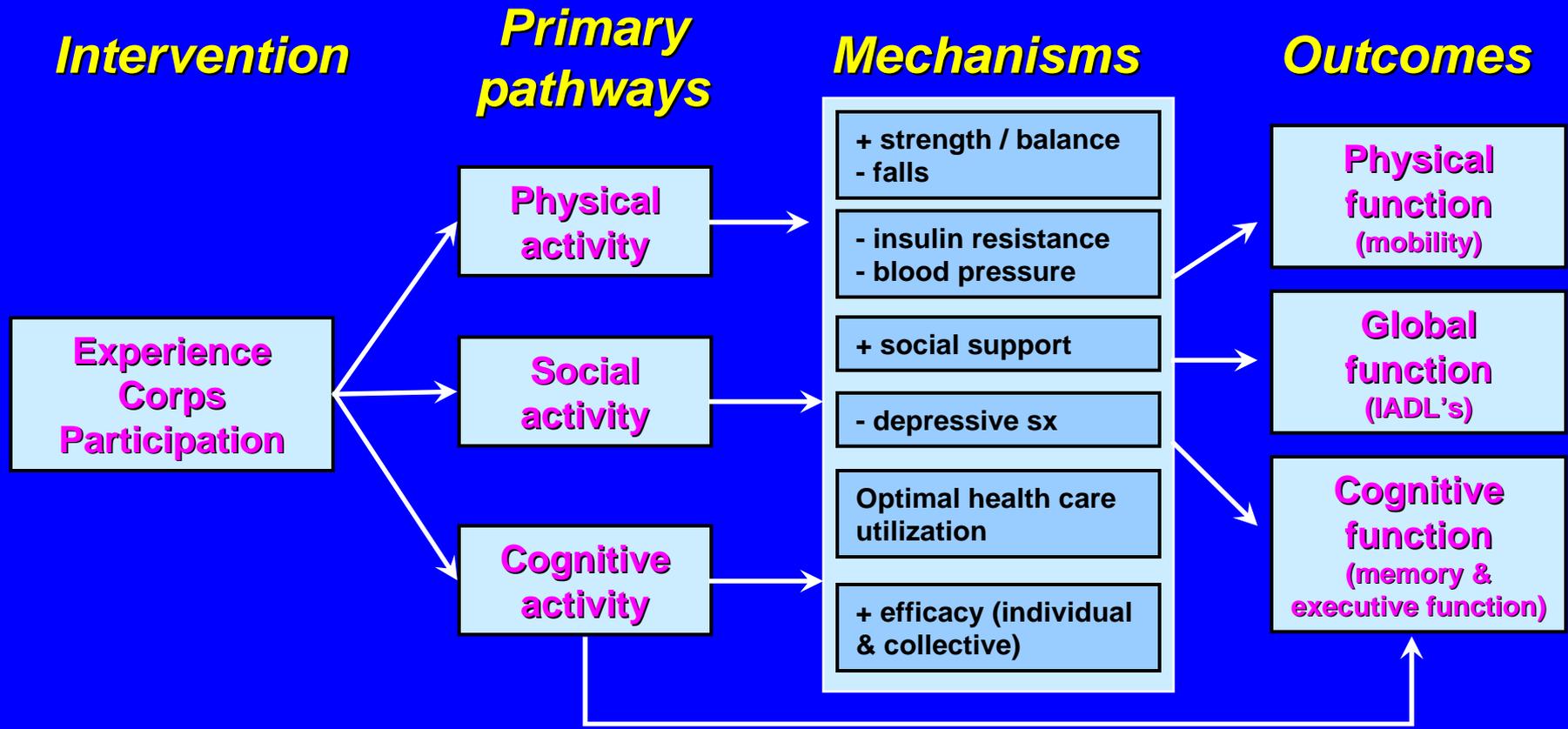


An Intergenerational Approach  
to Cognitive and Behavioral  
Enhancement: The Experience  
Corps Program

# What is the Experience Corps?

- A new model of senior service and health promotion
- Designed to simultaneously create new, generative roles for older adult meeting unmet needs of public elementary schools
- Designed in 1994-95 by Dr. Linda Fried and Mr. Marc Freedman

# Causal model of intervention pathways for older adults



# What We've Learned So Far

- Can recruit a large group of elderly volunteers
- Retention rates are high
- Volunteers accept the need for randomization
- Program perceived as widely attractive to older adults, well-accepted by participants, including principals, teachers, and children
- Results show initial positive benefit in selected areas of function:
  - *physical: improved chair stand & telephone time*
  - *cognitive: improved verbal delayed memory*

# Depression

- Most common mental disorder
- Term used synonymous with Common Mental Disorder, i.e., includes the broad spectrum of depression and anxiety disorders
- Single most important cause of disability among mental disorders

*(Global Burden of Disease Report, 1996)*

# Diagnosable Syndromes of Depression

- Include affective, behavioral, somatic, and cognitive symptoms
- Affective symptoms: depressed mood or sadness, feelings of loss of pleasure, irritability, anger
- Behavioral symptoms: decreased activity, changes in movement, agitation
- Somatic signs: significant weight changes, sleep changes, loss of energy, fatigue, lethargy
- Cognitive symptoms: feelings of worthlessness, futility, helplessness, hopelessness, loss of motivation, suicidal thoughts, poor memory, difficulty concentrating, difficulty making decisions

# DSM-IV Diagnostic Criteria

- Depressed mood and/or loss of interest in pleasurable activities nearly all day or every day for at least 2 weeks
- Must experience 3 or more of following symptoms for a total of at least 5 symptoms:  
significant weight change, sleep disturbance, psychomotor retardation or agitation, low energy, poor concentration, recurrent thoughts of death or suicide
- Symptoms cause clinically significant distress

# Dysthymic Disorder

- Less severe form of depression
- Individual experiences depressed mood and at least 2 additional symptoms (appetite disturbance, sleep dysregulation, fatigue, low self-esteem, poor concentration, sense of hopelessness) for a period of at least 2 years
- Individuals with dysthymic disorder may develop major depressive disorder
- “double depression” involving recurrent episodes of major depression separated by episodes of dysthymia

# Life-Span Questions for Further Study

- Is there a commonality among depressions that begin at different ages?
- If not, are the differences due to developmental forces shaping the same underlying disorder, or are they really different forms of depression?
- Should “recurrence” be a critically defining feature of depression?
- Do the same processes underlie first onset, maintenance, and recurrence of depression across the life span?

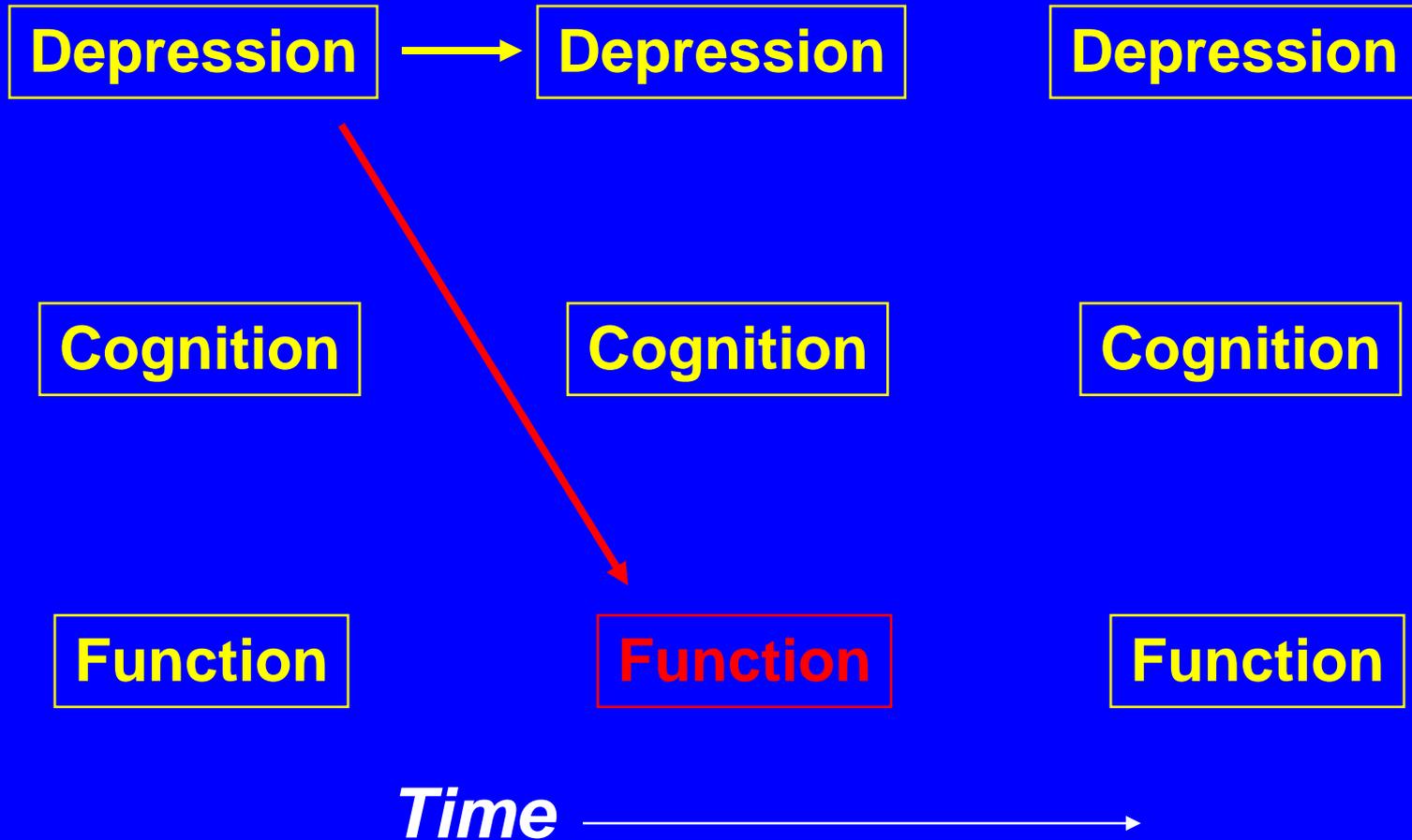
# Depression in Older Adults

- Older persons with depression may not present with typical symptoms of depression such as sadness.
- Older patients with depression often have unexplained somatic complaints and exhibit a sense of hopelessness
- Anxiety and anhedonia are also encountered frequently
- Other features that may indicate underlying depression include memory complaints, slowness of movement, and lack of interest in personal care
- May be difficult to detect because of frequency of comorbid psychological and medical conditions

# Depressive Symptoms and Functional Impairment

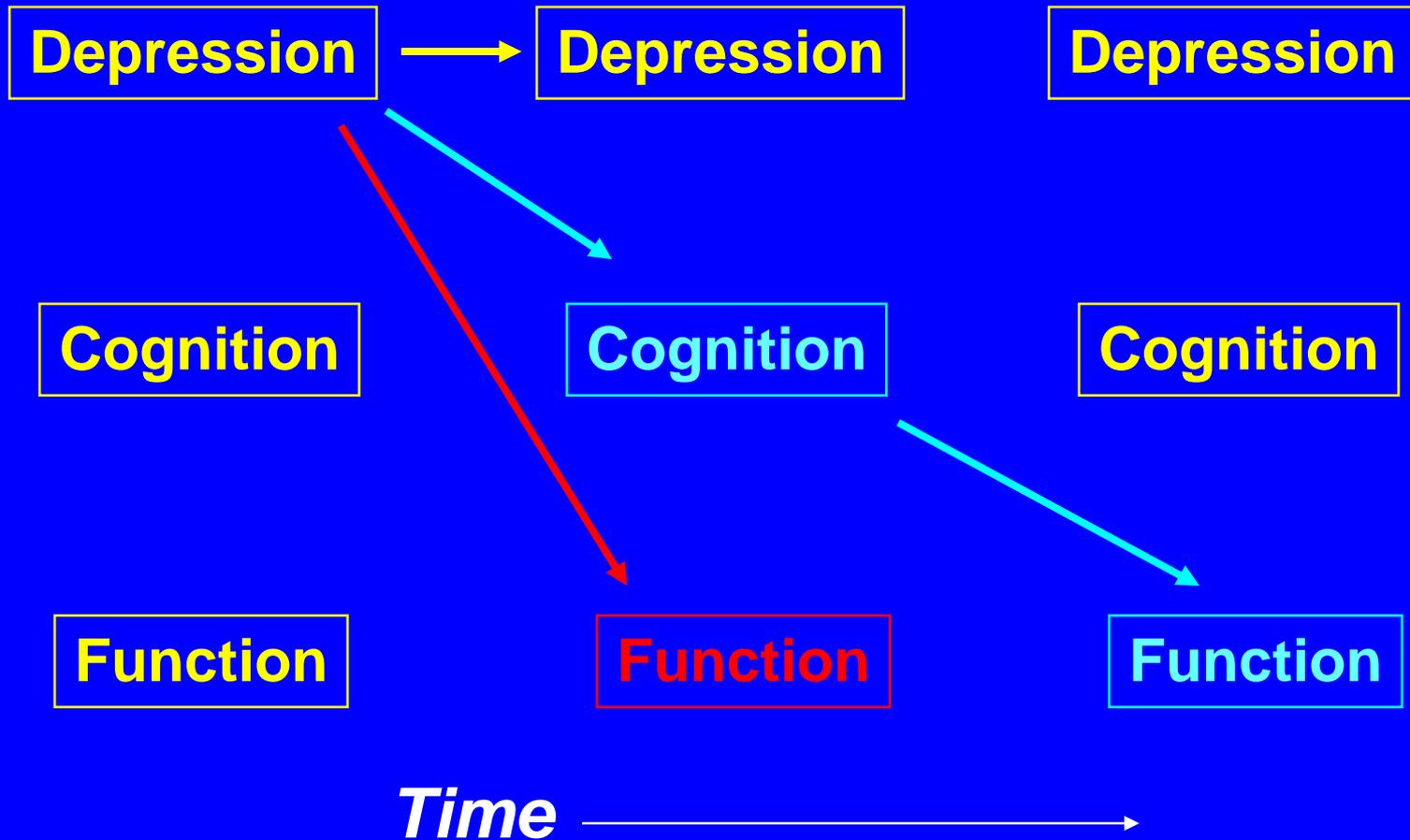
- Depressive symptoms associated with the development of functional impairment in the elderly
- Processes underlying the depression-function relationship are poorly understood
- Important to study mediators of the relationship between depression and functional impairment

# Disability and depression



**ACTIVE study**

# Disability and depression



**ACTIVE study**

# Treatment Approaches to Mood Disorders in Later Life

- Pharmacotherapy has proven effective for treating depression in older adults at all levels of severity (50-70% effectiveness rates)
- Effectiveness of psychodynamic and self psychological approaches limited to anecdotal case reports and a few empirical reports of life review
- Empirical studies support efficacy of cognitive and behavioral treatments (Thompson et al., 1987)
- Some support for effectiveness of family therapy but more outcome studies are needed
- Integrating multiple treatment modalities has proven effective in treating mood disorders