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Intergenerational physical activity : effects of a three-month intervention bringing together older adults and elementary school children



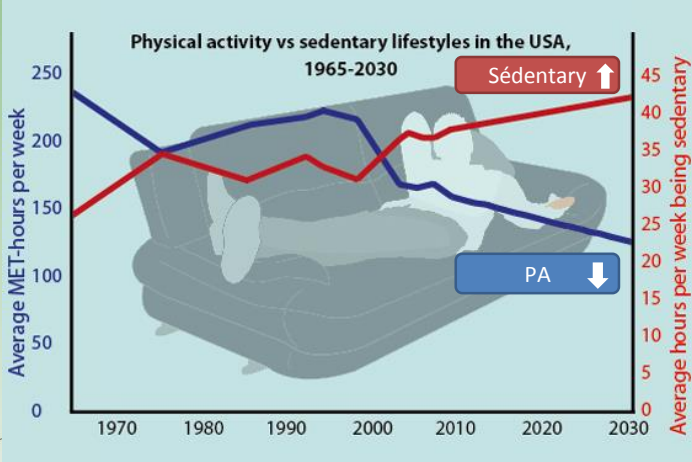
Alexandre Mouton, Tom Renier & Marc Cloes

Madrid 2015 AIESEP International Conference

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Physical activity (PA) Vs sedentary lifestyles: an alarming situation

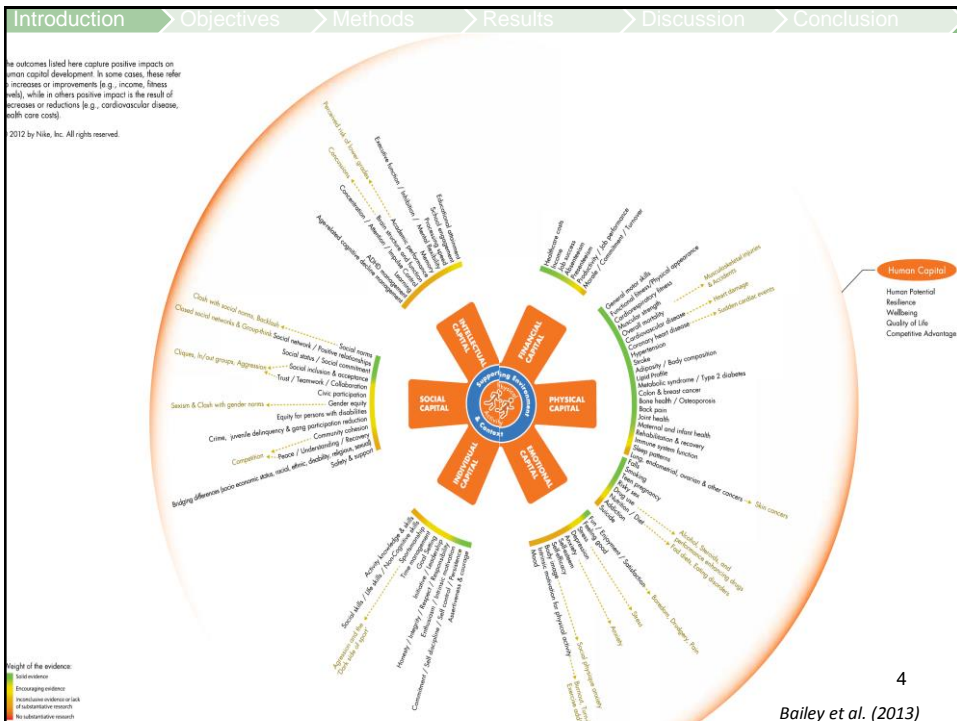
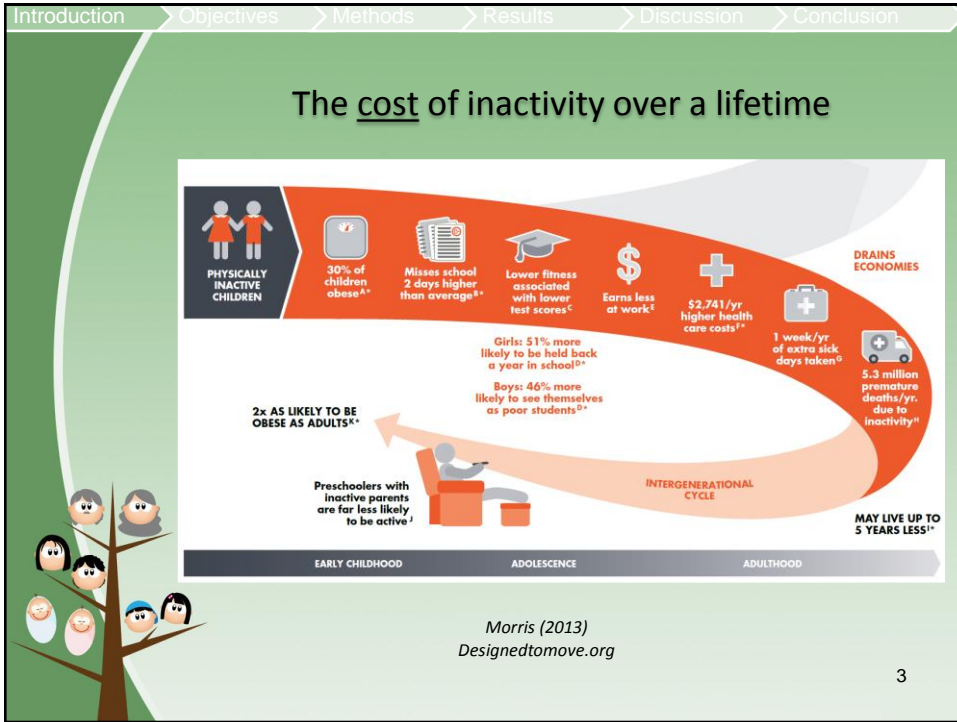


Physical activity vs sedentary lifestyles in the USA, 1965-2030

Year	Average MET-hours per week (PA)	Average hours per week being sedentary
1970	~230	~15
1980	~190	~25
1990	~170	~30
2000	~160	~35
2010	~150	~40
2020	~140	~42
2030	~130	~45

Ng & Popkin (2012) ; Saunders et al. (2014)

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The gain of physical activity over a lifetime

PHYSICALLY ACTIVE CHILDREN

- Active parents associated with active kids^M
- Up to 1/10th as likely to be obese^A
- Consistently smaller gains in BMI^A
- Fitness associated with 40% higher test scores^C

EARLY CHILDHOOD

ADOLESCENCE

- Less likely to smoke, become pregnant, engage in risky sexual behavior, or use drugs^{D, E, F}
- 15% more likely to go to college^F

ADULTHOOD

- Earns 7-8% more throughout life^G
- Saves up to \$2,741/yr in health costs^{H*}
- Full week of wages gained due to less absenteeism^I
- Reduced risk of heart disease, stroke, cancer, diabetes^J
- Compression of Morbidity 1/3 the rate of disability^J
- MAY LIVE 5 YEARS LONGER^{K*}**

STRONGER ECONOMIES

INTERGENERATIONAL CYCLE

Kids of active moms are 2x as likely to be active^M

Morris (2013)
Designedtomove.org

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Physical activity : a complex behaviour

PA characteristics

Demographical & biological

Individual

Environmental (natural & built)

Social & cultural

Behavioral

Trost et al. (2002), De Bourdeaudhuij et Bize (2008),
Van Holle et al. (2012), Humpel et al. (2002) Bauman et al. (2002)

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An ecological perspective


Adapted from Bronfenbrenner (1979); Sallis et al. (2006)

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Intergenerational activities

- ✓ Primarily delivered within social and educational contexts
(Williams & Nussbaum, 2001)



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Retirenet.com


➔ Bringing young people and older together with PA

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Intergenerational physical activity

- ✓ Innovative interventions are required to help older adults increase and maintain healthy levels of PA *(Flora & Faulkner, 2007)*
- ✓ PA provides opportunities for intergenerational contact which can diminish stereotype perceptions about aging and the elderly *(WHO, 2010)*
- ✓ To date, intergenerational PA research has received few attention *(Mouton, Henriouille & Cloes, 2014)*




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➔ **Study the effects of a three-month intervention bringing together older adults and elementary school children on:**



- ✓ PA behaviour
- ✓ Physical fitness
- ✓ Perceived physical and mental health
- ✓ Social relationships



- ✓ PA level
- ✓ Peers PA level

Influence of child age on the intervention outcomes


Satisfaction level of the participants

Assesment at baseline (T0), after the intervention (T1) and after 3 months follow-up (T2)

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Inclusion criteria



- Preschoolers (4-5 yrs old) from the same class
- Primary school children (7-8) from the same class

In the same school context

- 50 years or older
- Non-institutionalized (functional autonomy)
- Family relationship accepted (grand-parent/grand child)


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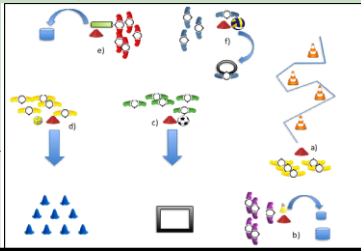
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Intergenerational PA program development

- ✓ Based on a previous study from our research team (*Mouton, Henriouille & Cloes, 2014*)
- ✓ Improvements in the program according to several suggestions:
 - Cooperation activities
 - Ratio max. of 1 older adult for 1,5 child
 - Several levels of difficulty
 - Diversification of activities
 - Shorten transition periods
 - Supply with documentation about the activities performed

→ 9 intergenerational PA sessions (1/week)





S1 : Mime games

S5 : Orienteering (treasure hunt)

S6 : Relay and skill games

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Data collection

Dis comment tu te sens aujourd'hui

Avant de venir pour l'activité

Pendant l'activité

Maintenant que l'activité est finie

Que penses-tu du coach ?

Etait-il clair et précis dans ses explications ?

at l'activité

Rappelles toi ce que tu as fait aujourd'hui

Comment as-tu trouvé la 1^{ère} activité ?

Comment as-tu trouvé la 2^e activité ?

Comment as-tu trouvé la 3^e activité ?

Dis comment tu te sens aujourd'hui

Quand tu participais à la séance

Très difficile

Quand

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Table 1: Participants characteristics

	Baseline (T0)		Follow-up (T2)	
Children	PRECHILD (n = 13)			
Age (years)	mean ± σ			
Gender (% Female)	4.85 ± 0.38		
	30.77			
Senior adults	SEN1 (n = 11)			
Age (years)	mean ± σ			
Gender (% Female)	63.91 ± 7.62			
	81.82			

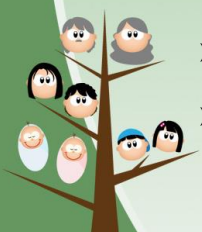
- ✓ High participation rates (SEN1: 81.48% - PRECHILD : 93.21%; SEN2: 83.33% - PRICHILD: 91.45%)
- ✓ But high dropout due to lack of questionnaire completion by parents (SEN1 : 1; PRECHILD: 6; PRICHILD: 9)

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- ✓ No significant differences
 - Between T0, T1 & T2
 - Between the 2 age groups
- ✓ Direct relationship between child PA and family PA
 - Grand-parent PA level (PRECHILD: $p < 0,01$; PRICHILD : $p < 0,05$)
 - Parents PA level (PRECHILD: $p < 0,01$)
 - PA practiced with at least one parent (PRECHILD: $p < 0,05$; PRICHILD : $p < 0,05$)



Goodman, 2012 ; Moore, 1991 ; Sallis et al, 2006 ; Tucker, 2007 ; Zecevic 2010 15


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- ✓ No significant differences between SEN1 & SEN2 groups
- ✓ Short-term improvement of the PA stage of change level
- ✓ Short-term increase of the health-perception level
- ✓ No impact on loneliness level


● No stage of change (SF-36)
● Increase at T1
● Decrease at T2

Score	SEN1 (mean ± σ)			SEN2 (mean ± σ)		
	T0	T1	T2	T0	T1	T2
Loneliness	2,900 ± 1,663	3,600 ± 1,713	3,000 ± 1,333	3,444 ± 1,309	3,710 ± 1,085	2,667 ± 0,961
Stage	2,900 ± 1,663	3,600 ± 1,713	3,000 ± 1,333	3,444 ± 1,309	3,710 ± 1,085	2,667 ± 0,961
pain	11,235 ± 5,530	10,706 ± 5,270	11,656 ± 48,350	13,215 ± 50,356	14,834 ± 52,433	14,151 ± 50,011
Vitality	11,931 ± 44,520	10,295 ± 46,890	9,047 ± 42,150	9,112 ± 43,922	11,958 ± 45,478	10,719 ± 43,422
Mean physical score	9,103 ± 9,103	9,032 ± 9,032	9,003 ± 9,003	10,903 ± 10,903	11,343 ± 11,343	10,484 ± 10,484



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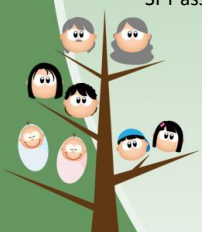


Senior Fitness Test

- ✓ Significant differences:
 - SEN1 : 2/7 tests
 - SEN2 : 3/7 tests
- No direct relationship between:
 - Physical components targeted in the program;
 - Physical increases during SFT assessment


Physical components	SEN1 (mean ± σ)		SEN2 (mean ± σ)	
	T0	T1	T0	T1
Upper limbs strength (N repetitions)	10,657 ± 3,143	15,325 ± 5,025	10,657 ± 3,231	15,176 ± 4,167
Lower limbs strength (N repetitions)	14,900 ± 3,708	17,900 ± 4,725	14,889 ± 4,340	17,888 ± 4,428
Endurance (N steps)	202,900 ± 27,189	200,100 ± 35,844	196,650 ± 31,611	200,067 ± 22,159
Lower limbs flexibility (N centimetres)	0,100 ± 8,621	2,400 ± 9,058	-2,333 ± 6,557	3,444 ± 4,693
Upper limbs flexibility (N centimetres)	8,500 ± 9,540	8,500 ± 9,307	8,500 ± 13,529	8,500 ± 13,559
Agility (secondes)	6,972 ± 1,680	6,781 ± 1,723	8,246 ± 2,945	8,014 ± 1,717
Balance (<5" ; 5 à 15" ; >15")	3,200 ± 1,200	3,200 ± 1,200	3,200 ± 1,200	3,200 ± 1,200

Jones & Rikli, 2002




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Post-sessions questionnaires



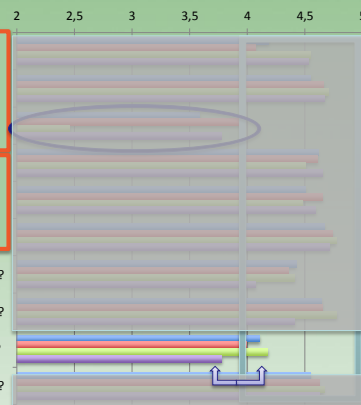
- Positive immediate feedbacks
 - Values > 4/5
 - Except for the feeling right after session
- Significant difference
 - Perceived difficulty level between child groups ($p < 0,05$)

Did the coach had given clear information ?

Did the coach was motivating?

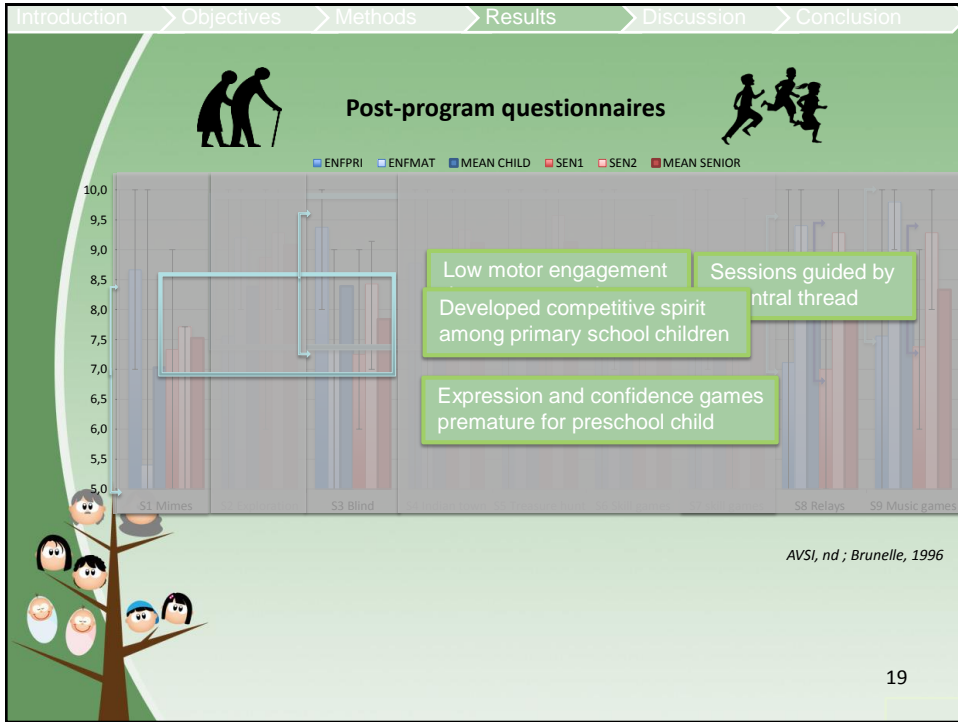
Which difficulty level did you feel during the session ?

Who do you feel when thinking about the next session?



■ SEN1 ■ SEN2 ■ ENFPRI ■ ENFMAT

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Post-program questionnaires

- ✓ Participants don't want an increase of the 1,5 senior - 1 child ratio
- ✓ Participants discovered new activities during the PA sessions
- ✓ Participants appreciated the social relationship during the program
- ✓ Participants and parents agreed with the organisation of an upcoming comparable intergenerational PA program
- ✓ Difficulty level must be adapted to the physical capacity of participating children and older adults
- ✓ Few participants have reported practicing games and activities of the program in their family environment
- ✓ Program didn't contribute to the long-term adoption of PA among seniors

Feedback comments:

- Charming kids
- Good ratio
- Adapted space
- Complicity
- Gratitude
- New social relationship
- Mutual benefits
- Difficulty to follow the kids!
- My kids are too old
- Kids don't speak about this
- Already active
- Not enough time
- Growing awareness about PA

Balyi, 2014 ; Justine et al, 2013 ; Kahn et al, 2002

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Perspectives

- ✓ *Encourage transfer to the familial environment*
- ✓ *Contribute to a long-term adoption of PA among children and seniors*
 - Overtake mistaken beliefs about PA (ex.: *lack of time*)
 - Involve more the parents in the program
 - Develop attracting and easy-to-read activity sheets
 - Increase the follow-up period (not only during fall-winter time)

Intergenerational PA for grand-child/grand-parents

Level groups

Physical and health assessment for children

Punctual follow-up meetings

Summary booklet

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Children

- ✓ No impact on global PA level
- ✓ Importance of family environment PA habits

Seniors

- ✓ Short term enhancement of perceived health
- ✓ Short term enhancement of PA stage of change
- ✓ Some improvements of the physical fitness

All participants

- ✓ High satisfaction level regarding to the PA program
- ✓ Age influence on the program perception among children
- ✓ No age influence of the program effects among children

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Thank you for your attention



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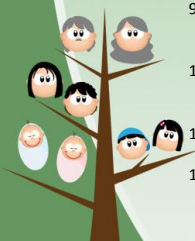
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