

Dementia & Exercise



Session Objectives

- Overview the pathophysiology of dementia and different stages of the condition
- Identify the benefits of physical activity and exercise in the prevention and management of the condition
- Discuss exercise session content and considerations
- Highlight the impact COVID-19 has had, and could continue to have, on the development of cognitive conditions





Pathophysiology of Dementia

Introduction



'Dementia' refers to symptoms which include memory loss, difficulties with thinking, problem solving or language



Umbrella term



Caused when the brain is damaged by disease



It is a progressive condition



There are different types of dementia, the most common two are:

Alzheimer's disease
Vascular dementia

Statistics in UK

850,000
people
estimated to
be living with
dementia in
the UK
(Dementia UK)

525,316 with a
dementia
diagnosis in UK
(2018-2020)

1 million
people by
2025 and 2
million by
2050 in the UK

‘Since February 2020, there has been a steady decline in dementia diagnosis rates in England, dropping from 67.6% in February 2020 to 63.2% in July. Misdiagnosis of dementia was always a concern; however, we now face a risk of not diagnosing at all’

Alzheimer's Disease

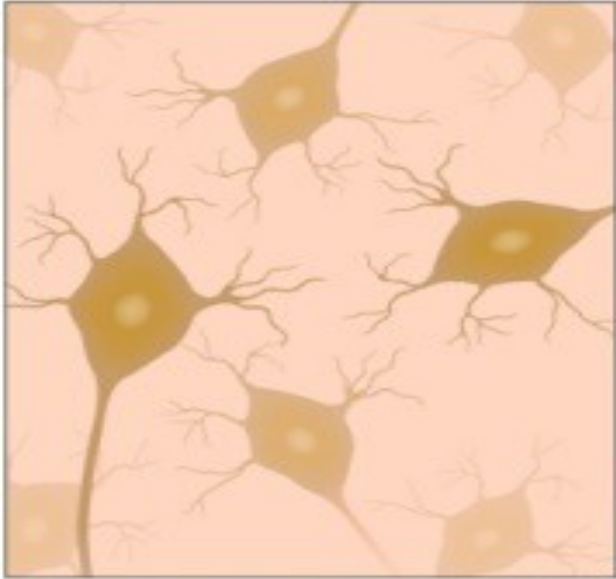
Most common

520,000 people

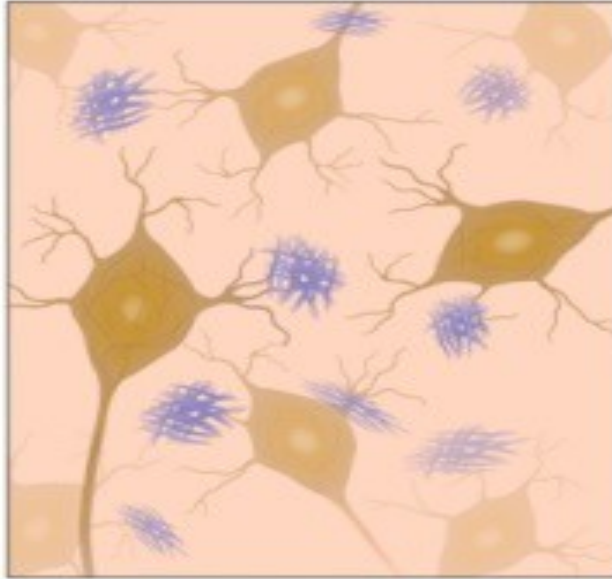
Symptoms include:

- Difficulty with word finding
- Difficulty remembering names and places
- Difficulty with planning and organising
- Poor judgement may affect decision making
- May not see or understand the views of others

Alzheimer's Illustration

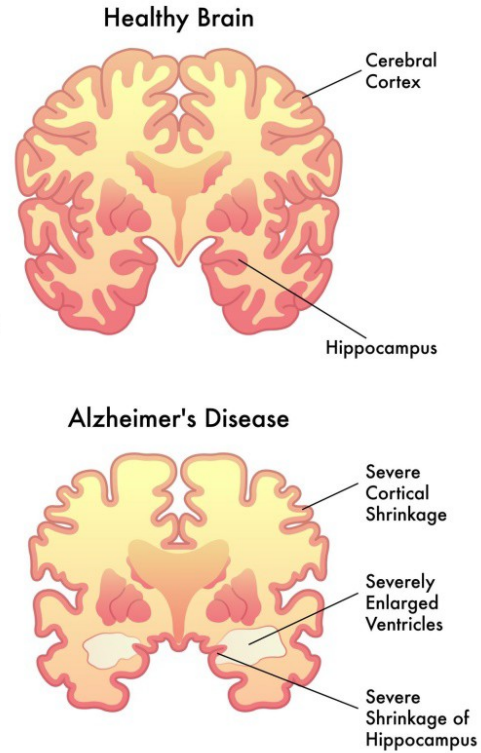
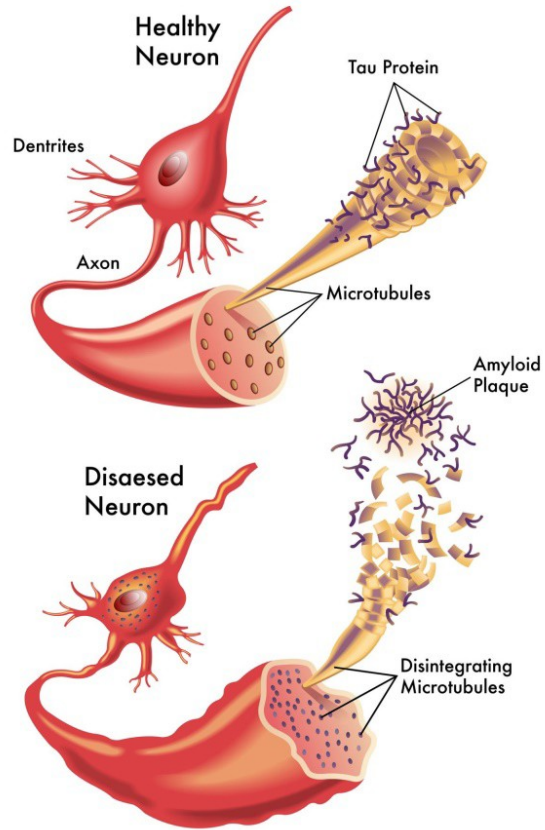


Healthy

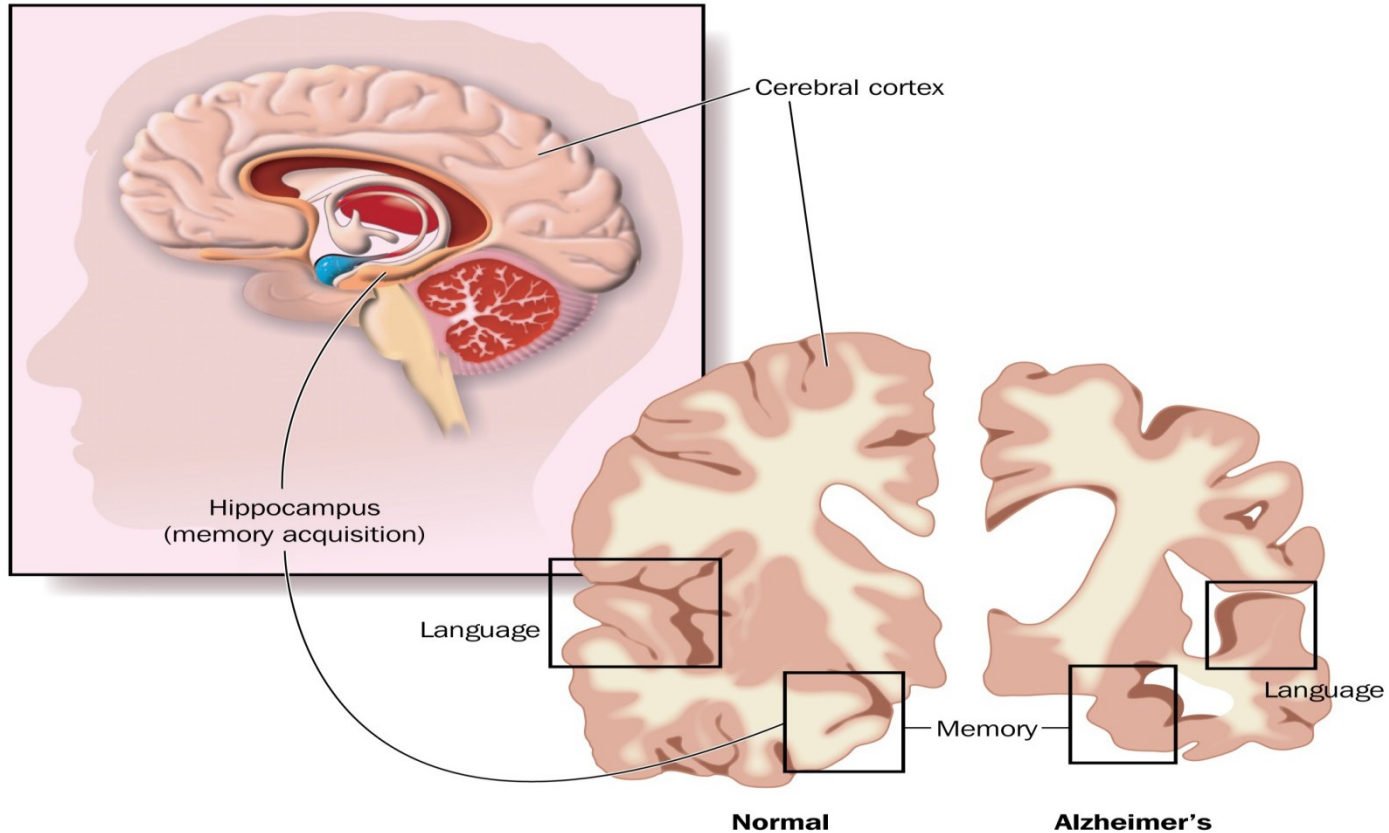


Alzheimer's

Proteins build up in the brain forming plaques and tangles.



Alzheimer's Illustration



Symptoms of Early Alzheimer's

Difficulty with
word finding

Difficulty
remembering
places and
names

Difficulty with
planning and
organising

Poor judgement
may affect
decision making

May not see or
understand the
views of others

Symptoms of Mid Stage Alzheimer's:

Increased
confusion and
disorientation

Obsessive,
repetitive or
impulsive
behaviour

May live in a
different reality
(referred to as
delusions)

Disturbed sleep

Problems with
speech

Emotions may
lead actions
(seem as mood
swings)

Visual
impairments

Symptoms of Late Stage Alzheimer's:

Difficulty eating
and drinking

Reduced mobility

Weight loss

Incontinence
(urine and stool)

Gradual loss of
speech

Significant short
and long term
memory

Impact of COVID-19

‘Since lockdown began, difficulty concentrating and memory loss are the symptoms that PLWD report have increased the most’

Source: https://www.alzheimers.org.uk/sites/default/files/2020-08/The_Impact_of_COVID-19_on_People_Affected_By_Dementia.pdf

Vascular Dementia



Second most common type



Caused by an impaired supply of blood to the brain (due to diseased blood vessels)



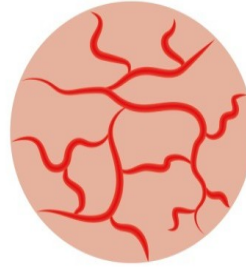
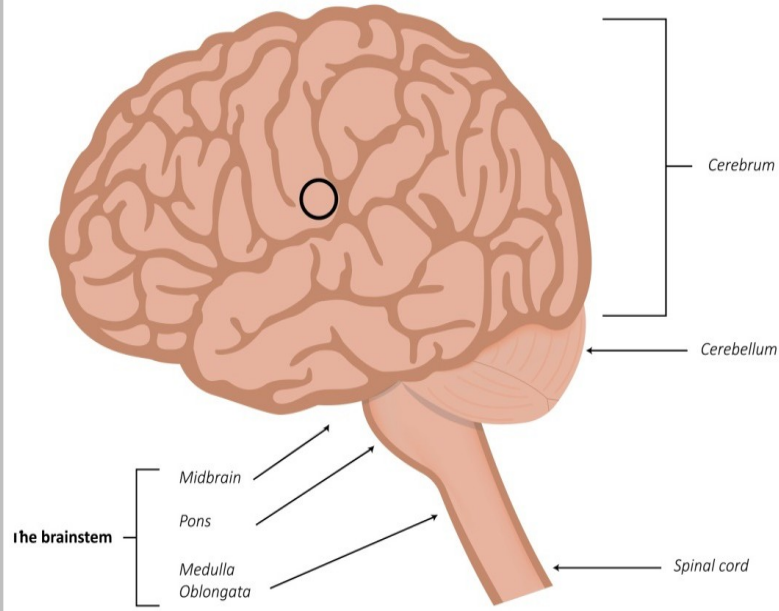
Lack of oxygenated blood causes cognitive issues



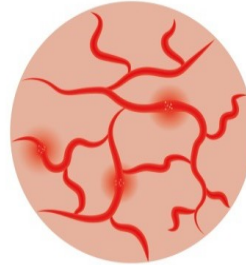
Approx. 150,000 in the UK

Vascular Dementia

1. Subcortical dementia
2. Stroke related dementia



Healthy Blood Vessels



Blood Vessels with Multiple Infarcts

Symptoms of Vascular Dementia

Early stages:

- Slowness of thought
- Difficulty with planning
- Trouble with language
- Problems with attention and concentration
- Mood or behavioural changes

Symptoms of Advanced Stages of Vascular Dementia

Gets worse in sudden stages

Depends on the area of damage

Memory loss and difficulty concentrating

Difficulty finding the right words

Personality changes

Emotions lead actions

Depression

Hallucinations

Finding it difficult to walk and keep balance, frequently falling

COVID-19 Impact on Cognition

‘COVID-19 and its affects on cognitive function are being researched as data from previous severe acute respiratory epidemics have identified memory impairments following initial exposure. ‘
‘there is the potential risk that COVID-19 infection may cause long-term cognitive decline by accelerating the on- set of neurodegenerative dementia’ (Ritchie & Chan, 2021)

Sourced from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7801840/pdf/WPS-20-52.pdf>

‘The increasing evidence and understanding of SARS-CoV-2's impact on the CNS raises key questions on the impact for risk of later life cognitive decline, AD, and other dementia.’

(Gabriel et al, 2021)

Sourced from:

<https://alz-journals.onlinelibrary.wiley.com/doi/10.1002/alz.12255>

Exercise & Physical Activity

In the prevention & management of the condition



Exercise & Physical Activity Benefits

- Could potentially reduce risk of dementia
(Gallaway et al, 2017, Alty et al, 2020)
- Suggested to delay the onset
- Improve cognition
- Boosts immune system health/reduces inflammation
- Prevents muscle weakness, mobility problems and other medical conditions
- Improving ability for daily activities
- Promotes a routine (day-night routine)

Exercise & Physical Activity Benefits

- Social interaction
- Reduce the risk of falls
- Improve cardiovascular health
- Improve strength, flexibility and endurance
- Improve sleep
- Maintain independence
- Improve confidence & self esteem



Exercise & Physical Activity for Prevention

Why can it prevent disease?

- Important for maintaining adequate blood flow to the brain
- Potentially stimulates brain cell growth and survival
- Exercise reduces the likelihood of other co-morbidities
- Control inflammation

Exercise Objectives

- Improve quality of life
- Increase balance and co-ordination
- Improve social interaction
- Increase muscular strength
- Decrease risk of other medical conditions



Exercise Prescription

- Exercise should include a balance of aerobic exercise, strength exercises, balance and co- ordination exercises
- Walking very beneficial
- Dance
- Functional exercises aimed at maintaining mobility



PLEASANT Exercise

P – pleasurable

L – make it something they liked in the past

E – make it easy to perform

A – make it appropriate to their level of ability
and type of dementia

S – make it safe

A – make it aerobic

N – make it involve noise i.e. talking, music

T – make it involve touching for hand to eye co-
ordination

Perrin & May created a table to match the needs, abilities and activities to the dementia journey....

Matching needs, abilities and activities to the dementia journey

Stage	Early dementia (Mild Cognitive Impairment)	Early to middle dementia (Mild Alzheimer's Disease)	Middle to late dementia (Moderate Alzheimer's Disease)	Late dementia (Severe Alzheimer's Disease)
Characteristics	First signs of the condition are appearing.	Powers of deductive reasoning are diminishing, increasingly reliant upon symbol in mental processing.	Thought is becoming progressively more concrete and impoverished. Only a most primal level of function remains.	Sometimes described as vegetative, where actions, rather than activities, are possible.

experiences	Exercise	Structured with specific outcomes (e.g., strength & balance)	----->	Falls prevention & functional ADL training	----->	Movement & circulation
	Music & dance	Dance, playing music,		Music & movement (release),	

Exercise Content

- ACSM state enjoyment and maintenance of function are key
- Some guidelines include...

Exercise Content



Use visual
and
auditory
clues



15-20
minutes
and build
up 45
minutes



Improve
dexterity
with hand
to eye
exercises



Balance
exercises



Combine
arms and
legs



Stimulate
senses
with bright
colours
and music

Communication

- 80% is nonverbal
- Manual guidance and demonstrations
- Cueing of activities
- Positive body language
- Speed of body or limb movements
- Eye to eye contact
- Facial expressions

Summary Points

- Dementia is an umbrella term for different diseases of the brain
- Alzheimer's is the most common form
- Numerous studies support exercise and physical activity as a way to reduce the risk and also help manage the condition
- Exercise must be client centred and individualised

Summary Points

- Use large muscle groups and simple movements
- Encourage use of different senses where possible
- Remember each day they see you they may be different
- The main aim is to improve/maintain their independence for as long as possible

Recommend Reading

Living well with dementia: a framework for programs

Living well with dementia: principles of planning into Practice

Living well with dementia: guidance for exercise instructors & wellness leaders



Thank you
for participating in today's training.
Any Questions?

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