Ageing Well Series

Dr Jitka Vseteckova

School of Health, Wellbeing and Social Care
Faculty of Wellbeing, Education and Language Studies
The Open University

The Open University

1. Are we prepared to live longer?

Today's talk

- The world population is rapidly ageing.
- We are all ageing since the day we are born.
- Physical and psychological/cognitive decline that happens at different speeds for different individuals.
- Ageing processes are in general very difficult to predict.
- Genetic predispositions we may need to take into account regarding the overall ageing the process is also co-defined by what we actually do about it.
- **USE IT OR LOSE IT** - in other words, both cognitive and physical stimulation while ageing, help to preserve cognitive and physical functions we don't want to lose. **Especially during COVID-19 times.**

COVID-19 times and self isolation

- The coronavirus pandemic necessitates that we take several measures to protect ourselves and others in our communities. The latest evidence says that our communities, and individuals in them, will suffer less, if measures of social distancing and self-isolation are introduced.

- We already know, older people have a high risk of muscle atrophy due to lack of physical activity and other age-related changes (more in '*Five Pillars of Ageing Well*' see link below). Self-isolation may lead to increased sedation, further lack of physical, social and cognitive activity, which may not only prompt but more worryingly speed up the overall age-related decline. could we please hyperlink the five pillars of ageing well article on OpenLearn?

https://www.open.edu/openlearn/health-sports-psychology/mental-health/five-pillars-ageing-well

https://selsdotlife.wordpress.com/2020/04/01/home-exercises-for-older-adults-no-equipment-no-problem/

Building bridges – convention & paradoxes

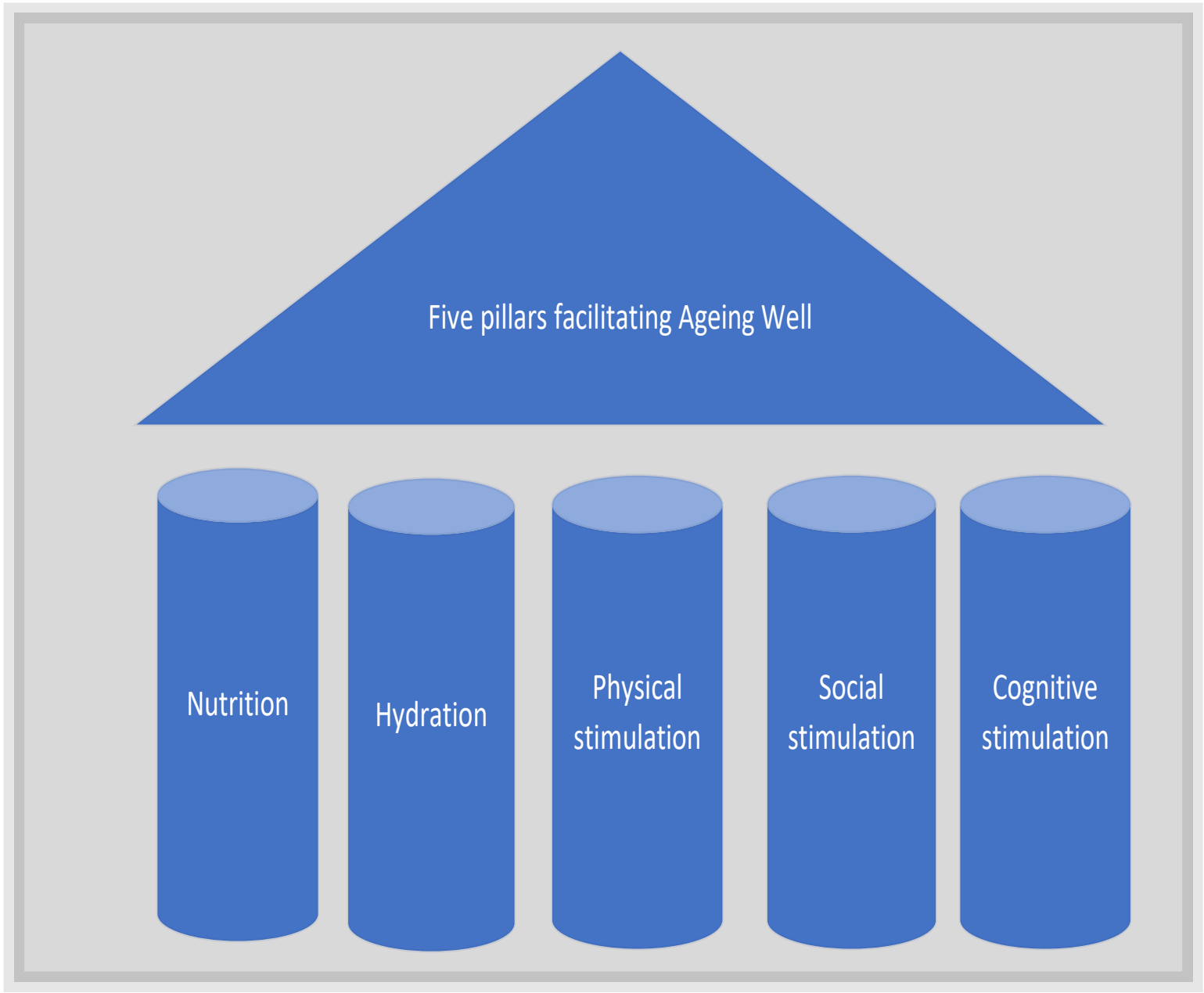
- **Paradox N1** - the older we get, the more existing schemas and new information we need to assimilate and as education is combined with experience, only then it becomes useful knowledge.

- **Paradox N2** - the older we get the more needs for education we have. How to stay healthy, how to keep active, how to keep our brains in good shape so that we can enjoy life for longer. This, is not always common knowledge and people in third and fourth age can make good use of it especially people who don't have easy access to internet and the information there.

- **Paradox N3** - the internet is full of materials and information but still not easily accessible (in terms of language, reliability and validity of research) by everyone, particularly people who need this information, older people who may not be very techy.

Ageing well – public talk series

- Series of public talks started 14 years ago (as PhD student) – **Charles University & Third Age University** - developed in collaboration with **STOWHEALTH General Practice**
- Component of an international online education platform for clinicians and allied health professionals (in China) streamed via the **UKeMED & Cambridge Medical Academy**.
- During the '**Ageing Well**' talks we **explore approaches** which may enable us to **live longer and healthier lives**. Theories of ageing, its biomedical and psychosocial aspects, the most common comorbidities, and the ageing brain are some of the concepts that are explored in the series.
- '**Five Pillars of Ageing Well**' – especially important in COVID-19 times



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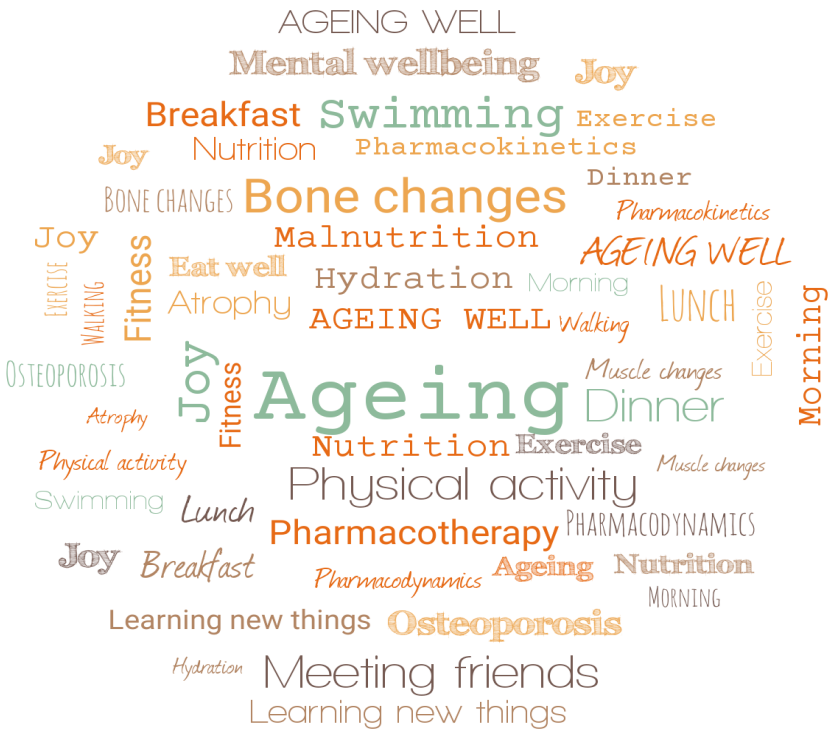


1. Are we prepared to live longer?

(basic biomedical and psycho-social aspects of ageing, age-related conditions e.g. bone health, frailty etc. and overview of the next talks)

2. Ageing brain

(basic facts on neurodegenerative conditions associated with ageing and age-related and non age-related memory loss)

3. Nutritional needs of ageing

4. Pharmacotherapy while ageing

(age-related changes in pharmacokinetics and pharmacodynamics)

5. Move it and breathe

(more detailed journey into age-related changes in muscles, tendons, bones and the importance of breathing well, exercising well and enough)

6. Standing tall

(more detailed journey into age-related postural alignment changes affecting postural stability and balance, and ways to compensate for 'gravity of ageing')

- All the way through the '**Ageing Well'** talks we explore how using this knowledge might facilitate self-management, become partners in our care and delay the ageing processes for as much as we can.

- The **emphasis** of the '**Ageing Well'** series is on **optimizing cognitive and physical well-being,** physiological ageing and self-management. To a lesser extent, on pathological processes while ageing.

- **Promoting physical activity, social activity, networking, learning and healthy lifestyle**
- **Easy stretching during each lecture**
- **Short evaluation forms**

Messages to be taken home today

The famous motto about ageing goes as: **Use it or lose it!** In other words both cognitive and physical stimulation while ageing, help to preserve the functions we don’t want to lose.

Especially in COVID-19 times: ‘**Do it today**’!

Myths about physical exercise and **people who exercise**.


AGEING WELL
Mental wellbeing
Joy
Breakfast
Swimming
Exercise
Joy
Nutrition
Pharmacokinetics
Dinner
BONE CHANGES
Bone changes
Pharmacokinetics
Joy
Malnutrition
AGEING WELL
EXERCISE
WALKING
Fitness
Eat well
Hydration
Morning
Atrophy
LUNCH
Exercise
AGEING WELL
Walking
Morning
OSTEOPOROSIS
Joy
Fitness
Ageing
Muscle changes
Dinner
Atrophy
Nutrition
Exercise
Physical activity
Muscle changes
Physical activity
Swimming
Lunch
Pharmacotherapy
PHARMACODYNAMICS
Joy
Breakfast
Pharmacodynamics
Ageing
Nutrition
MORNING
Learning new things
Osteoporosis
Hydration
Meeting friends
Learning new things

STANDING UP / SITTING DOWN

- Raising up principle - STRAIGHTENING YOUR SPINE
- Proprioception – feeling different parts of your feet on the floor
- Slightly pressing the inner side of your foot to the floor
- Stretching your toes
- Pushing yourselves away from the ground
- Moving head or arms should not necessarily change the way we stand

Ageing & Epidemiology – basic facts

- The world's population is rapidly ageing.
- Within the next five years, for the first time in human history, the **number of adults aged 65 and over will outnumber children under the age of 5**.
- Ageing processes bring a decline in physical and cognitive domain. This decline proceeds at variable speed for different organs and different individuals. This is why the **ageing** in general **is so difficult to predict**.

- There are some **genetic** predispositions that may slightly speed up or slow down the ageing processes or show us what we need to be aware of in terms of age related conditions in our predecessors. However, the **genetic predisposition does not affect 100% of how our ageing might look like especially if we decide to help it.**

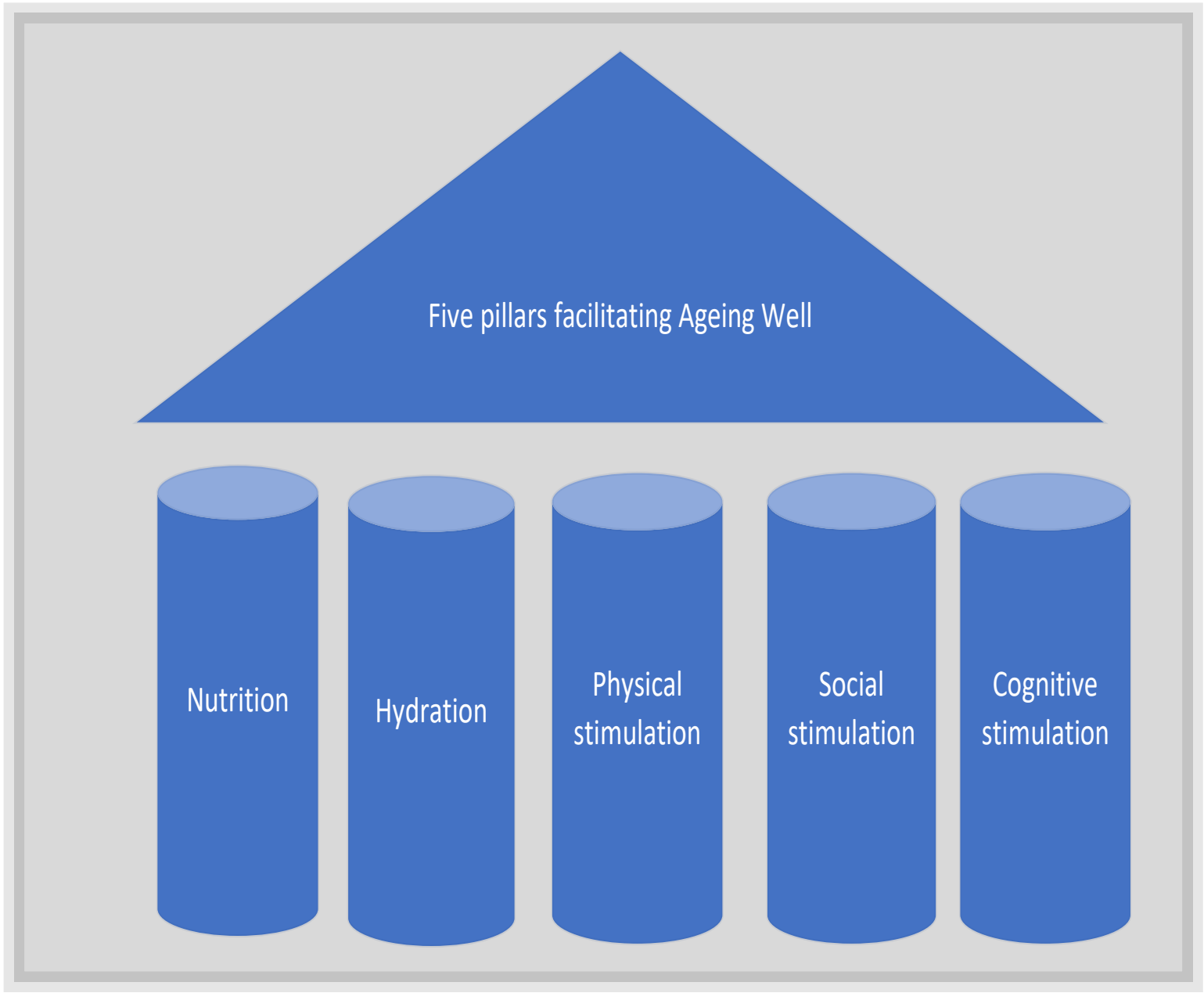
- **Ageing is a process** and this process **starts when we are born**, therefore ageing does not affect us only from 60 or 65 years onwards (although most often discussed age cut off when it comes to ageing – just manifesting faster)

- **Ageing well** has become increasingly important also because we live older for longer

- The majority of epidemiologic studies have found **slower** rates of **cognitive and physical decline** among those who routinely engage in **more cognitively and or physically demanding tasks** compared to those with a more mentally and physically sedentary lifestyles.

- **Nutrition, hydration, physical, social & cognitive stimulation (includes learning) – five pillars of ageing well**

- **The way we live** our lives will **affect the way we age – Are we ready to make those choices?**



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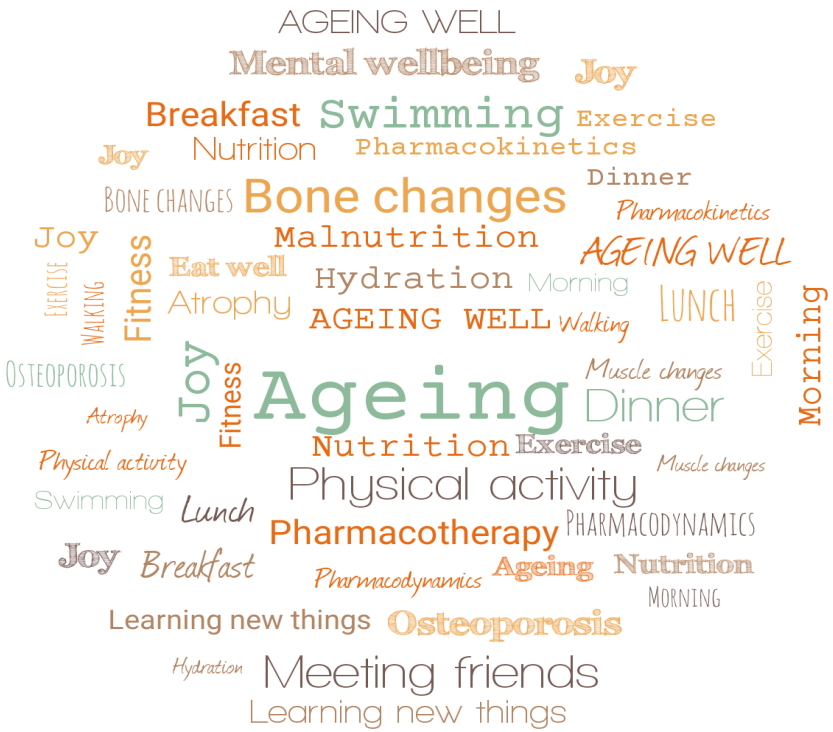


Basic biomedical aspects of ageing

- Ageing processes bring about decline to which we try to adapt
- Ageing influences the decline of organs and tissues as well as whole systems
- The way our organs age is different for each and every one of us
- The way the systems age is different for each and every one of us

Main influences:

- **Genetics**
- **Epigenetics**

Genetics – are we victims of our genes?

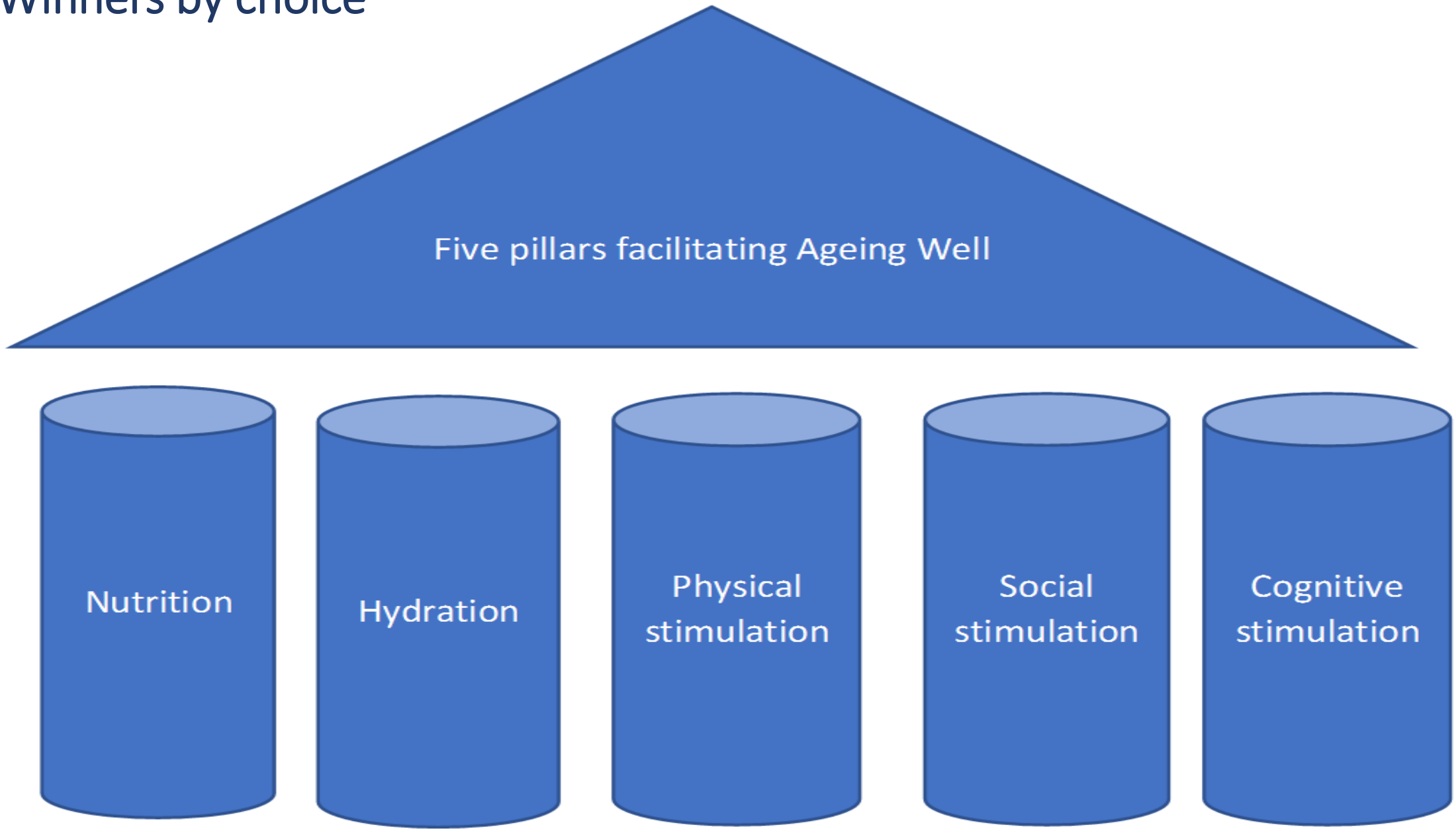
- Increases/may increase the predisposition to certain types of diseases or conditions
- We cannot change the genetic set we have
- We still don’t know enough about genetics & how it works
- We can get some conditions as our parents and grandparents had but we may also only carry forward the specific gene these conditions are linking to …
- We don’t know enough about our predecessors

- …but we can influence to some extent if it manifests, how soon and in which way it might manifest
- So in other words it often doesn’t so much matter what we have but what we actually do with it

Epigenetics – are we victims of our nurture?

- The families we are born into, their habits, their friends and other people and places that surround them, the places and people we surround ourselves with, the habits we form …
- Influence of the environment from the day of conception
- We have some degree of control over this

Winners by choice



When physiological processes turn pathological

- **Physiological ageing equals normal and is expected**
- **“Normal”** aging is a result of natural maturational processes and expected part of the ageing process whereas

↓

Physiological can turn pathological

- **“pathological”** aging is due to non-normative factors such as disease or trauma to the brain.
- In these series we will focus mostly on physiological ageing and how we can **optimise cognitive and physical ageing**.

Main theories of ageing

- **Hayflick limit or Hayflick phenomenon**
- **Wear and tear theories**
- **Oxidative stress**
- **Apoptosis**

- No matter what ageing theory you work with the changes resulting from ageing processes are at physical, psychological, cognitive and systemic levels

- **Immune system** (is a network of cells, tissues, and organs that work together to defend the body against attacks by “foreign” invaders. These are primarily microbes—tiny organisms such as bacteria, parasites, and fungi that can cause infections (low grade infections)

- **Self repair mechanisms** are also impaired (one of the reasons why cancers happen in later life)

- **Nervous system** (is a complex network of nerves and cells that carry messages to and from the brain and spinal cord to various parts of the body. Proprioception example – develop linking **Central nervous system** and **Peripheral nervous system** (tripping over an obstacle as a delayed response from the brain)

- **Endocrine system** The endocrine system is the collection of glands of an organism that secrete hormones directly into the circulatory system to be carried towards distant target organs

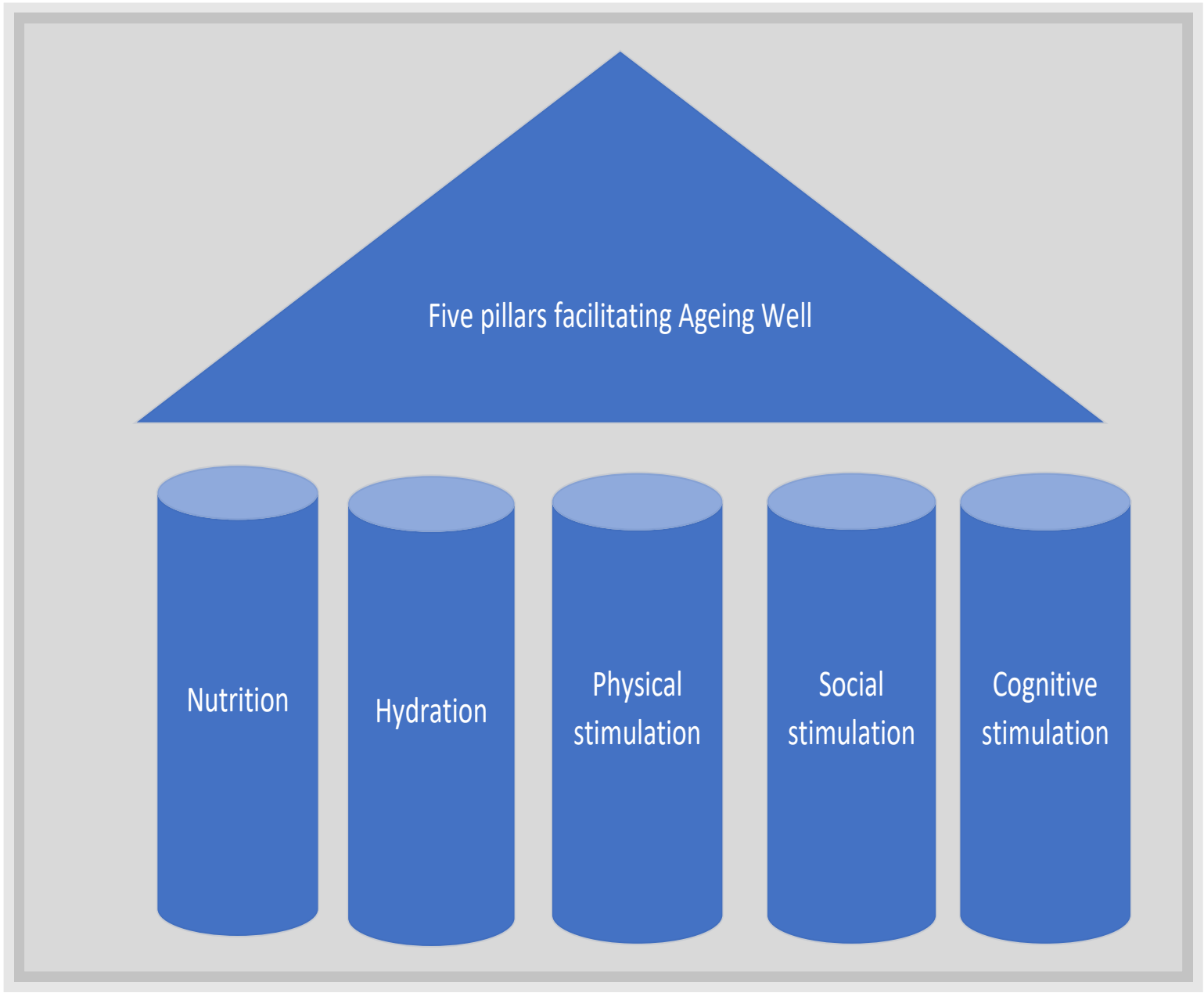
- **Chain of hormones** e.g thyroxine , diabetes and insulin and pancreas, testosterone, (estrogen and osteoporosis)

- **Musculo skeletal system –** muscle atrophy, bone fragility, tendon & joint stiffness,

- **Cardiovascular system** – veins and arteries, atherosclerosis and ageing, regularity of circulation (brain, other organs, respiratory system etc)

- **Lifestyle is crucial**

- '***Five pillars of ageing well***'



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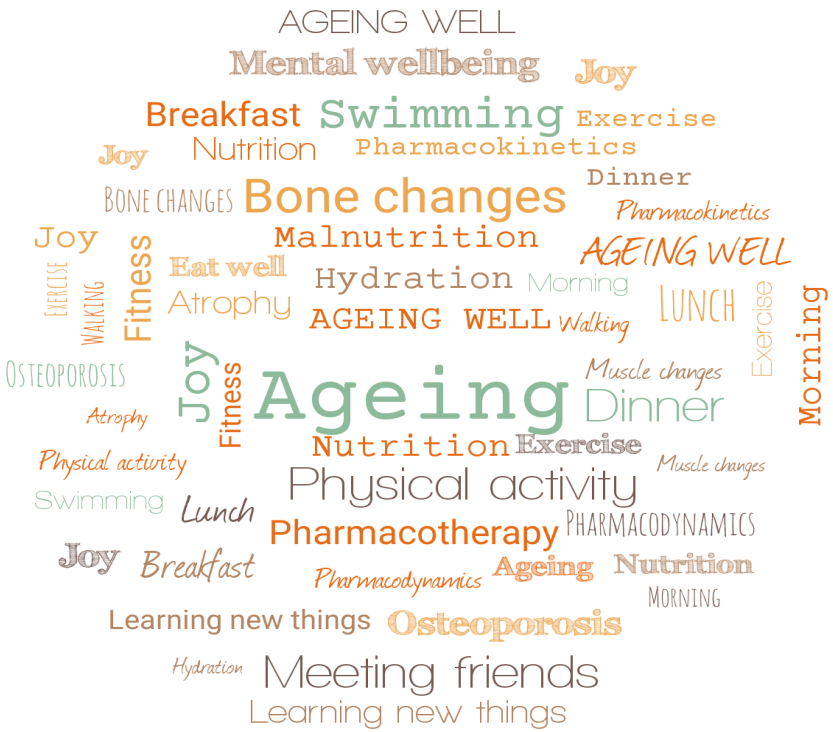

Cognitive ageing – tiredness of our systems

- Diminished ability to remember names, find the correct word, remember where objects are located, concentrate
- Is this "**normal**"? Yes

- **Ageing Brain talk (26th November 2019)**

- **Tiredness of our systems** – when young we have it too but we can sleep it off – not so easy while ageing as many things come together

- Stress management

- **Lifestyle** – some of the changes could be slowed down (Five Pillars to Ageing Well)

- **Cognitive sphere influences physical and vice versa**
- **Physical wellbeing is affected by worsening mental wellbeing and vice versa**

- **Exercise** improves our sleep
- Important to do it all when we are still well


AGEING WELL
Mental wellbeing
Joy
Breakfast
Swimming
Exercise
Joy
Nutrition
Pharmacokinetics
Dinner
BONE CHANGES
Bone changes
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AGEING WELL
EXERCISE
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Eat well
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Morning
Atrophy
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Ageing
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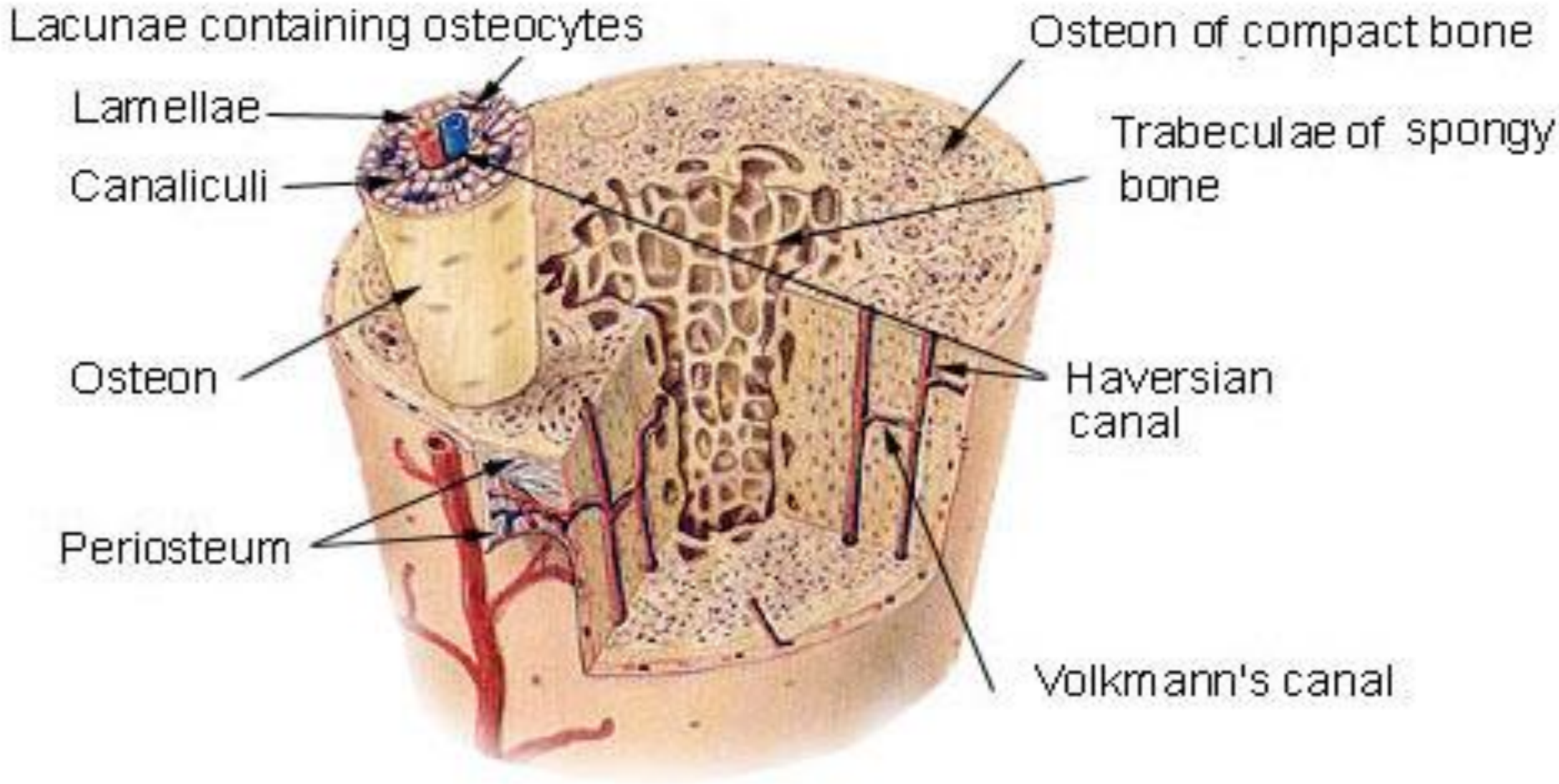
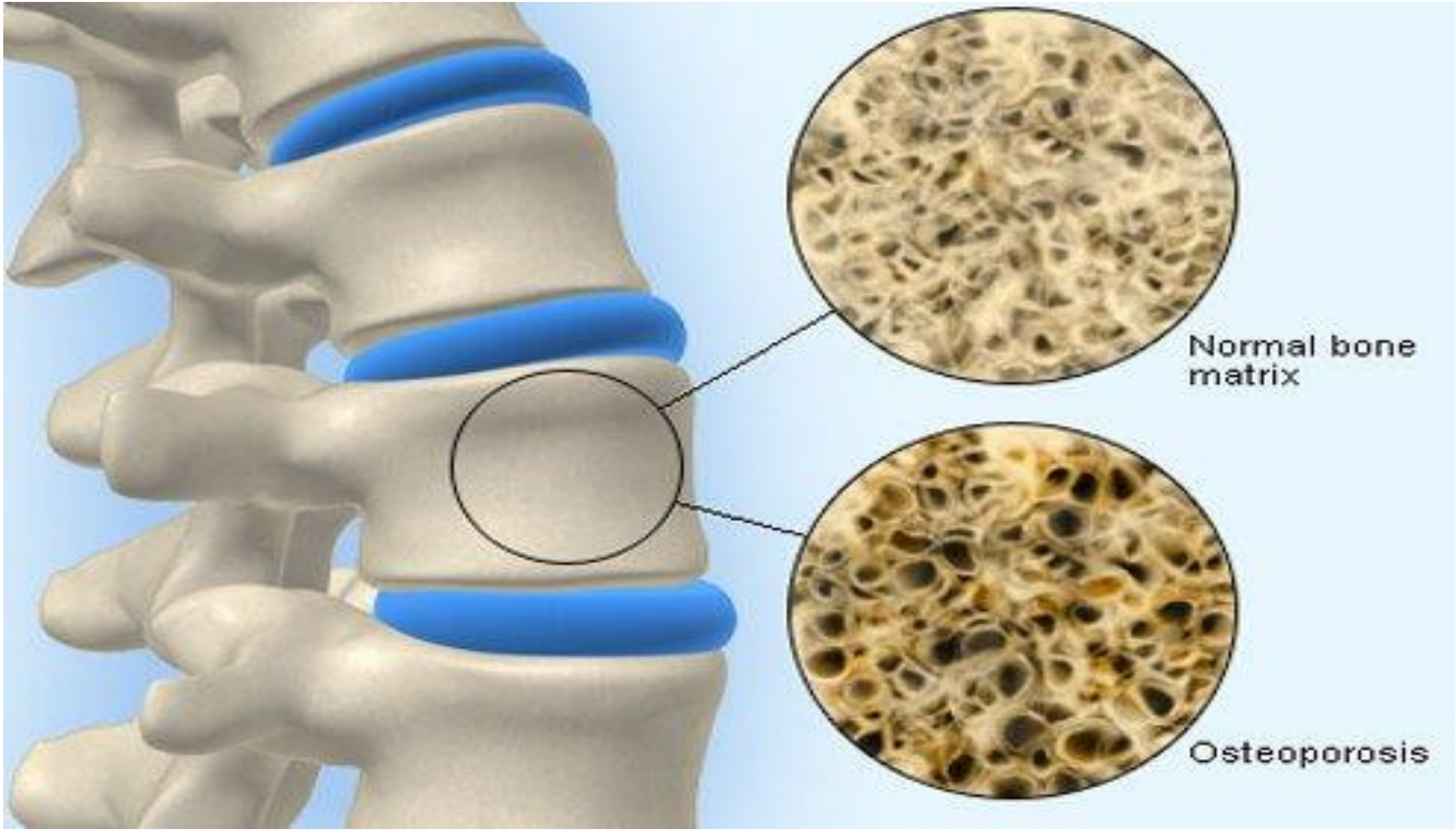
MORNING
Learning new things
Osteoporosis
Hydration
Meeting friends
Learning new things

Healthy bones vs Osteoporosis

- **Osteoporosis** is a condition of fragile bone (increased porosity of the bone)
- Osteoporosis weakens bone and increases risk of bones breaking
- Low levels of physical activity, malnutrition, smoking, decreased levels of calcium and other minerals, **menopause** / **andropause** - decrease of hormones
- Bone mass (bone density) starts decreasing after 35 years of age, and bone loss occurs more rapidly in women after menopause.
- Manifests via back pain, sometimes decrease in height, decreased mobility
- **Physical activity, nutrition, hydration, supplementation of vitamin D** (D3 – active form – calcium binding protein)

Compact Bone & Spongy (Cancellous Bone)




Normal bone matrix
Osteoporosis

- Bone is very important as it **protects internal organs**, creates support for the body, **muscles are attached to it**
- Healthy bone is very important to healthy ageing
- Muscle atrophy is a big problem while ageing as it affects directly our postural stability, mobility and falls and also **bones**
- **more details Move it and Breathe talk.**

Sarcopenia & Frailty

- Sarcopenia is a degenerative loss of skeletal muscle mass, quality, and strength associated with aging. (e.g. after hospitalisation)
- Sarcopenia is a component of the **frailty syndrome**.
- Lack of exercise and malnutrition are thought to be a significant risk factor for sarcopenia & frailty
- Low muscle mass, low gait speed, low muscular strength

Frailty

- In clinical terms, frailty is characterised by **loss of biological reserves across multiple organ systems** and increasing vulnerability to physiological decompensation after a stressor event.

- Loss of resilience that **people living with frailty do not bounce back quickly after a physical or mental illness, an accident or other stressful event.**

- Frailty is a common geriatric syndrome, the overall prevalence of frailty in people aged over 60 is 14% and it tends to be more common in women. **5% of people aged 60-69 have frailty**. This rises to **65% in people aged over 90**.

- Frailty is linked with **lack of exercise**, **poor mobility**, **difficulty doing Activities of Daily living** (ADL), but specially **with complications after injuries, illnesses**, other accidents or stressful events

- **Nutrition, hydration, physical, cognitive and social activity/stimulation**

Lifestyles that combine cognitively stimulating activities with physical activities and rich social networks may provide the best odds of preserving cognitive function in old age (La Rue, 2010).

What is your experience?

Recommendation	Rationale
Make time for cognitively stimulating activities that you've always enjoyed.	Continuing favourite activities can ensure sustainability of cognitive stimulation. Long-term exposure to cognitive stimulation may be needed for practical functional benefits.
Add some new cognitive challenges, as your time and enjoyment permit	Trying new activities may enhance brain plasticity by requiring new learning or development of new cognitive strategies **MUSIC LESSONS, LEARNING NEW LANGUAGE, AQUA**

Recommendation	Rationale
Aim to engage in cognitively stimulating activities several times a week or more…generate some "*mental sweat*."	Current knowledge does not permit a prescription for how often or how long individuals should engage in cognitively stimulating activities. However, epidemiologic studies suggest that more is better, within clinically reasonable limits.
Be aware that there is no one cognitive activity, or combination of activities, that is uniquely good for reducing AD risk.	Many different types of cognitively stimulating activities have been associated with preserved cognitive skill. There are no data yet to show that cognitive activities prevent or delay AD.
Social interactions are a great way to stimulate the mind.	Group training of cognitive skills has been shown to be effective in sharpening specific cognitive skills, and broader social networks have been associated with reduced AD risk.

Thank you & please fill the evaluation form.

- jitka.vseteckova@open.ac.uk
- http://www.open.ac.uk/people/jv2595

- Vseteckova J (2019) Five Pillars for Ageing Well https://www.open.edu/openlearn/health-sports-psychology/mental-health/five-pillars-ageing-well

2. Ageing brain

Ageing Well series of Public Talks

"*Being mindful of eating well, hydration, physical activity, learning new things and social connections can delay the decline caused by ageing.*

Come and join us for the series of public talks with the title "Ageing Well"

Dr. Jitka Vseteckova

Senior Lecturer, Health and Social Care

Venue: Berrill Lecture Theatre, Walton Hall, Milton Keynes, MK7 6AA, talks held 11AM-1PM

Ageing Well series of Public Talks - topics

- ***Are we prepared to live longer?*** *(Jitka Vseteckova)* ***September 23rd 2020***
- ***Advanced care planning*** *(Barbara Gale & Erica Borgstrom)* ***October 21st 2020***
- ***Ageing brain*** *(Jitka Vseteckova)* ***November 18th 2020***
- ***Learning languages and digital technologies in older age*** *(Ursula Stickler)* ***December 2nd 2020***
- ***Care and caring in older age*** *(Mary Larkin)* ***January 20th 2021***
- ***Nutritional needs while ageing*** *(Jitka Vseteckova)* ***February 24th 2021***
- ***Pharmacotherapy while ageing*** *(Jitka Vseteckova & Sonal Mehta)* ***March 24th 2021***
- ***Mindfulness and ageing*** *(Adele Pacini)* ***April 14th 2021***
- ***Move it and breathe*** *(Jitka Vseteckova & Declan Ryan)* ***May 19th 2021***
- ***Standing tall*** *(Jitka Vseteckova)* ***June 16th 2021***
- ***The things we don't talk about – Intimacy and ageing*** *(Andreas Vossler)* ***July 14th 2021***

Useful resources:

https://ordo.open.ac.uk/collections/Ageing_Well_Public_Talk/4716437

https://www.open.edu/openlearncreate/course/view.php?id=5016

Summary of related resources

COVID-19 related

- **Vseteckova J**, How to age well, while self-isolating (2020) https://www.open.edu/openlearn/health-sports-psychology/how-age-well-while-self-isolating
- **Vseteckova J**, (2020) SHORT FILM - Ageing Well in Self-Isolation https://youtu.be/LU4pXFgcGos
- **Vseteckova J,** (2020) ANIMATION - Keeping healthy in Sel-Isolation https://youtu.be/M9yUC-MUugA

AGEING WELL related

- **Vseteckova J** (2019) 5 reasons why exercising outdoors is great for people who have dementia https://www.open.edu/openlearn/health-sports-psychology/mental-health/5-reasons-why-exercising-outdoors-great-people-who-have-dementia https://doi.org/10.21954/ou.rd.c.4716437.v1
- **Vseteckova J** (2019) Depression, mood and exercise https://www.open.edu/openlearn/health-sports-psychology/mental-health/depression-mood-and-exercise?in_menu=622279 https://doi.org/10.21954/ou.rd.c.4716437.v1
- **Vseteckova J** (2019) Five Pillars for Ageing Well https://www.open.edu/openlearn/health-sports-psychology/mental-health/five-pillars-ageing-well https://doi.org/10.21954/ou.rd.c.4716437.v1

OpenLearnCreate Course on '*Ageing Well*'
https://www.open.edu/openlearncreate/course/view.php?id=5016

'*Ageing Well Public Talks*' repository on ORDO Collections
https://doi.org/10.21954/ou.rd.c.4716437.v1

Home exercise no equipment – no problem *Blog*

https://selsdotlife.wordpress.com/2020/04/01/home-exercises-for-older-adults-no-equipment-no-problem/

- Diabetes UK - https://www.diabetes.org.uk/
- British Heart Foundation - https://www.bhf.org.uk/what-we-do/influencing-change/our-campaign-successes
- Health watch - https://www.healthwatch
- WHO – World Health Organisation - https://www.who.int/dietphysicalactivity/factsheet_adults/en/.co.uk/
- British Nutrition Foundation - https://www.nutrition.org.uk/
- NHS Eat Well - https://www.nhs.uk/live-well/eat-well/
- Department of Health - https://www.gov.uk/government/organisations/department-of-health-and-social-care
- That sugar movement - https://thatsugarmovement.com/high-blood-glucose-and-the-brain/
- National cancer institute - https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet#how-many-cancer-cases-may-be-due-to-obesity

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