

Passive life-style behaviors and cognitive health: consequences on the workplace

Prof. CS PERETTI

Department Head

Psychiatry and Medical Psychology Department
Hôpital Saint-Antoine - Paris





Cognition: An Indicator of Overall Health

1

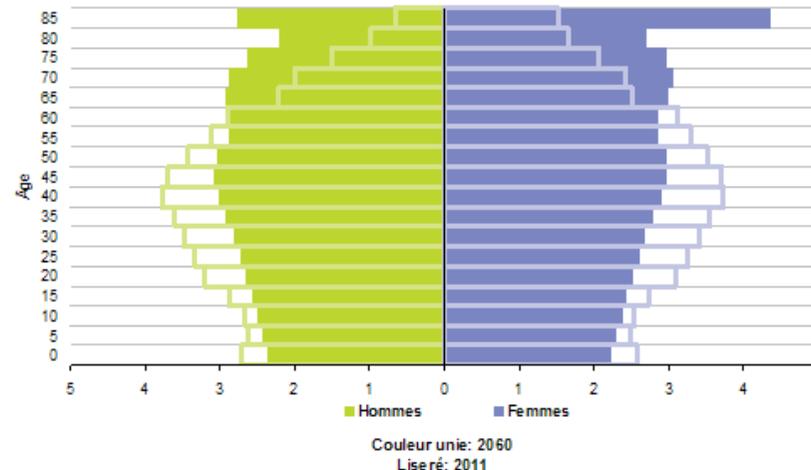
Cognition and Mortality are correlated:

- In 2000, Bassuk published on the link between mortality and cognitive deficit in the American Journal of Epidemiology

2

Physical Activity and Cognition are related:

- Context: Aging Population in Europe
- Challenge for companies: Maintain this population in good health, both physically and mentally



(1) 2011: vorläufige Daten; Daten für 2060: Vorausschätzungen
(Konvergenzscenario EUROPOP2010).
Quelle: Eurostat (Online-Datencodes: demo_pjangroup und proj_10c2150p)



Recreational physical activity positively affects cognition

Proved in aging subjects in numerous studies:



- Bloomquist et Danner, 1987;
- Christensen McKinnon, 1993;
- Clarkson-Smith et Hartley, 1990;
- Lord & Castell 1994;
- Rogers et al., 1990;
- Shay et Roth, 1992;
- Spirduso et Clifford, 1978



Physical activity provides protection from cognitive deficit & dementia in seniors



Laurin et al. in 2001 and Yoshitake & al. In 1995: lack of physical activity was proven to be a risk factor for dementia and Alzheimers



Effects from aerobic and fitness training

Beneficial effect on cognitive performance (Colcombe & Kramer, 2003)



Only 32% of senior subjects (+ 65 y) have a regular routine of physical activity (Fitness Facts for Older Americans, 2000)



Active seniors are much less often anxious and depressed than non-active seniors



Self-efficacy is higher in active seniors (McAuley and Blissmer, 2000) **and allows active seniors to master everyday situations and preserve their autonomy**



Can we go further?

Which studies can be realized to fine tune the understanding of the effects of physical activity on cognition?

The relationship between physical activity and cognitive performance - Does it have a specific effect on seniors? More studies are needed on seniors

Is the beneficial effect of activity on the brain cumulative, and if so, how?



Is the effect proven for active adults?

How much energy (in watts) needs to be used? How long will the effects last?



In what cognitive areas does physical activity have an effect?

- Fluid intelligence (Bloomquist 1987; Christensen 1993)

Creativity innovation, and rapidity of adaptation in problem solving

- Visuospatial cognition (Rogers, 1990)

The professions impacted will be the professions with a visual aspect, such as craftsmanship/artisan crafting, decoration, painting, video, and media

- Attentional performances

Professions impacted: work-site managers, readers ... all professions requiring vigilance

- Reaction time (Clarkson-Smith, 1990)

In professions of transportation, logistics, movements ... capacity of adaptation and safety

- Memory (Blumenthal & Maden, 1988; Chodzko-Zajko & al., 1992)

All professions requiring guidelines or instructions to be followed

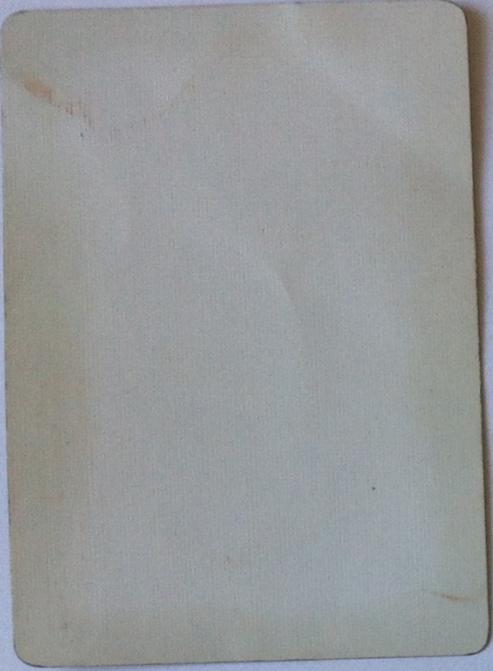
Test your attentional performance ...

**Look at the playing cards
presented and choose one ...**



**Do you remember?
Good...**





**I found the card you
picked...**

I made it disappear ...

If I guessed the card...

- It's what I found during an attentional deficit
- Don't worry, it's a very, very sensitive test
- Conducted only to show you that your cognitive performance is not optimal



Challenges of good mental & physical health

Maintaining the mental health of employees, especially seniors, is a major challenge for employers

→ **Promoting physical activity in the workplace is a solution**

Duration of effect:

- **Low levels of physical activity are correlated with low cognitive scores**
- **Even 11 years later!!**
- **There could be a cumulative effect of exercise on cognition (Dustman & al., 1994)**



How to measure physical activity?

- **Questionnaires**
- **Pacer**
- **Activity monitor**
- **Connected watch**

What type of physical activity?

Low-energy

- Gardening
- Household
- Chores
- Repairing a bike ...

Medium-energy

- Dance
- Cycling
- Recreational swimming

High-energy

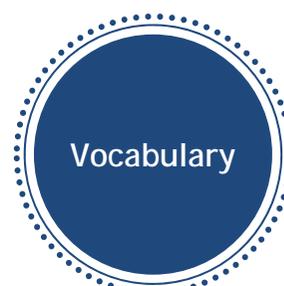
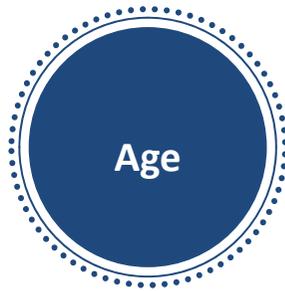
- Running
- Athletic swimming
- Squash ...



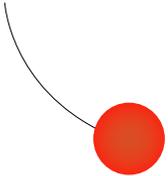
Recommendations:
a moderately energetic activity is recommended, but
any activity is better than being sedentary



Controlled variables considered in evaluation: other factors impacting performance



In summary, the factors related to health as measured by the teams themselves, the physical health factors, the risk factors for vascular diseases, the capacity to open to others and communication, the level of education have been considered as a prognostic



What are the risks of insufficient physical activity?

- **Fluid intelligence** (Cattell, 1963) used in the processing of information, short term memory, capacity for abstraction, creativity, problem solving abilities and reaction time
- **Concrete impacts on companies in daily life are lack of reactivity, difficulty adapting to change, and lack of flexibility in a dynamic marketplace**



Protective and reciprocal effects Activity-cognition



Justify preventive action

- Healthy mind in a healthy body
- Healthy body and healthy mind
- *Mens sana in Corpore sano*



The employer's role

- Put in place physical activity promotion programs with Occupational Medicine
- Have managers set a positive example with simple actions- using the stairs, organizing walks during lunch hour ...

ATTENTION TEST

Visuospatial

VIDEO

Count the number of passes
the white team makes





Conclusion

- **Physical activity is an important factor in the cognitive function of adults**
- **Early impacts**
- **Lack of physical activity decreases fluid intelligence**
- **Physical activity is correlated with longevity**
(Kujala et al. 1998; Paffenbarger et al. 1993; Hilleras et al. 1999)
- **Quality of life & well being are linked to physical activity in seniors**
(Hilleras 1999)
- **Effects of physical activity on cognition are more notable in seniors than in other age groups** (Christensen 1993; Clarkson-Smith 1990, Spirduso 1978; Colcombe 2003)
- **Verbal fluency must be studied to conclude on the effects of physical activity on the cognitive domain**



In the context of an aging population and an extremely dynamic, competitive marketplace, companies must react!



Passive life-style behaviors and emotional health: consequences on the workplace

Thanks for your attention