BRIDGE AND HEALTHY AGING

NICOLAUS COPERNICUS
UNIVERSITY
IN TORUŃ

WORLD BRIDGE FEDERATION · 1958 ·
Bridge & Science Committee

EUROPEAN BRIDGE LEAGUE

BRIDGE AND HEALTHY AGING

60+
RECREATION
AND JOY OF LIFE
IN SENIORS

TORUŃ 2018

Contents

BRIDGE AND HEALTHY AGING

Aging is a biological, genetically pre-conditioned process. It depends not only on genes, but upon a number of different factors; these include place of residence, lifestyle, illnesses, nutrition and relations with others. Excluding chronic diseases, the rhythm of ageing is determined by degenerative changes occurring in the nervous system. They may result in various deficiencies, limitations and disabilities - both physical and mental. From the biological vantage point, the ageing process can be prevented primarily through stimulation and correction of nervous processes. The aim of such prevention is therefore to eliminate limitations and avert the onset of a physical disability impeding the performance of social roles or life tasks.

Recreational activity may take the form of physical and/or mental activities. If such activities are to contribute to slowing down the ageing process, they should constitute a challenge, be a result of one's own initiative, differ from daily routines and meet individual desires and goals. If perceived in this way, the activity will result in the experience of joy. Joy is more than pleasure as it has to be preceded by effort, struggling with difficulties. It is joy, not pleasure, that is or should be the key modality in terms of recreational activities for seniors. Bridge fully meets all four of the necessary conditions for aging prevention programs. During participation in the bridge learning program more and more difficult challenges will appear. Dealing with the increase of challenges difficulty and the increase of bridge skills will be a source of rich, valuable, pleasant emotional experience. Challenges will be undertaken in cooperation with bridge partner(s), taking part in tournaments will allow establishing additional relationships that will definitely move to other fields of life.

We present you materials concerning bridge from the International Scientific Conference "RECREATION AND JOY OF LIFE IN SENIORS" co-organized by University Nicolaus Copernicus in Toruń and European Bridge League held in Toruń (Poland) on 20-21 April 2017.

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Recreational activities and Senior joy of life

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Bridge: A Sport for all the life

Dr Yves Aubry

EBL President

MD PhD
Physical Medicine and Rehabilitation
Lorient (France)

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Start of bridge

Short History

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Bridge = a game

- Technical dimension
- Human dimension

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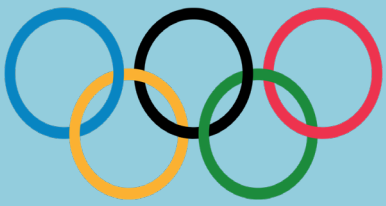
Bridge = an Olympic game



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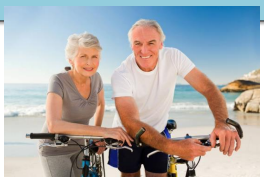
Bridge and Health

Development of mental abilities
at all levels of age



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Educational Bridge Programmes

Starting 80's

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Bridge develops specific capacities

- ♠ Logic
- ♥ Communication
- ♣ Socialisation
- ♦ Decision

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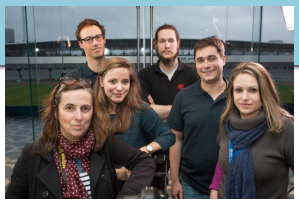
Bridge facilitates social blossoming

Conviviality – respect of others



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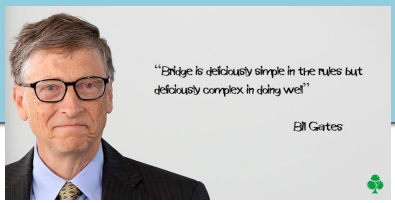
Bridge improves intellectual faculties

- ♠ Reflexion – Concentration
- ♥ Memorizing – Mental Arithmetic's
- ♣ Strategy
- ♦ Anticipation



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Bridge:

a sport at any age of life

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Bridge:

for the Seniors 60+

♣ Intellectual Activity

♥ Social Benefits

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Bridge Senior: Intellectual activity

♠ Memory ♥ Reasoning

♦ Reflexion ♣ Concentration

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Bridge Senior: Social benefits

♥ Maintain Social Relationship

♣ Fight again isolation / Depression

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Bridge and ageing: Scientific side

⇒ Cognitive abilities
⇘ Risk of Demencia
⇗ Immunities activitiy
⇘ Stress, Anxiety and Depression
⇒ Physical and Social capacities

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Bridge Senior:

Recreational activities and joy of life

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Bridge: a sport for all the life

Enjoy playing Bridge!

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Bridge: A Sport for all the life

Dr Yves Aubry
EBL President

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Thank you for you attention

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Nederlandse Bridge Bond

Bridge and elderly: a successful project in The Netherlands

Eric Laurant
Torun, Poland April 20, 2017

Nederlandse Bridge Bond

Who heard about bridge?

We are unknown as a sport although:

- ♠ WBF counts 116 NBO's, 1M members
- ♠ EBL counts 46 NBO's, 400k members
- ♠ NBB counts > 1150 clubs, > 80k members
- ♠ In NBB > 2M games / week, 21-24 per session
- ♠ In NL > 5M games / week in clubs and at home
- ♠ In NL 3rd team sport after soccer, hockey
- ♠ Bridge is much bigger than chess, draughts, Go

Bridge personalities

Bridge is such a sensational game that I wouldn't mind being in jail if I had three cellmates who were decent players and who were willing to keep the game going 24 hours a day!

Warren Buffett
Investor and active tournament player

Bridge personalities

The best thing about this is that we had a black, a Jew, an Indian and a Pakistani playing together. It's good to show how bridge can bring together people from such different backgrounds, it shows a special magic about the game of bridge.

Zia Mahmood after winning with Larry Cohen, Ron Smith and Jaggy Shivdasani.

Bridge personalities

When I retired, I started to play Bridge again. It's the best decision I've ever taken! I wake up every morning and I am the happiest man on Earth.

Dr. Magnus Olafsson,
Nobel laureate
(Nobel Peace Prize 2005)

Bridge personalities

No matter where I go, I always make friends at the bridge table.

Martina Navratilova,
greatest female tennis player for the years 1965-2005

Bridge personalities

I love Bridge. Everybody who is good at Bridge is going to be good at lots of things!

Bill Gates,
Microsoft Founder

The Netherlands

Small country:

- 41.526 km2 (Germany 8x, France 16x)
- 16.8 M people (Germany 5x, France 4x)
- 30 cities > 100k, 400 municipalities

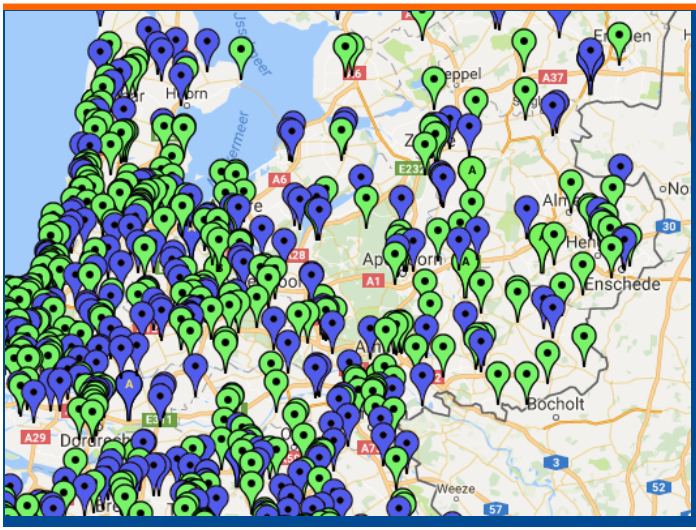
Bridge in NL

Small country but NBB is quite a large federation:

- ♠ > 80.000 member players
- ♠ > 20.000 playing on internet
- ♠ > 1.150 member clubs
- ♠ > 20 full time employees
- ♠ > 650 active teachers
- ♠ > 350 certified teachers

Teachers in NL

Teachers in NL



Nederlandse Bridge Bond

Teachers in NL

Nederlandse Bridge Bond

The secrets of bridge

(fact group 1)

Scientific research related to bridge proves:

- ♠ Bridge provides a social network
- ♠ Bridge effectively counters loneliness
- ♠ Bridge raises happiness

Source:

NIVEL, Leemrijse C.J.; Ooms, L; Veenhof C. (2011) Evaluatie van kansrijke beweegprogramma's …
NIVEL, Leemrijse C.J.; Veenhof C. (2012) Denken en Doen: bridgend de eenzaamheid te lijf
Mulier Institute, Smits F., van Rens F.; Elling, A. (2012) Om mijn hersenen te trainen en voor de gezelligheid

Nederlandse Bridge Bond

The secrets of bridge

(fact group 2)

General scientific research also proves that happiness and a social network reduces mortality risks comparable to:

- ♠ **Stop smoking**
- ♠ **Stop drinking**
- ♠ **Lose weight**
- ♠ **Exercise more**

Source: *PLoS Med 7 (7): e1000316*, doi: 10.1371/journal.pmed.1000316

PLoS MEDICINE
a peer-reviewed, open-access journal

Nederlandse Bridge Bond

The secrets of bridge

We discover the importance of social relationships for health and see an increased need for them

Science
AAAS

Science, New Series vol. 241. No. 4865 http://www.jstor.org/stable/1701736

Conclusion: Bridge is more than fun

fact group 1 + fact group 2:

Bridge and its social network improves health and reduces mortality risks

(especially among elderly)

a scientific proven statement

More scientific research

The results of a research by *Louise Clarkson Smith* and *Alan A. Hartley* (Journal of Gerontology – Vol 45, Issue 6, pp 233-238) on Bridge players and nonplayers aged 55-91 indicated that players outperformed nonplayers in measures of **working memory** and **reasoning**.

More scientific research

A study published in 2003 by Verghese in the New England Journal of Medicine proved that senior citizens who play a board game have 74% lower risk of dementia.

More scientific research

In 2000, Marian Cleeves Diamond found out that playing Bridge stimulates the thymus gland, which produces white blood cells (T lymphocytes), thus enhancing the immune system.

More scientific research

A 2014 research performed by Tor Vergata (Rome) scientists (Becchetti, Fiaschetti, Marini) proved that Bridge players, due to their superior team play habits, are more likely to adopt cooperative behavior.
Listening, etiquette, concentration, dealing with winning and losing and many other social skills can be enhanced by playing Bridge.

Why all this research?

To convince EU, national ministry of health and/or local government organizations it is wise to invest in bridge projects:

- ♠ scientifically proven advantages
- ♠ infrastructure of WBF, EBL and NBO's
- ♠ successful projects and best practices

Marketing senior bridge

- ♠ Average age of bridge players is about 70 (…)
- ♠ Emphasize that bridge is fun
- ♠ Claim bridge improves health, scientific data
- ♠ Use dedicated learning method (tempo)
- ♠ Use internet for practicing

Marketing but also sales

Clear message to municipalities / ministry:

- ♠ social networks are important for elderly
- ♠ improve health by offering a perspective
- ♠ it is human to fight against loneliness
- ♠ prevention much cheaper than care
- ♠ municipality administration sends letter
- ♠ hereafter NBB takes care of total project
- ♠ NBB make use of local community centers

Sales and marketing

- Two dedicated sales persons
- Bridge players, retired from commercial job
- Two years project (2012-2013, 2017-2018)
- Each salesperson got 200 municipalities
- Sent out letter to local govt administrations
- Followed up by phone call and meeting
- In NL we asked for local budget of € 2k - € 5k
- And this was doubled by ministry of health

Senior Marketing

Result:

Local government organizations invest in bridge learning projects

"Difficult, but so much fun!"

Participant local government project (76)

Quotes by participants

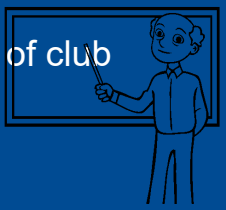
´Without this letter of the local government I would never have started playing bridge. And now it's my most important hobby´
Participant [59]

'Facilitating this great initiative is the best our municipality administration has done for many years'
Participant [71]

´I really look forward to Monday and Thursday afternoons´
Participant [66]

Traditional teaching method

- ♠ Club teachers with classes of 8-20 students
- ♠ Two phases/years, once a week, evening
- ♠ Focus on bridge technical aspects
- ♠ After finishing course membership of club
- ♠ Relatively large early drop out



Modern senior approach

- ♠ Startersbridge: playing important, simple bidding
- ♠ Internet: practice from day 1
- ♠ Fun: more important than level
- ♠ Social: bridge but also meet, walk, gym
- ♠ Frequency: two-three times per week, day times

Denken en Doen in NL

First project in 2012-2013 successful:

- ♠ 2 sales persons visited all municipalities
- ♠ 180 municipalities joined and payed
- ♠ > 5.000 elderly joined, drop out very low
- ♠ > 10 new bridge clubs joined NBB
- ♠ > 3.000 new members joined NBB
- ♠ many new meetings in community center
- ♠ result good enough to repeat in 2017!

Dutch approach

Thank you,
don't hesitate to ask questions or to contact me!

eric@laurant.nl

International Scientific Conference
RECREATION AND JOY OF LIFE IN SENIORS
Torun, 20-21.4.2017.

Institut društvenih znanosti
Institute of Social Sciences
IVO PILAR

Contract Bridge and Senior Citizens: from Entertainment to Competition

Tihana Brkljačić ♦ Ines Sučić ♦ Barbara Brdovčak

Aims of the Study:

- to explore motivation of senior citizens to engage in contract bridge
- to analyze self-reported benefits of the game regarding Major's classification

Serious Leisure (Major, 2001):

- benefits:
  - social affiliation
  - sense of accomplishment (i.e., self-confidence, power, and control)
  - health and fitness (i.e., physical benefits and stress relief)

Method: Sample

 = 3

 = 5

age: 68-80

players who play at least once per
week for last 8 years
all approached agreed

Method: Instruments

In depth semi-structured interview:

general:

* age
* health
* social life including family
* work and other hobbies

bridge:

* experiences
* motivation
* benefits from bridge

Method: Procedure

- in depth semi structured interviews
- about 30 minutes
- voluntarily and anonimously
- agreed to share their comments for scientific purposes

Results: Demographics

General:

6 married/in a relationship, 2 widowed

7 university degree

all retired, 1 with disability

6 still worked part-time jobs

Free time activities: mostly intellectual and passive (reading, watching TV, cross-words/puzzles)

Bridge:

average club players or better

5 started to play when they were over 60, 3 started to play earlier and had long bridge experience.

All played for at least 5 years.

Social affiliation: Communication/Fun

"There are lot of people in a bridge club. I like chatting to different people. I can't go around and talk to people on the streets, or approach someone in the coffee-shop. That would be weird. I like the fact that everyone knows me here."

" I like to chat with opponents. I don't like serious tournaments. It is all fun to me. I don't understand why people get upset."

"You have to talk. It is very social. Some pretend to be serious, but it is a game, isn't it?"

"On Wendsdays me and (name) go to different clubs. As soon as we come home we talk on phone for at least half an hour. About bridge hands if we remember. And gossip (laugh).

"I never go to bars, but at the club I have a drink or two, it is like going out."

Social affiliation: Going out, Plans, Life Routine

"That's what I do on Thursdays. I look forward to it the whole week."

" I have to get out of the house. I will never quit bridge and smoking. I can't walk, I come by taxi. But I don't mind to spend on what I like."

"Bridge is stable thing in my life for over 30 years."

Social affiliation: Understanding, supporting

"Last year we were playing some tournaments to collect money for the juniors. Later, one of them, during the club game said me (after I made unsufficient bid): it is not problem, just bid what you wish. I don't know, but I think we are kind of closer now. We help each other."

"Most of the kids at bridge behave very nice. They respect me."

"Oh, no, I don't mind when they (youth) call me by my first name. I feel younger."

Social affiliation: Status & Recognition

"I agreed with junior player that he would help me something with my computer.When he arrived my friend was at my home, and she was astonished (how young guys come to help me). Usually she is the one with adventures.(laugh)"

"You know, it is nice to say… I can't (go somewhere) because I have to go to bridge. It is nice that you have any plans, and even better if they sound so good. I feel important. (giggles)"

"Yes, I think people think you are smarter when you say that you play bridge."

Sense of acomplishment: Competing, Improving

"Did you see how good I am. I check ranking list every day. I am even better then (name), and he thinks he is an expert."

"Winning is very important to me. I am proud of myself when I do well. But, my play is much more important to me, than what partner does."

"When I make mistake I want to kill myself. How could I be so stupid. Oh, yes, I am proud of myself when I make a contract that others didn't."

Sense of acomplishment: Learning, Solving problems

"Allways in my life I was active. Because of bridge I can still be active and learn new things."

"After I got retired I had to do something, friend told me about bridge. I never regreted. I put a lot of effort into it, and I know I learned a lot. I feel good about it"

"You can study bridge forever, you will never know it all. That is why I love it."

Health: Staying mentally fit

"I never watched Spanish or Turkish soap-operas. I like thrillers. Bridge is similar to that. It is good for my brain. (laugh)"

"You will see once you get old, there are not many challenges. Oh yes, you cook, and help with grandchildren. They say grandchildren keep you young. They don't. You feel old when you have to run after them (laugh). But, when you play bridge it doesn't ask for anything you can't do. You are as good as you were before. Or, at least I feel like that. (laugh)"

"Bridge keeps me moving. I excercise my brain. All my life I liked puzzels. Bridge is the best game of all."

Qulity of life

"Of course I would leave him if he wouldn't support my bridge. In this age, you have to be practical. But, he knows bridge means a lot to me."

" Bridge significantly improves quality of my life. And I think it is the same for all of us. We feel good and accepted here."

"I have other hobbies, but I can't imagine my life without bridge. Because it is people and play, and tournaments. It is interesting in so many ways. If there was no bridge, I would play something else, as similar to bridge as possible."

Limitations

- small convinient sample
- Croatia: cross-cultural differences
- familiar interviewer

Main Findings

Bridge contributed to well-being of elderly by:

- advancing social affiliation

  communicating with people of all ages, finding new friends, getting social support, recognition and status and going out of home)
- enchasing sense of accomplishment

  learning, solving problems, competing, advancing and winning
- mental fitness

  staying intellectually fit, learning new things, logical reasoning

While it seems that senior player often come to bridge because of social reasons, it is competitive element that keeps them there.

Practical Advices

Social inclusion: dividing youngsters from seniors may not be the best idea

* Special games for specific generation should not be standard approach
* Cross-generation understanding and support should be encouraged

Would you rather be
40 years old
or 80 years young?

Dziękuję.

Thank you!

HUNGARIAN BRIDGE FEDERATION

Annamária Hermányi
Member of the Hungarian Bridge Federation's Presidency

HUNGARIAN BRIDGE FEDERATION

- ❑ the lifetime is longer
- ❑ pensioners often have no useful occupation
- ❑ visiting doctors to get attention
- ❑ watching serials

HUNGARIAN BRIDGE FEDERATION

- there is a possible solution – the bridge!
- you cannot get tired of it
- you can meet people
- new challenges
- not so expensive

HUNGARIAN BRIDGE FEDERATION

- some half a million pensioners live in Budapest
- having the same problems
- I got an idea

HUNGARIAN BRIDGE FEDERATION

- ❑ a beginner course started in May 2014
- ❑ local government helped

HUNGARIAN BRIDGE FEDERATION

- ❑ some 400 seniors at a beginner level
- ❑ it is a relatively great number

HUNGARIAN BRIDGE FEDERATION

- ❑ for intermediate players regular tournaments
- ❑ playing bridge and enjoying life

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- ❑ for intermediate players regular tournaments
- ❑ playing bridge and enjoying life

HUNGARIAN BRIDGE FEDERATION

- ❑ Joaquin Anguera`s experiment
- ❑ video games enhance cognitive control
- ❑ and reduce depression

HUNGARIAN BRIDGE FEDERATION

- playing bridge is good against dementia and Alzheimer`s disease
- bridge competition on 21st Sept, day of Alzheimer`s disease

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Thank you for your attention!

Let`s play bridge!

International Scientific Conference
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More is more:
Leisure activities and well-being of seniors

Tihana Brkljačić, Ljiljana Kaliterna Lipovčan,
Zvjezdana Prizmić Larsen, Andreja Brajša Žganec, Ines Sučić

CROWELL
PROJEKT

hrzz
Hrvatska zaklada za znanost

Aims of the study

... to analyze subjective well-being and recent engagement in various leisure activities in Croatian senior citizens...

(1) to assess overall level of self-rated life satisfaction and happiness

(2) to examine possible differences in well-being indicators in relation to recent engagement in various leisure-time activities, while controlling health status.

Sample (N=169/4506)


= 68 (40.2%)


= 101 (59.8%)

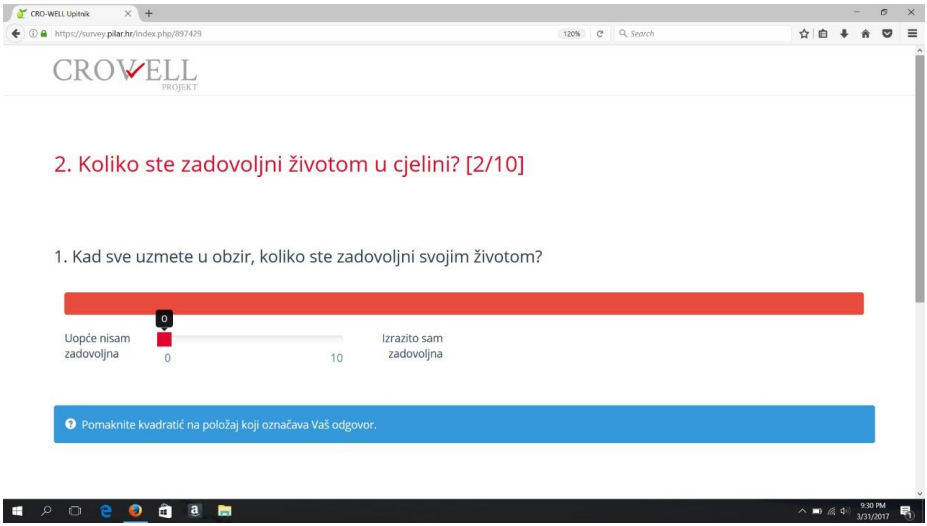
age: M=64.8±4.63

age range: 60-85

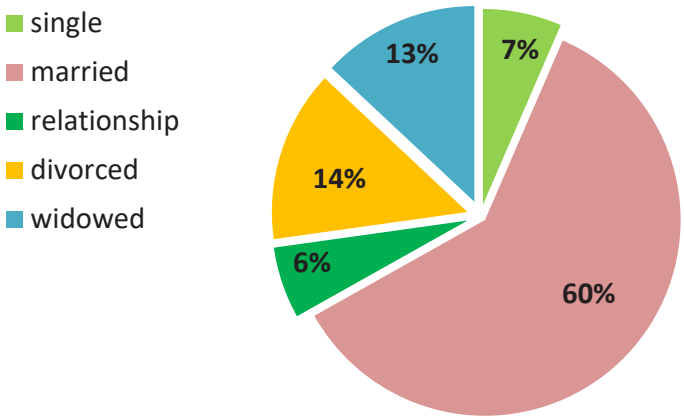
49 (29%) employed

Demographics
* age, gender, financial status
Health
* self rated health status
* chronic illness
Well-being
* life satisfaction
* happiness
Social
* marital status
* new friendships in the previous year
* number of close friends
Engagement in various activities during the previous year
* new leisure activity (e.g. hobby, course)
* enrolled into association or club
* touristic travel
* winter/summer holidays
* humanitarian work/volunteering
* got a pet

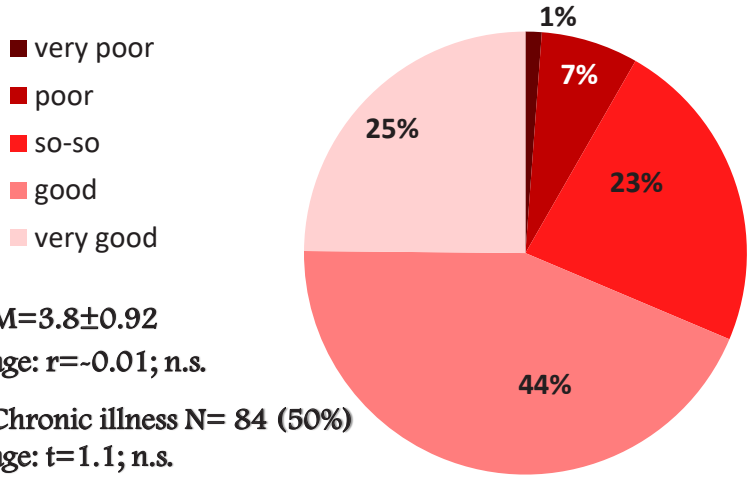
All things considered, how satisfied are you with your life as a whole?



Marital status



Health (self-ratings)



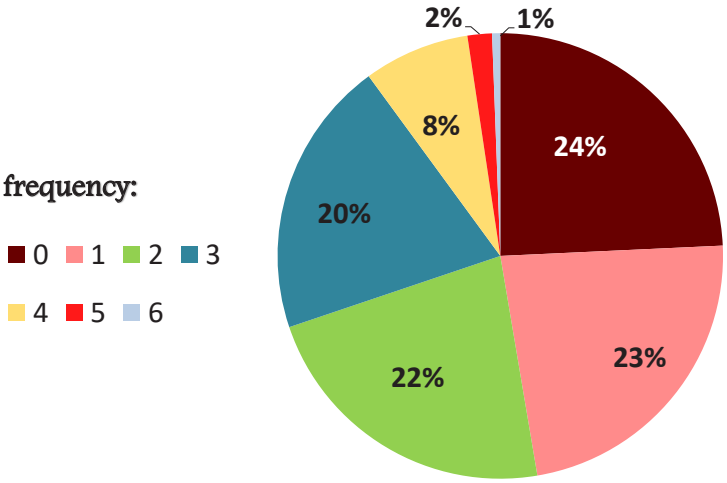
M=3.8±0.92
age: r=-0.01; n.s.

Chronic illness N= 84 (50%)
age: t=1.1; n.s.
health: t=12.3, p<.01

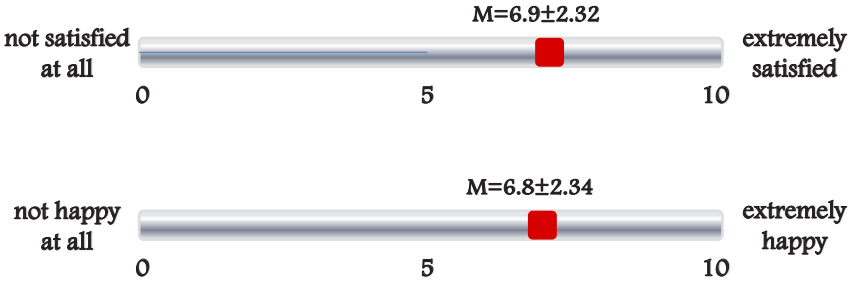
Leisure activities during the last year

	freq	%
• new leisure activity (e.g. hobby, course)	45	26.6%
• enrolled into association or club	30	17.8%
• touristic travel	79	46.7%
• winter/summer holidays	87	51.1%
• humanitarian work/volunteering	30	17.8%
• got a pet	19	11.2%

Leisure activities during the last year



Well-being



Comparisson to the group of age<60 N=4337

Life satisfaction	$M_{(m)}$=6.9±2.02	t=0.2 p>.05
Happiness	$M_{(m)}$=6.8±2.35	t=0.3 p>.05

Well-being and health

Correlations between health and well-being:

$r_{(H,LS)} = .36$ ($p<.01$) $r_{(H,H)} = .34$ ($p<.01$)

Well-being and marital status

Married (m) = 102 Other (o) =67

Life satisfaction $t=2.3$ ($p<.05$)

$M_{(m)}=7.3\pm2.11$ vs. $M_{(o)}=6.4\pm2.57$

Happiness $t=2.5$ ($p<.05$)

$M_{(m)}=7.2\pm2.2$ vs. $M_{(o)}=6.3\pm2.47$

Well-being and financies

Correlations between financies and well-being:

$r_{(F,LS)} = .41$ ($p<.01$) $r_{(F,H)} = .40$ ($p<.01$)

Well-being and age

Correlations between age and well-being:

$r_{(A,LS)} = .06$ ($p>.05$) $r_{(F,H)} = .10$($p>.05$)

Well-being, health and leisure activities

Partial correlations between activities and well-being
(controling for health)

$r_{(LS,A)} = .19$ ($p<.05$)

$r_{(H,A)} = .17$ ($p<.05$)

Well-being, health and leisure activities

Correlations between leisure activities and well-being

- Participants without chronic illness (N=85)

$r_{(LS,A)} = .04$ ($p>.05$)

$r_{(H,A)} = .03$ ($p>.05$)

- Participants with chronic illness (N=84)

$r_{(LS,A)} = .45$ ($p<.01$)

$r_{(H,A)} = .41$ ($p<.01$)

Differences between those who took a new activity in the previous year and those who didn't

	Yes (N=128)	**No** (N=41)	
Gender (Women)	68.8%	31.3 %	**
Age	64.8 ±4.42	64.7 ±5.3	
Married	59.4%	63.4%	
Life satisfaction	7.2±2.19	6.2±2.62	*
Happiness	7.0±2.18	6.2±2.75	
Health (self-rating)	3.9± 0.91	3.8± 0.96	
Financial (self-rating)	3.2± 0.91	2.8± 0.96	
New friendships	49.2%	19.5%	**
New romantic relationship	5.5%	4.9%	
Number of close friends	5.7±5.70	6.2±5.2	

Main findings

- No significant differences was found between self-rated well-being of seniors and general population.
- Married persons and those who rated their health and financies better, were happier and more satisfied with their lives.
- Age of seniors was not related to health.
- Seniors with chronic illness who engaged in more leisure activities tend to be happier and more satisfied with their lives.
- Those who engage in at least one leisure acitivity are more often women, more satisfied with their lives, and they are 2.5 likely to create new friendships. Engagement in leisure activities was not related to financial or health status.

Dziękuję.

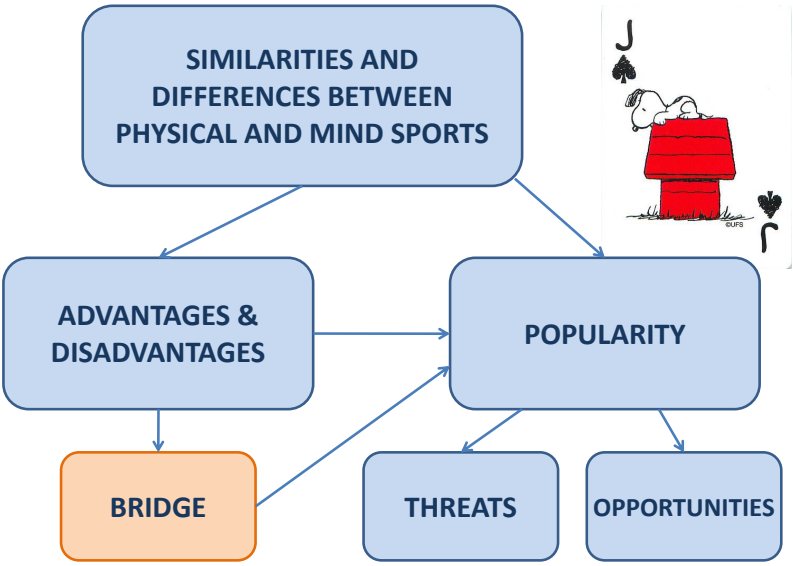
Thank you!

International Scientific Conference
RECREATION AND JOY OF LIFE IN SENIORS
Torun, 20-21.4.2017.

Institut društvenih znanosti
Institute of Social Sciences
IVO PILAR

Brighter, Smarter, Wiser: Distinction & Benefits of Mind Sports

Tihana Brkljačić



Global Association of International Sport Federations

For an activity to be a sport it is needed that it contains elements of:

Fair play, discipline, universal rules, ethical code, training, competition and performance.

Sport should not:
(1) rely on any element of **luck** integrated into the competition;
(2) pose an undue **risk to the health** and safety of its participants;
(3) be in no way **harmful** to any living creature;
(4) rely on equipment provided by a **single supplier**

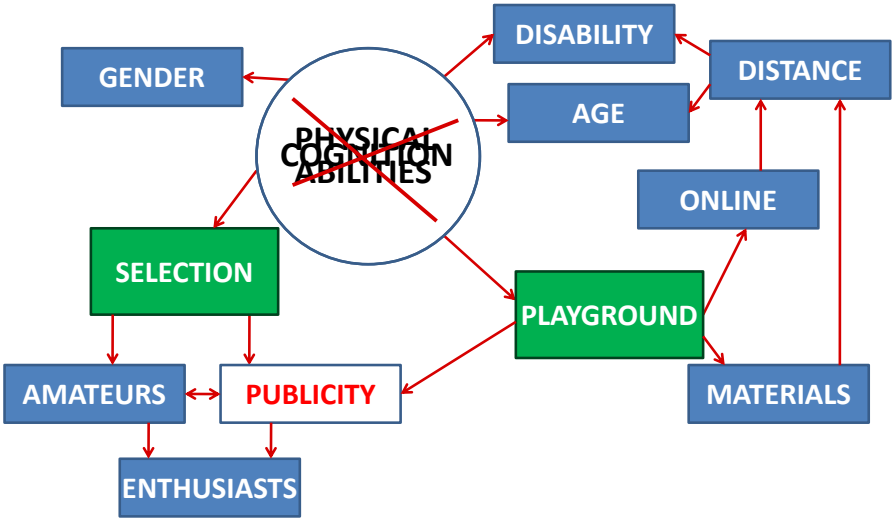
Mind sports
Chess, Chinese chess, Draughts (Checkers), Go, Contract Bridge

Terminology

- **General:** Match, Round, Move, Performance, Attack, Defense, Players, Game, Field, Section, Seed, Swing
- **Format:** Round Robin, Play Off, Knock-out
- **Play:** Aggressive, Robust, Passive, Dynamic, Bold
- **Active verbs:** Sacrify, Enter, Force, Jump, Pull, Push, Shift, Switch, Block
- **Other sports:** Gambit (box and chess) or Uppercut (box and bridge).

When West jumped to 4 hearts, North doubled, but South escaped to 4 spades.
He overtook the lead, ran all his hearts, exited with a spade and threw West in, and finally squeezed him (in clubs and diamonds).

MIND SPORTS: DISTINCTION



Mind sport paradox

FEATURE	MIND	PHYSICAL	GAMES
PUBLICITY	LOW	HIGH	MEDIUM
TEMPO	SLOW	FAST	FAST
VISUAL EFFECTS	MINIMAL	MAXIMAL	MAXIMAL
REQ. KNOWLEDGE	DEPENDS	LOWER	DEPENDS
INTELECT. EFFORT	HIGH	LOW	LOW-MED
SPECTATORS	ONLINE+	LIVE+ONLINE	ONLINE
AVAILABILITY	MAXIMAL	LIMITED	MAXIMAL
EXPERIENCE	MAXIMAL	LIMITED	LIMITED

Age & Bridge

STRENGHTS	THREATS
health	effort to learn
competition	stereotypes
learning, improving	promotion: serious vs. social
affiliation	promotion: youth vs. seniors
overcoming generation gap	segregation
free-time	online play
travelling	
online play	

Recommendations:

- Entertaining commentators, profiles and comments of the players, enchased dynamics (by showing only most interesting stages of games), and accompanying stories should make broadcasts more appealing and therefore more profitable.

- Mind sports are suitable for people of all ages, but shouldn't be promoted as activities for elderly.

- Conferences such as this one, should be organized on regular basis, while experts in various areas from different countries should connect to research topics of interest and organize work-shops, case studies and apply for EU projects.

Dziękuję.

Thank you!

Well-being, Social Participation and Bridge

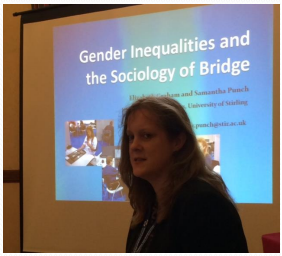
Prof. Samantha Punch and Diarmuid McDonnell
Faculty of Social Sciences, University of Stirling
Dr Caroline Small, EBED Trustee
English Bridge Education & Development
s.v.punch@stir.ac.uk

UNIVERSITY of STIRLING

English Bridge Education & Development

Sociology of Bridge Research

- 52 interviews with elite players (UK & US)
  - 'Bridge Encounters' series - online *Bridge Magazine*
  - Themed articles
- **Gender and bridge**
  - Gendered Inequalities (Masters thesis)
  - Opportunities and barriers



EBED/Stirling University Partnership

- Literature review

Ashworth, R., Punch, S. and Small, C. (2016) *A Review of Possible Interventions into Healthy Ageing and Cognitive Stimulation: Exploring the Links between Bridge and Dementia*, Aylesbury: English Bridge Education & Development (EBED), http://www.ebedcio.org.uk/health-wellbeing-research

- Survey

McDonnell, D., Punch, S. and Small, C. (2017) *Individual Wellbeing and Bridge: An Empirical Analysis,* Aylesbury: English Bridge Education & Development (EBED), http://www.ebedcio.org.uk/health-wellbeing-research

- Benefits of bridge paper (to follow)

Future projects (seeking funding)

- **Bridge for Brains** – led by Dr Caroline Small, EBED
  - develop and maintain the neuronal pathways
  - biochemical process in the brain driven by the physical mental activity of bridge
  - functional Magnetic Resonance Imaging (fMRI)
  - how bridge alters and preserves brain function

http://www.ebedcio.org.uk/health-wellbeing-research

Lifecourse learning

- 80% who complete taught lessons in English clubs do not transition into full club players (EBED)
- In the UK only approximately 2% of over 60,000 registered bridge players are aged under 26

Individual Wellbeing & Bridge

Research questions

- What are the characteristics of bridge players and their playing habits?
- Is there an association between playing bridge and measures of individual wellbeing?

Methodology

- 7,142 onine survey respondents
  - 80% via English Bridge Union (EBU); 15% SBU; 5% other
  - 50.17% male + 49.83% female
- Questions relating to demographic, social and wellbeing domains used from Wave 6 of the English Longitudinal Study of Aging (ELSA)

Characteristics of Players and Playing Habits

- 94% have regular playing partners
- 16% had the same partner for over 30 years
- On average, 10 sessions a month (excluding online)
- Persistent feature of people's lives
  - On average: respondent 67 years – 29 years playing bridge

How did you learn?	N	%	Cumulative %
Books	592	8.70	8.70
Bridge weekend/cruise	94	1.38	10.09
Family member	**1,167**	**17.16**	27.25
In school	649	9.54	36.79
Lessons	**3,070**	**45.14**	81.93
Online	55	0.81	82.74
Other	1,174	17.26	100.00
Total	6,801	100.00	

Benefits	% Responses	% Cases
Other	0.32	1.64
Commitment to partnership	7.42	37.85
Interacting with people from different generations	8.32	42.41
Sense of belonging to a community	8.60	43.87
Welcome distraction/relaxing	9.37	47.78
Socialising with friends	12.38	63.13
Competitive element	16.14	82.26
Mentally stimulating	**18.55**	94.56
Enjoyable activity	**18.89**	96.30
Total	100.00	100.00

Why do you play bridge?

- *For the stimulation and interaction as well as a form of meeting people. As having recently returned from abroad after many, many years it got me back into the community.*
- *Aid my concentration and improve my memory. To meet new friends and enlarge my social group.*
- *It is sociable, gets me out of the house and keeps my brain active.*
- *Because I enjoy the competition, the mental exercise and the social interaction.*

Playing Bridge and Individual Wellbeing

- Findings:
  - Optimistic about their future and available opportunities
  - Satisfied with the way their lives have turned out
  - Sociable, unencumbered by money concerns
  - Feel in control of their own lives

- Sometimes feel that age and health prevents them pursuing activities

Statistical model using linear regression (age/sex/education/ retirement status/life partner/social network/whether play bridge)

- Effect of playing bridge is statistically significant:
  - a positive effect on wellbeing
  - regardless of number of regular partners or years spent playing

Findings consistent with:

- Bridge as a meaningful activity for older people (Ashworth et al. 2016: 19):
  - "includes a social aspect and sense of being a 'team player' alongside being mentally challenging"

- Taking up club membership at retirement leads to significantly decreased mortality (Steffens et al. 2016)

Conclusion

- Individuals who play bridge have higher levels of overall wellbeing than those who do not play (McDonnell et al., 2017)

- However, the question remains:

  Does bridge have a positive effect or are healthier, happier individuals more likely to play bridge?

THE SECRETS OF THE BRIDGE BRAIN

Why playing bridge has such a positive impact on seniors' lives

APRIL 20, 2017

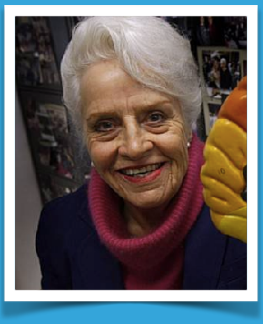
Helena Maria Barendregt heleen@barendregt.name

- Master in LAW
- 50 years teaching
- Interest: BRAIN & LEARNING
- Favorite hobby: BRIDGE!

Helena Maria Barendregt

heleen@barendregt.name

BRAIN



Marian Diamond
USA

Margriet Sitskoorn
The Netherlands

Ryuta Kawashima
Japan

Professor Marian Diamond

- research with rats
- Senior rats developed their brains
- By being active in a new, challenging environment

Can we develop our brain, even when we are old?

YES

Professor Margriet Sitskoorn

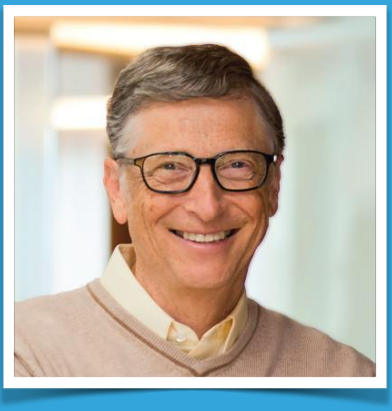
"We can develop our brain even until our last day!"

Professor Ryuta Kawashima

- developed special games
- to train & rejuvenate the brain
- found that 'quick counting' is very effective

by learning NEW things

"Bridge is deliciously **simple** in the rules,
but it is deliciously **complex** in doing it well"



Bill Gates

COGNITIVE SKILLS

observing
paying attention
classification
elimination
data gathering
logical thinking
analysing
. . .

By learning NEW things

the more….

- challenging
- pleasant
- activity in different parts of the brain

the better it works!




images colorbox

BRIDGE

- every deal gives NEW challenges
- you always learn NEW things

Chess

Checkers

Go

BRIDGE

- memorise
- to count (quickly!)
- social interaction

BRIDGE

looks like an innocent card game. . .

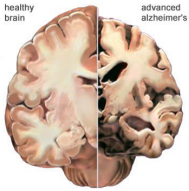
but it's NOT!


lets have some fun!

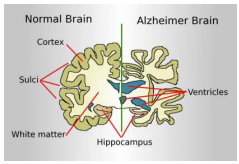
Effects of cognitive training in aging in MRI/fMRI studies

Emilia Leszkowicz, University of Gdansk

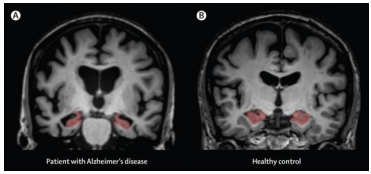
Hippocampus
brain area critical for learning and memory
especially vulnerable to damage
in early stages of dementia and Alzheimer's disease



Credit: Alzheimer's Association



Credit: Wikimedia Commons



Teipel et al. Multimodal imaging in Alzheimer's disease:
validity and usefulness for early detection. Lancet, 2015, 14, 1037–1053.

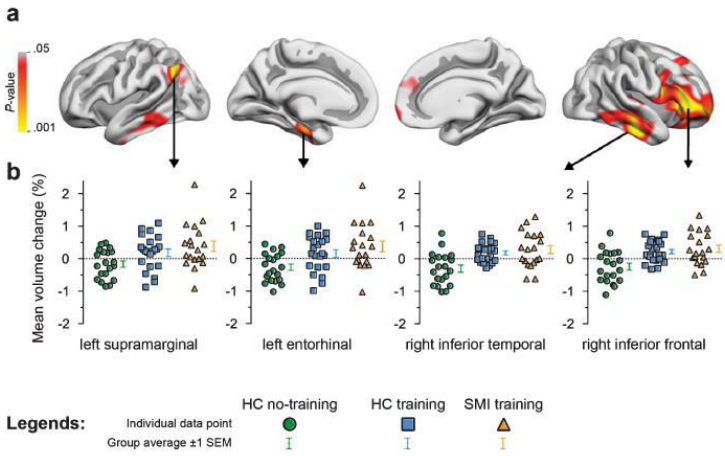
Engvig A, et al. Effects of cognitive training on gray matter volumes in memory clinic patients with subjective memory impairment. J Alzheimers Dis, 2014, 41, 779–791.

Subjects
Mean age 61 years, subjective memory impairment (SMI, n=19), healthy controls (HC, n=42), groups: SMI-training, HC-training, HC-no training.

Training
8 weeks, 1/week, 90-min supervised class sessions (verbal recall memory), 5 weekly homework assignments (25-30 min).

Measures
One week before and after training (approx. 65 days apart).

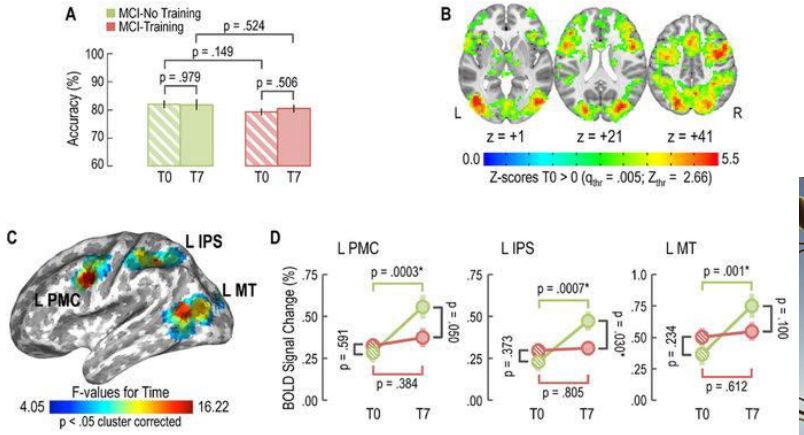
Longitudinal increases in cortical volume in SMI- and HC-training groups following training



Engvig et al., 2014

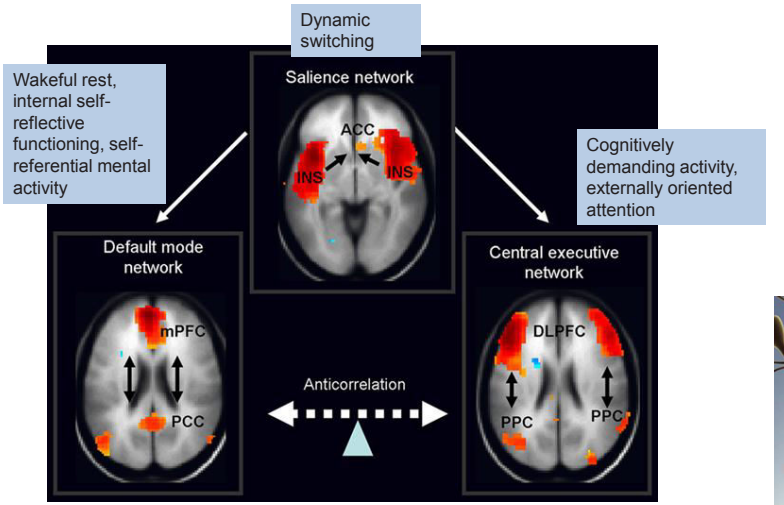
Training maintained neural efficiency as measured by task-related fMRI

L MT, left middle temporal motion-related region; L IPS, left intraparietal sulcus; L PMC, left premotor cortex



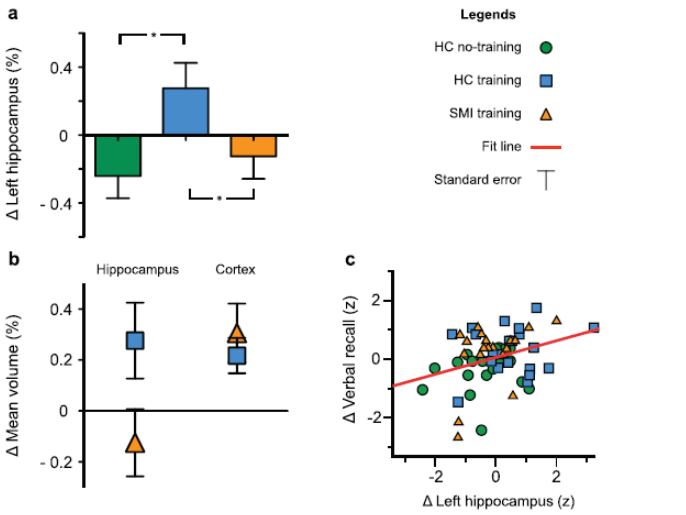
Maffei, L. et al

Major functional networks in the human brain



Nekovarova T, et al. Bridging disparate symptoms of schizophrenia: a triple network dysfunction theory. Front Behav Neurosci, 2014, 8, art.171.

Memory training was associated with increased hippocampal volume in HC-training group (but not in SMI-training)



Engvig et al., 2014

Maffei L. et al. Randomized trial on the effects of a combined physical/cognitive training in aged MCI subjects: the Train the Brain study. Sci Rep, 2017, 7, 39471.

Subjects
Aged 65-89 years, mild cognitive impairment (MCI),
groups: training (n=55, n=38 fMRI), no training (n=58, n=25 fMRI).

Training
Multi-domain cognitive training + physical exercises + music therapy,
classes of 7-10 subjects, 7 months, 3/week,
cognitive training 2 x 60-min sessions, physical training 60 min in a gym,
music therapy 1/week, film 1/month;
cognitive sessions - stimulating acoustic and visual attention,
various forms of memory, imagination, orientation, etc.

Measures
Before training (T0) and at the end of 7 months after training or usual life (T7).

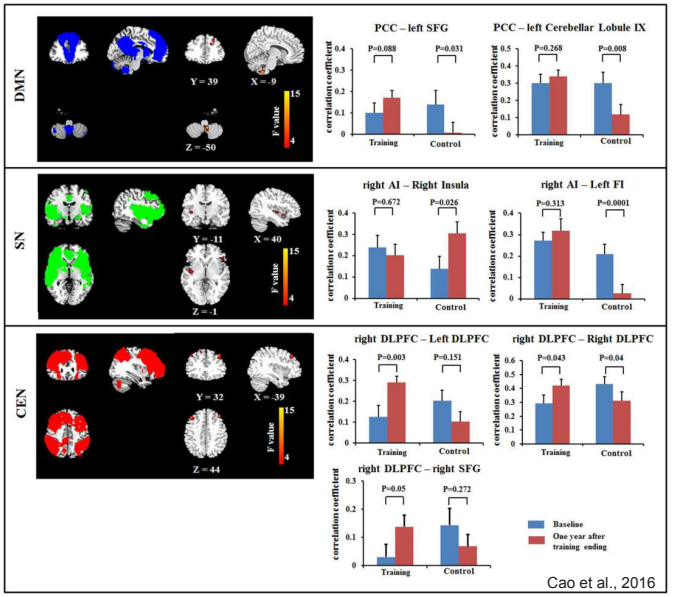
Cao W, et al. Effects of cognitive training on resting-state functional connectivity of default mode, salience, and central executive networks. Front Aging Neurosci, 2016, 8, 70.

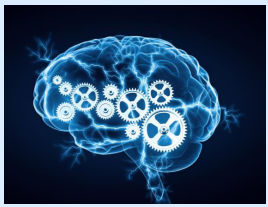
Subjects
Healthy adults, age 65-75 years, training group (n=23), no training group (n=17).

Training
Supervised multi-domain cognitive training, 3 months, 2/week, 60-min session; training targeted: memory, reasoning, problem-solving, handcraft-making, healthy living, etc.

Measures
Baseline before training and at 1 year after training ended (fMRI).

Resting-state functional connections within the three networks were increased or maintained after training (and decreased in the control group)





Credit: NeuroPlusBrainSupplement.org

Conclusion

Multi-cognitive training in older adults can mitigate age-related structural and functional alternations in the brain, thereby helping to reduce or delay age-related cognitive decline, which in turn supports accomplishments of everyday tasks and independent living.

Exercises as medicine for the body and mind.

Around cognitive and brain reserve hypothesis

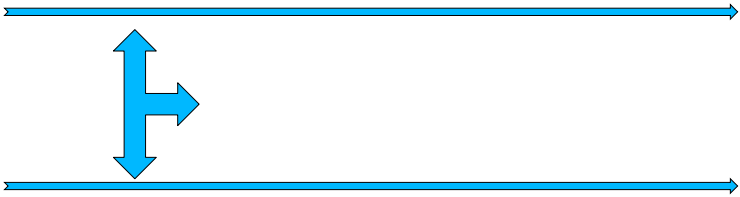
Dr Tomasz Komendziński

Department of Cognitive Science and Epistemology, Institute of Philosophy
Nicolaus Copernicus University, Toruń, Poland
Neurocognitive Laboratory, Centre for Modern Interdisciplinary Technologies
Nicolaus Copernicus University, Toruń, Poland

Tomasz.Komendzinski@umk.pl

Lifelong perspectives

1. Lifelong healthy development from birth to death (objective perspective) – brain-body



2. Lifelong well-being from child to senior.

(subjective perspective) – mind-body

Healthy development

What is health?

Health – extended definition

Standard definition:

health as the absence of physical or mental illness, disease, pain, or discomfort.

We would expand on this by arguing that health could be viewed as **the absence or lack of**
- **physiological** (e.g., insulin resistance),
- **social** (e.g., loneliness),
- **cognitive** (e.g., slow processing speed), or
- **emotional** (e.g., anxiety)

risk factors.

Our reasoning is that these may explain the etiology, prevention, and progression of disease and specific endpoints.

Health Neuroscience: Defining a New Field

Kirk I. Erickson[1,2], J. David Creswell[2,3], Timothy D. Verstynen[2,3], and Peter J. Gianaros[1,2]

Current Directions in Psychological Science
2014, Vol. 23(6) 446–455

DOI: 10.1177/0963721414549350
cdps.sagepub.com
SAGE

Health neuroscience

„A chief goal of health neuroscience is to characterize bidirectional and dynamic brain-behavior and brain-physiology relationships that are determinants, markers, and consequences of physical-health states across the life span.
The motivation behind this goal is that a better understanding of these relationships will provide mechanistic insights into how the brain links multilevel genetic, biological, psychological, behavioral, social, and environmental factors with physical health—especially vulnerability to and resilience against clinical illnesses.
Moreover, such mechanistic insights will provide new crossdisciplinary platforms to develop brain-based prevention and intervention efforts to improve physical health, inform health policies, and promote successful development and aging."

Health Neuroscience: Defining a New Field

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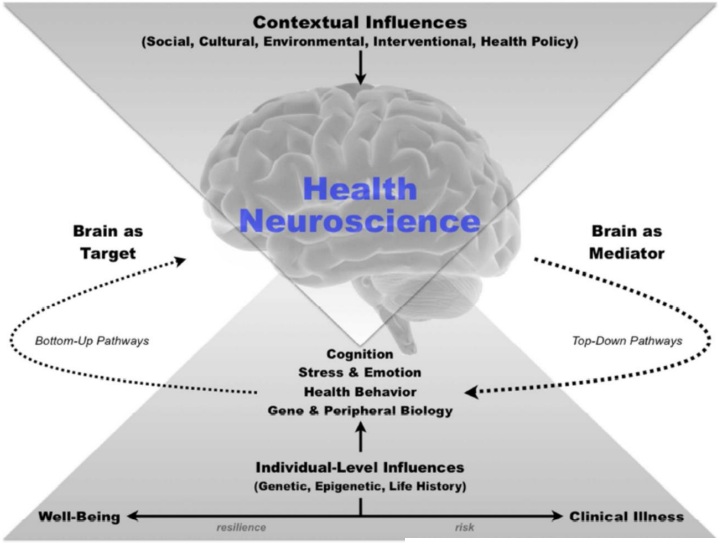
HEALTH NEUROSCIENCE – new crossdisciplinary platforms to develop brain-based prevention and intervention



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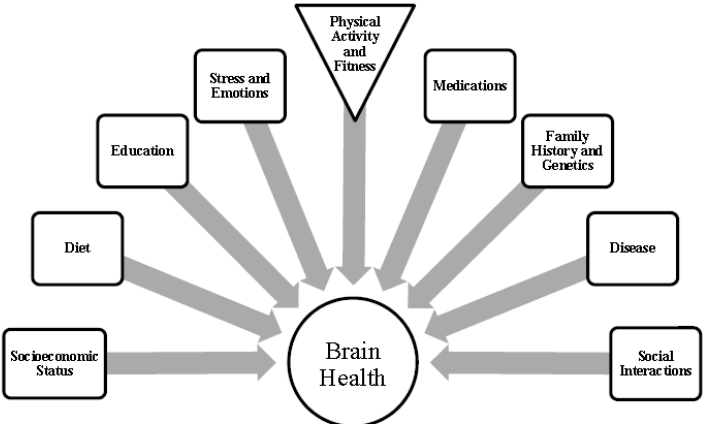
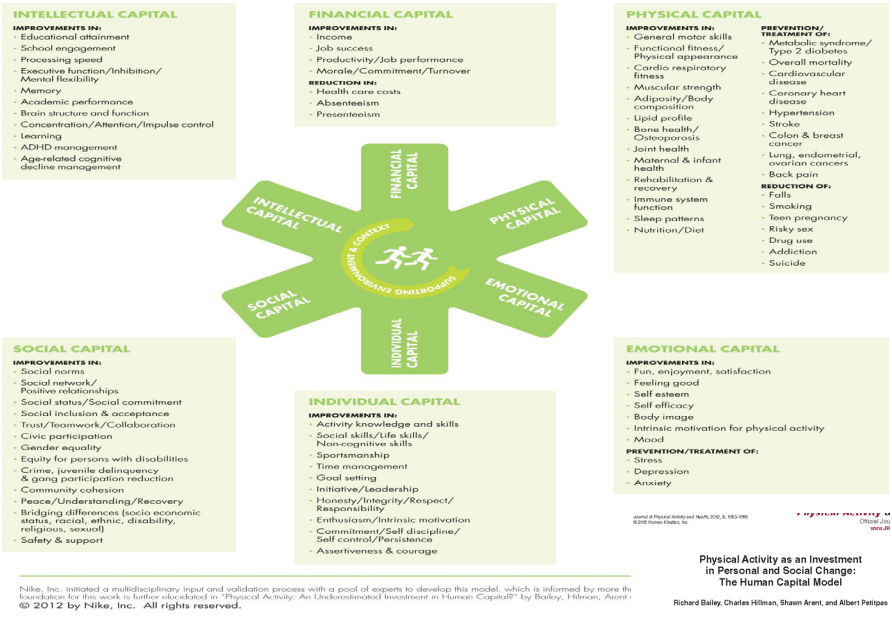
Modulators for relationship between health brain function and physical activity

Figure 2. Schematic representing the numerous factors that modulate the relationship between brain function and physical activity.



HUMAN CAPITAL MODEL – Physical activity as an investment in personal and social change

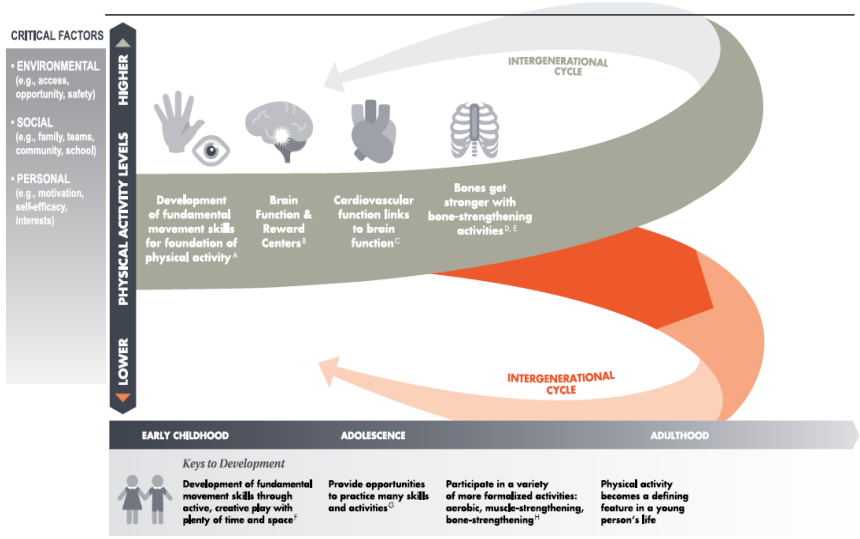


Developmental marker linked to physical activity level

Official Journal of ISPAH
www.JPAH-Journal.com
SPECIAL REPORT

Physical Activity: An Underestimated Investment in Human Capital?

Richard Bailey, Charles Hillman, Shawn Arent, and Albert Petitpas



Cognitive reserve - positive neuroplasticity and negative neuroplasticity

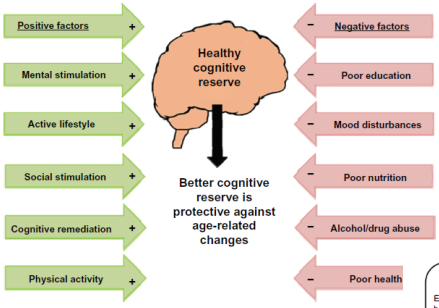
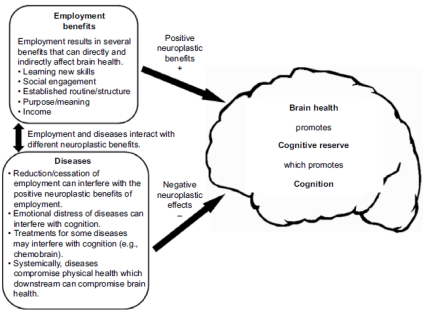


Figure 1 Contributing factors of cognitive reserve.
Notes: + contributes to positive neuroplasticity which supports cognitive reserve; − contributes to negative neuroplasticity which does nc

Nursing: Research and Reviews

Potential factors that may promote successful cognitive aging

David E Vance



The interaction of employment and diseases on cognitive reserve.

Cognitive reserve is associated with the functional organization of the brain

Persons with low cognitive reserve needed a greater "effort" than those with high cognitive reserve to achieve the same level of cognitive performance.

Cognitive reserve contributes to the modulation of the functional connectivity patterns of the aging brain.

frontiers in AGING NEUROSCIENCE

ORIGINAL RESEARCH ARTICLE
published: 13 June 2014
doi: 10.3389/fnagi.2014.00125

Cognitive reserve is associated with the functional organization of the brain in healthy aging: a MEG study

*María E. López[1,2†], Sara Aurtenetxe[1,2†], Ernesto Pereda[3], Pablo Cuesta[1,2], Nazareth P. Castellanos[1], Ricardo Bruña[1], Guiomar Niso[1], Fernando Maestú[1,2] and Ricardo Bajo[1,4]**

Physical activity and functional connectivity in the brain

Physical activity is related to functional connections (recovery of the connections) between different areas of the brain.

And that means that physical activity through the cognitive reserve and the brain reserve can give the opportunity to strengthen functional brain activity.

The relation of physical activity to functional connectivity between brain regions

Keita Kamijo[a,b], Yuji Takeda[c,*], Charles H. Hillman[a]

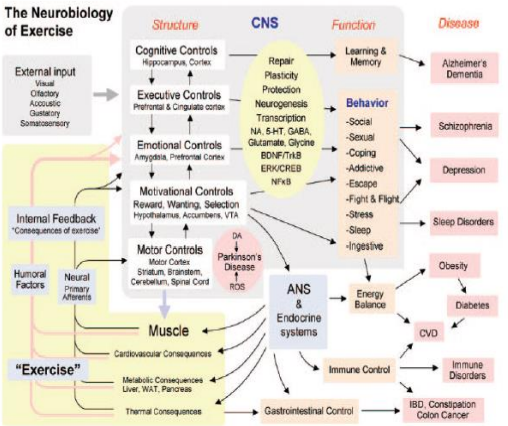
Clinical Neurophysiology 122 (2011) 81–89

Neurobiology of Exercise

Neurobiology of Exercise

Rod K. Dishman, Hans-Rudolf Berthoud,† Frank W. Booth,‡ Carl W. Cotman,§ V. Reggie Edgerton,¶ Monika R. Fleshner,|| Simon C. Gandevia,** Fernando Gomez-Pinilla,¶ Benjamin N. Greenwood,|| Charles H. Hillman,†† Arthur F. Kramer,†† Barry E. Levin,‡‡ Timothy H. Moran,§§ Amelia A. Russo-Neustadt,¶¶ John D. Salamone,|||| Jacqueline D. Van Hoomissen,*** Charles E. Wade,††† David A. York† and Michael J. Zigmond‡‡‡*

OBESITY Vol. 14 No. 3 March 2006



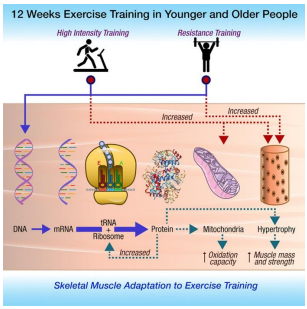


Figure 1: A heuristic diagram for understanding the neurobiology of exercise and physical activity. ANS, autonomic nervous system; BDNF, brain-derived neurotrophic factor; CNS, central nervous system; CREB, cyclic adenosine monophosphate response element-binding protein; CVD, cardiovascular disease; DA, dopamine; ERK, extracellular signal-regulated kinase; 5-HT, 5-hydroxytryptamine; GABA, gamma amino butyric acid; IBD, inflammatory bowel disease; NA, noradrenaline; NFκB, nuclear factor of kappaB; ROS, reactive oxygen species; TrkB, tyrosine residue kinase receptor-type 2; VTA, ventral tegmental area; WAT, white adipose tissue.

Cognitive reserve is connected with brain reserve.

Cognitive reserve using the brain reserve can look for alternative neural networks (in the healthly brain).

NeuroImage 63 (2012) 713–722

Contents lists available at SciVerse ScienceDirect

NeuroImage

journal homepage: www.elsevier.com/locate/ynimg

Cognitive reserve impacts on inter-individual variability in resting-state cerebral metabolism in normal aging

Christine Bastin [a,*], Igor Yakushev [b,c], Mohamed Ali Bahri [a], Andreas Fellgiebel [c], Francis Eustache [d], Brigitte Landeau [d], Armin Scheurich [b], Dorothée Feyers [a], Fabienne Collette [a], Gael Chételat [d,1], Eric Salmon [a,1]

Combined treaning

Combined training (cognitive, aerobic and musical) offers the best opportunities for functional modification and cognitive ability.

Combination Training in Aging Individuals Modifies Functional Connectivity and Cognition, and Is Potentially Affected by Dopamine-Related Genes

Valentina Pieramico[1,2], Roberto Esposito[1], Francesca Sensi[2], Franco Cilli[2], Dante Mantini[1,3], Peter A. Mattei[1], Valerio Frazzini[1,2], Domenico Ciavardelli[2,4], Valentina Gatta[5,6], Antonio Ferretti[1], Gian Luca Romani[1], Stefano L. Sensi[1,2,7]*

PLOS ONE | www.plosone.org 1 August 2012 | Volume 7 | Issue 8 ||

Physical and motor fitness

In seniors, physical activity and motor activity are associated with cognitive functions.

Physical activity - is associated with cardiovascular activity and muscle strength

Physical activity - plasticity, processing speed, balance, coordination

Sometimes :

AF is still associated with the psychological dimension (fluid intelligence, cognitive plasticity, automatic processing)

AR is associated with the neurophysiological dimension (perceptual and higher cognitive processes such as attention, important for mapping experience to action, and providing anticipatory and adaptive aspects of attitude control and motor coordination)

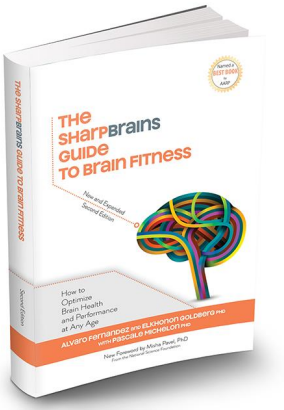
European Journal of Neuroscience, Vol. 31, pp. 167–176, 2010 doi:10.1111/j.1460-9568.2009.07014.x

COGNITIVE NEUROSCIENCE

Physical and motor fitness are both related to cognition in old age

FEATURED ARTICLE

Claudia Voelcker-Rehage, Ben Godde and Ursula M. Staudinger



Reward system

(fMRI) in the same subjects, we directly demonstrate a link between midbrain dopamine synthesis and reward-related prefrontal activity in humans, show that healthy aging induces functional alterations in the reward system, and identify an age-related change in the direction of the relationship (from a positive to a negative correlation) between midbrain dopamine synthesis and prefrontal activity. These results indicate an age-dependent dopaminergic tuning mechanism for cortical reward processing and provide system-level information about alteration of a key neural circuit in healthy aging. Taken together, our findings provide an important characterization of the interactions between midbrain dopamine function and the reward system in healthy young humans and older subjects, and identify the changes in this regulatory circuit that accompany aging.

Age-related changes in midbrain dopaminergic regulation of the human reward system

Jean-Claude Dreher*†‡, Andreas Meyer-Lindenberg*§, Philip Kohn*, and Karen Faith Berman*‡

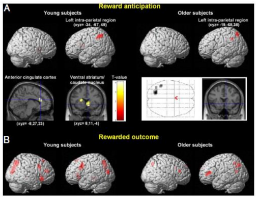


Fig. 1. Statistical t maps of the within-groups effects in the different phases of the reward paradigm ($P < 0.005$, uncorrected). (*A*) (*Left*) Main effect of anticipating reward in young subjects during the delay period, showing activation in the left intraparietal cortex, ventral striatum, caudate nucleus, and anterior cingulate cortex. (*Right*) Main effect of anticipating reward in older subjects during the delay period, showing activation in the left intraparietal cortex only. The glass brain and the coronal slice indicate that no ventral striatum activity was observed in older subjects. (*B*) (*Left*) Main effect of reward receipt in young subjects at the time of the rewarded outcome showing activation in a large bilateral prefronto-parietal network. (*Right*) Main effect of reward receipt in older subjects at the time of the rewarded outcome showing bilateral prefronto-parietal activation.

Reward system and anhedonia

Trait anhedonia is associated with reduced reactivity and connectivity of mesolimbic and related limbic and paralimbic systems involved in reward processing. Critically, this association can be detected even in individuals without psychiatric illness. Our findings have important implications both for understanding the neurobiological basis of anhedonia and for the treatment of anhedonia in psychiatric disorders.

Trait anhedonia is associated with reduced reactivity and connectivity of mesolimbic and paralimbic reward pathways

Jennifer Keller[a,1], Christina B. Young[b,1], Elizabeth Kelley[a], Katherine Prater[c], Daniel J. Levitin[d], Vinod Menon[a,e,f,*]

Journal of Psychiatric Research xxx (2013) 1–10

Reward system and motivational process.

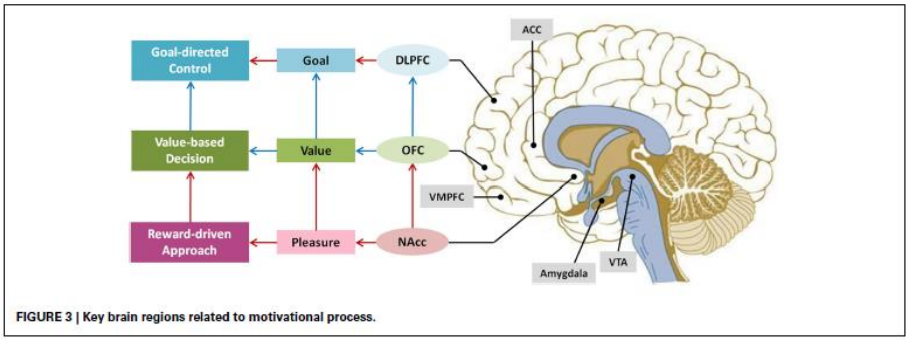
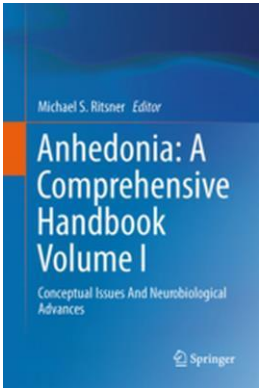


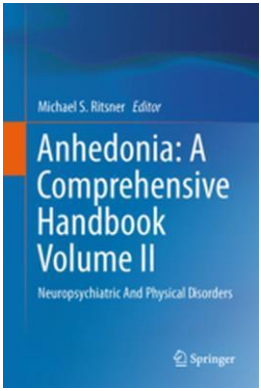
FIGURE 3 | Key brain regions related to motivational process.

frontiers in PSYCHOLOGY
REVIEW ARTICLE
published: 04 March 2013
doi: 10.3389/fpsyg.2013.00098

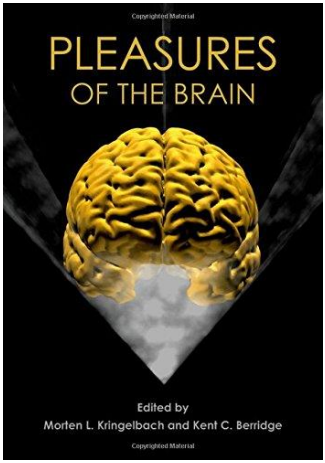
Neuroscientific model of motivational process

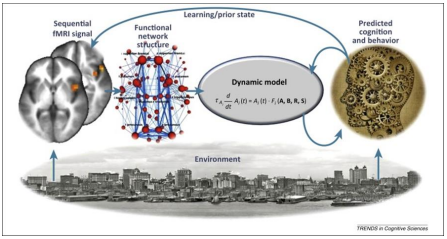
Sung-il Kim*





Neuroscience of well-being





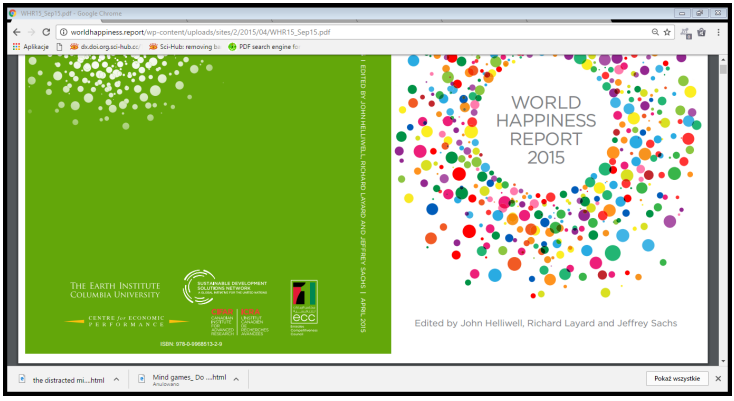
Towards a Neuroscience of Well-Being: Implications of Insights from Pleasure Research

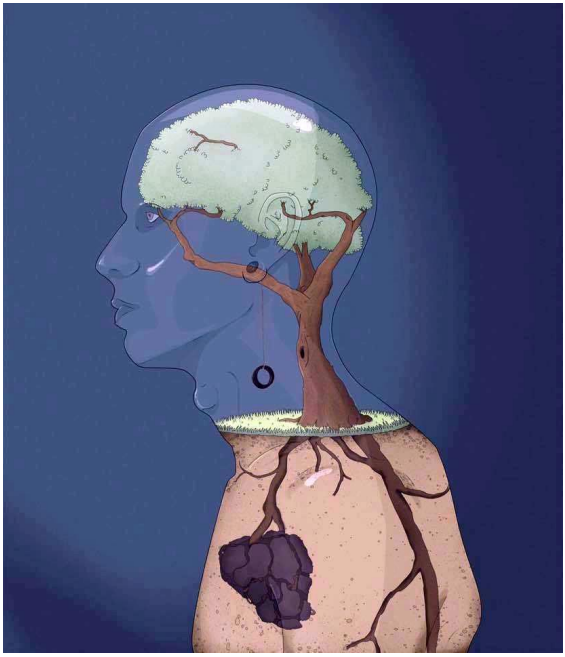
Kent C. Berridge and Morten L. Kringelbach

Create Healthy Social Dynamics

Bridge – Investing in Social capital

„…whale hunters and bridge players reveal superior social capital than, respectively, farmers and poker players, since their commonly practiced activity requires and rewards team thinking.” [p.73]





Thank you for attention! ☺

NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ

International Scientific Conference
RECREATION AND JOY OF LIFE IN SENIORS
Toruń 20-21.04.2017

BRAIN CARE AND AGING

Paolo Walter Gabriele
Professor of Neurology - Department of Human Sciences , Society and Health – University of Cassino & Southern Lazio
Chair of the WBF Medical and Prevention Commission

Life expectancy for those born after 2010
103 years for females
97 years for males

Life expectancy at birth continues to increase, it is greater than about 6 years in sex♀. In the early twentieth century the difference between ♂ and ♀ was clearly lower

We are moving towards an **aging society**. And now in place a "demographic transition" that our population will become more and more "old"

We must therefore confront a real **anthropological revolution** that needs an effective and innovative approach

The greatest achievement of our time, the increase in life expectancy is accompanied by an event in contrast, that the spread of a disease that causes **the devastation of those years more** of life hard-earned.

Alzheimer Dementia

Vascular Dementia

Fronto – temporal Dementia

"Dementia is a severe intellectual impairment, acquired, irreversible, caused by a type of organic brain disorder" Esquirol, 1814

" The crazys' boat "
Hieronymus Bosh, 1500
Paris " Louvre Museum "

3

4

ISSUES IN THE TREATMENT OF ADVANCED DEMENTIAS

The remedies so far put in place to address the devastating issue of dementias have not, despite the efforts, led to great results.
The hopes placed in the pharmacotherapy (cholinesterase inhibitors: *Donepezil*, *Rivastigmine*, *Galantamine*, or Glutamate blocking agents: *Memantine*) went **largely disappointed by the clinical experience**.

The real problem that the scientific world today and the most advanced societies arise in this regard is how **to prevent -** as far as possible **- the dementia**

This is why we are carrying out numerous studies on ***early diagnosis of early disorders of memory and other cognitive domains***, which often lead, in time, to a form of dementia

5

DEMENTIA'S PREVENTION AND EARLY DIAGNOSIS

- **Prevention** of vascular and metabolic risk factors

- **Maintaining** *physical* and *mental* **wellbeing**

- Adopting **appropriate lifestyles**

- Increasing the "**cognitive reserve**"

- Using integrated diagnostic procedures and **advanced technologies**

- Using **therapeutic interventions** targeted ***in the initial stages*** of cognitive decline and MCI (Mild Cognitive Impairment)

6

MEDICINE PROVIDES FOR THE WISE USE OF FOOD

Since ancient times, both in the east – by the Ancient Chinese Medicine – and in the Western culture – by Hippocrates in the treatise *Ancient Medicine* - it is argued that **the power supply is the basis** of *Ars Medica*.

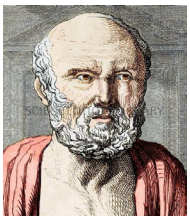
Recent scientific acquisitions have demonstrated that the food - and then the various types of power - influence genes, aging, the immune system, disease prevention.
A reasonable and appropriate use of different nutritional resources play a key role, together with genetic and environmental factors, in the **control** and perhaps also in the **treatment of *brain disorders and mental health***

There are already many evidences about the role that **special power supplies have in the treatment of various diseases**: depression, psychotic illnesses, headaches, epilepsy, Parkinson's disease, dementia, autoimmune diseases, cancer

7

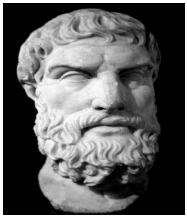
HEALTH AND NUTRITION

HIPPOCRATES , Kos 400 b.C.



"Food is the first medicine"

EPICURUS, Samo, 300 b.C .



"We are what we eat"

2400 years later we know ***nutrigenomics*** **and** ***nutrigenetics*** confirm their statements

8

Physical activity
improves memory and strengthens brain's cells

Many studies have shown that ***physical activity*** **results in positive effects** on the hippocampus and the memory circuits in healthy individuals, but also in those with AD

("Exercise plus behavioral management in patients with Alzheimer disease. A randomized controlled trial", JAMA, 2013)

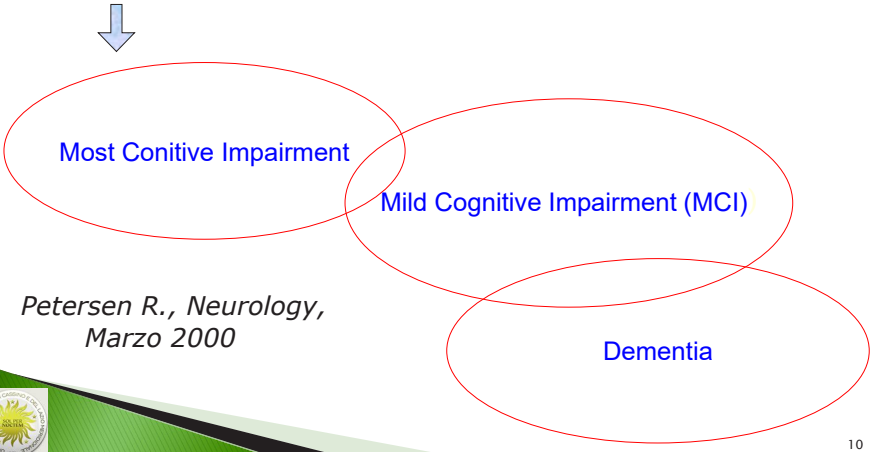
Other recent studies have confirmed that ***physical activity*** (especially aerobic) has a protective effect on the brain, it encourages the production of new cells (***neurogenesis***) and is a powerful **anti-aging factor**

The resulting increase, **in *physical activity*, of BDNF** (*Brain-derived neurothrophic factor*) levels increases ***"brain plasticity"*** that is, the ability to create new connections (synapses) and that even in subjects with brain damage (from stroke, trauma, biological deterioration, etc.)

9

EARLY DIAGNOSIS

The most cognitive impairment is often the initial sign of dementia



Petersen R., Neurology, Marzo 2000

10

Diagnostic procedures for early diagnosis in dementia

Clinical examination: anamnestic, general, geriatric and neurological

Laboratory tests, including markers for dementia

Administration - in previously selected patients – of batteries of standardized **psychometric tests** aimed at the staging of memory disorders, but also of other cognitive domains.

Neuroimaging techniques: Functional MRI
PET (Positron Emission Tomography),
SPECT (single photon emission tomography).

Genetic testing

OTC (Optical coherence tomography) for the study of the retina and optic nerve.

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PET / SPECT / MRI in the early diagnosis of dementias

PET - with studies of ***brain metabolism*** (especially glucose uptake) with 18F-DG in MCI

SPECT - with studies on ***neurotransmitter alterations***, on striatal dopaminergic transmission, on amyloid markers in preclinical phase with the Pittsburgh compound-b (PIB14), on the glucose metabolism changes in the hippocampus and in the temporo-parietal cortex, **in initial AD**

Functional* MRI** - with studies aimed at highlighting not only the hippocampus and ***modifications of peri-hippocampal areas, but also in the ***execution of functions***

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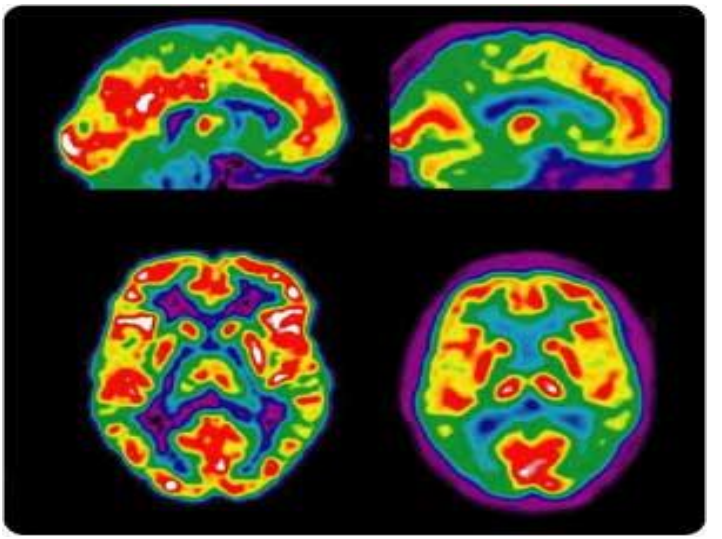
PET BRAIN



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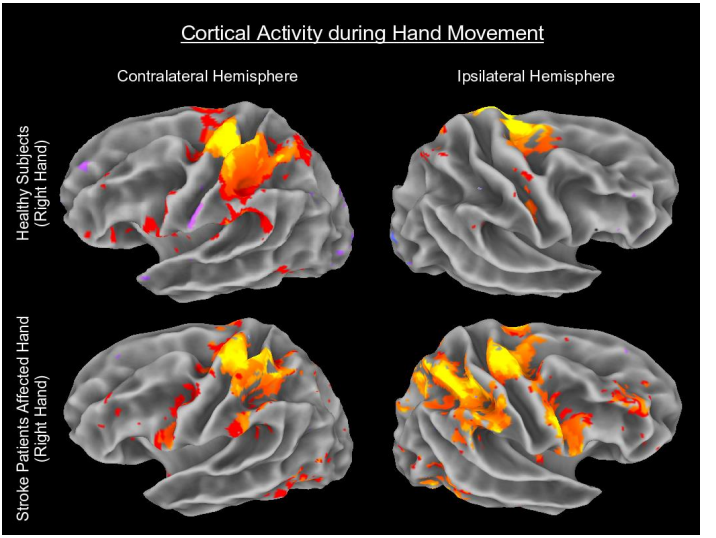
BRAIN Functional MRI



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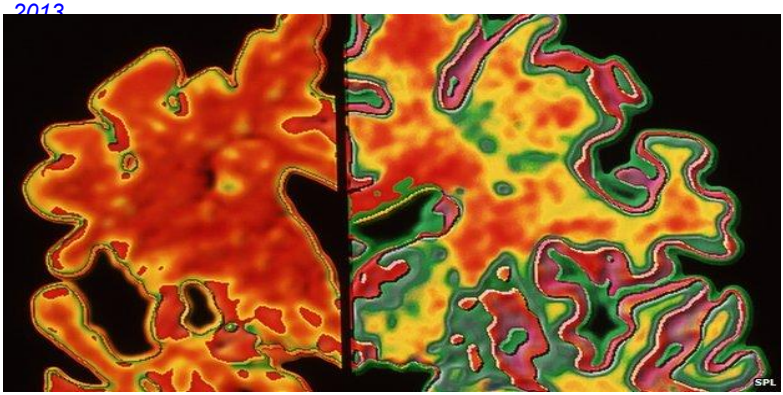
OTC - Eye cells could help in diagnosing Alzheimer's disease

Melissa Hogenboom *Science reporter, BBC News 13 November 2013*



Retinal nerve fibre layer structure abnormalities in **early Alzheimer's disease**: Evidence in optical coherence tomography *Neuroscience Letters, August 2010*

15

ADVANCES IN NEUROSCIENCES

The **latest research in *neurobiology* and *neurochemistry*** led to understand important aspects of the nervous system and mind in particular

Advances in *molecular biology* and *pharmacology* have allowed ample knowledge on the nerve brokers, on neuro-hormonal transmission, neurotransmitters, receptors on, the neuro-modulators of enzymes necessary for neuronal metabolism

Group of **technologies which study *genes* and *genoma***, mental activity, and the possible modifications

New technologies to improve and modify mental processes

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THERAPEUTIC PROCEDURES IN MCI

Appropriate Lifestyles

Power
Hydration
Physical Activity
Fun Activities
Stress Management
Intimacy and Religion

Targeted use of **supplements**

Technical **upgrading** of ***motor*** **and** ***cognitive*** **rehabilitation**, including cognitive tele-rehabilitation

Drug therapies

Care and psychological therapies

CURRENT MODEL OF BRAIN ACTIVITY

The brain is plastic (as experience is capable of change brain connections) and is able to renew partially producing new cells (**neurogenesis**)

The normal mode of operation provides a **constant interweaving** of emotions, learning, memory and consciousness

The mind-brain communication is **integrated communication**, which is influenced by genetics, age, natural and social environment, the lifestyles

By our experiences we constantly remodel. The memories accumulate, and this collection of past scenarios that we store in the brain allows us to put into perspective the sensations and events of each day.

Gerald Maurice Edelman (Nobel Prize in Medicine in 1972) has proposed a model of **continuous development of neural connections** by synapses based on the experience and plasticity

"Darwinism of synapses replaces the Darwinism of genes"

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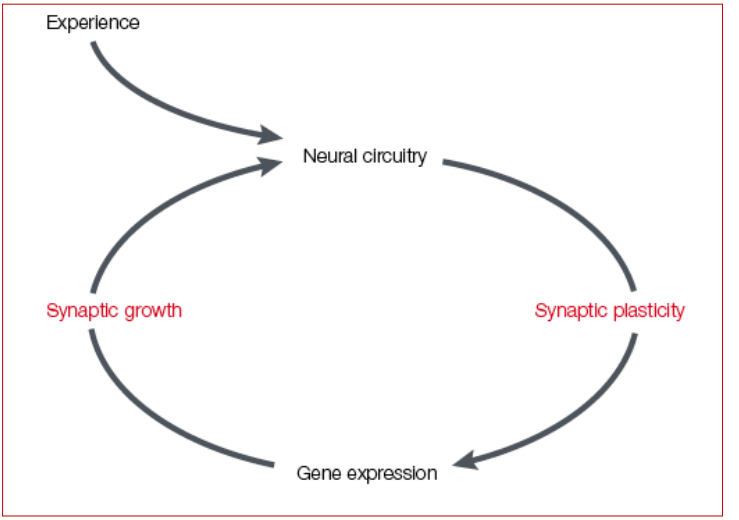
MIND AND MEMORY

The mind is the essence of individuality. Humans share fundamental genes for thinking and learning, but everybody has individual differences that lead to a complex interaction with environment and experiences which make the person unique

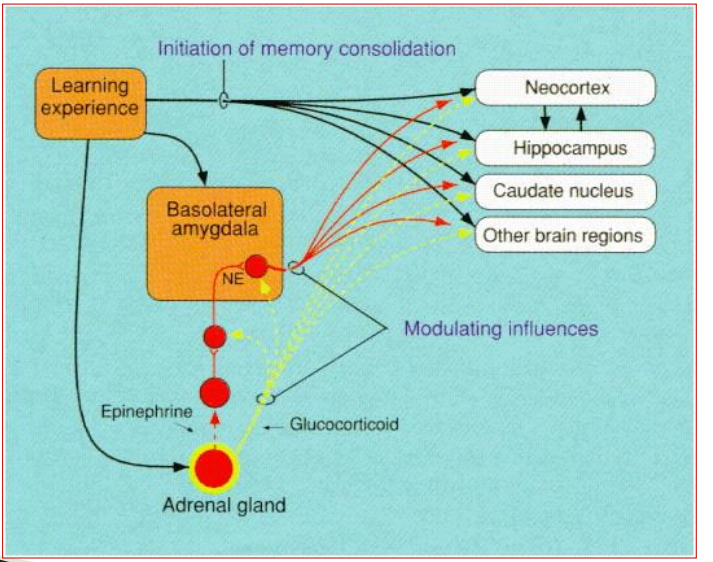
Our experiences **change us continuously** and modify the layers of memories that we accumulate in our mind

We can exploit these qualities of the brain **to keep our minds efficient** even in old age and to optimize our memory

NEURO-BIOLOGICAL BASES OF MEMORY



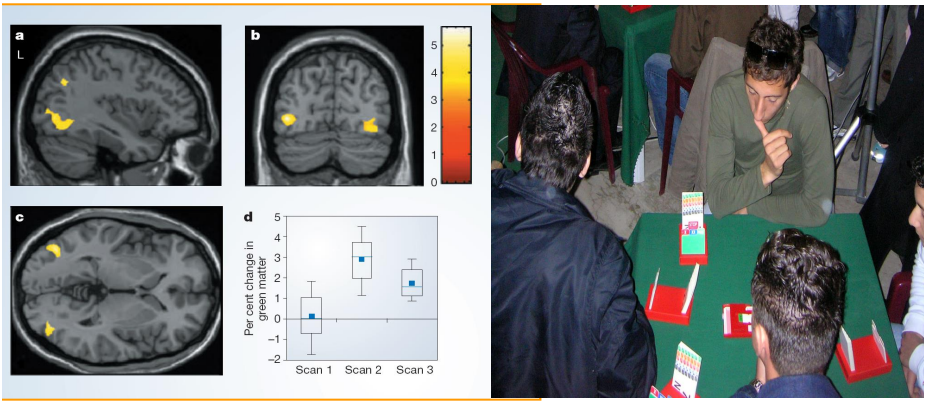
SYSTEMS GOVERNING THE CONSOLIDATION OF MEMORY



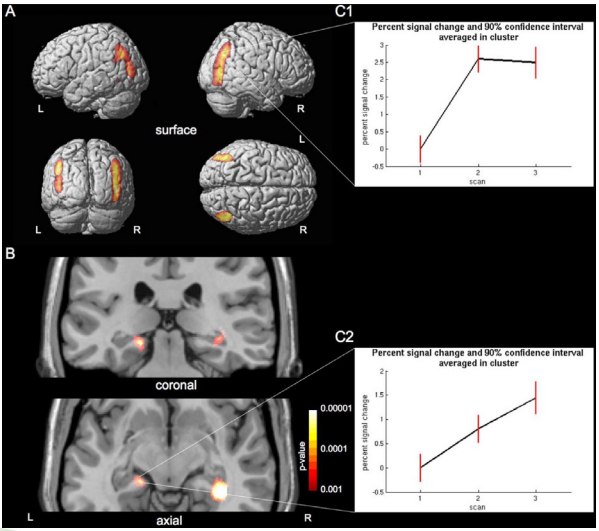
Changes in grey matter induced by training

Nature,

2004



Temporal and Spatial Dynamics of Brain Structure Changes During Extensive Learning *Draganski B et al., J. Neurosci., 2006*



Mind Sports preserve and improve cognitive function

An important longitudinal study of 469 elderly - published in June 2003 of the *New England Journal of Medicine* by researchers at the "Albert Einstein College of Medicine" in New York, showed that **people who play cards, chess, checkers**, as well as those who play tools, ***less frequently become dementia impaired*** than those who do not practice mind-oriented activities

A very recently published study (March 2017), performed at the Mayo Clinic in Rochester, USA, confirmed the ***positive effects*** of mental activities and **games on cognitive function in old age:**

*"Association Between **Mentally Stimulating Activities in Late Life** and the Outcome of Incident Mild Cognitive Impairment, With an Analysis of the APOE ε4 Genotype"*

JAMA Neurol. 2017; 74(3): 332-338.

Many other data from the scientific literature show how ***playing Bridge*** constitutes an effective aid to the **development and maintenance of cognitive activity at all ages in men and women**

You can play bridge at a high level at all ages

At the age of 86 years Benito Garozzo won second place European Championship in Transnational Open Teams in June 2013 (Ostend, Belgium) with the Zaleski team.

GOOD GENES AND HEALTHY ENVIRONMENT

Longevity is genetically programmed with a **network adequate defence**: healthy mitochondrial engines, powerful anti-oxidant systems, effective DNA repair mechanisms

But the genetic program *must be supported* by **environment**: lack of pollution, quality of life, fit individual lifestyles

Food qualitatively and quantitatively controlled, physical activity, stress management techniques, adoption of adequate lifestyles, mental stimulating activities, allow individuals to "**get healthy at the end**" and avoids building a society full of invalids

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To age well ... We share childhood

Paul Klee - Pumpkins

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SNEAK TEACHING BRIDGE

a tool for learning bridge

APRIL 20, 2017

Rosaline Barendregt rosaline.barendregt@uib.no

SNEAK TEACHING BRIDGE

a tool for learning bridge

APRIL 20, 2017

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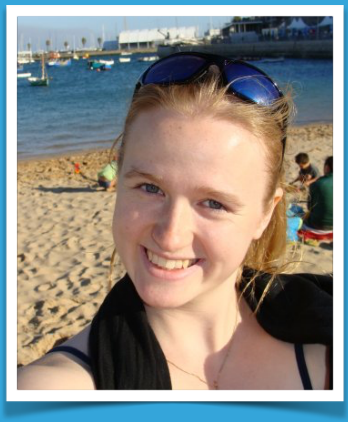


- PhD research fellow
- University of Bergen, Norway
- Research on: design of educational environments & engagement
- Project: Sneak Teaching Bridge

Rosaline Barendregt

rosaline.barendregt@uib.no

SNEAK TEACHING?

LEARNING & GAMES

STEALTH LEARNING

"... non traditional tools, such as games, to encourage students to have fun and learn"

"... students think they are merely playing, but they are simultaneously learning"

(Sharp 2012)

LEARNING GAMES

(games, specifically developed for education)

to create fun and motivating learning situations

or . . . ..

how can one design a learning game that teaches without the player noticing?

sneak teaching!

GAME DESIGN

Flow

" state in which people are so involved in an activity that nothing else seems to matter "

(Csikszentmihalyi 1990)

challenges vs ability to solve

GAME DESIGN	DIDACTIC DESIGN
Flow	Zone of Proximal Development (ZPD)
“ state in which people are so involved in an activity that nothing else seems to matter ”	accomplishment of the learner by himself vs with help of a tutor
(Csikszentmihalyi 1990)	(*Vygotsky 1978*)
challenges vs ability to solve	

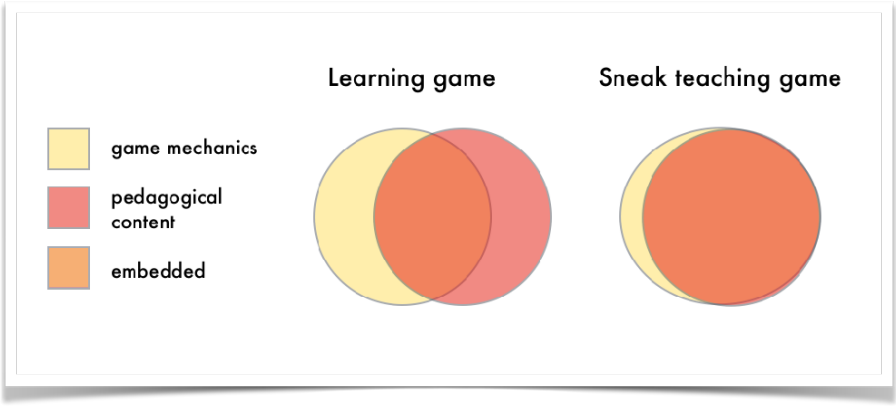
Addressing a player/student’s ZPD in a learning game contributes to the game flow

instructional design for learning games

SNEAK TEACHING GAMES

"A Sneak Teaching Game is a type of Learning Game where the learning is hidden within the game mechanics, so that players perceive the game as an Entertainment Game"

SNEAK TEACHING GAME DESIGN



SNEAK TEACHING GAME DESIGN

3D

1. *Pedagogical dimension*
2. *Game dimension*
3. *Sneak teaching dimension*

how to present pedagogical content as a game?

PEDAGOGICAL CONTENT AS A GAME

structuring of the learning domain
can contribute to scaffolding

&

embodying learning elements by game elements

sneak teaching Bridge

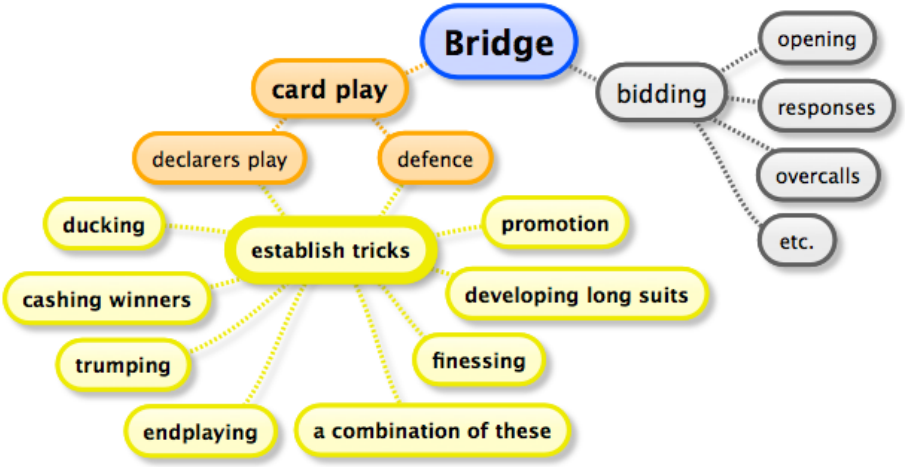
BRIDGE

- problem to attract new players
- difficult to learn
- high threshold to start

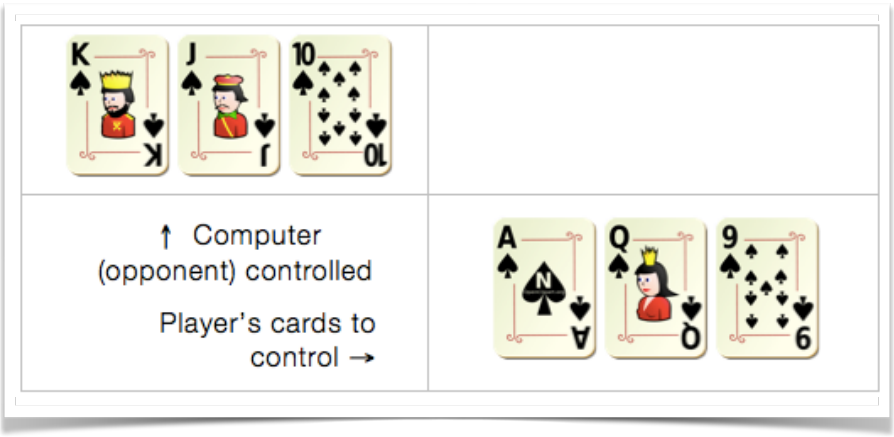
DESIGNING BRITZ!

1. learning domain design
2. paper game environment
3. digital game design

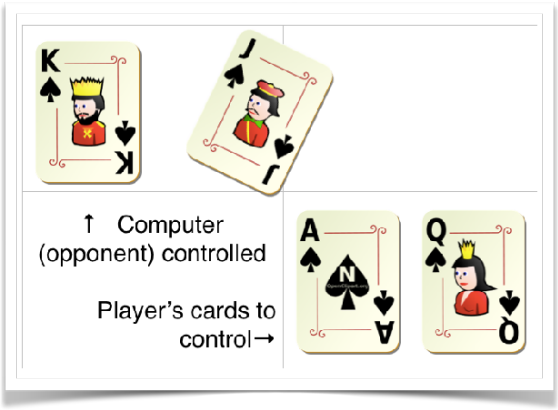
LEARNING DOMAIN



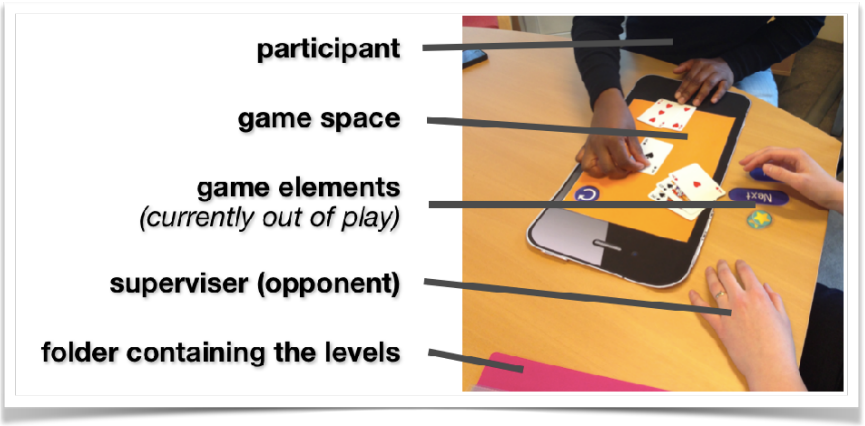
MINI PUZZLES



MINI PUZZLES



Level 1 T2 98 *	**Level 2** JT3 875 *	**Level 3** J3 * QT	**Level 4** J97 QT5 *	**Level 5** AKQ4 6532 *
Level 6 AK9 JT7 *	**Level 7** KJT AQ5 *	**Level 8** KQT * AJ6	**Level 9** AK6 973 *	**Level 10** QJ8 * A92
Level 11 KJ98 * AQ102	**Level 12** 854 4 32 * T3	**Level 13** 4 * 854 T3 32	**Level 14** T76 Q K * JT9	**Level 15** KQ A A * 43
Level 16 KT K AQ * 2	**Level 17** KJ KJ AQ * A3	**Level 18** KQ5 K AT4 * 5	**Level 19** 543 AK AK * 543	**Level 20** AK K3 4 * AQ7
Level 21 AK5 3 Q9 * 54	**Level 22** KQ4 3 AJ8 * A	**Level 23** KQ94 - J87 * 4	**Level 24** QJ KQ8 A8 * AJ7	**Level 25** 43 42 52 * 53
Level 26 A8 64	**Level 27** T9 KJ6	**Level 28** K4 QJT	**Level 29** K3 8 2	**Level 30** 642 * 6 -



see sneakteachingbridge.com for the prototype
(made for viewing with iPad)

POTENTIAL & PURPOSE OF BRITZ

- all ages , including seniors
- extra training along side bridge classes
- convince non bridge playing friends
- puzzle game to stimulate the brain

FURTHER RESEARCH

- Which learning domains allow for Sneak Teaching
- Compare learning outcomes of Sneak Teaching Games to other teaching methods
- Further Britz!


Britz!
Play
About