MSTRANSLATE & WHAT'S HOT IN MS RESEARCH

BRETT DRUMMOND

CO-FOUNDER, MSTRANSLATE

WHO IS MSTRANSLATE?

BRETT DRUMMOND

Co-founder,

Chief Science Communicator

ERIC DRUMMOND

Co-founder,

Digital Media Manager

WHAT IS MSTRANSLATE?

Established in late 2012, MStranslate has evolved and grown during the last decade.

01

SCIENCE COMMUNICATION CONSULTANCY

Supporting medical research organisations, biotechnology companies and patient advocacy organisations.

02

SCIENCE COMMUNICATION INITIATIVE

Providing updates on the latest breaking developments in multiple sclerosis research.

WHERE IS MSTRANSLATE?

Website

https://mstranslate.com.au

Social Media

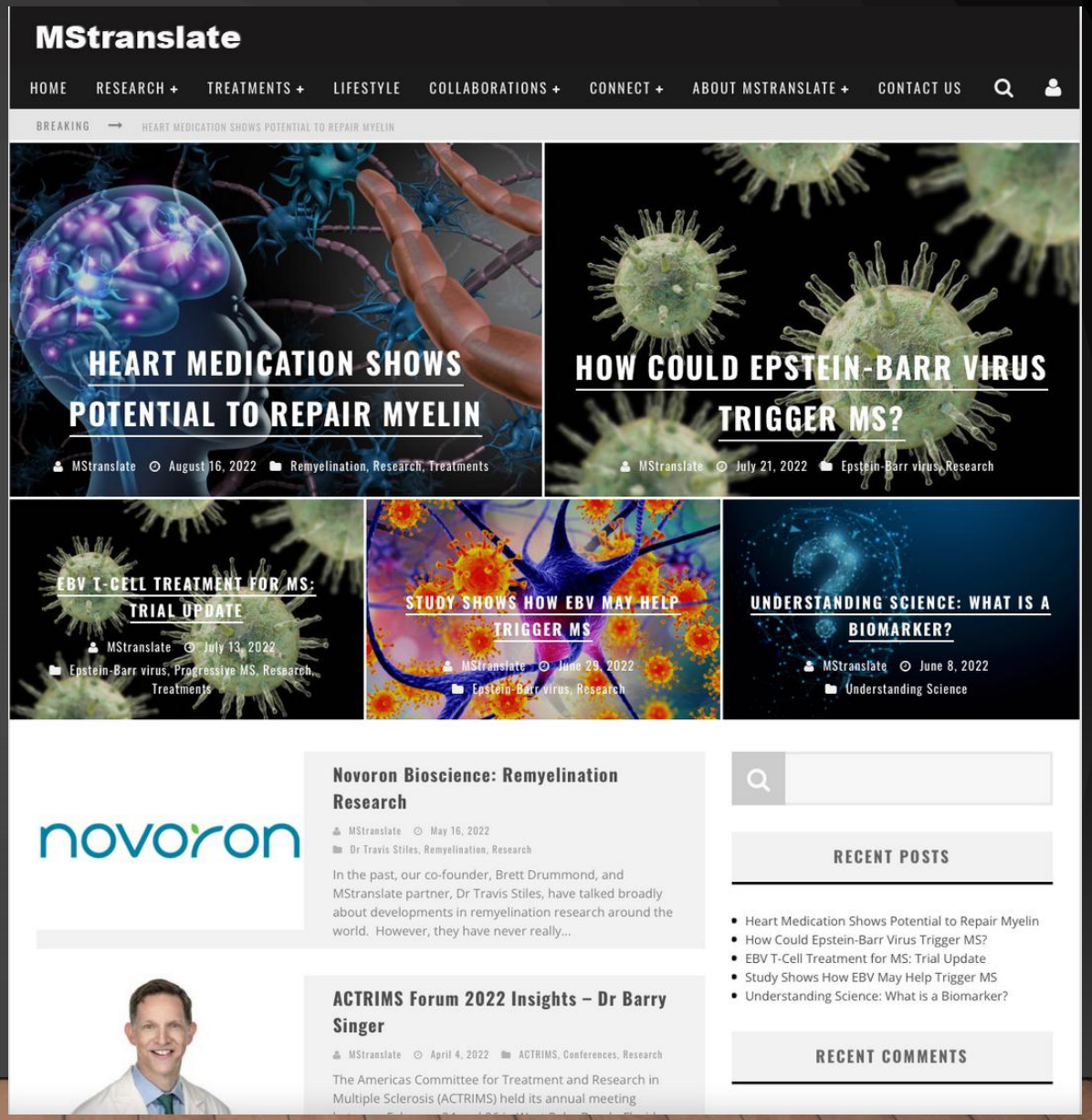
Facebook:
https://www.facebook.com/MStranslate

Twitter:
https://twitter.com/MStranslate

YouTube:
https://www.youtube.com/user/MStranslate1

Instagram:
https://www.instagram.com/mstranslate

LinkedIn:
https://www.linkedin.com/company/mstranslate



WHY MSTRANSLATE?

Why is it important that science communication initiatives such as MStranslate exist?

Doctors believe they have discovered the cause of multiple sclerosis

KATE FOSTER, SCOTTISH HEALTH EDITOR, The Daily Telegraph
July 24, 2018 9:44am

A VACCINE for avoiding multiple sclerosis has moved a step closer, as doctors believe they have discovered the cause of the disease.

MS develops following two separate common infections which cause the body to attack itself, British research has found.

And doctors now believe the development of a vaccine against one of the viruses may hold the key to future MS prevention.

THE NEED

Why is it important that science communication initiatives such as MStranslate exist?

Mult Scler Relat Disord. 2018 Jul 4;24:157-174. doi: 10.1016/j.msard.2018.06.014. [Epub ahead of print]

Hypothesis: Multiple sclerosis is caused by three-hits, strictly in order, in genetically susceptible persons.

Kearns PKA[1], Casey HA[2], Leach JP[3].

Author information

Abstract

Multiple Sclerosis is a chronic, progressive and debilitating neurological disease which, despite extensive study for over 100 years, remains of enigmatic aetiology. Drawn from the epidemiological evidence, there exists a consensus that there are environmental (possibly infectious) factors that contribute to disease pathogenesis that have not yet been fully elucidated. Here we propose a three-tiered hypothesis: 1) a clinic-epidemiological model of multiple sclerosis as a rare late complication of two sequential infections (with the temporal sequence of infections being important); 2) a proposal that the first event is helminthic infection with Enterobius Vermicularis, and the second is Epstein Barr Virus infection; and 3) a proposal for a testable biological mechanism, involving T-Cell exhaustion for Epstein-Barr Virus protein LMP2A. We believe that this model satisfies some of the as-yet unexplained features of multiple sclerosis epidemiology, is consistent with the clinical and neuropathological features of the disease and is potentially testable by experiment. This model may be generalizable to other autoimmune diseases.

THE NEED

Why is it important that science communication initiatives such as MStranslate exist?

Vitamin D could cut multiple sclerosis symptoms

OLIVER MOODY | THE TIMES | DECEMBER 31, 2015 1:22PM

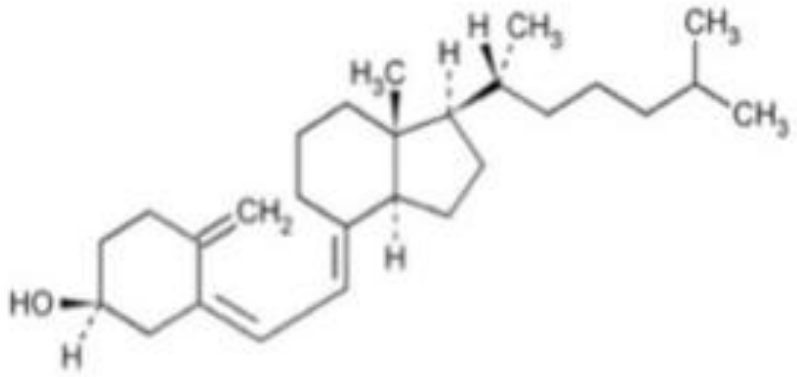
SAVE

Vitamin D activates a gene that may protect against MS.

Taking hefty supplements of vitamin D could help to reverse some of the symptoms of multiple sclerosis, according to a study.

THE NEED

Why is it important that science communication initiatives such as MStranslate exist?



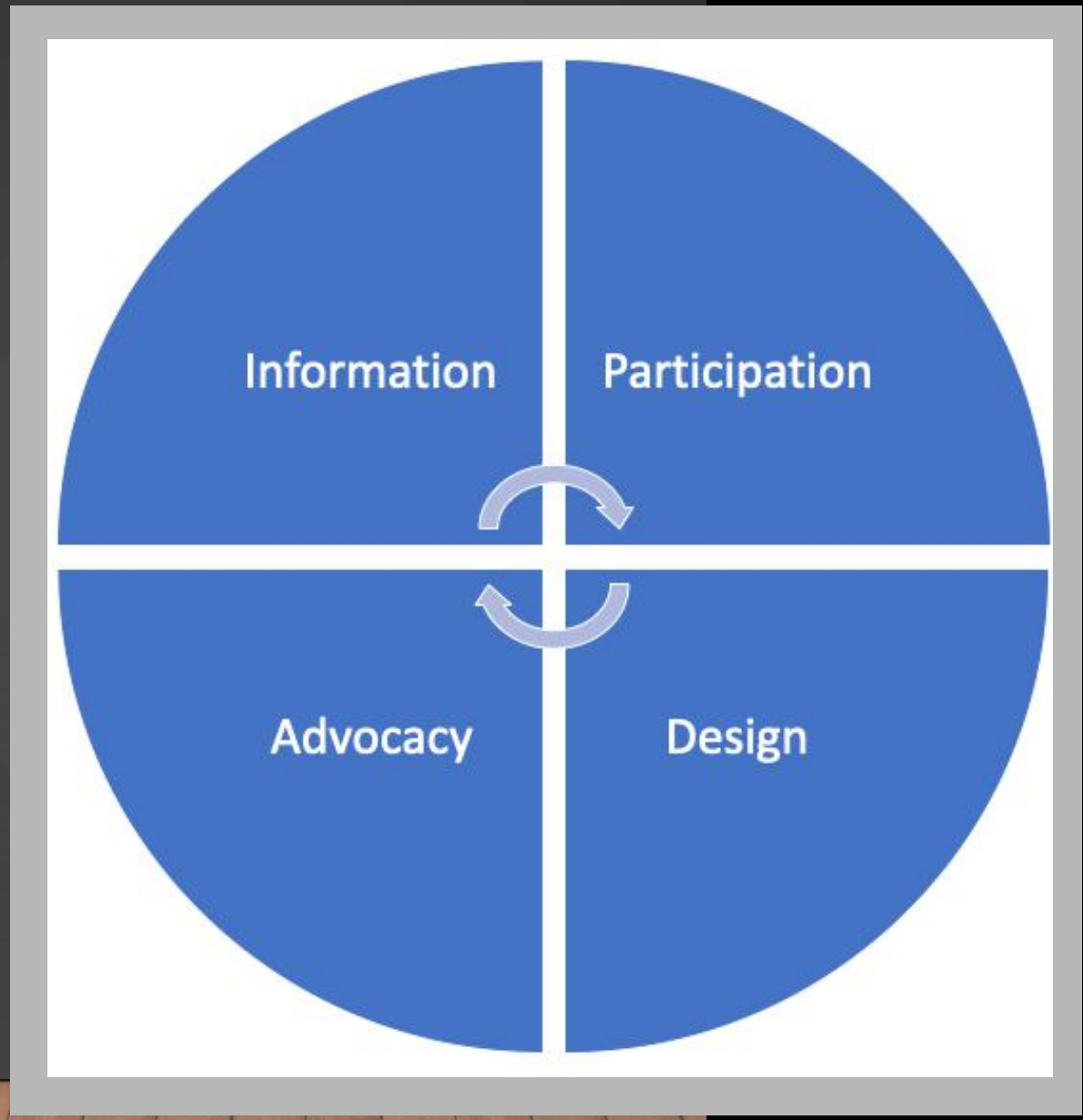
Effects of High-Dose Vitamin D in PwMS

Research Summary: Safety and immunologic effects of high- and low-dose cholecalciferol in MS

The outcomes

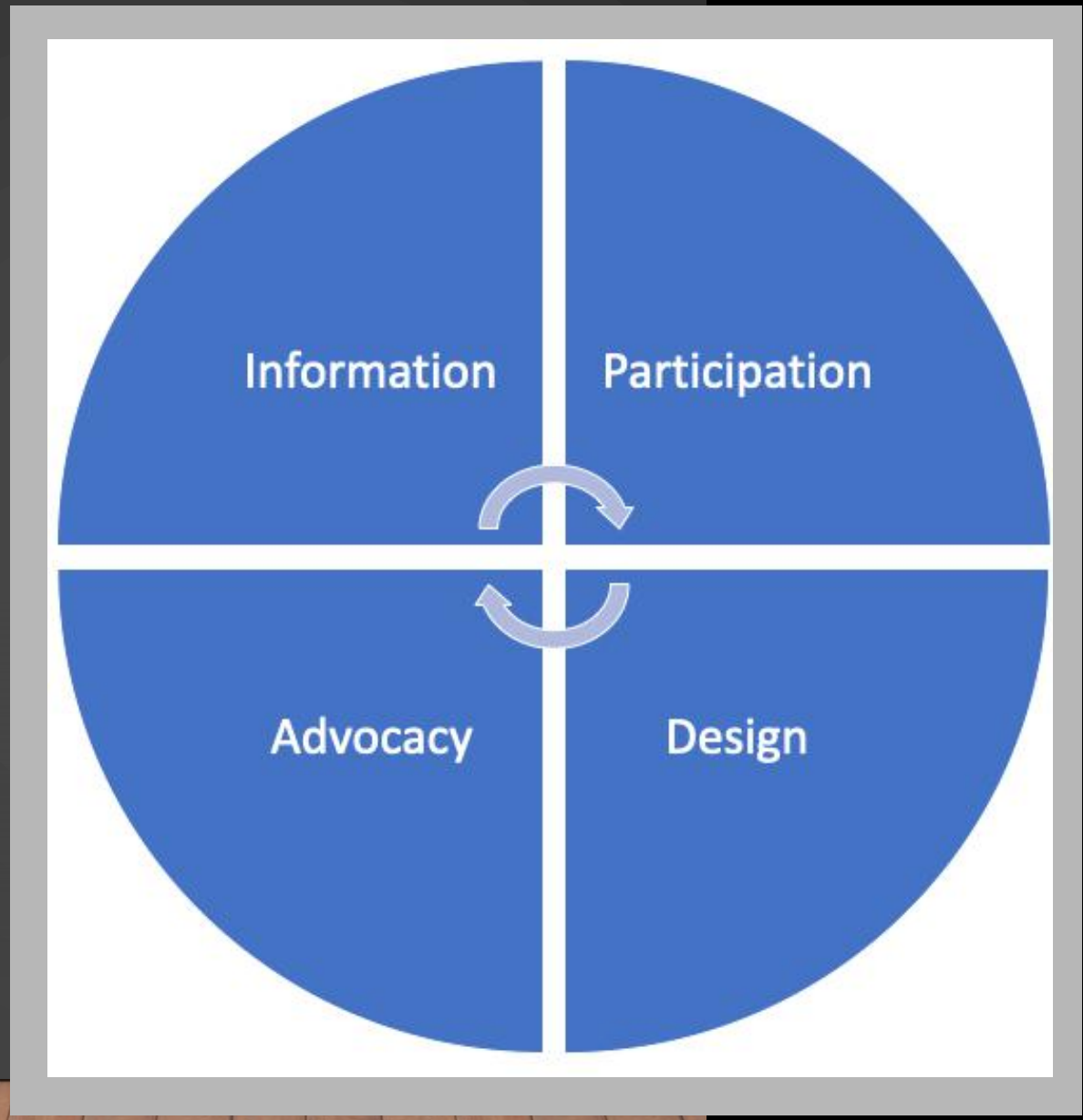
There are two major outcomes from this trial. Firstly, they have shown that high-dose Vitamin D3 therapy appears to be safe in people with multiple sclerosis. However, it must be considered that the study was only conducted over a 6-month period and so longer-term effects were not studied. Secondly, they have shown that this high-dose protocol increases the levels of Vitamin D in the blood and has a potentially beneficial effect on the immune system. Larger clinical trials are now underway that should determine whether a similar treatment plan results in improvements in symptoms and disability progression in people with MS.

WHAT ARE THE BENEFITS?



WHAT ARE THE BENEFITS?

iPad



THE BENEFITS:

PwMS will always have questions, they need answers.

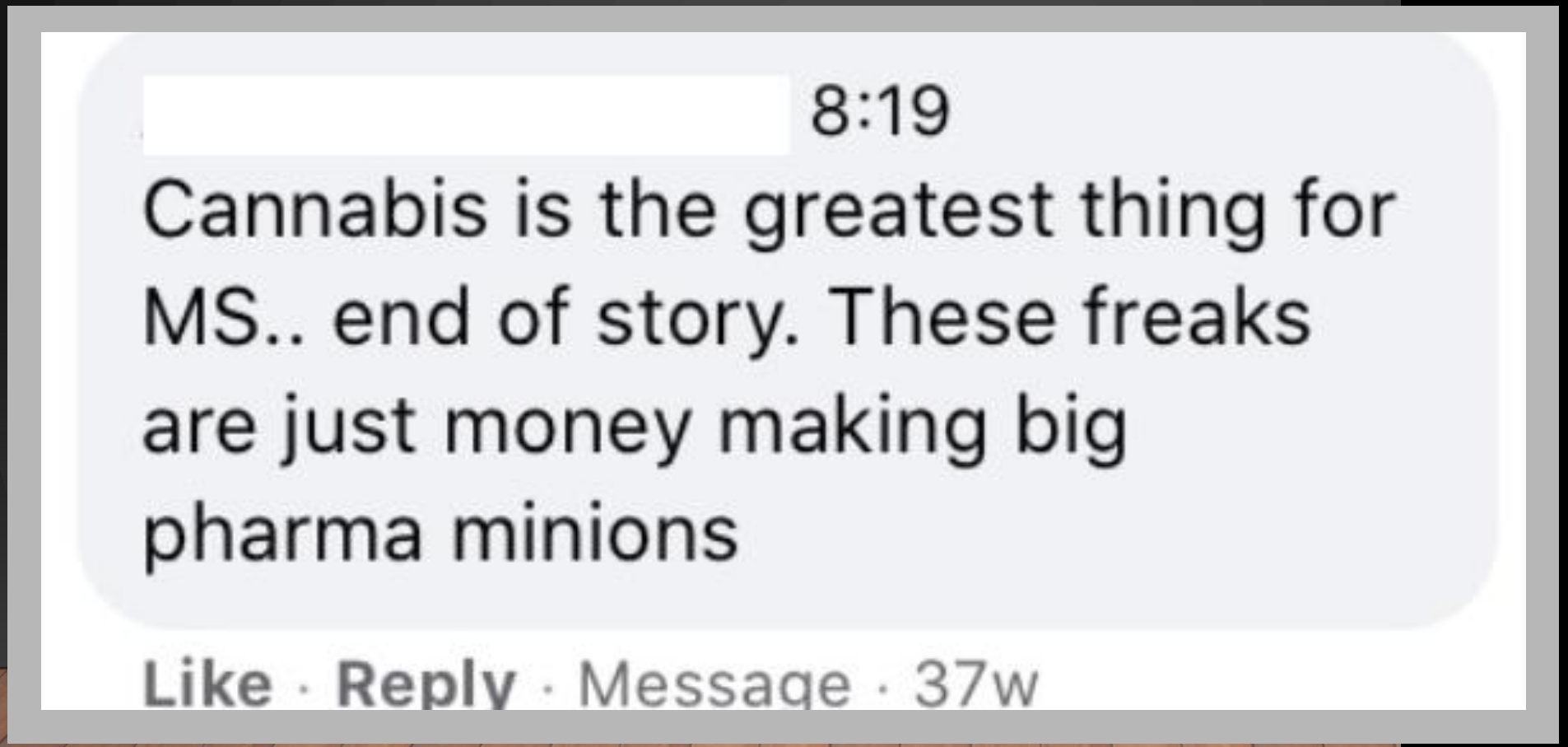
The general understanding of research needs to be improved.

Important messages need to be delivered quickly and accurately

- Creating the headline is better than responding to a headline
- CCSVI
- COVID-19

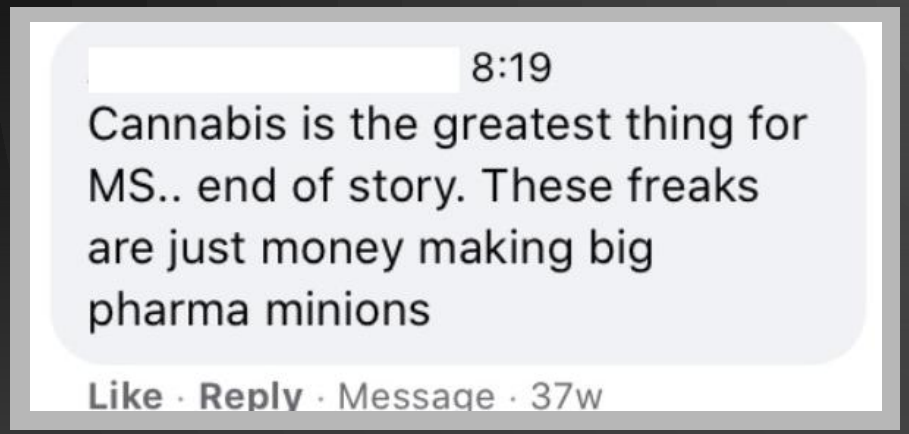
PATIENT ENGAGEMENT

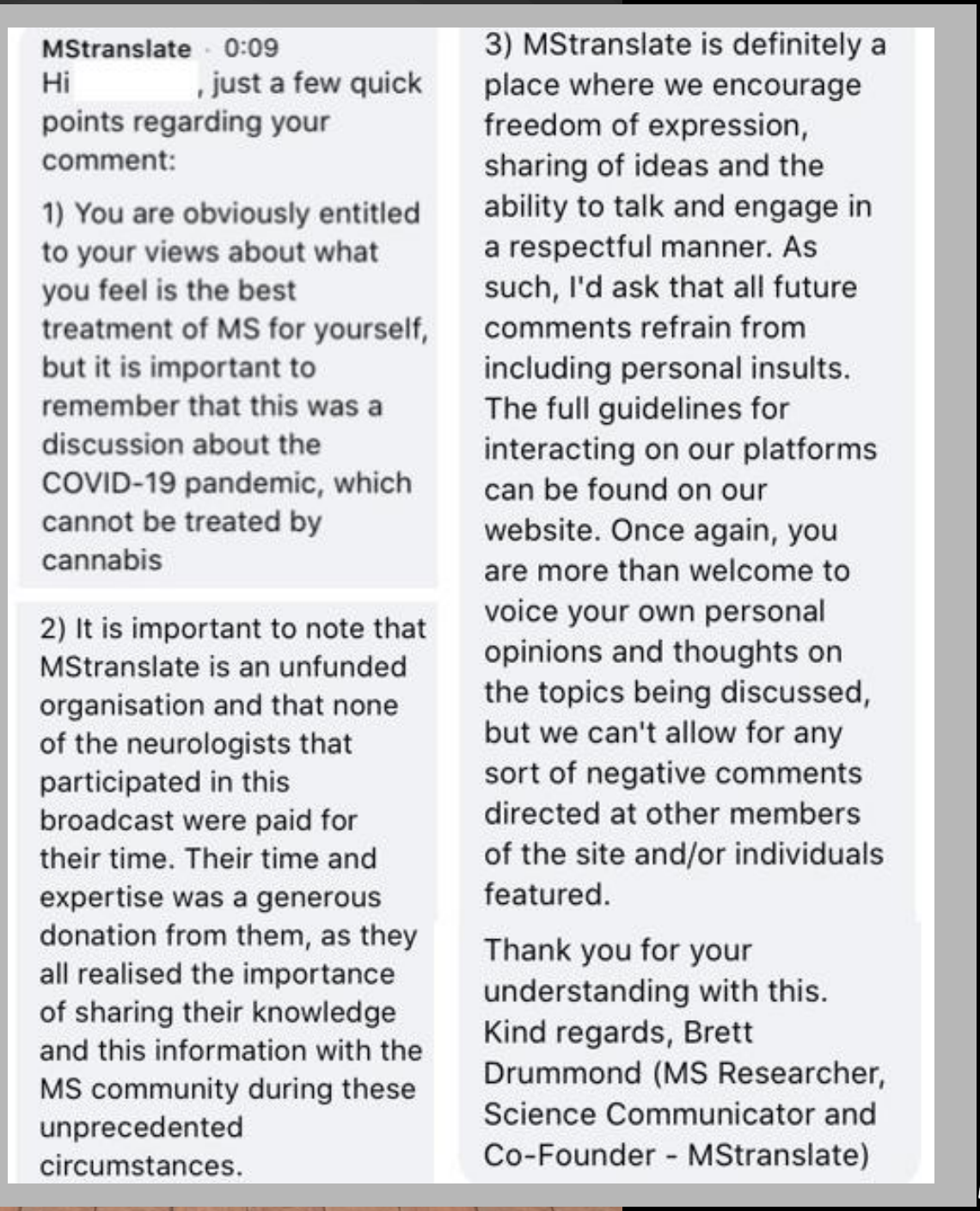
Every negative interaction has the potential to be a positive one.



PATIENT ENGAGEMENT

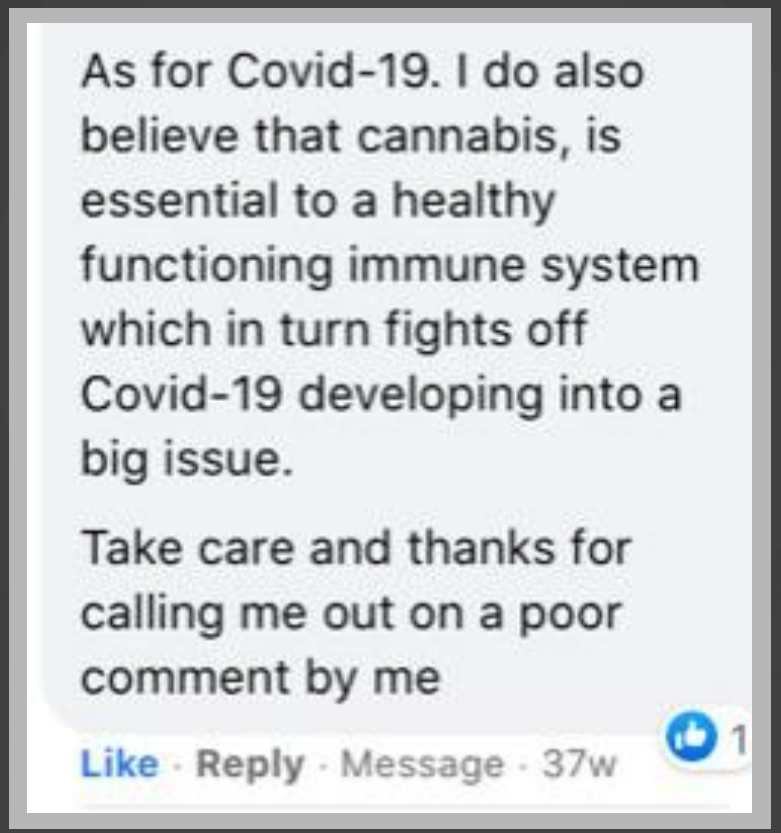
It is possible to recognise the right to an opinion, while addressing / correcting the accuracy of an individual's concerns and reinforcing community standards.

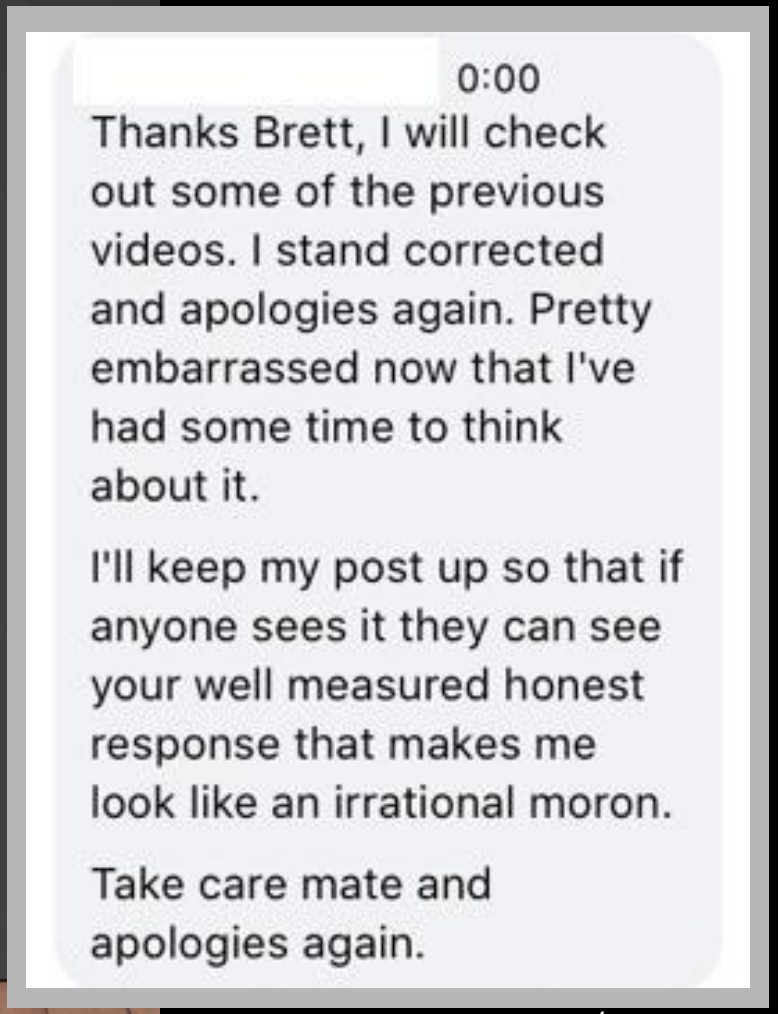




PATIENT ENGAGEMENT

The outcome when done properly...



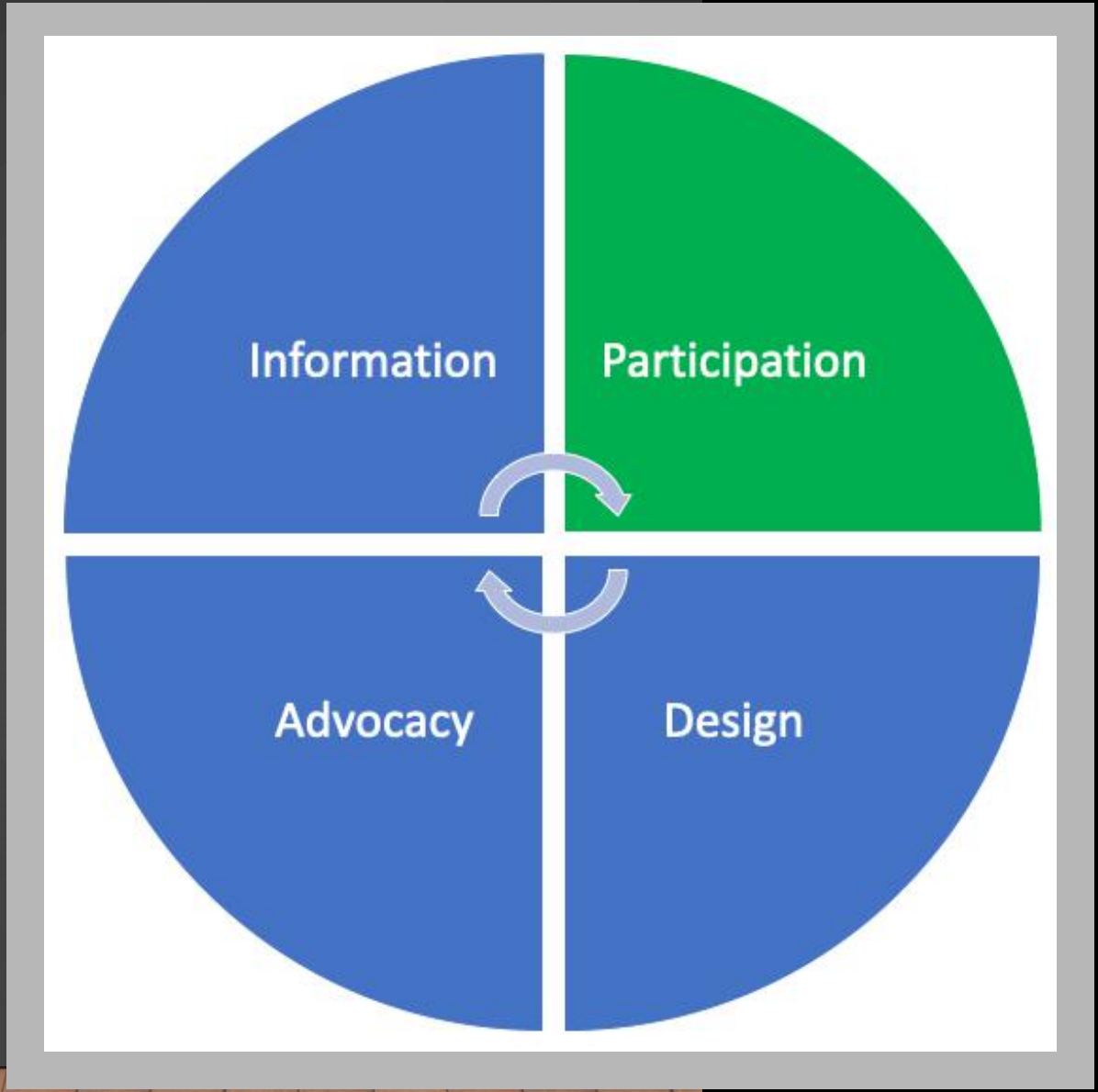


THE BENEFITS:

Trial and study recruitment

Alternate funding sources

This relationship needs to be two way

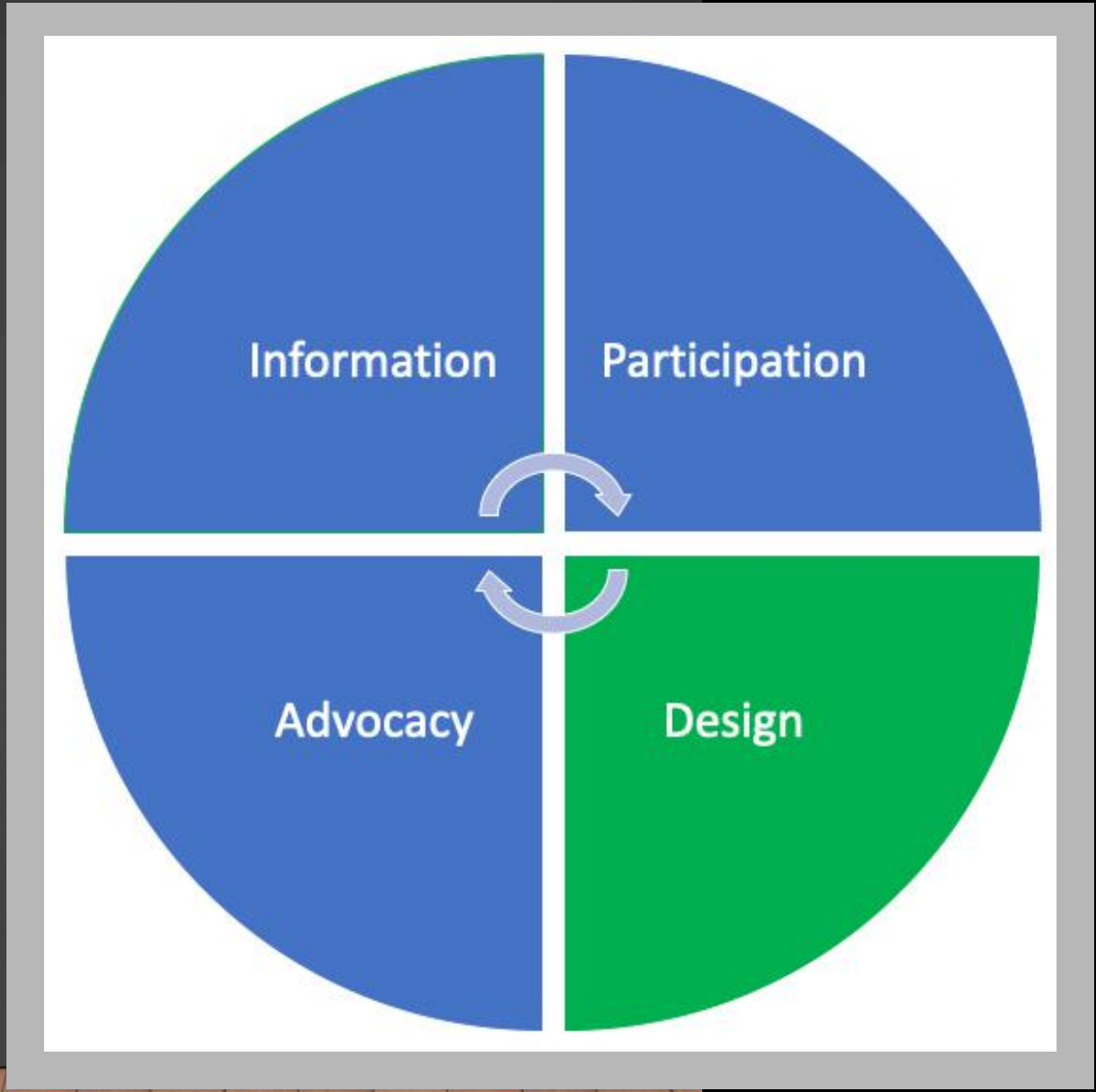


THE BENEFITS

Research ideas generated from the lived patient experience

Study and trial co-design

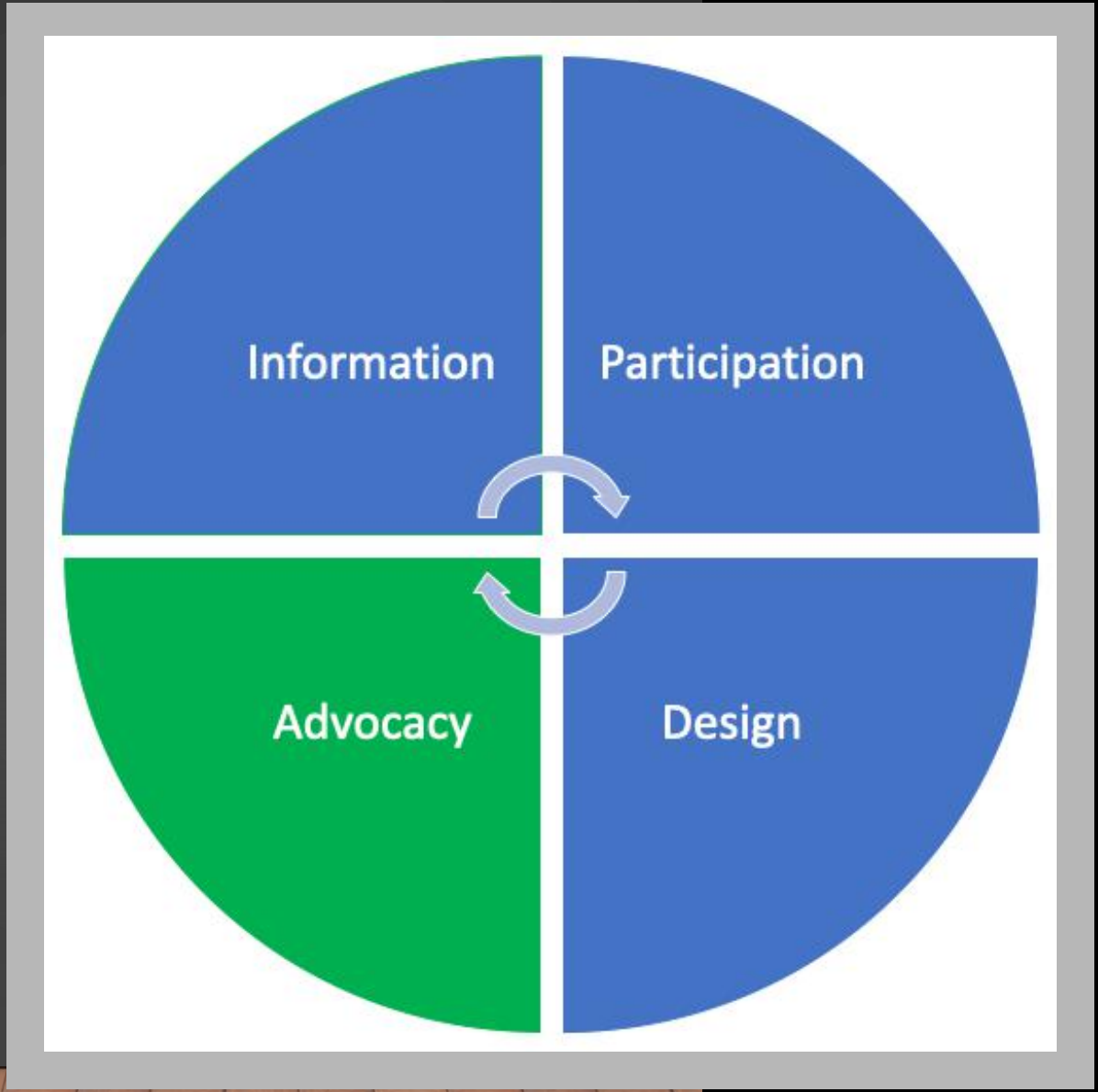
Increased engagement



THE BENEFITS

The power of the community's voice

- Increased research funding
- Research direction
- Improvements in care, such as NDIS reform



WHAT'S HOT IN MS RESEARCH

Lifestyle Modifications

WHAT'S HOT (AND WHAT'S NOT) IN MS RESEARCH

Personalised Medicine

Lifestyle Modifications

Remyelination

WHAT'S HOT (AND WHAT'S NOT) IN MS RESEARCH

EBV

Personalised Medicine

Remyelination

Lifestyle Modifications

WHAT'S HOT (AND WHAT'S NOT) IN MS RESEARCH

🔥🔥🔥🔥 Podcast Hosting

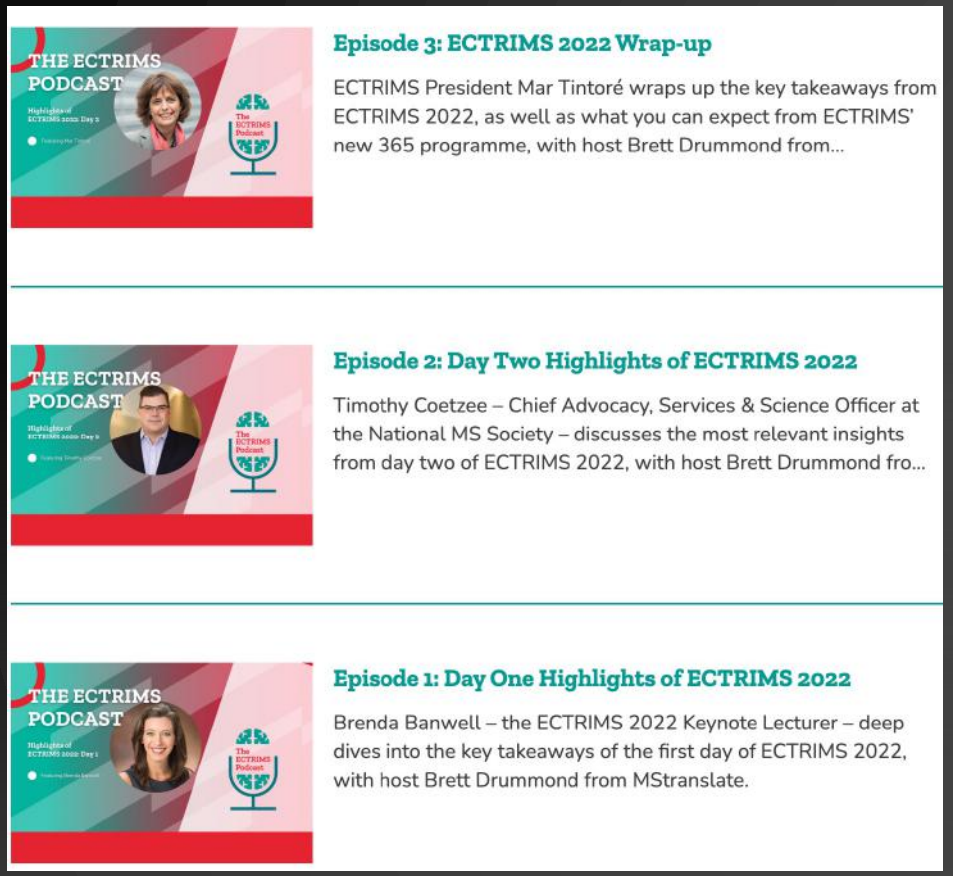
🔥🔥🔥 EBV

🔥🔥 Personalised Medicine

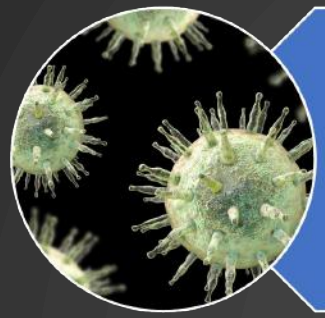
Remyelination

🔥 Lifestyle Modifications

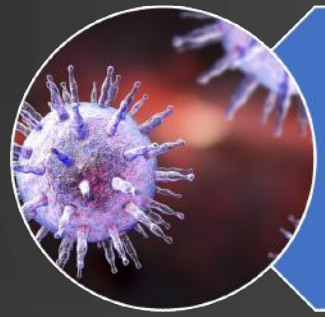
THE ECTRIMS PODCAST



THE ROLE OF EPSTEIN-BARR VIRUS



Where we were



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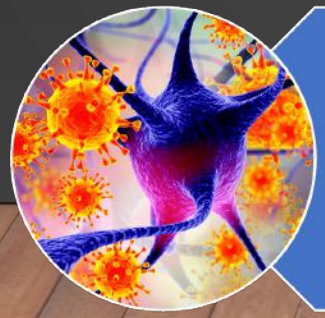
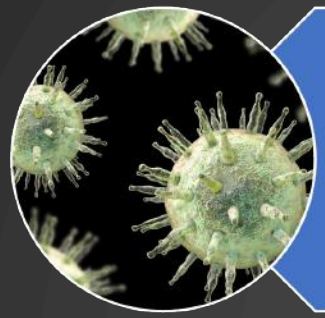


Where we are going

THE ROLE OF EPSTEIN-BARR VIRUS



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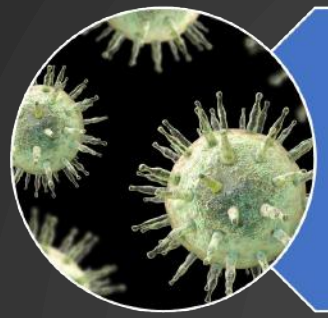
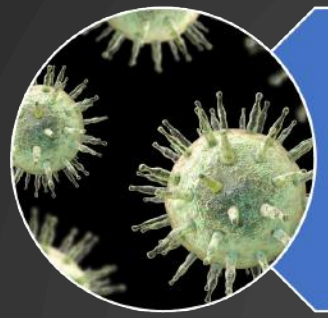


Where we were

PwMS
~95%

HC
~90%

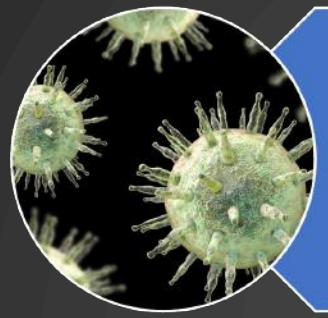
THE ROLE OF EPSTEIN-BARR VIRUS



Where we were

EBV

THE ROLE OF EPSTEIN-BARR VIRUS



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EBV

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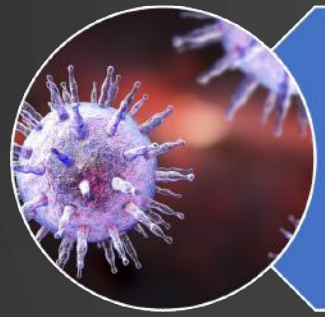


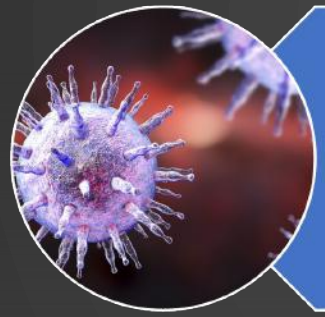
Where we are

THE ROLE OF EPSTEIN-BARR VIRUS

May 2020

Complete Epstein-Barr virus seropositivity in a large cohort of patients with early multiple sclerosis

Sargis Abrahamyan [1, 2], Bettina Eberspächer [3], Muna-Miriam Hoshi [4], Lilian Aly [4], Felix Luessi [5], Sergiu Groppa [5], Luisa Klotz [6], Sven G Meuth [6], Christoph Schroeder [7], Thomas Grüter [7], Björn Tackenberg [8], Friedemann Paul [1, 9], Florian Then-Bergh [10], Tania Kümpfel [11], Frank Weber [12], Martin Stangel [13], Antonios Bayas [14], Brigitte Wildemann [15], Christoph Heesen [16], Uwe Zettl [17], Clemens Warnke [18, 19], Gisela Antony [20], Nicole Hessler [21], Heinz Wiendl [6], Stefan Bittner [5], Bernhard Hemmer [4], Ralf Gold [7], Anke Salmen [22], Klemens Ruprecht [1] on behalf of the German Competence Network



Where we are

THE ROLE OF EPSTEIN-BARR VIRUS

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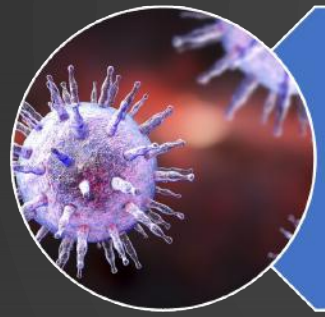


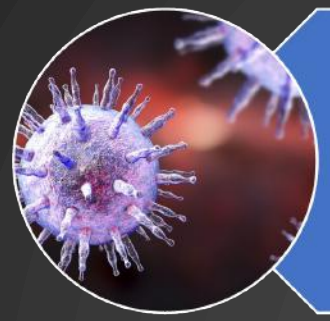
Where we are

Jan 2022

Longitudinal analysis reveals high prevalence of Epstein-Barr virus associated with multiple sclerosis

KJETIL BJORNEVIK, MARIANNA CORTESE, BRIAN C. HEALY, JENS KUHLE, MICHAEL J. MINA, YUMEI LENG, STEPHEN J. ELLEDGE, DAVID W. NIEBUHR, ANN I. SCHER, KASSANDRA L. MUNGER, AND ALBERTO ASCHERIO fewer Authors Info & Affiliations

THE ROLE OF EPSTEIN-BARR VIRUS



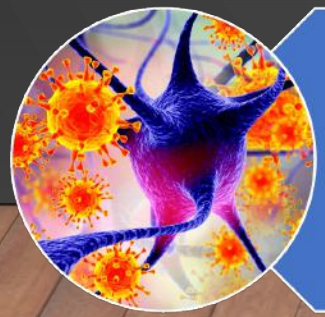
Where we are

Jan 2022

Clonally expanded B cells in multiple sclerosis bind EBV EBNA1 and GlialCAM

Tobias V. Lanz, R. Camille Brewer, Peggy P. Ho, Jae-Seung Moon, Kevin M. Jude, Daniel Fernandez, Ricardo A. Fernandes, Alejandro M. Gomez, Gabriel-Stefan Nadj, Christopher M. Bartley, Ryan D. Schubert, Isobel A. Hawes, Sara E. Vazquez, Manasi Iyer, J. Bradley Zuchero, Bianca Teegen, Jeffrey E. Dunn, Christopher B. Lock, Lucas B. Kipp, Victoria C. Cotham, Beatrix M. Ueberheide, Blake T. Aftab, Mark S. Anderson, Joseph L. DeRisi, Michael R. Wilson, Rachael J. M. Bashford-Rogers, Michael Platten, K. Christopher Garcia, Lawrence Steinman & William H. Robinson — Show fewer authors

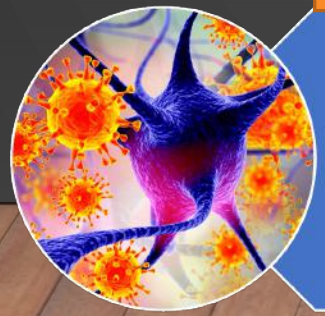
THE ROLE OF EPSTEIN-BARR VIRUS



Where we are going

THE ROLE OF EPSTEIN-BARR VIRUS

PREVENTION

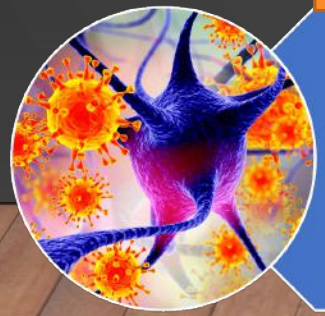


Where we are going

THE ROLE OF EPSTEIN-BARR VIRUS

moderna

PREVENTION



Where we are going

THE ROLE OF EPSTEIN-BARR VIRUS

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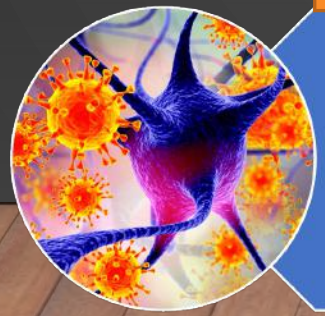
PREVENTION **THERAPEUTIC**



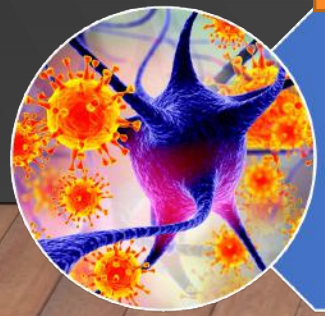
Where we are going

THE ROLE OF EPSTEIN-BARR VIRUS

moderna

ATARA BIO®

PREVENTION **THERAPEUTIC**



Where we are going

THE ROLE OF THE MS NURSE

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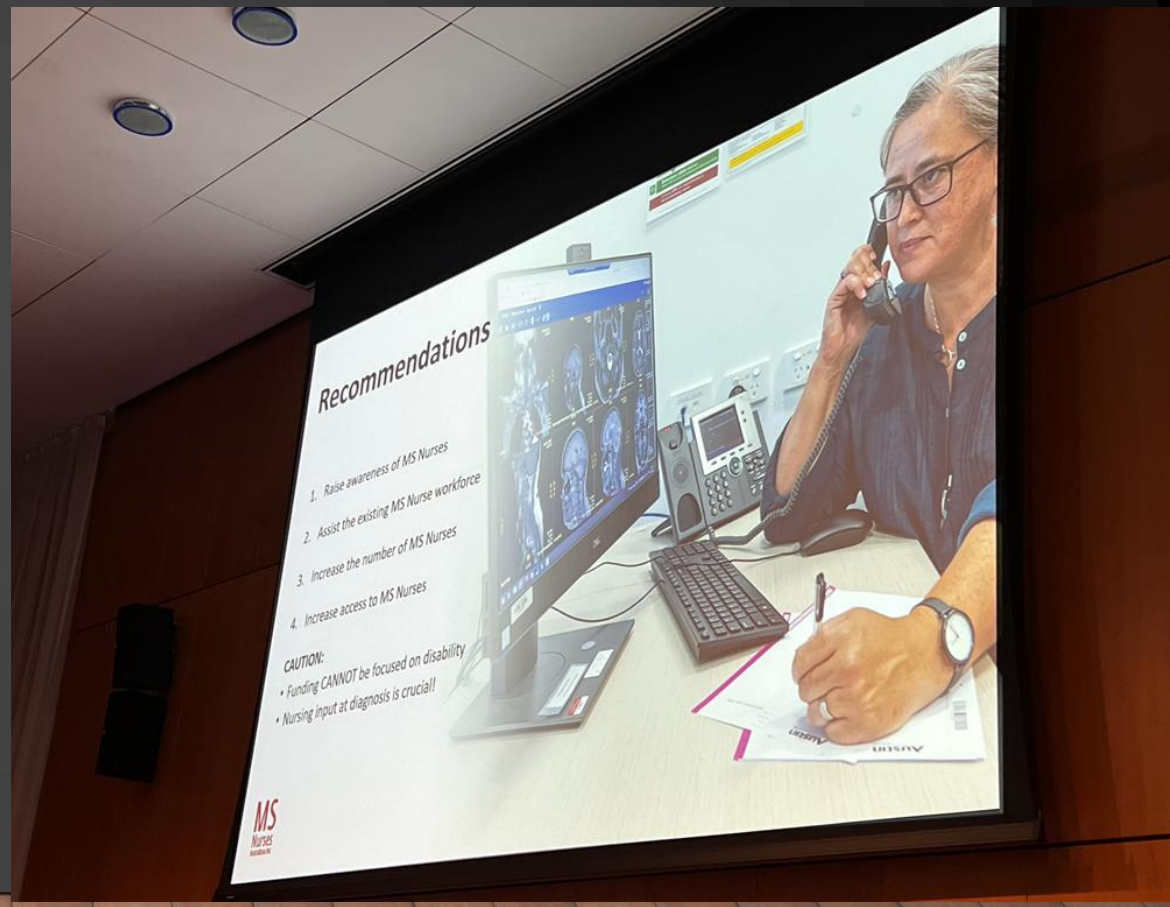


LIFESTYLE MODIFICATIONS

LIFESTYLE MODIFICATIONS

Prehabilitation vs rehabilitation

Guidelines published

LIFESTYLE MODIFICATIONS

Prehabilitation vs rehabilitation

Guidelines published

Increases susceptibility

Worsens progression

LIFESTYLE MODIFICATIONS

Prehabilitation vs rehabilitation

Guidelines published

No one "MS diet"

Increases susceptibility

Worsens progression

LIFESTYLE MODIFICATIONS

Prehabilitation vs rehabilitation

Guidelines published

No one "MS diet"

Increases susceptibility

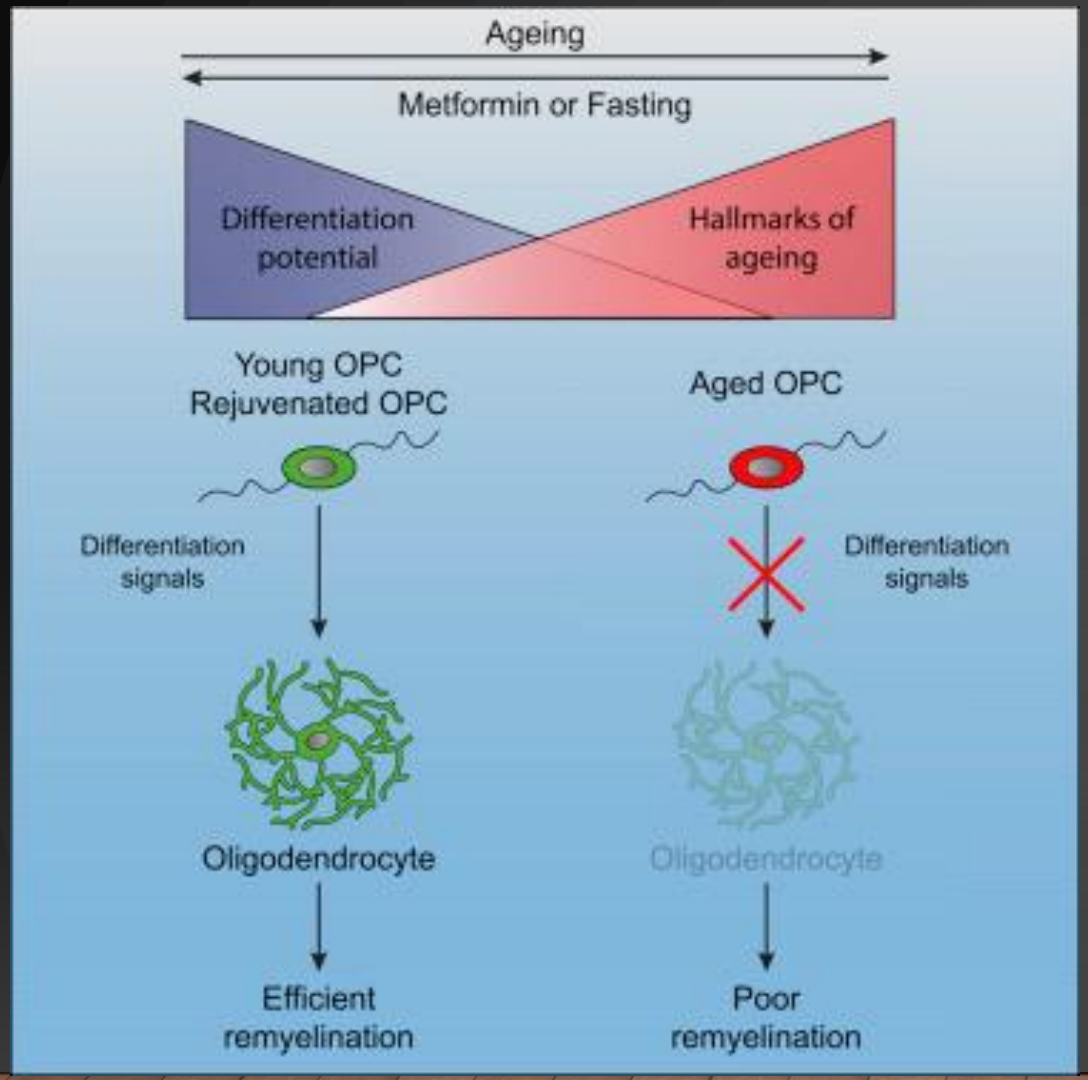
Worsens progression

Independently associated with fatigue in MS

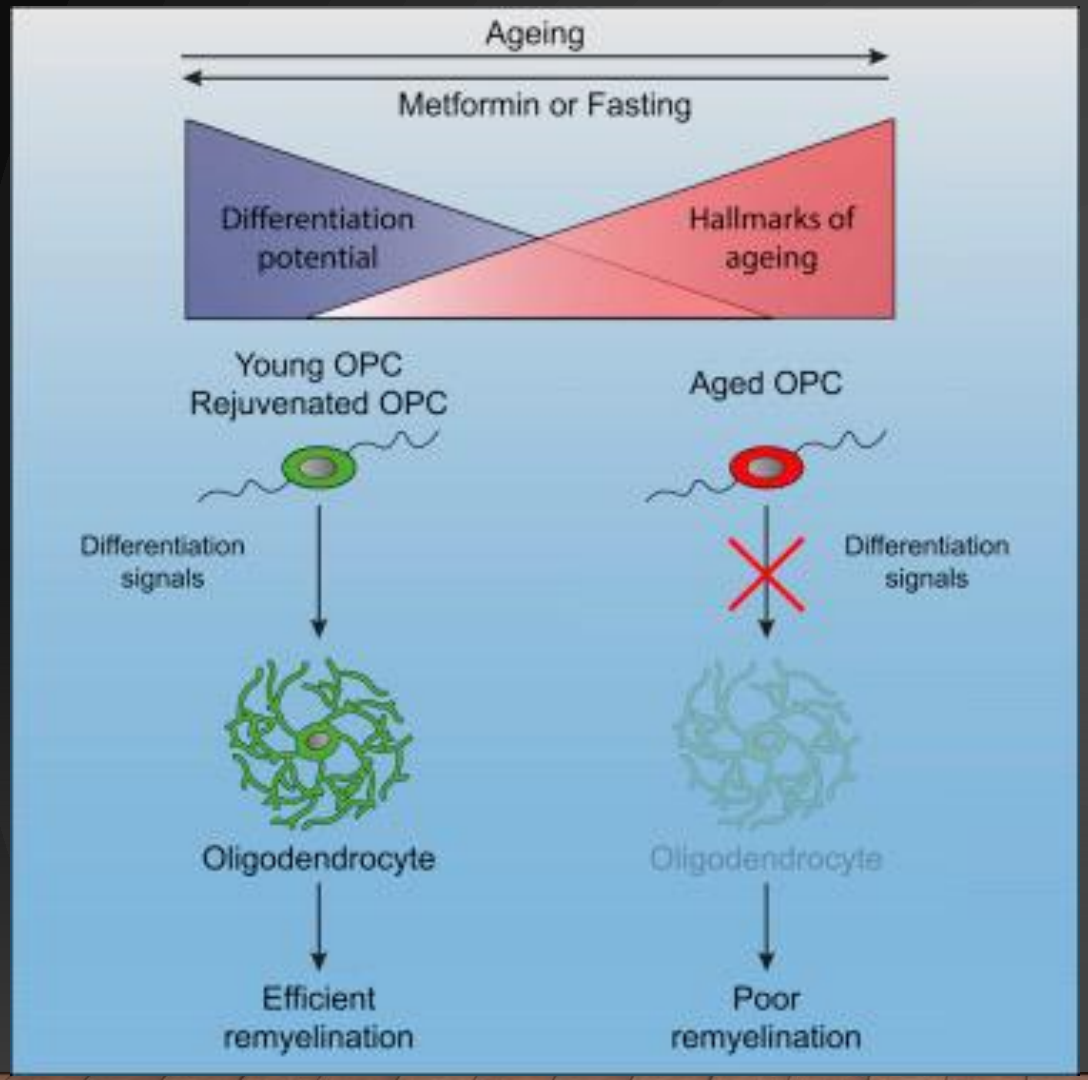
REMYELINATION

- Myelin repair is possible and common
- Ability appears to decrease over time in people living with MS
- Multiple pathways are being explored to overcome this barrier

REMYELINATION



REMYELINATION



- Alternate day fasting led to improved myelin repair
- Metformin led to improved myelin repair
- Calorie restriction has also been shown to lead to improved myelin repair

PERSONALISED AND PRECISION MEDICINE

- Extended dosing
- Individual monitoring

PERSONALISED AND PRECISION MEDICINE

- Extended dosing
- Individual monitoring

O017

Personalised dosing of monoclonal antibodies in multiple sclerosis

Z. van Kempen[1]

[1]*Amsterdam UMC, location VUMC, MS Center Amsterdam, Amsterdam, Netherlands*

Introduction: Monoclonal antibodies are currently taking a leading role among high efficacy therapies for multiple sclerosis (MS). As 'no evidence of disease activity' is within reach for most relapsing remitting MS patients, the time is right to further optimize treatment with aims of reducing side effects/complications, costs and treatment burden.

Aims: In this lecture, available evidence regarding personalised and extended interval dosing of various monoclonal antibodies will be reviewed in regards to maintaining drug efficacy, reduction of adverse events and costs. Biomarkers for personalised dosing, in which treatment intervals are based on pharmacokinetic and/or pharmacodynamic measurements, will be discussed and their usability in daily care. Finally, pros and cons will be outlined of standard versus personalised versus extended dosing of monoclonal antibodies in MS.

Disclosure: Z. van Kempen: nothing to disclose

PERSONALISED AND PRECISION MEDICINE

- Extended dosing
- Individual monitoring
- How does AHSCT fit in?

PERSONALISED AND PRECISION MEDICINE

- Extended dosing
- Individual monitoring
- How does AHSCT fit in?

O019

Comparative effectiveness of autologous haematopoietic stem cell transplantation vs. fingolimod, ocrelizumab and natalizumab in relapsing-remitting MS

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Introduction: Chemotherapy followed by autologous hematopoietic stem cell transplantation (AHSCT) is occasionally used in patients with aggressive multiple sclerosis (MS). Single-arm observational cohorts have demonstrated its remarkable effect on stabilising highly active inflammatory disease phenotypes. Information about its comparative effectiveness relative to other highly efficacious disease modifying agents is scarce.
Aim: This study emulated a series of pairwise trials of comparative effectiveness of AHSCT vs. fingolimod, ocrelizumab and natalizumab.
Methods: Patients with relapsing-remitting MS from 6 AHSCT MS centres in Ottawa, Uppsala, Sheffield, Bergen, Sydney and Melbourne were combined with patients from MSBase. Patients were included if they were treated with AHSCT or one of the study therapies and had sufficient information recorded before and after the start of the therapy (baseline). They were matched in pairwise comparisons on a propensity score derived from sex, age, disability score (EDSS), number of relapses 12 and 24 months before baseline, time from MS onset, the most effective prior therapy and country. The pairwise-censored groups were compared on annualised relapse rates (ARR) and freedom from relapses and 6-month confirmed EDSS worsening and improvement.
Results: The matched patients had high mean disease activity (>0.9 relapses in the prior year) and mean EDSS 3-4.In comparison to fingolimod (n=612), matched AHSCT (n=120) experienced less relapses (ARR: mean±SD 0.20±0.43 vs. 0.11±0.36; risk of relapses: hazard ratio 0.55, 95%CI 0.37-0.91), similar risk of EDSS worsening (hazard ratio 0.49, 95%CI 0.16-1.54) and higher chance of disability improvement (hazard ratio 2.62, 95%CI 1.46-4.72). Ocrelizumab (303) and AHSCT (91) were associated with similar ARR (0.10±0.39 vs. 0.08±0.33), risk of relapses (0.85, 0.46-1.56), EDSS worsening (0.41, 0.09-1.90) and EDSS improvement (2.31, 0.63-8.48). Natalizumab (n=606) and AHSCT (n=116) were associated with similar ARR (0.12±0.37 vs. 0.09±0.30), risk of relapses (0.78, 0.40-1.52) and EDSS worsening (0.50, 0.09-2.61). EDSS improvement was more common after AHSCT (1.82, 1.19-2.78).
Conclusion: Among patients with highly active MS with moderate disability, AHSCT is superior to fingolimod and comparable with ocrelizumab and natalizumab in preventing relapses. AHSCT is associated with higher rate of recovery from disability then natalizumab, a therapy that is known for reduction of disability in trials.

OTHER HIGHLIGHTS

- Progressive MS
- Biomarkers
- Paediatric MS

THANK YOU FOR LISTENING!!

- Any questions?
- There is a lot happening in the world of MS research to be excited about!
- We are always open to conversations, please reach out!
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