

## Ageing and Aged Care publication list October 2020

(MACH Care of the Ageing Subcommittee members' **bolded**)

**1. Risk prediction of late-onset Alzheimer's disease implies an oligogenic architecture.** *Nature Communications, Volume 11, Issue 1, 1 December 2020, Article number 4799. Published online October 2020.*

Zhang Q., Sidorenko J., Couvy-Duchesne B., Marioni R.E., Wright M.J., Goate A.M., Marcora E., Huang K.-L., Porter T., Laws S.M., Masters C.L., **Bush A.I.**, Fowler C., Darby D., Pertile K., Restrepo C., Roberts B., Robertson J., Rumble R., Ryan T., Collins S., Thai C., Trounson B., Lennon K., Li Q.-X., Ugarte F.Y., Volitakis I., Vovos M., Williams R., Baker J., Russell A., Peretti M., Milicic L., Lim L., Rodrigues M., Taddei K., Taddei T., Hone E., Lim F., Fernandez S., Rainey-Smith S., Pedrini S., Martins R., Doecke J., Bourgeat P., Fripp J., Gibson S., Leroux H., Hanson D., Dore V., Zhang P., Burnham S., Rowe C.C., Villemagne V.L., **Yates P.**, Pejoska S.B., Jones G., Ames D., Cyarto E., **Lautenschlager N.**, Barnham K., Cheng L., Hill A., Killeen N., Maruff P., Silbert B., Brown B., Sohrabi H., Savage G., Vacher M., Sachdev P.S., Mather K.A., Armstrong N.J., Thalamuthu A., Brodaty H., Yengo L., Yang J., Wray N.R., McRae A.F., Visscher P.M., Australian Imaging Biomarkers and Lifestyle (AIBL) Study

**About the Research:** Genetic association studies have identified 44 common genome-wide significant risk loci for late-onset Alzheimer's disease (LOAD). However, LOAD genetic architecture and prediction are unclear. Here we estimate the optimal P-threshold (Poptimal) of a genetic risk score (GRS) for prediction of LOAD in three independent datasets comprising 676 cases and 35,675 family history proxy cases.

[Link to Publication](#)

**2. Chewing Efficiency, Global Cognitive Functioning, and Dentition: A Cross-sectional Observational Study in Older People With Mild Cognitive Impairment or Mild to Moderate Dementia.** *Frontiers in Aging Neuroscience, Volume 12, 9 September 2020, Article number 225.*

Delwel S., **Maier A.B.**, Parvaneh D., Meijers J., Scherder E.J.A., Lobbezoo F.

About the Research: Previous studies suggest an association between poor mastication and cognitive impairment. The role of chewing efficiency and dentition in this relation is unclear. The aim was to examine global cognitive functioning and dentition as predictors for chewing efficiency, in older people with mild cognitive impairment (MCI) or dementia.

[Link to Publication](#)

**3. Critically appraised paper: Tailored prescription of digitally enabled rehabilitation may improve mobility, but not physical activity, in geriatric and neurological rehabilitation [commentary].**

*Journal of Physiotherapy, 2020. Published online October 2020.*

Said C.M.

[Link to Publication](#)

**4. Cataract surgical patients as a candidate sentinel population for SARS-CoV-2 surveillance.**

*Clinical and Experimental Ophthalmology, 2020. Published online October, 2020.*

About the Research: Letter to the editor

[Link to Publication](#)

**5. The Iron Chelator Deferiprone Improves the Phenotype in a Mouse Model of Tauopathy.** *Journal of Alzheimer's Disease, Volume 77, Issue 2, 2020, Pages 753-771.*

Rao S.S., Portbury S.D., Lago L., **Bush A.I.**, Adlard P.A.

**About the Research:** Abnormally hyperphosphorylated tau is a defining pathological feature of tauopathies, such as Alzheimer's disease (AD), and accumulating evidence suggests a role for iron in mediating tau pathology that may lead to cognitive decline in these conditions. The metal chelator deferiprone (DFP), which has a high affinity for iron, is currently in clinical trials for AD and Parkinson's disease. However, the effect of DFP on tau pathology remains underexplored.

[Link to Publication](#)

**6. Plasma High Density Lipoprotein Small Subclass is Reduced in Alzheimer's Disease Patients and Correlates with Cognitive Performance.** *Journal of Alzheimer's Disease, Volume 77, Issue 2, 2020, Pages 733-744.*

Pedrini S., Hone E., Gupta V.B., James I., Teimouri E., **Bush A.I.**, Rowe C.C., Villemagne V.L., Ames D., Masters C.L., Rainey-Smith S., Verdile G., Sohrabi H.R., Raida M.R., Wenk M.R., Taddei K., Chatterjee P., Martins I., Laws S.M., Martins R.N.

**About the Research:** The link between cholesterol and Alzheimer's disease (AD) has received much attention, as evidence suggests high levels of cholesterol might be an AD risk factor. The carriage of cholesterol and lipids through the body is mediated via lipoproteins, some of which, particularly apolipoprotein E (ApoE), are intimately linked with AD. In humans, high density lipoprotein (HDL) is regarded as a 'good' lipid complex due to its ability to enable clearance of excess cholesterol via 'cholesterol reverse transport', although its activities in the pathogenesis of AD are poorly understood. There are several subclasses of HDL; these range from the newly formed small HDL, to much larger HDL

[Link to Publication](#)

**7. The conundrum of human immune system "senescence".** *Mechanisms of Ageing and Development, Volume 192, December 2020, Article number 111357. Published online October 2020.*

Pawelec G., Bronikowski A., Cunnane S.C., Ferrucci L., Franceschi C., Fülöp T., Gaudreau P., Gladyshev V.N., Gonos E.S., Gorbunova V., Kennedy B.K., Larbi A., Lemaître J.-F., Liu G.-H., **Maier A.B.**, Morais J.A., Nóbrega O.T., Moskalev A., Rikkert M.O., Seluanov A., Senior A.M., Ukraintseva S., Vanhaelen Q., Witkowski J., Cohen A.A.

**About the Research:** There is a great deal of debate on the question of whether or not we know what ageing is (Ref. Cohen et al., 2020). Here, we consider what we believe to be the especially confused and confusing case of the ageing of the human immune system, commonly referred to as "immunosenescence". But what exactly is meant by this term? It has been used loosely in the literature, resulting in a certain degree of confusion as to its definition and implications. Here, we argue that only those differences in immune parameters between younger and older adults that are associated in some definitive manner with detrimental health outcomes and/or impaired survival prospects should be classed as indicators of immunosenescence in the strictest sense of the word, and that in humans we know remarkably little about their identity.

[Link to Publication](#)

**8. An Internet-Based Intervention Augmented With a Diet and Physical Activity Consultation to Decrease the Risk of Dementia in At-Risk Adults in a Primary Care Setting: Pragmatic Randomized Controlled Trial.** *Journal of medical Internet research, Volume 22, Issue 9, 24 September 2020, Page e19431.*

Anstey K.J., Cherbuin N., Kim S., McMaster M., D'Este C., **Lautenschlager N.**, Rebok G., McRae I., Torres S.J., Cox K.L., Pond C.D.

**About the Research:** BACKGROUND: There is a need to develop interventions to reduce the risk of dementia in the community by addressing lifestyle factors and chronic diseases over the adult life course. OBJECTIVE: This study aims to evaluate a multidomain dementia risk reduction intervention, Body Brain Life in General Practice (BBL-GP), targeting at-risk adults in primary care.

[Link to Publication](#)

**9. Markers of inflammation and their association with muscle strength and mass: A systematic review and meta-analysis.** *Ageing Research Reviews, Volume 64, December 2020, Article number 101185. Published online October 2020.*

Tuttle C.S.L., Thang L.A.N., **Maier A.B.**

**About the Research:** Chronic inflammation has been associated with sarcopenia and its components skeletal muscle strength and muscle mass. The aim of this systematic review and meta-analysis was to determine the relationship between systemic inflammation, muscle strength and/or muscle mass in adults.

[Link to Publication](#)

**10. Distinct Trajectories of Individual Physical Performance Measures Across 9 Years in 60- to 70-Year-Old Adults.** *The Journals of Gerontology. Series A, Biological sciences and medical sciences.* Volume 75, Issue 10, 25 September 2020, Pages 1951-1959.

Hoekstra T., Rojer A.G.M., van Schoor N.M., **Maier A.B.**, Pijnappels M.

**About the Research:** Physical performance is an important factor for successful aging. This study aimed to identify distinct trajectories of multiple physical performance measures over 9 years in individuals aged 60-70 years and to evaluate their characteristics and the overlap between measures.

[Link to Publication](#)

**11. Effective implementation approaches for healthy ageing interventions for older people: A rapid review.** *Archives of Gerontology and Geriatrics, Volume 92, January - February 2021, Article number 104263. Published online October 2020.*

Owusu-Addo E., Ofori-Asenso R., **Batchelor F.**, Mahtani K., Brijnath B.

**About the Research:** Systematic reviews on healthy ageing interventions have primarily focused on assessing their effectiveness, not the implementation processes underpinning them, and the factors influencing program effectiveness. This has created a knowledge gap about what are effective implementation approaches, and how to scale up such interventions at the population level. Our aim in this rapid review was to synthesise the evidence on implementation of effective healthy ageing interventions, and to identify the factors that influence population-level implementation of these interventions.

[Link to Publication](#)

**12. Chemoprevention for breast cancer: A survey of the views of Australian women and clinicians.**

*European Journal of Cancer, Volume 138, October 2020, Page S8.*

Macdonald C., Mazza D., Hunter M., Keogh L.A., Milne R., **Hickey M.**, Saunders C., McLachlan S.A., Friedlander M., Hopper J., Emery J., Jones S., Phillips K.A.

**About the Research:** Chemoprevention for women at elevated risk of breast cancer is endorsed by international guidelines. This study examined the uptake of chemoprevention by Australian women at increased risk and aimed to identify modifiable barriers and facilitators for both patients and clinicians.

[Link to Publication](#)

**13. A systematic review of antiandrogens and feminization in transgender women. Clinical Endocrinology, 2020. Published online October 2020.**

Angus L.M., Nolan B.J., **Zajac J.D.**, Cheung A.S.

**About the Research:** Antiandrogens are frequently used with estradiol in transgender women seeking feminization. Antiandrogens act by various mechanisms to decrease the production or effects of testosterone, but it is unclear which antiandrogen is most effective at feminization. A systematic review was performed using PRISMA guidelines.

[Link to Publication](#)

**14. Retinal imaging in Alzheimer's and neurodegenerative diseases. Alzheimer's and Dementia, 2020. Published online October 2020.**

Snyder P.J., Alber J., Alt C., Bain L.J., Bouma B.E., Bouwman F.H., DeBuc D.C., Campbell M.C.W., Carrillo M.C., Chew E.Y., Cordeiro M.F., Dueñas M.R., Fernández B.M., Koronyo-Hamaoui M., La Morgia C., Carare R.O., Sadda S.R., **van Wijngaarden P.**, Snyder H.M.

**About the Research:** In the last 20 years, research focused on developing retinal imaging as a source of potential biomarkers for Alzheimer's disease and other neurodegenerative diseases, has increased significantly. The Alzheimer's Association and the Alzheimer's & Dementia: Diagnosis, Assessment, Disease Monitoring editorial team (companion journal to Alzheimer's & Dementia) convened an interdisciplinary discussion in 2019 to identify a path to expedite the development of retinal biomarkers capable of identifying biological changes associated with AD, and for tracking progression of disease severity over time.

[Link to Publication](#)

**15. Longitudinal exploration of cancer-related cognitive impairment in patients with newly diagnosed aggressive lymphoma: Protocol for a feasibility study.** *BMJ Open*, Volume 10, Issue 9, 29 September 2020, Article number e038312.

Gates P., Gough K., Dhillon H., Wilson C., Hawkes E., Dore V., Perchyonok Y., Rowe C.C., Walker A.K., Vardy J.L., De Ruiter M., **Krishnasamy M.**

**About the Research:** Cancer-related cognitive impairment (CRCI) is a distressing and disabling side-effect of cancer treatments affecting up to 75% of patients. For some patients, their cognitive impairment may be transient, but for a subgroup, these symptoms can be long-standing and have a major impact on the quality of life. This paper describes the protocol for a study: (1) to assess the feasibility of collecting longitudinal data on cognition via self-report, neuropsychological testing, peripheral markers of inflammation and neuroimaging and (2) to explore and describe patterns of cancer-related cognitive impairment over the course of treatment and recovery in patients with newly diagnosed, aggressive lymphoma undergoing standard therapy with curative intent.

[Link to Publication](#)

**16. A pilot study of adolescent health literacy research in Melbourne: Implementation and reflections.** *Health Promotion Journal of Australia*, 2020. Published online October 2020.

Guo S., Davis E., Armstrong R., Yu X., **Naccarella L.**

**About the Research:** While adolescent health literacy research has gained momentum, there is little evidence regarding its implementation and data collection in school settings. This study explored the feasibility of collecting health literacy data from Australian secondary schools and piloted three health literacy instruments.

[Link to Publication](#)

**17. Health Service Use and Quality of Life Recovery 12 Months Following Major Osteoporotic Fracture: Latent Class Analyses of the International Costs and Utilities Related to Osteoporotic Fractures Study (ICUROS).** *Journal of Bone and Mineral Research*, 2020. Published online October 2020.

Talevski J., Sanders K.M., Busija L., Beauchamp A., **Duque G.**, Borgström F., Kanis J.A., Svedbom A., Connaughton C., Stuart A.L., Brennan-Olsen S.L.

**About the Research:** Major osteoporotic fractures (MOFs) are associated with a rapid decline in health-related quality of life (HRQoL); however, there is limited knowledge about which healthcare services positively affect HRQoL postfracture. This study aimed to identify specific combinations of health service use associated with recovery of HRQoL 12 months post-MOF.

[Link to Publication](#)

**18. 1,25(OH)2D3 ameliorates palmitate-induced lipotoxicity in human primary osteoblasts leading to improved viability and function.** *Bone*, Volume 141, December 2020, Article number 115672.

Al Saedi A., Myers D.E., Stupka N., **Duque G.**

**About the Research:**

- Bone marrow fat infiltration and lipotoxicity affect osteoblast function and survival
- 1,25(OH)2D3 inhibits osteoblast apoptosis and stimulates osteoblastogenesis
- Palmitic acid (PA) is mostly responsible for the lipotoxic effect of marrow fat on osteoblasts
- 1,25(OH)2D3 ameliorates PA-induced lipotoxicity in osteoblasts in vitro

[Link to Publication](#)



**19. Trends in the Incidence of Central Precocious Puberty and Normal Variant Puberty Among Children in Denmark, 1998 to 2017.** *JAMA network. Volume 3, Issue 10, 1 October 2020, Page e2015665.*

Bräuner E.V., Busch A.S., Eckert-Lind C., Koch T., **Hickey M.**, Juul A.

**About the Research:** There has been a worldwide secular trend toward earlier onset of puberty in the general population. However, it remains uncertain if these changes are paralleled with increased incidence of central precocious puberty (CPP) and normal variant puberty (ie, premature thelarche [PT] and premature adrenarche [PA]) because epidemiological evidence on the time trends in the incidence of these puberty disorders is scarce.

[Link to Publication](#)

**20. Blood-brain barrier-penetrating siRNA nanomedicine for Alzheimer's disease therapy.** *Science advances, Volume 6, Issue 41, 1 October 2020.*

Zhou Y., Zhu F., Liu Y., Zheng M., Wang Y., Zhang D., Anraku Y., Zou Y., Li J., Wu H., Pang X., Tao W., Shimoni O., **Bush A.I.**, Xue X., Shi B.

**About the Research:** Toxic aggregated amyloid- $\beta$  accumulation is a key pathogenic event in Alzheimer's disease (AD), which derives from amyloid precursor protein (APP) through sequential cleavage by BACE1 ( $\beta$ -site APP cleavage enzyme 1) and  $\gamma$ -secretase. Small interfering RNAs (siRNAs) show great promise for AD therapy by specific silencing of BACE1. However, lack of effective siRNA brain delivery approaches limits this strategy. Here, we developed a glycosylated "triple-interaction" stabilized polymeric siRNA nanomedicine (Gal-NP@siRNA) to target BACE1 in APP/PS1 transgenic AD mouse model.

[Link to Publication](#)

**21. Reduced striatal vesicular monoamine transporter 2 in REM sleep behavior disorder: imaging prodromal parkinsonism.** *Scientific Reports. Volume 10, Issue 1, 1 December 2020, Article number 17631. Published online October 2020.*

Beauchamp L.C., Villemagne V.L., Finkelstein D.I., Doré V., **Bush A.I.**, Barnham K.J., Rowe C.C.

**About the Research:** Motor deficits in parkinsonism are caused by degeneration of dopaminergic nigral neurons. The success of disease-modifying therapies relies on early detection of the underlying pathological process, leading to early interventions in the disease phenotype.

[Link to Publication](#)