



# Cognitive Stimulation Therapy: A Psychosocial Intervention for Persons with Dementia

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# Speaker Disclosures

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**Max Zubatsky is not receiving any conflict of interests or financial/off-label compensation for this talk**

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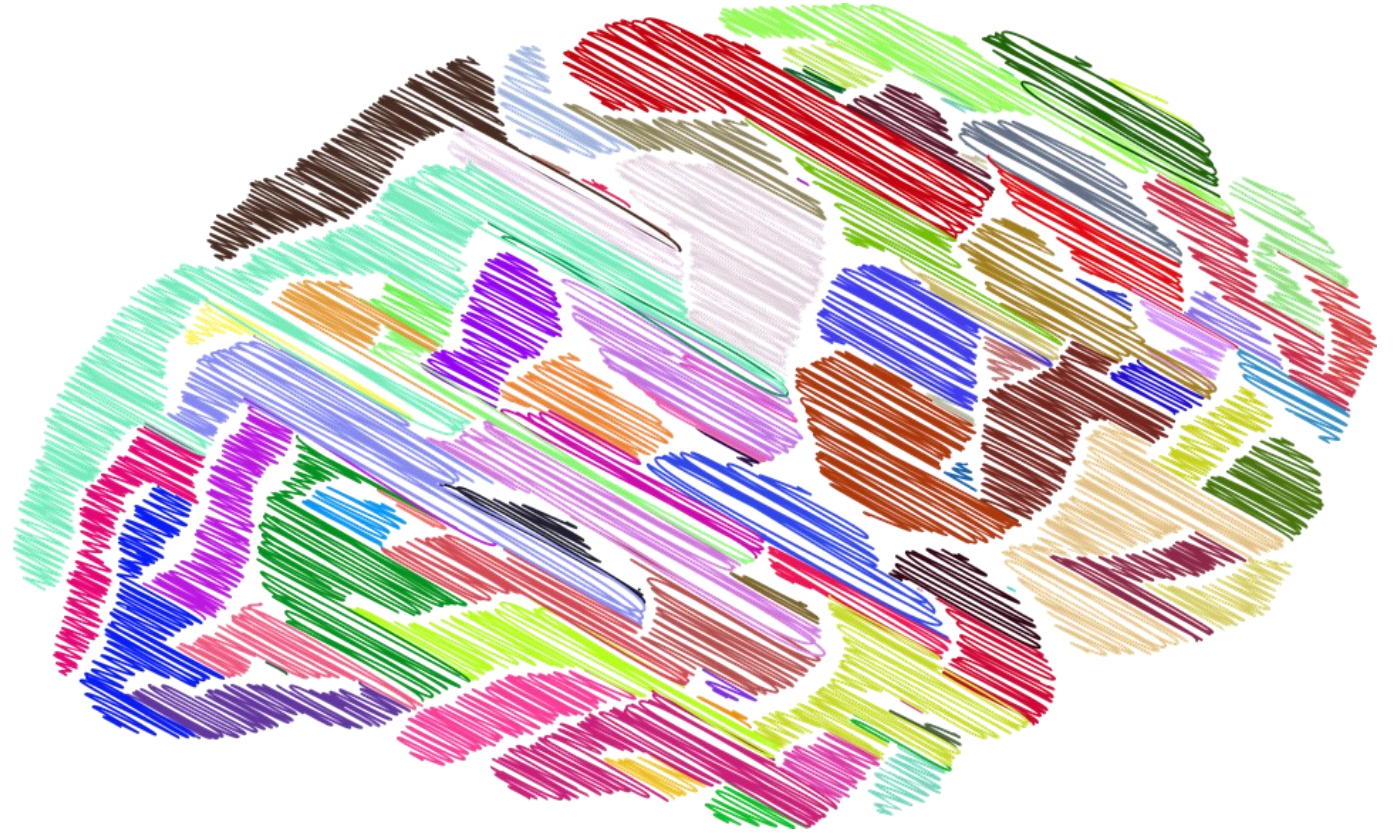
# Learning Objectives

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- 1.) Describe the challenges of having few non-pharmacological interventions for dementia.
- 2.) Introduce the concepts and principles of Cognitive Stimulation Therapy
- 3.) Apply this intervention to practice settings where older adults with memory loss could receive added benefit

# Non-pharmacological Interventions for Dementia:

- ❖ Different perspectives of dementia
- ❖ Overview of psychosocial therapies for dementia



# Medical Model of Dementia\*

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Predominantly used in assessment, formulation and treatment. Assumes that dementia is:

- A disease.
- Caused by organic (neurological) problems.
- Treated and managed according to medical authority.

## **Advantages:**

- Can help communication amongst professionals.
- Can help people and families come to terms with diagnosis.

## **Disadvantages:**

- Medication has limited effects and is not suitable for all.
- Symptoms can be attributed to 'the dementia', without consideration of wider issues.

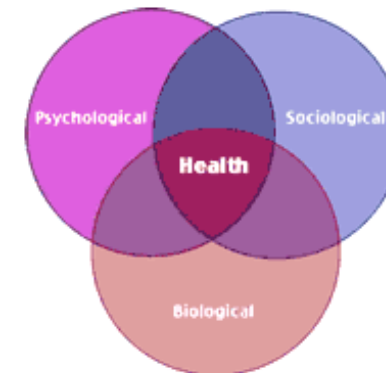


# A Biopsychosocial Model of Dementia\*

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DEMENTIA = NF + MS + SP + P + SS + E + PH + LE + M

NF = Neurological Factors  
MS = Mental Stimulation  
SP = Social Psychology  
P = Personality  
SS = Sensory Stimulation  
E = Environment  
PH = Health  
LE = Life Events  
M = Mood



# New Ways of Looking at Mental Stimulation

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- ‘Use it or lose it’\*: Mental activity can lead to new learning and increased cognitive functioning in dementia.
- Can lead to new neuronal pathways being formed / neuroplasticity.
- Socialization with others can help improve memory and brain health



# Reality Orientation\*

- “The presentation and repetition of time, place and person related information”.
- Made important impact in 1960s: one of first non-drug interventions for dementia.
- 24 hour RO (used in every interaction) versus group RO. Tasks included maps, categorizing words /objects, food, current affairs.
- RO boards: contain information such as day, date, next meal, weather, news headline, name of home, daily activities.
- Some evidence-base for its effectiveness\*\* but rarely used in practice since.



\*Folsom JC (1966). Reality Orientation for the elderly mental patient. Read at 122<sup>nd</sup> annual meeting of American Psychiatric Association, May 1966.

\*\*Spector A, Orrell M, Davies S & Woods B (2000). A systematic Review of the use of Reality Orientation in dementia. The Gerontologist, 40 (2): 206-212.



# Reminiscence Therapy\*

- Discussion about the past, often using prompts (e.g. pictures, objects, music) with groups or individuals (e.g. life review books).
- Focuses on long-term memory, the last to deteriorate in dementia.
- Cochrane review\*\* of 16 studies including 4 multi-center RCTs showed improvements in cognition and mood following individual sessions and in communication following group sessions.
- Greatest effects on quality of life were found in care homes. Overall, effect sizes were very small and diversity of approaches made it hard to compare studies.



\*Butler RN & Lewis MI (1977). *Aging and Mental health: Positive psychosocial approaches*. Saint Louis: CV Mosby Company.

\*\*Woods, B., Spector, A. E., Jones, C. A., Orrell, M., & Davies, S. P. (2005). Reminiscence therapy for dementia. *The Cochrane Library*.

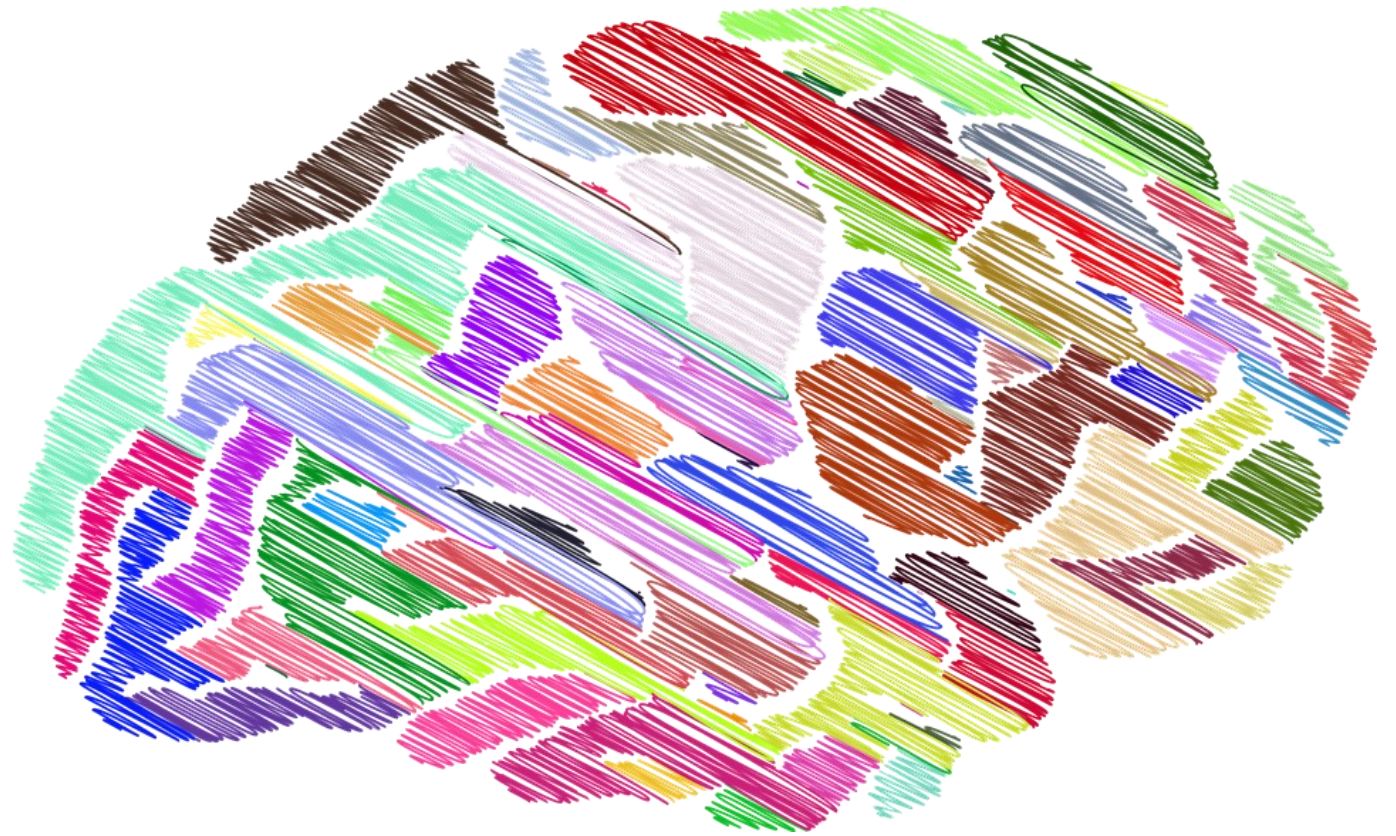
# Validation Therapy\*

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- An approach that focuses on the emotional meaning of what people say or do, rather than the factual content.
- Instead of orientating to facts or reinforcing the disorientated perception, use active, empathic listening.
- Emotions are not right or wrong, but always real.
- Cochrane review\*\* highlighted lack of evidence-base.



# Overview and Background of CST



# What is CST?

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- A brief group program, for people with mild to moderate dementia, living in a range of settings.
- 14 themed sessions, typically twice a week for 7 weeks. Includes word association / categorization, current affairs, food, and number games.
- Key aims: to improve cognitive functioning using techniques that exercise different cognitive skills.
- Achieved through a variety of means including, executive functioning tasks (e.g. categorization), multi-sensory stimulation, and reminiscence as an aid to orientation.
- Based on concept of 'use it or lose it': brain needs to be exercised in order for skills to be retained.



# How did CST come about?

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- In the mid 1990's, there was increased interest in positive, non-pharmacological approaches to dementia care.
- Promising drug trials with rigorous methodology (e.g. tacrine).
- Woods & Orrell editorial (1996)\*: 'Tacrine & psychological therapies in dementia – no contest?'
  - Psychological therapies as serious competitors to drugs.
  - Low quality of methodology of studies evaluating psych approaches.
  - Standard, sensitive instruments of measurement evaluating a range of outcomes in order to compare to drug trials.
  - Funding bodies should encourage large scale, robust, multi site studies inc. cost/benefits analysis.
- Funding secured for the development of a psychological therapy package for dementia.

\*Orrell, M., & Woods, B. (1996). Editorial Comment. Tacrine and psychological therapies in dementia—no contest?.

*International Journal of Geriatric Psychiatry*, 11(3), 189-192.

# Development of CST

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- CST was developed through systematic reviews of literature and pilot study\*.
- Combined the most effective elements of different therapies to develop the CST program.
  - Reality Orientation
  - Reminiscence Therapy
  - Multi Sensory Stimulation
  - Validation Therapy
- 14 session program with themed activities (e.g. food, childhood).
- Designed to run twice a week for 7 weeks.

# What is the Research Evidence?

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The first trial\* included 201 people with dementia living in care homes or attending day centres.

Significant improvements in CST group, compared to 'usual care' control group, demonstrated in: Cognition (ADAS-Cog,  $p=0.01$ ; MMSE,  $p=0.04$ ) Both measured memory, language, and executive functioning.

Quality of life, as measured by the person themselves and a proxy-rater (QoL-AD,  $p=0.03$ )

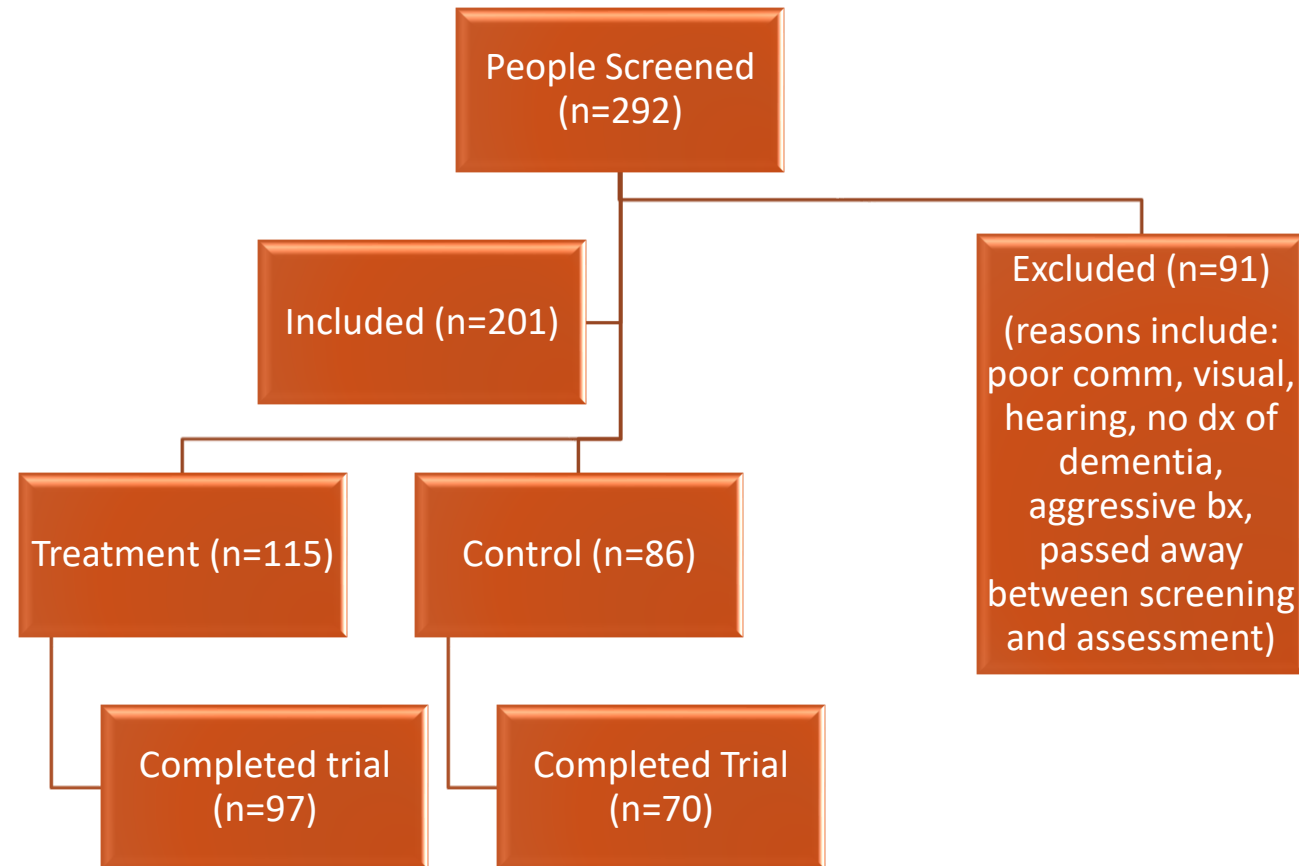
CST had similar impact on cognition to Galantamine, Rivastigmine and Donepezil\*\*, as well as quality of life benefits.

\*Spector A, Thorgrimsen L, Woods B, Royan L, Davies S, Butterworth M, Orrell M (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: randomised controlled trial. *British Journal of Psychiatry*, 183, 248-254.

Livingston, G., & Katona, C. (2000). How useful are cholinesterase inhibitors in the treatment of Alzheimer's disease? A number needed to treat analysis. *International Journal of Geriatric Psychiatry*, 15(3), 203-207.

# Profile of the Initial CST controlled trial and attrition (Spector, 2003)

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Efficacy Measures <sup>1</sup>	Change from Baseline	Change from Baseline	Group Difference	Group Difference	ANOVA (between group diff)
	Tx mean (sd)	Control mean (sd)	Mean (s.e.)	95 % CI	Between groups
<b>MMSE</b>	+0.09 (3.5)	-0.4 (3.5)	+1.14 (0.09)	0.57-2.27	F=4.14, P=0.044
<b>ADAS-Cog</b>	+1.9 (6.2) <sup>3</sup>	-0.3 (5.5) <sup>4</sup>	+2.37 (0.87)	0.64-4.09	F=6.18, P=0.014
<b>QoL-AD</b>	+1.3 (5.1)	-0.8 (5.6)	+1.64 (0.78)	0.09-3.18	F=4.95, P=0.028
<b>Holden</b>	+0.2 (6.1)	-3.2 (6.3)	+2.3 (0.93)	-0.45-4.15	F=2.92, P=0.090
<b>Cornell</b>	0 (6.2)	-0.5 (7.0)	+0.12 (0.72)	-1.56-1.31	P=0.648

Change from baseline in measures of efficacy at follow-up: intention-to-treat analysis  
(Spector, 2003)

1. Primary outcome measure: MMSE; secondary outcome measures: ADAS ^Cog and QoL^AD. 1. Primary outcome measure: MMSE; secondary outcome measures: ADAS ^Cog and QoL^AD.

2. C, difference between centres; G, difference between genders. 2. C, difference between centres; G, difference between genders. 3. Zero or more points improvement:

3. Zero or more points improvement: n=58 (50%); 4 or more points improvement: n=34 (30%).34 (30%). 4. Zero or more points improvement: 4. Zero or more points improvement: n=32 (37%);

4 or more points improvement: n=11 (13%)

# Long-term benefits: Maintenance CST

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- Follow-up trial (n=237) evaluated a weekly, 24-session program of Maintenance CST (MCST) compared to treatment as usual. For people with mild to moderate dementia who had previously received 14 sessions of CST. A third of the sample was on dementia medication.
- MCST improved quality of life at 3 and 6 months, and activities of daily living at 3 months.
- Cognition was higher in MCST group but the difference was not significant.
- Sub-analysis indicated that MCST appeared to be effective irrespective of whether dementia medication was prescribed.
- Greatest improvements were seen in the medication plus MCST group.
- Conclusions: There is good evidence for the benefits of continuing CST beyond the initial program. Whilst people are still willing and able, CST should be continued.

## Who benefits most?

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The higher the **cognitive & brain reserve**, the better the response to CST.



People >80 years old

Females



People on anti-dementia drugs

# Individual CST (iCST)\*

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- Involves one-to-one CST, led by home carers, professionals or volunteers. Follows similar themes to group CST.
- A total of 356 caregiving dyads were recruited and 273 completed the trial.
- 75 structured CST sessions for people with dementia, completed up to three times a week for 25 weeks. Family carers were supported to deliver the sessions at home.
- At follow-up, no differences in any of the primary outcomes when comparing iCST to treatment as usual.
- iCST improved relationship between the person and their carer and carer QoL.
- Uptake was low: people on average only received 33 sessions.

# Cost-Effectiveness Research in the UK

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- Analysis conducted in conjunction with London School of Economics (LSE)\*.
- Incremental cost-effectiveness ratio: balancing cost difference between CST and usual activities with benefits.
- £75.32 (U.S \$131.81) per additional point on MMSE, £22.82 (U.S. \$20) per point on QoL-AD.
- Conclusion: CST more cost-effective than usual activities, costs generally small.



# International CST Research

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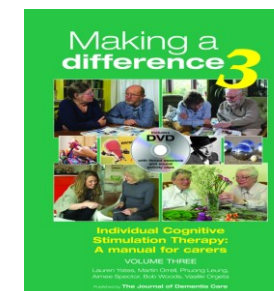
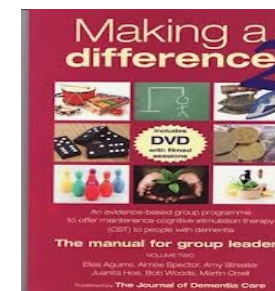
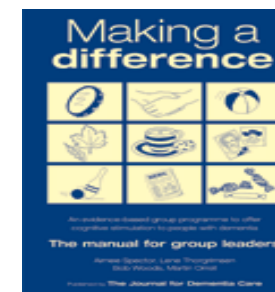
- Recent systematic reviews \* of studies evaluating this specific CST protocol, many culturally adapted.
- Included 12 papers of which 8 were RCTs and 4 were pre-post studies.
- Included research from the UK, US, Hong Kong, Japan, Tanzania and Portugal.
- All 12 studies examined cognition, with 9 finding a significant positive impact.
- 4 studies examined impact on specific cognitive domains, confirming that the greatest impact was on language.
- 9 studies examined QoL, of which 4 found significant positive impacts.
- 8 studies examined depression, of which 4 found significant positive impacts.
- 3 studies examined impact on caregivers, with 2 finding some benefits.
- Demonstrates how CST can successfully be generalized across language and culture.

# Impact of CST

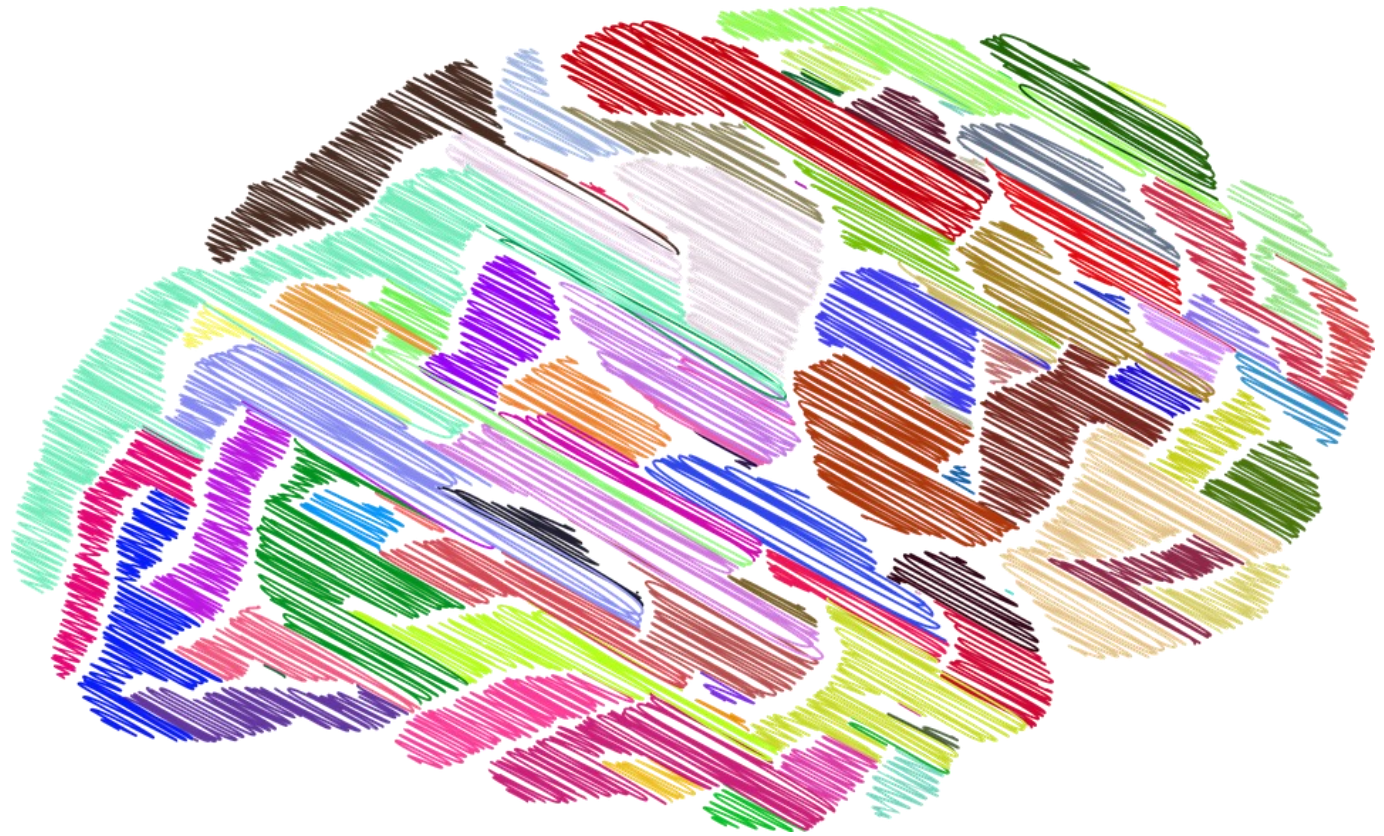
- UK best practice / routine care guidelines
- International guidelines e.g. Alzheimer's Disease International
- CST used in over 25 countries
- Worldwide culturally adapted versions of CST
- 4 manuals published: CST, maintenance CST and individual CST

**NHS**  
**National Institute for  
Health and Clinical Excellence**

  
**Alzheimer's Disease  
International**



# CST Implementation, Structure, and Key Principles





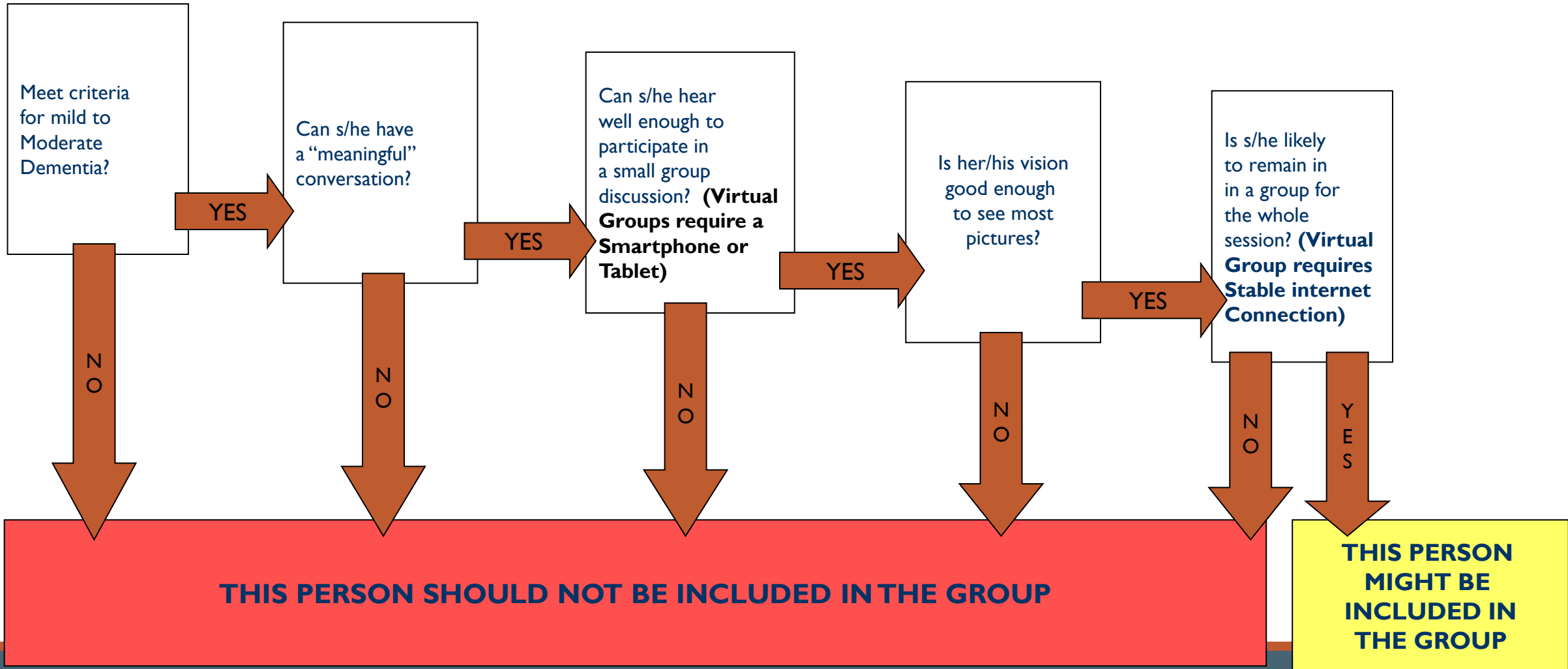
# Key Features of the Program

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- 14 sessions, usually twice a week.
- Approximately one hour in length.
- Ideally 5-8 people in groups, run by two facilitators.
- Each session has choice of activities, to cater for interests and abilities of group.
- Group members should ideally be at similar stages of dementia, so activities can be pitched accordingly.
- Attention should be paid to gender mix.



# Who should be included?



# Session Structure

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- Introduction
- Theme Song
- Current Affairs
- Main Activity
- Suggested activities for home
- Closure



# Session Structure: Introduction

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## **Welcome every member individually**

- Orients members to beginning of group and one another
- Fosters Rapport

## **State the Group name**

- Chosen by Group members on first session
- Encourages feeling of ownership of group

## **Soft ball toss**

- Serves as a warm up and orientation
- Increases level of alert and intensity
- Tool for facilitators to gauge language

## **Reference to day, weather, season (always on board as cue)**

- Implicit orientation



# Session Structure: Theme Song

- Sung at beginning and end of each session
- Chosen by group members
  - Offer group participants options to pick from
  - Pay attention to songs relevant to demographic
- Short song or chorus only are appropriate

## YOU ARE MY SUNSHINE

Musik und Originaltexte: Jimmy Davis / Charles Mitchell  
Arrangement: Peter van Rhen / Eddie Schlepfer

Style: Folk  
Tempo:  $\text{♩} = 160$

Intro

(Chor) You are my sun - shine, sun - shine, sun - shine. I. The o - ther

Verse

night, dear, \_\_\_\_\_ in I try sleep - ing. I dreamt I  
love you, \_\_\_\_\_ and make you hap - py. \_\_\_\_\_ if you will

hold you in my arms. \_\_\_\_\_ When I a -  
on - ly say the same. \_\_\_\_\_ But if you

wake, dear, \_\_\_\_\_ I was mis - ta - ken. \_\_\_\_\_ so I  
leave me, \_\_\_\_\_ to love an - oth - er. \_\_\_\_\_ you'll re -

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# Session Structure: Current Affairs

- Pull from local and national sources
- Human interest stories are crowd pleasers
- Do not shy away from controversial topics
- Print out individual copy for each member
  - Day and Date for orientation
  - Pay close attention to font size

The image shows the front page of The New York Times newspaper from Saturday, June 27, 2015. The main headline is "EQUAL DIGNITY" in large, bold, black letters. Below it, a sub-headline reads "5-4 Ruling Makes Same-Sex Marriage a Right Nationwide". The page features a grid of 12 small photographs showing diverse couples kissing or embracing. To the right of the photos, there is a section titled "Forceful Dissents From the Court And Nation" with a byline "By ADAM LITVAK". Below the photos, there are several columns of text, including a quote from Justice Anthony M. Kennedy: "It would misunderstand these men and women to say they disrespect the idea of marriage. Their plea is that they do respect it, respect it so deeply that they seek to find its fulfillment for themselves." The page also includes a section titled "Historic Day for Gay Rights, but a Twinge of Loss for Gay Culture" and another titled "THE OPPOSITION".

## Session Structure: Main Activity

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- Each CST session centers around a suggested activity found within the manual
  - Open to manipulation
- Level A and Level B (A more complex/B simple)
- Freedom to enrich the experience
  - Integrate music, sensory stimulation (baking cookies in an oven)

# Faces





# Session Structure: Suggested Activities for Home/Closure

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- Suggested activities for home
  - May include in take home handout or copy of news article read at beginning of session
- Closure
  - Discuss time, day, and activity for next session
  - Ask members for their opinions regarding the group session

# How do we think CST works?

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**Use it or lose it** – taking part in mentally stimulating activities strengthens & creates new neuronal connections.



Provides **complexity, novelty & diversity** required for transferrable cognitive gains (Moreau & Conway, 2014)



**Positive reinforcement** of questioning, thinking about and interacting with objects



**Social environment** is positive & stimulating

**QoL** is mediated by improvements in cognition

## CST at Perry County Memorial Hospital

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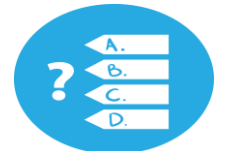
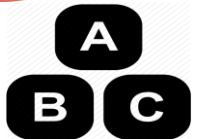


# Key Principles

1	<b>Mental stimulation</b>
2	<b>New ideas, thought and associations</b>
3	<b>Using orientation, but sensitively and implicitly</b>
4	<b>Opinions, rather than facts</b>
5	<b>Using reminiscence, and as an aid to the here-and-now</b>
6	<b>Providing triggers to aid recall</b>
7	<b>Continuity and consistency between sessions</b>
8	<b>Implicit (rather than explicit) learning</b>
9	<b>Stimulating language</b>
10	<b>Stimulating executive functioning</b>
11	<b>Person-centred</b>
12	<b>Respect</b>
13	<b>Involvement</b>
14	<b>Inclusion</b>
15	<b>Choice</b>
16	<b>Fun</b>
17	<b>Maximizing potential</b>
18	<b>Building / strengthening relationships</b>

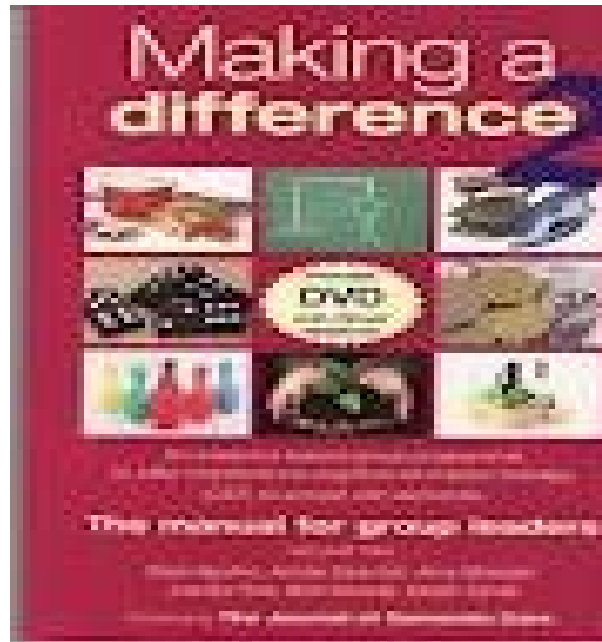
# CST session themes

Physical games	Being creative
Sound	Categorizing objects
Childhood	Orientation
Food	Using money
Current Affairs	Number games
Faces / Scenes	Word games
Word Association	Team quiz



# Making a difference 2 – Maintenance CST sessions

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24 additional MCST sessions

# Common Goals and Objectives: All Sessions

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- Orientation to time, place, and person.
- Increase attention and concentration.
- Encourage expressive language/exercise word finding skills.
- Increase active engagement and confidence in expressing and exploring thoughts and opinions.
- Elevate mood.
- Promote social awareness.
- Promote new ideas and associations.
- Create new learning.

# Session 9: Categorizing Objects Goals

This session promotes the following skills.

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## Basic

- Simple categorization

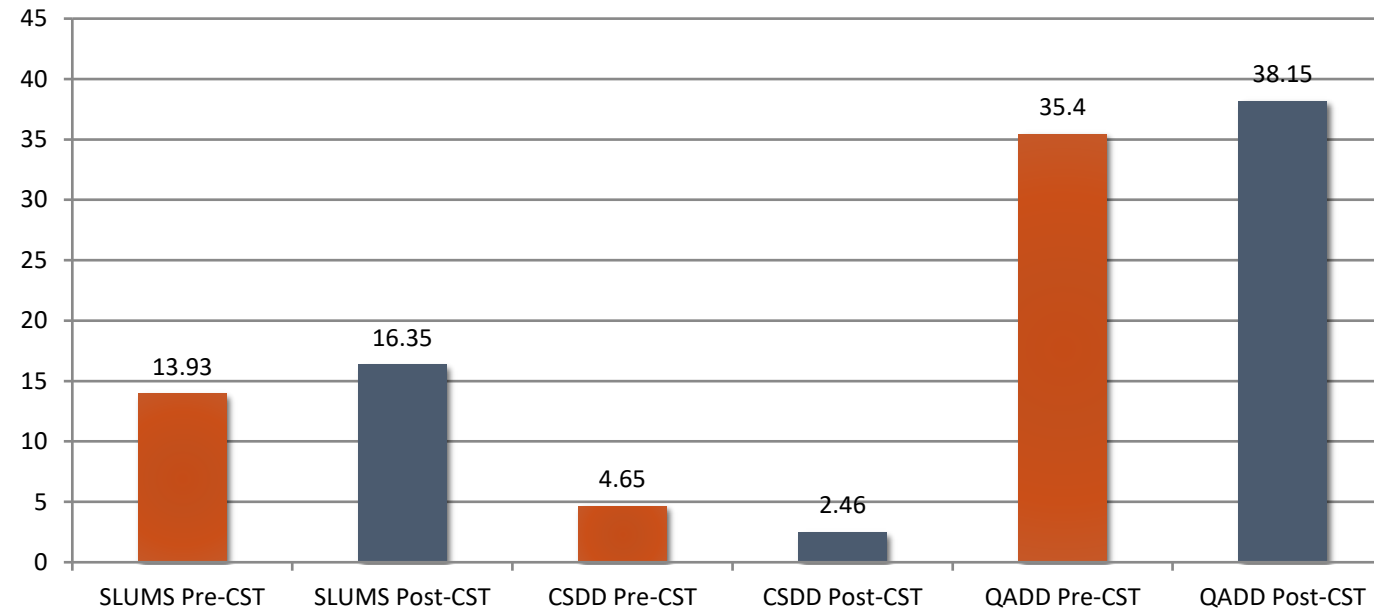
## Higher Level

- More complex categorical thinking
  - Compare / contrast



# OUR RESULTS

## Mean Pre & Post Scores by Test



### Sample Characteristics (N=164)

Variables	CST Participants
Gender	71.3% Female
Age	78.55±10.01
Race	14.9% Non-White
Education	95.1% High School Graduate & Above
Living Arrangement	61% Community Dwelling
Pre-CST SLUMS	13.93

### Paired Sample T-Test

	Mean	Std Dev	SE Mean	t value	Df	Sig (two-tailed)
SLUMS	2.061	3.716	.307	6.725	146	.000
Cornell Scale for Depression	-1.921	3.847	.318	-6.034	145	.000
Quality of Life – Alzheimer’s Disease	2.545	4.658	.387	6.579	144	.000

# Examples of Participant Improvement in Clock Drawing Test

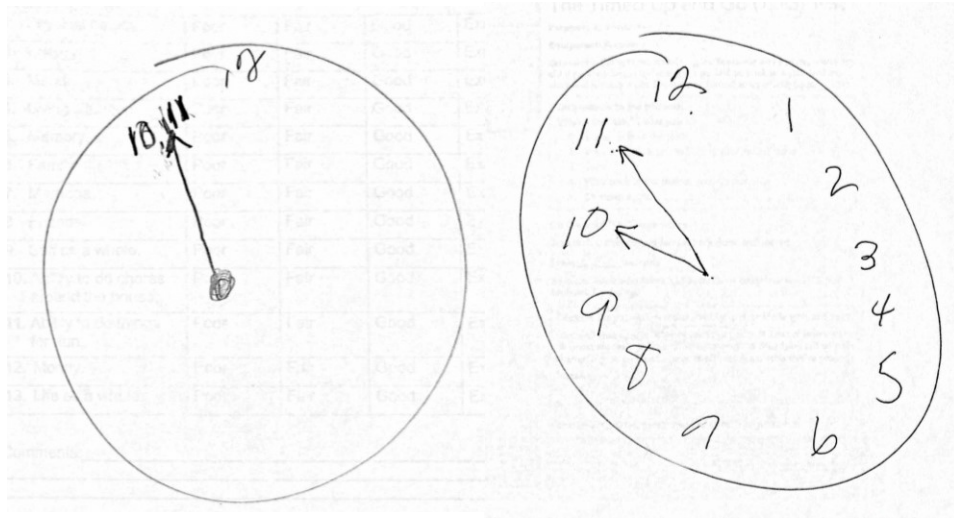


Fig. 1. Resident A Clock Drawing Test Pre- and Post-CST Results

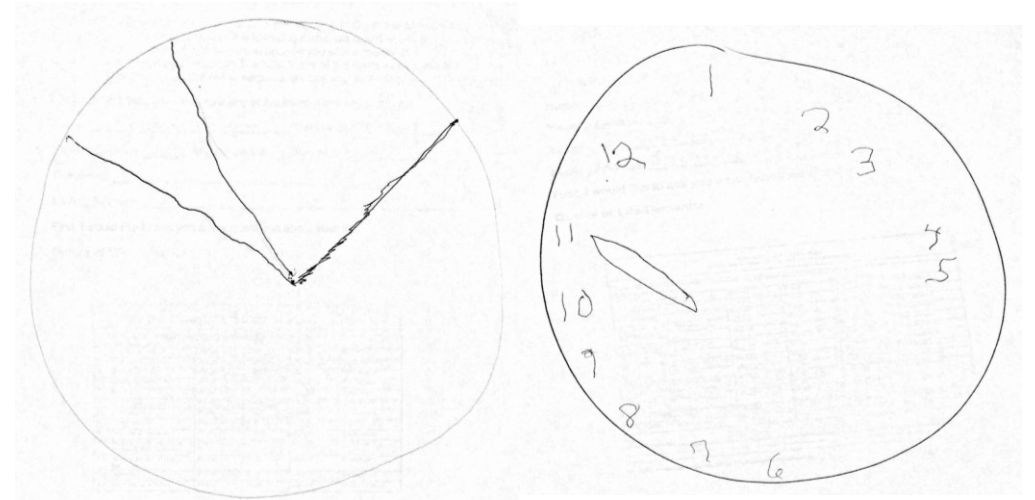


Fig. 2. Resident B Clock Drawing Test Pre- and Post-CST Results

# Multi-Site Study (SLU, Perryville, A.T. Still) Comparing Community vs. Residential Outcomes of CST (2014-2020)

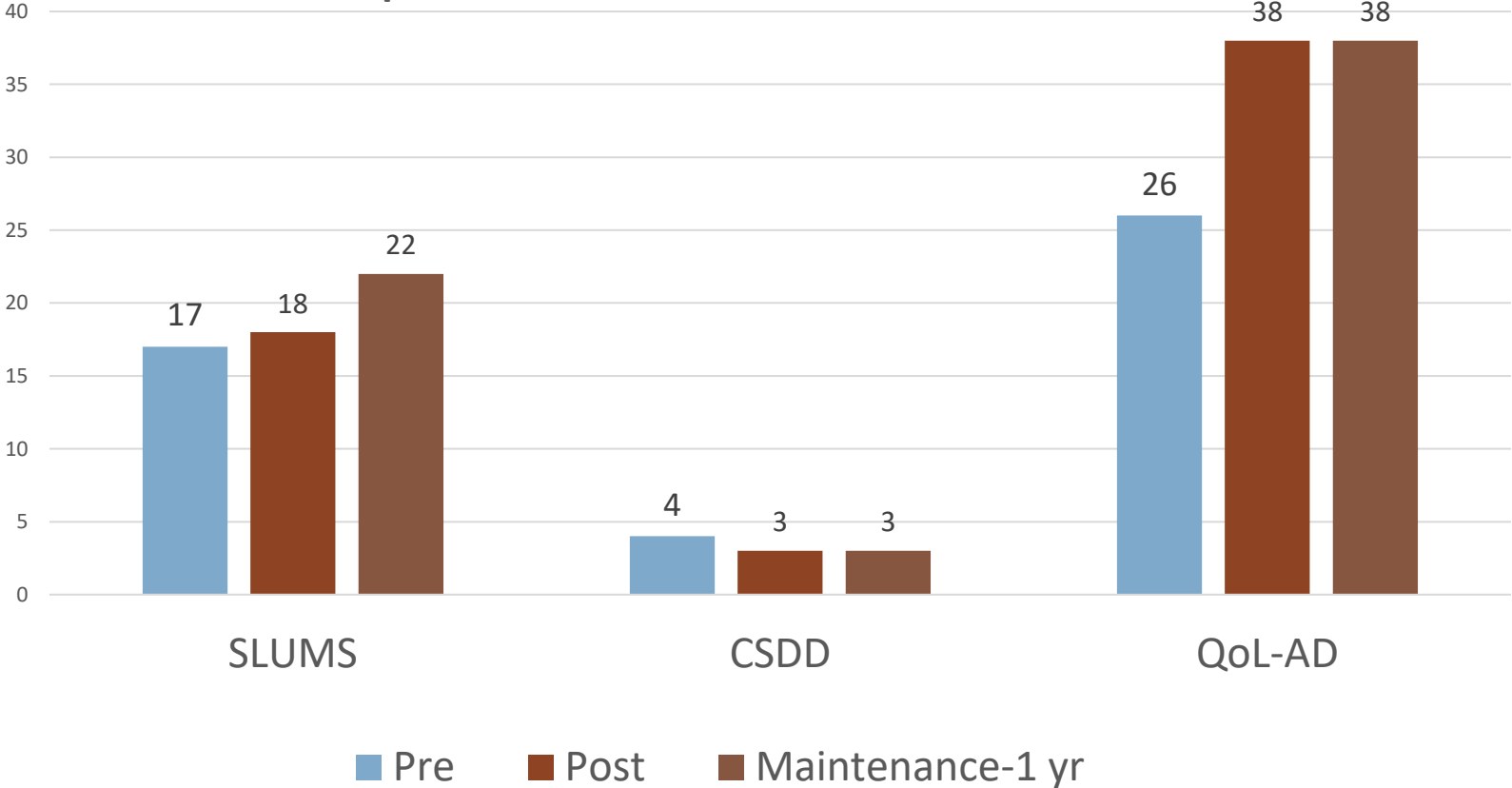
Measures	Community			Residential			Between group		
	N	M	SE	N	M	SE	Mean diff	t-value	p-value
<i>SLUMS</i>									
Baseline	173	17.74	0.47	85	15.20	0.75	2.54	2.97	0.003
Post	173	20.12	0.47	85	16.29	0.79	3.82	4.42	<0.001
Mean diff		<b>-2.37</b>			<b>-1.09</b>				
t-test		<b>-7.52</b>			<b>-2.43</b>				
p-value		<0.001			0.017				
<i>CSDD</i>									
Baseline	162	5.65	0.36	85	2.99	0.30	2.66	4.86	<0.001
Post	162	3.48	0.29	85	2.39	0.30	1.09	2.37	0.018
Mean diff		<b>2.17</b>			<b>0.60</b>				
t-test		6.37			1.91				
p-value		<0.001			0.060				
<i>QOL-AD</i>									
Baseline	131	34.78	0.51	62	36.31	0.82	-1.52	-1.63	0.104
Post	131	38.48	0.43	62	38.31	0.83	0.17	0.20	0.842
Mean diff		-3.70			-2.01				
t-test		-9.09			-3.22				
p-value		<0.001			0.002				

In the **community** group, participants' scores on the SLUMS measure improved significantly after 14 sessions of CST ( $t = -7.52, p < 0.001$ ). Their cognitive function scores were 2.37 points higher after intervention.

In the **residential** group, participants had significantly improved scores on the SLUMS measure ( $t = -2.43, p = 0.017$ ); their scores were 1.09 points higher post-intervention.

# Maintenance Cognitive Stimulation Therapy (MCST) In Long Term Care

Combined scores from A.T. Still University / Perry County Memorial Hospital  
Comparison of Means at 7wks & 12m



SLUMS (out of 30)---CSDD (> 12depression) ---QoL-AD (out of 52)

# Key Features of Individual CST (iCST)

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- The individual CST program is delivered by a relative, close friend, volunteer, or professional for:
  - 30 minutes a session
  - 3 times a week
  - over 25 weeks
  - Ideally same time each session
- Each individual CST session consists of a themed activity (i.e. life story, discussion of current affairs, being creative) and is designed to be mentally stimulating.
- Centered around fostering relationship.



# Benefits of Combining Exercise with CST

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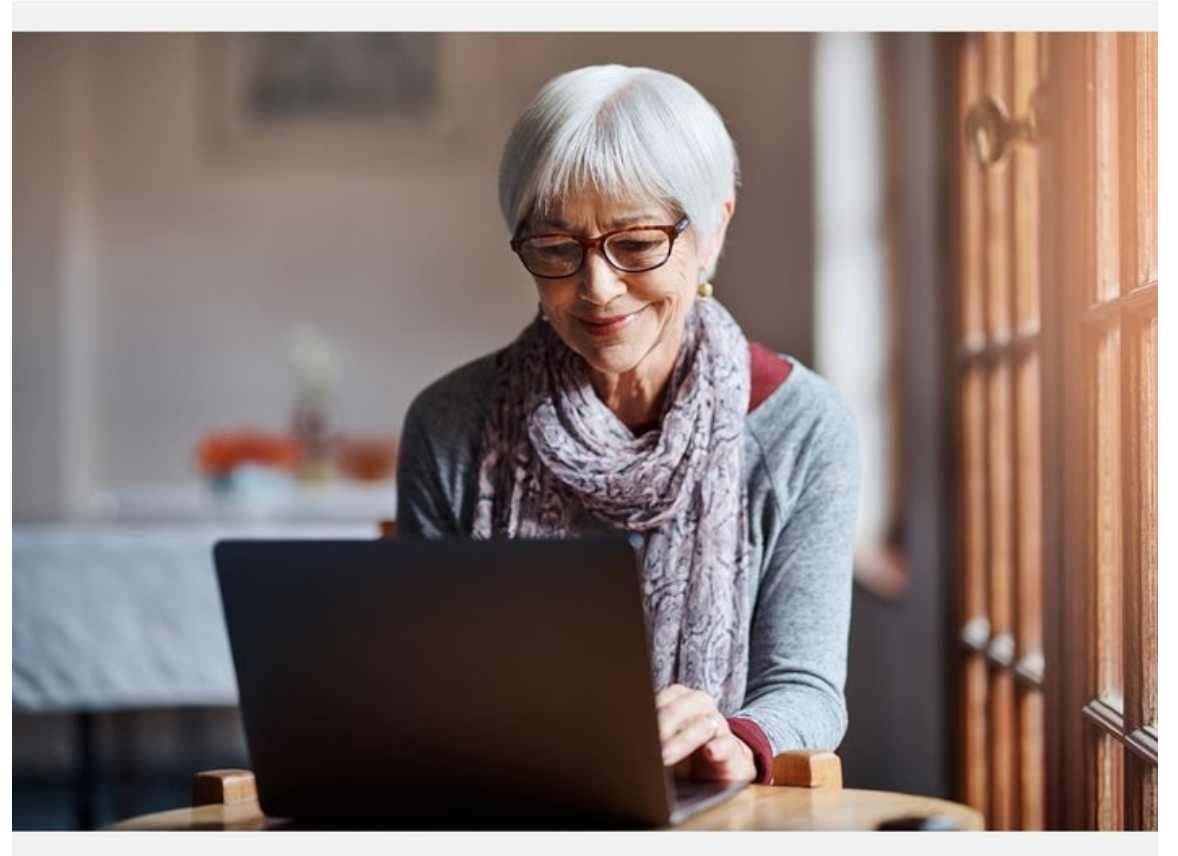
- Possibility that exercise could further improve cognition, and physical functioning leading to improvements in quality of life for older adults.
- Enjoyment and benefits of group interaction.
- Opportunity for physical exercise that might otherwise be difficult to get participation.
- Improved overall physical functioning reducing risk of falls and disability.
- Maintaining optimal level of independence.

# Managing Groups via Telehealth

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## Helpful Hints

- Confirm with the group members before starting that their audio and/or video is working
- Set the ground rules and agenda for the group. It might be beneficial to use the “Share Screen” to do this.
- You need to place extra importance on tracking non-verbals of participants to make sure they are engaged in the activities.
- Anticipate distractions. If this is the case, ask that the member mute their screen or call if they need to take a break



## Starting up Sessions through Zoom or other Platforms

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- Make sure the date, time and link information is correct. You can use a recurring link for every group session to make it easier
- Give the option of both video and phone for participants
- Always enable group members to log-on before the facilitator
- Do not conduct any sessions via “webinar” format. You want to have a live session to conduct these groups
- Allow participants to “share their screen” in case they do want to share anything with the group members.



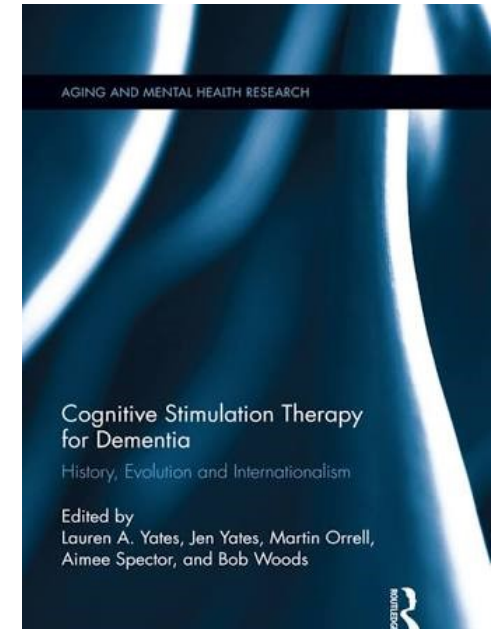
Office 365 Groups



## For More Resources:

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- Cognitive Stimulation Therapy: University College London  
([cstdementia.com](http://cstdementia.com))
- The Gateway Geriatric Education Center  
([aging.slu.edu](http://aging.slu.edu))
- The SLU Aging and Memory Clinic (description of CST groups)
- Perry County Memorial Hospital Website (videos of CST)



# Accomplishments of SLU and Perry County Memorial Hospital

## SLU

- Designated by founders as the North American CST Training Institute and that we're now offering Facilitator Certification and soon to offer Trainer Certification
- Hosted the third International Cognitive Stimulation Therapy Conference in 2018.
- Funded grants in the SLU Aging and Memory Clinic for CST groups (including our five year HRSA grant



## Perry County Memorial Hospital

- Lead facilitators are highlighted in the published “Cognitive Stimulation Therapy for Dementia” Book
- Perry County is the leading healthcare setting in the U.S offering CST (over 20 past and present groups)
- Have trained/collaborated with the main CST partnership sites across Missouri





**Questions???**

# SAVE THE DATE: The 2025 Healthy Aging Conference at SLU!!

June 6<sup>th</sup>- The full day  
conference

June 7<sup>th</sup>: Cognitive Stimulation  
Therapy Training and Falls  
Prevention Training

Learning Resource Center at  
Saint Louis University

Link to Register:

[https://slu.cloud-  
cme.com/course/listing?p=100  
0](https://slu.cloud-cme.com/course/listing?p=1000)





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