

ASEAN International Symposium

# Health Promotion in Super-Aged Society

Prevention of Geriatric Syndrome in the Community



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# What will happen in the “Super-aged Society”

- 1) Rapid increase of the number and proportion of old people with age 65 and over;  
(percentage of old-old people >75)      23% (11%) in 2010 to 32%(20%) in 2030
- 2) Rapid increase of care-needed elderly person;  
4.0 million in 2010 to 7.5 million in 2030
- 3) Rapid increase of demented elderly person ;  
4.0 million in 2010 to 6.5 million in 2030
- 4) Rapid increase of number of death in a year ;  
1.1 million in 2010 to 1.7 million in 2030
- 5) Rapid increase of single and married couple household with member age >65;  
54 % in 2010 to 70 % in 2030

# Japanese Elderly People Today

## **Young-old (65-74 yrs.)**

**Very healthy**

**Very active**

**Good social tie and network**

**Hoping to work as possible**



The new generation of young-old is capable of actively contributing to the society and many desire to do so.

About 30 % on the elderly are willing to work over life-time. More than half of older people expect themselves to retire at age > 65.

In fact, almost 30 % of men aged > 65 are in the labor force, much higher than in European countries and even in the USA. Japanese women also lead the world in labor force participation.

# Japanese Elderly People Today

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**Old-old (75 + yrs.)**

**Geriatric Syndrome**

**Long-term care state**

**Frail & Sarcopenia**

**Dementia (Cognitive function ↓)**



# Geriatric Syndrome

**Fall**

**Incontinence**

**Physical frailty**  
**Sarcopenia**

**Undernutrition**

**Oral Dysfunction**

**Dementia /**  
**Cognitive Decline**

## Characteristics of Geriatric Syndrome

- slowly progressive and non-fatal
- not necessarily caused by diseases
- leave untreated, QOL becomes worse
- preventable with proper intervention

# ***LONG-TERM CARE INSURANCE SYSTEM***

- **LTCI started in April, 2000.**
- **LTCI is for sharing nursing care costs for the elderly among the general public, and allows users to select the prevention and nursing care services which they hope to use.**
- **LTCI was reformed in April, 2006 to be more prevention-oriented system for the elderly whose daily life become less active.**

# Main Contents of Services to Prevent the Need for Care in the New Prevention Benefit

**Community Comprehensive Support Center  
( Care management to prevent geriatric syndrome)**

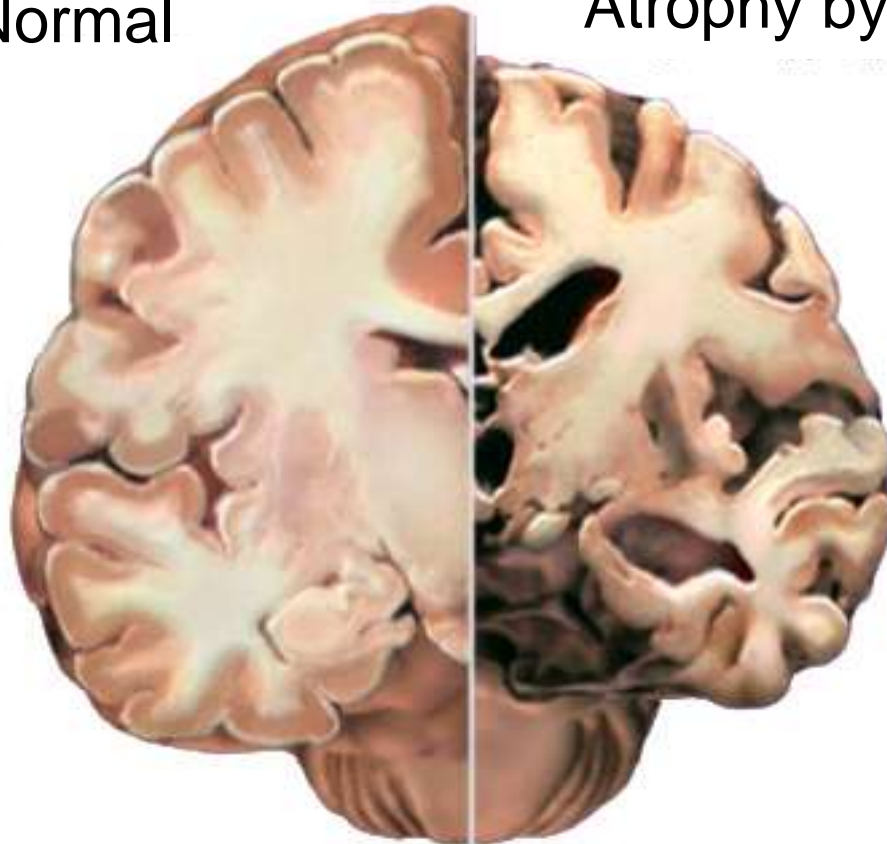
**Users who are in support level or care level 1 at Day care service / Day rehabilitation services**

- 1) Improvement of physical activity
- 2) Improvement of nutrition
- 3) Improvement of oral function
- 4) Prevention of dementia
- 5) Home-bound condition
- 6) Prevention of depression

**Aim : Independence and Autonomy**

# A RCT for Prevention of Dementia in the Elderly with MCI in the Community

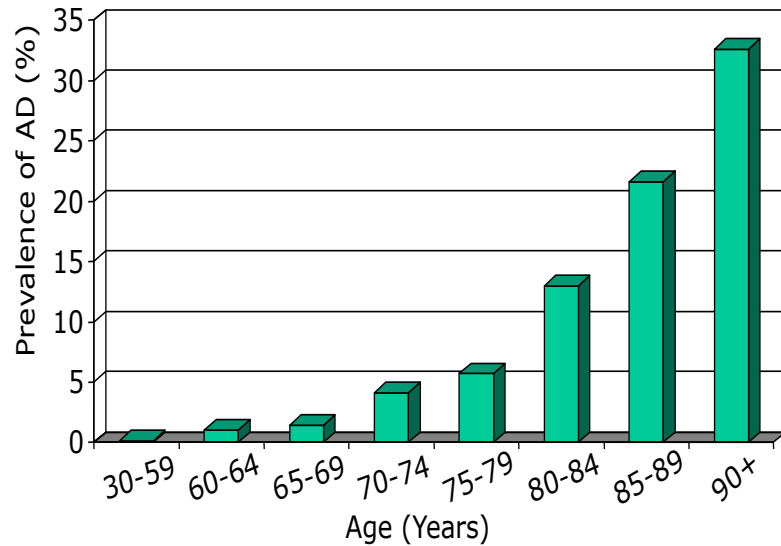
Normal



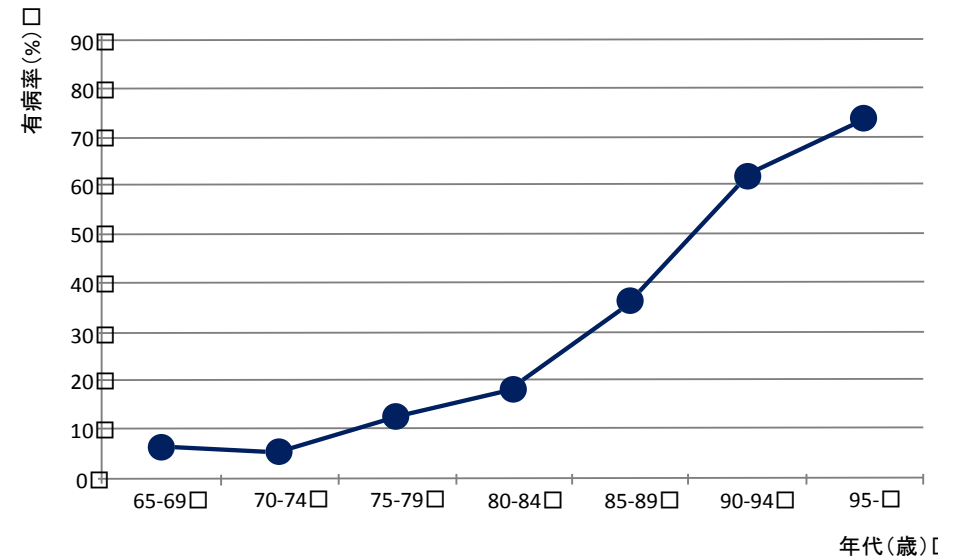
Atrophy by Alzheimer Dis.



# Prevalence of Dementia



Source: The prevalence of AD in Europe:  
A collaborative study of 1980-1990 findings (EURODEM)



The prevalence of dementia in Japan: National Survey in 2011

# Major Flow of Preventing Dementia

## 1 Screening



Cognitive Assessments



Cognitive Assessment Tool

NCGG-FAT



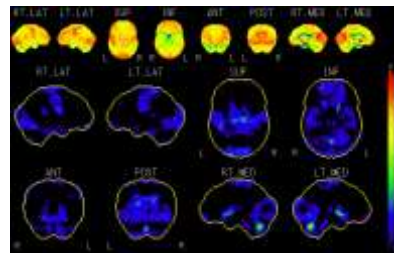
Questionnaire



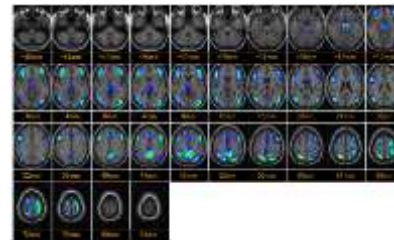
Physical Assessments

## 2 Neuroimaging

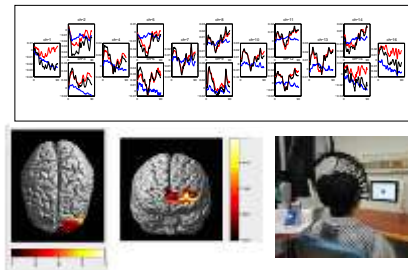
FDG PET



MRI



NIRS



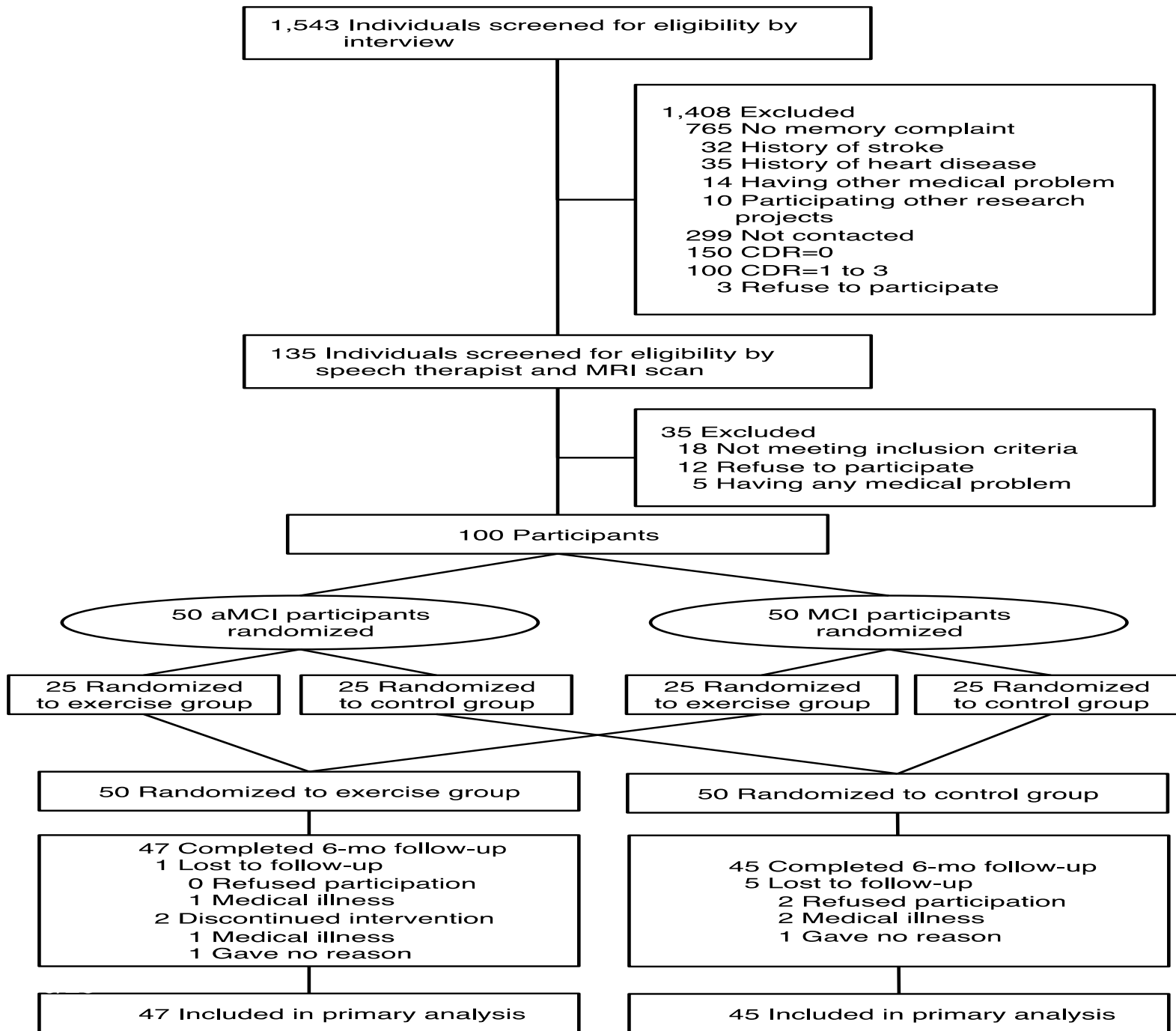
## 3 Intervention

Exercise or Education Classes

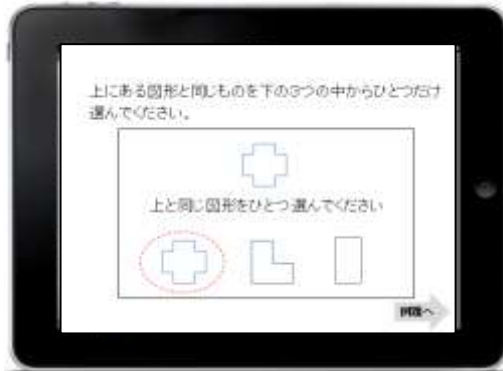


Music Classes





# Effective Screening using IT (i-PAD)



- Mini-mental state examination
- Trail Making Test
- Digit symbol coding
- Logical memory test
- Word recall
- Flanker task
- Mental rotation

# Cognitive Function Tests



## **General cognitive functioning**

1. Mini-mental state examination
2. ADAS-cog

## **Memory**

1. Wechsler Memory Scale-logical memory
2. Rey complex figure retention tests

## **Attention & Executive function**

1. Trail Making Test part A
2. Stroop Color and Word Test

# Physical Performance Tests



## **Muscle strength**

1. Grip strength
2. Knee extension

## **Balance**

1. One leg standing

## **Gait**

1. Gait speed
2. 6 min walk distance
3. Acceleration analysis

## **Reaction time**

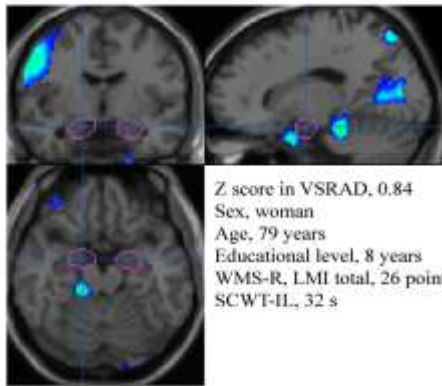
1. Single and dual task



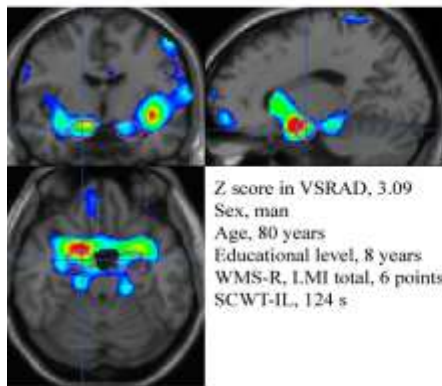
# Brain Imaging

## MRI

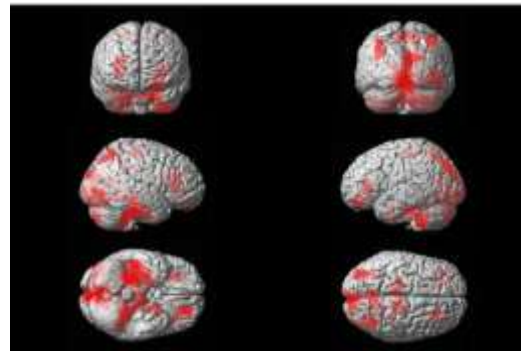
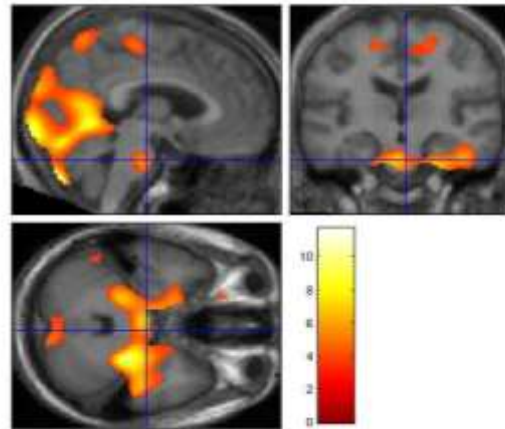
A subject in non-atrophy group



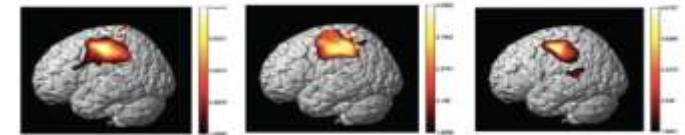
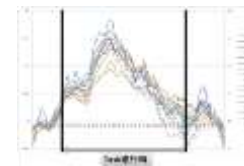
A subject in atrophy group



## FDG PET



## fNIRS



(1) HbO

(2) HbR

(3) HbT

# Multicomponent Exercise (“Cogni-cise”) Program for MCI



Task 1  
Stretch and  
muscle strength



Task 3  
Exercise with  
learning-task



Task 2  
Aerobic exercise

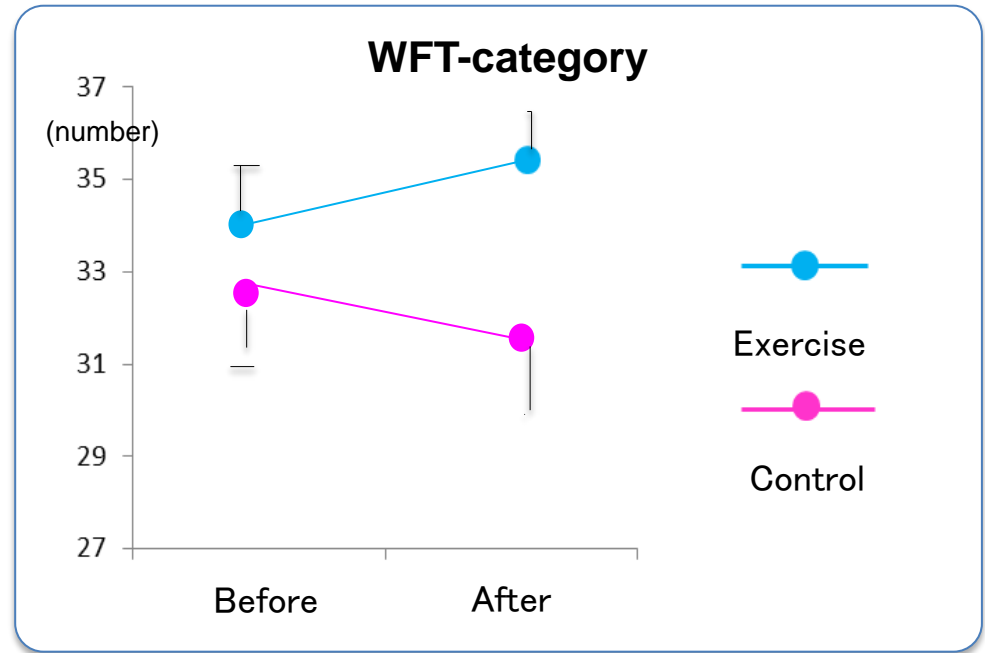
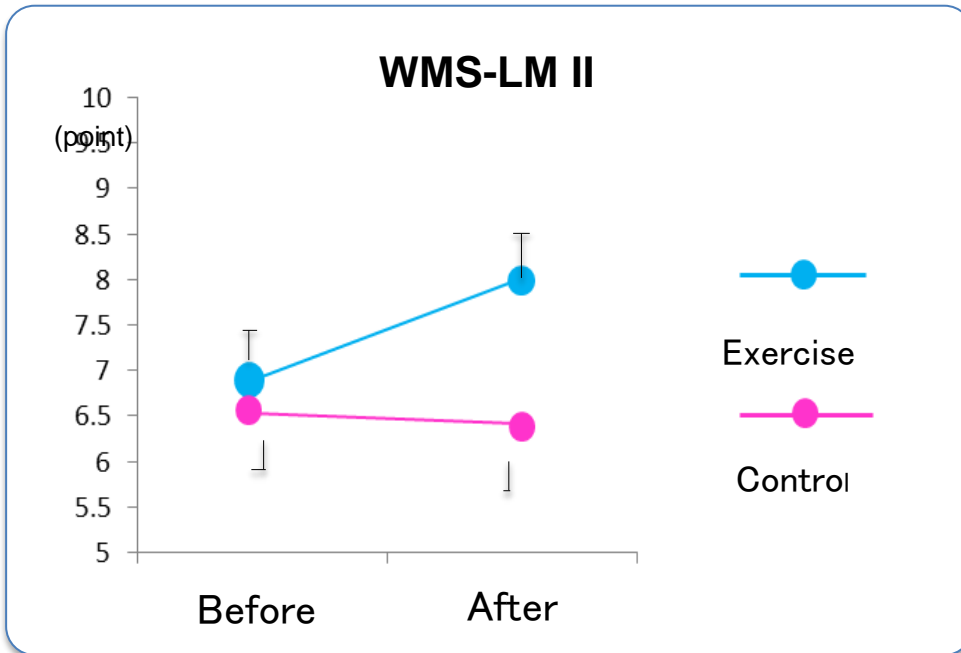


Task 4  
Behavior  
modification  
technique



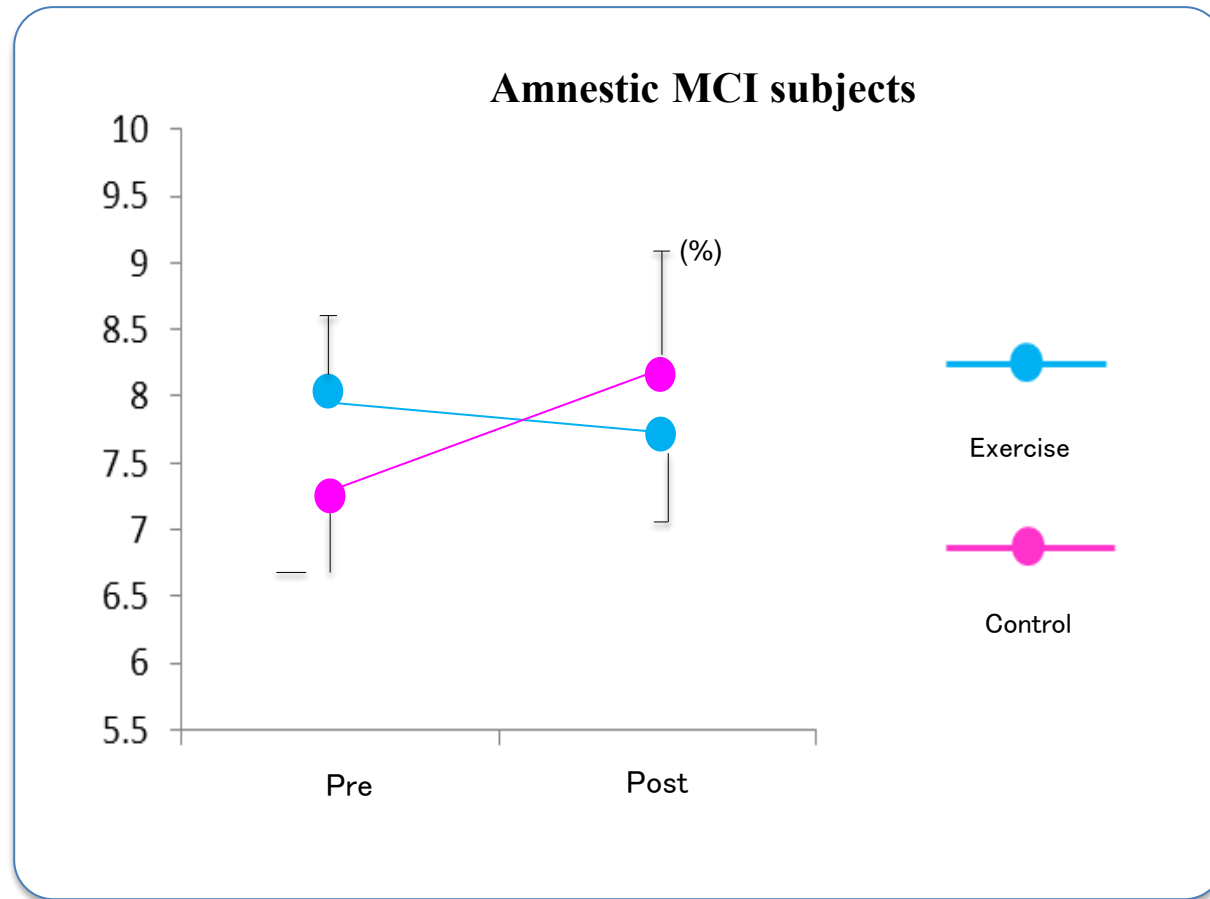
# Comparison of changes in cognitive function

(Suzuki T, et al. BMC Neurology, 2012)



# Comparison of brain atrophy by MRI

(Suzuki T, et al. PLOS One, 2013)



# Screening for Cognitive Impairment in Older Adults: A Systematic Review for the U.S. Preventive Services Task Force

Jennifer S. Lin, MD, MCR; Elizabeth O'Connor, PhD; Rebecca C. Rossom, MD, MCR; Leslie A. Perdue, MPH; and Elizabeth Eckstrom, MD, MPH

Ann Intern Med. 2013; 159: 601-612.

Full-text articles assessed for eligibility  
n=1190

Article reviewed for test-performance of brief cognitive screening instruments n=66

Article reviewed for benefits and harm of treatment (1) pharmacologic intervention n=48

Article reviewed for benefit and harm of treatment (2) non-pharmacologic intervention n=32 (n=10\*)

\*Ten mostly fair-quality exercise trials showed no consistent benefit on cognitive outcomes . . . Two trials of a multicomponent self-guided exercise intervention (n=220) in persons with MCI found a small benefit in global cognitive function (approximately 1 point on the MMSE or ADAS-cog) at 12 to 18 months (Lautenschlager NT et al. JAMA 2008, Suzuki T et al. BMC Neurol. 2012).

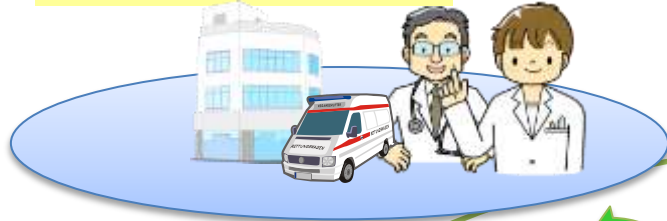
# Conclusion

1. Multicomponent exercise may lead to maintain cognitive functions in MCI elderly living in the community.
2. Non-pharmacological intervention based on CGA (cognitive tests) may play an important role to prevent dementia in the community.
3. When postpone the onset of dementia from MCI for 2 years, about a half trillion yen will be saved.

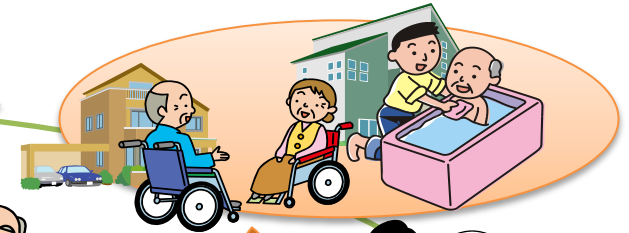


# integrated community care system

## Healthcare



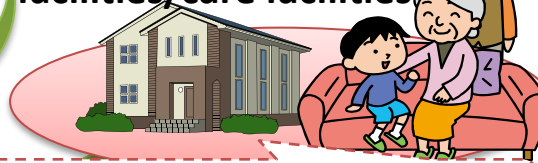
## Long-term care



Commuting to medical facilities/care facilities



Own home/elderly housing with long-term care



Home-visit care  
• Nursing care



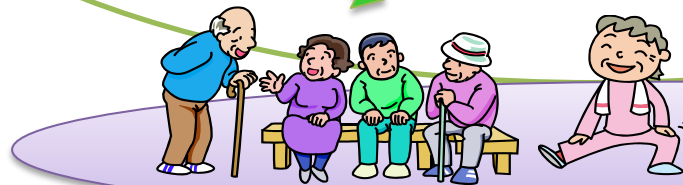
## Housing

Integrated community care support center/  
care manager



Provides consultation and coordinating services

## Living support



Old people's club, residents' association, long-term care prevention, living support, etc.

## Prevention





Thank you for your attention