

WE NEED TO TALK ABOUT BRAIN HEALTH AND ALZHEIMER'S DISEASE

KEY CONVERSATIONS

The impact of stigma on Alzheimer's disease diagnosis varies by region?

Lack of knowledge contributes to stigma and its impact on AD management?

How can we help to overcome stigma related to AD and dementia?

Is sleep a risk factor for neurodegenerative diseases?

What practical measures can we put in place to improve brain health and when are they most useful in the life course?

How can we better personalise prevention of AD?

What is the role of nutrition in AD prevention?

Are there inequities in healthcare systems regarding AD prevention?

"[Stigma] is regional and cultural but also center-dependent. Patients who come to see me [at the Cleveland Clinic] have already seen many doctors before me and they are looking for additional expert opinion. They've already dealt with the stigma."

Marwan Sabbagh



"In Spain, patients are scared of their diagnosis. It is difficult for them to talk about [their diagnosis] with family and friends."

Carla Abdelnour



"A decade ago people didn't even want to utter the word 'dementia' and Alzheimer's disease was even worse - people didn't even want to say the 'A' word. There's been a quick shift over the last several years because the term Alzheimer's and prevention has been used so much more frequently thanks to research in the field such as the FINGER study. We now have evidence that you can change your lifestyle and behaviour today and affect your cognitive health tomorrow. People are now more open to the idea of prevention."

Richard Isaacson



EAN SYMPOSIUM PANEL



Miia Kivipelto (Chair)
Center for Alzheimer Research,
Karolinska Institute, Stockholm,
Sweden



Frank Jessen
University of Cologne, Germany



Temitope Farombi
Chief Tony Anenih Geriatric Center
University College Hospital, Nigeria



Richard Isaacson
The Alzheimer's Prevention Clinic
(APC) at Weill Cornell Medicine and
NewYork Presbyterian, USA



Laura Lewis
Department of Biomedical
Engineering, Boston University, USA

IN THIS CONVERSATION



Marwan Sabbagh
Cleveland Clinic, USA



Carla Abdelnour
Fundacio ACE, Spain



Richard Isaacson
The Alzheimer's Prevention Clinic
(APC) at Weill Cornell Medicine and
NewYork Presbyterian, USA



Temitope Farombi
Chief Tony Anenih Geriatric Center
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"Physicians in primary care offices may give a more vague diagnosis than Alzheimer's disease. This makes you wonder whether physicians are more reluctant to make a real diagnosis because it opens up uncertainty around Alzheimer's disease. So stigma could start with either the physician's office or patient fear."

Diana Kerwin



"Stigma and fear from doctors and patients are strongly related. Even when there is suspicion [of an Alzheimer's disease diagnosis], the fact that the diagnostic pathway is so long and uncertain adds to the fear."

Maria Teresa Ferretti



"It is important to recognize that [the issue of stigma] is linked to knowledge for both physicians and patients. People don't know their outcome which makes stigma more concerning. Raising the skill of primary care physicians is important."

Abdulrazak Abyad



"Stigma is a big issue in Africa. People don't want to come out and admit that they have dementia. It's affecting early presentation in the hospital, early access to healthcare and prolonging the suffering of people as relatives try to hide them from society. In Nigeria dementia is equated to voodoo and witchcraft and because of this people deny the problem. It's common that people with dementia are openly mocked. In Nigeria there aren't residential homes so people with dementia may be locked up in their own home."

Temitope Farombi



IN THIS CONVERSATION



Diana Kerwin
Kerwin Medical Center, USA

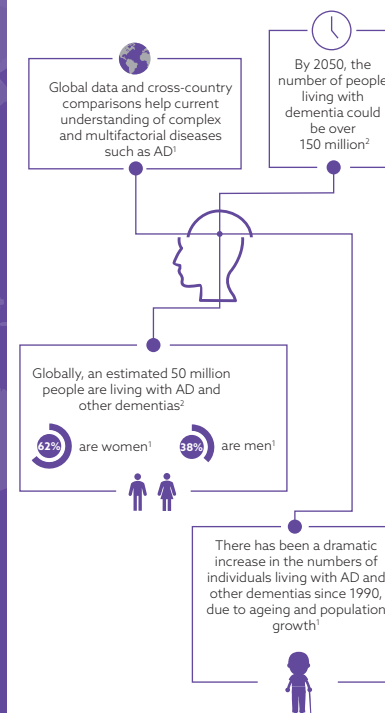


Maria Teresa Ferretti
Women's Brain Project,
Guntershausen, Switzerland



Abdulrazak Abyad
Abyad Medical Center, Lebanon

THE PREVALENCE OF AD AND OTHER DEMENTIAS IS GROWING AND SO WILL THE SOCIETAL BURDEN ACROSS THE WORLD



AD, Alzheimer's disease.
1. GBD Dementia Collaborators. Lancet Neurol 2019;18:88-106; 2. World Health Organization. Dementia factsheet 2019. <https://www.who.int/news-room/fact-sheets/detail/dementia>.

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"In Sweden, people rarely talk about their Alzheimer's disease. We still have stigma [associated with Alzheimer's] and I would rank it as a top obstacle."

Henrik Zetterberg



"It would greatly improve stigma if we look at the brain as any other organ. Higher education and knowledge in neuroscience could improve stigma, but until we get there, stigma will continue to be attached to an Alzheimer's diagnosis."

Maria Teresa Ferretti



"We can address stigma by talking about it openly. We also need to educate the healthcare workers as there's a huge knowledge gap."

Temitope Farombi



IN THIS CONVERSATION



Henrik Zetterberg
University of Gothenberg, Sweden



Maria Teresa Ferretti
Women's Brain Project, Guntershausen, Switzerland



Temitope Farombi
Chief Tony Anenih Geriatric Center University College Hospital, Nigeria

PREVENTION POTENTIAL ≈ 40% 12 MODIFIABLE RISK FACTORS

Diabetes	High blood pressure in midlife	Obesity in midlife	Physical inactivity
Depression	Smoking	Low education	Hearing loss
Traumatic Brain Injury	High alcohol consumption	Social isolation	Air pollution

PROTECTIVE FACTORS

Healthy diet	Education	Physical activity	Mental activity
Social activity			

OTHER NEW FACTORS

Loneliness	Hopelessness	Stress	Sleep disturbances
Impaired oral health	Covid-19?		

Livingston G, et al. Lancet. 2020 Aug 8;396(10248):413-446.

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"From a risk reduction perspective, we spend a lot of time with our patients discussing sleep. Getting patients to realize that sleep is important is the first barrier and then the second barrier is making a plan for sleep. It's not just about total hours of sleep could there be ways to understand a surrogate marker of deep sleep and REM sleep.

We discuss sleep aids that might help people to get people to sleep but might not produce the best quality of sleep and we talk about caffeine use - most people don't realise that the half life of caffeine is at least 5 or 6 hours. We take sleep apnea seriously we do screenings for that. We say to our patients exercise and diet can loosen the amyloid up, but sleep is really important to remove the amyloid."

Richard Isaacson



"It's clear that sleep quality and sleep efficiency even in midlife can be predictive of future onset of dementia. Even the depth of sleep and specific brain activity during sleep can predict future amyloid accumulation in later years.

Neuroscience studies have identified some important mechanisms for why sleep might be important, one was the realisation that sleep is a sort of privileged state for amyloid clearance in the brain at higher rates during sleep than wakefulness. In brain imaging studies in humans, when people are sleeping there are large waves of blood flow that push the CSF around showing a change in waste products within the brain."

Laura Lewis



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Richard Isaacson
The Alzheimer's Prevention Clinic (APC) at Weill Cornell Medicine and NewYork Presbyterian, USA



Laura Lewis
Department of Biomedical Engineering, Boston University, USA

DIAGNOSIS OF ALZHEIMER'S DISEASE IS OFTEN DELAYED AND MANY PEOPLE REMAIN UNDIAGNOSED

Approximately



of patients with dementia may remain undiagnosed¹

Some patients



for a formal diagnosis²

AD, Alzheimer's disease.
1. Valcour VG, et al. Arch Intern Med. 2000;160:2964-2968; 2. Bond J et al. Int J Clin Pract. 2005;59 (Suppl146): 8-14.

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Clinical practice in the field of risk reduction - whether we use prevention, brain health or risk reduction that's a semantic discussion - is one of the quick and relatively easy things that we can do from a practical perspective. The other important part is educating the public as early as possible. When I first started we were seeing people 40 years and up now we are seeing people 25 years and up. We created courses for high school and college students and worked with the comedian Seth Rogen so that thousands of students around the US so that young students understand about brain health.

Richard Isaacson



It takes 15 years to implement findings from clinical trials into clinical practice, we need to improve that time window.

Miia Kivipelto



Following some data that was published from a Nigerian study showing that eating green leafy vegetables could prevent stroke¹, we started to advise our patients to add these to their diets. We know that stroke is a risk factor for a dementia.

Temitope Farombi



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Chief Tony Anenih Geriatric Center
University College Hospital, Nigeria

MISCONCEPTIONS EXIST AROUND ALZHEIMER'S AND DEMENTIA



2 out of 3 people think that dementia is part of normal aging¹



1 in 4 people think that there is nothing that we can do to prevent dementia¹

1. Owolabi MO, et al. Lancet Glob Health. 2018 Apr;6(4):e436-e446. doi: 10.1016/S2214-109X(18)30002-0. Epub 2018 Feb 26

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It's important to understand the reason behind any sleep problems, such as sleep apnea, anxiety or socio-economic causes, such as not having time to sleep or access to somewhere quiet and peaceful to sleep.

Laura Lewis



Primary prevention and also identifying people with subtle dysfunction. These subtle declines may be picked up using digital biomarkers. Monitoring cognition in the process of prevention is important

Frank Jessen



The definition of personalization differs depending on the regions and the resources available. At our centre, we take a comprehensive medical history and we do a deep dive to understand cognitive trajectory, educational attainment, neurodevelopmental diversity, eating patterns, sleep patterns, exercise patterns - not just do they exercise but the type of exercise (eg, cardiovascular versus weight training) - the patient's hobbies, languages and stress modifications - the list goes on and on. All of these different aspects and the history just from talking to the patient prior to doing assessments that's personalisation based on modifiable risk factors that you can identify in a clinical history.

We then do a clinical assessment. The biomarkers that we use we refer to the ABCs of Alzheimer's prevention: A stands for anthropometrics, or body composition to understand how much body fat/visceral fat, how much muscle mass. B represents blood-based biomarkers related to genetics (APOE4), lipids, metabolism, inflammation, and nutrition. C stands for cognition (baseline language, memory, executive function, processing speed).

Richard Isaacson



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The Alzheimer's Prevention Clinic (APC) at Weill Cornell Medicine and NewYork Presbyterian, USA



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Department of Biomedical Engineering, Boston University, USA



Frank Jessen
University of Cologne, Germany

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"The future of nutrition in the management of brain health and risk reduction is 'precision nutrition' - that different people respond differently to different patterns of eating, whether that's a dietary pattern like the Mediterranean diet or single or multi nutrient, these are things that need to be considered in a more precise way. The Mediterranean diet is probably the most studied, and we now know that people eating this diet have lower tau and amyloid in their cerebrospinal fluid. So the Mediterranean is not only good for brain health but it's also good for Alzheimer's pathology. It's not just about what you eat but also when you eat, e.g. fasting. These are some very exciting approaches but meal timing is critical. Eating more fish correlates with Alzheimer's disease risk reduction. In our clinic we emphasise the importance of consuming the fatty acid DHA (needed for maintaining the balance of omega-3 vs omega-6 balance). DHA is particularly important in patients with 2 copies of the APOE4 variant as these people may have trouble absorbing DHA.¹"

Richard Isaacson



"I have been running the FINGER study, which was the first large long-term randomised controlled trial showing that it is possible to prevent cognitive decline among an at-risk elderly general population."

Participants were randomised to receive a multidomain intervention - "like one hand 5 fingers - nutrition, exercise, cognitive training, social activities and vascular risk monitoring" or regular health advice (control group) over 2 years. "The results were very clear for cognition - global cognition was 25% better in the intensive multidomain intervention group and there were similar patterns for all pre-specified cognitive subdomains (executive function, processing speed and memory). The control group had a 30% increased risk of cognitive decline after 2 years."

"On top of that, there were other beneficial effects, for example 30% lower risk of functional decline, improvement in mobility, better health-related quality of life, 60% lower risk of chronic diseases, 20% lower risk of hospitalisation, and other health economic benefits. We are now launching the worldwide FINGER - adapting the FINGER model in different countries and cultures. Now in 2021, we have 40 countries in all continents participating."

Miia Kivipelto



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Miia Kivipelto (Chair)
Center for Alzheimer Research,
Karolinska Institute, Stockholm,
Sweden



Richard Isaacson
The Alzheimer's Prevention Clinic
(APC) at Weill Cornell Medicine and
NewYork Presbyterian, USA

FINGER STUDY

A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial.

Multidomain Intervention



Nutrition



Exercise



Cognitive training



Social activities



Vascular risk monitoring

N = 1260
Age 60-77 years
At risk general population



Regular Health Advice

Extended 5- & 7-year follow-up
finished 10-year follow-up

1. Tomaszewski N, et al. J Alzheimers Dis. 2020; 74(3): 975-990.

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In Germany we have quite a good healthcare system in terms of diagnosing early symptomatic AD, however, our healthcare insurance does not cover risk reduction or prevention, apart from managing blood pressure, so this is a big obstacle for implementing preventative medicine.

Frank Jessen



In Nigeria we have very few doctors to cover the large population. There is a brain drain too as HCPs emigrate to other countries to practice and we don't have enough expats coming to Nigeria to practice. There are less than 200 neurologists attending to 200 million people.

Temitope Farombi



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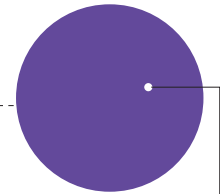
Frank Jessen
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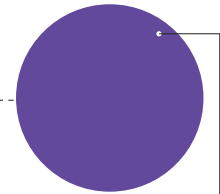
HEALTHCARE INEQUITIES IN HEALTHCARE SYSTEMS AROUND AD PREVENTION

In Germany, there are



43 medical doctors per 10,000 persons^{1*}

In Nigeria, there are around



3.81 medical doctors per 10,000 persons^{1*}

1. WHO Medical doctors (per 10 000 population). Available at: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-\(per-10-000-population\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/medical-doctors-(per-10-000-population)) (accessed August 2021)