

Mobility walk linked with aging: practice, behaviours and specific needs for the elderly

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Project MAPISE (2011-2014)

« *Seniors at walk:
a sustainable way of moving ?* »

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With 3 research institutions:



Walking: a challenge for the elderly

- ▶ Walking = sustainable mode of transport
- ▶ Good for urban environment (less of air pollution)
- ▶ Good for urban design (more lively areas, more safety)
- ▶ Good for health of those who practice walking (mental and physical health for all ages)
- ▶ Good for social life (go out home, keep social activities, be not alone)

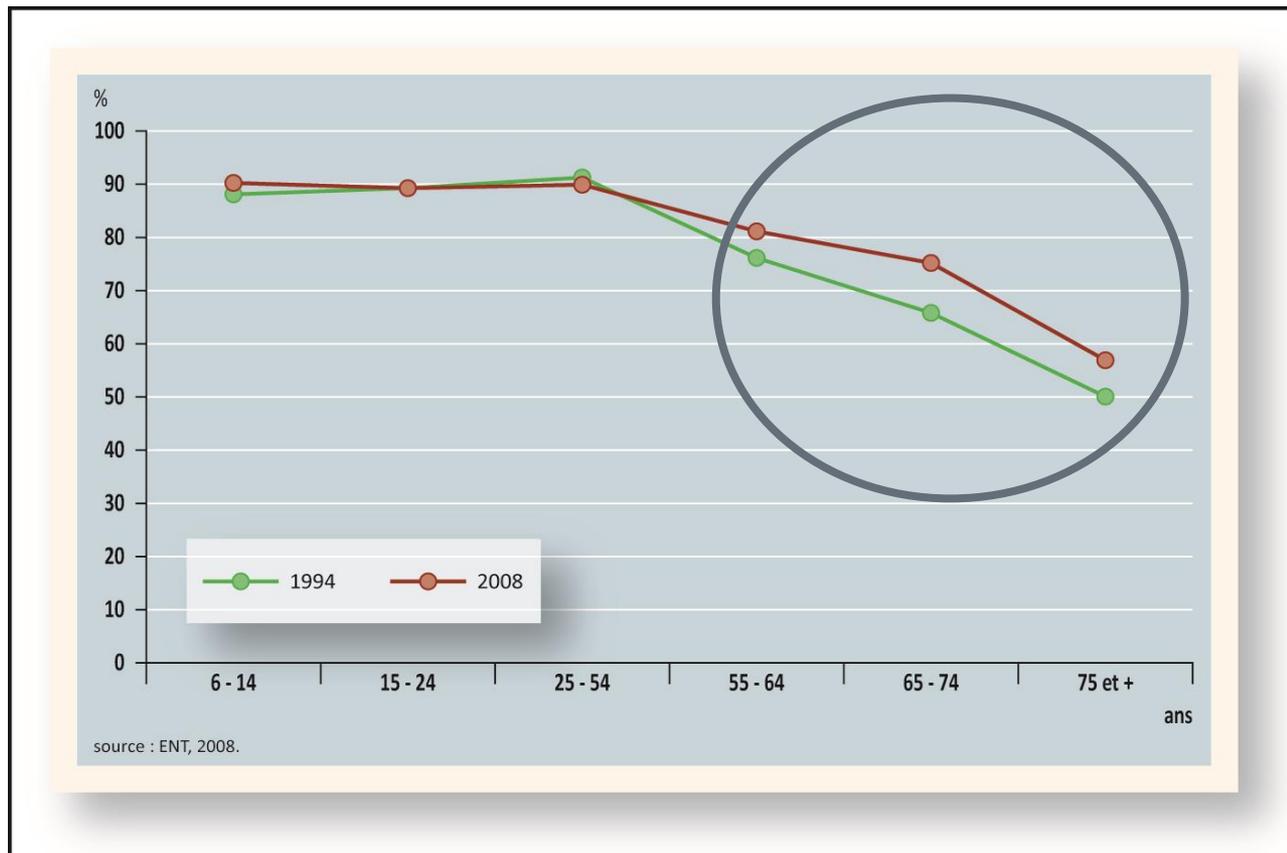
MAPISE : methodology

- ▶ 422 non-participating observations of pedestrians of all the ages in situations of crossing the street
- ▶ 422 street interviews to get age and other informations
- ▶ 306 detailed and precise mapping of all pedestrian's follow-ups through a specific Geographical Information system (SIG) program
- ▶ Evaluation and mapping of the walkability of the three urban sites (1400 street sections)

- 1. Framing data**
2. Crossing behaviours linked with age of pedestrians
3. Walking potential of urban area and limitations of walking practices

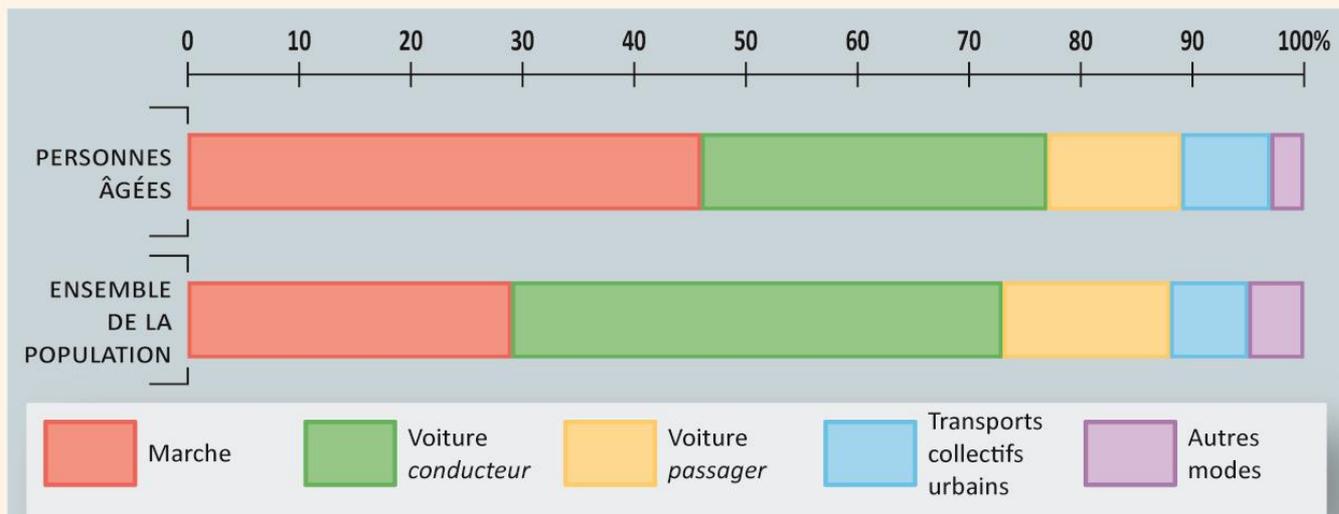
Decreasing mobility over the years

- Pourcentage of people moving during the day of week (France, 2008)



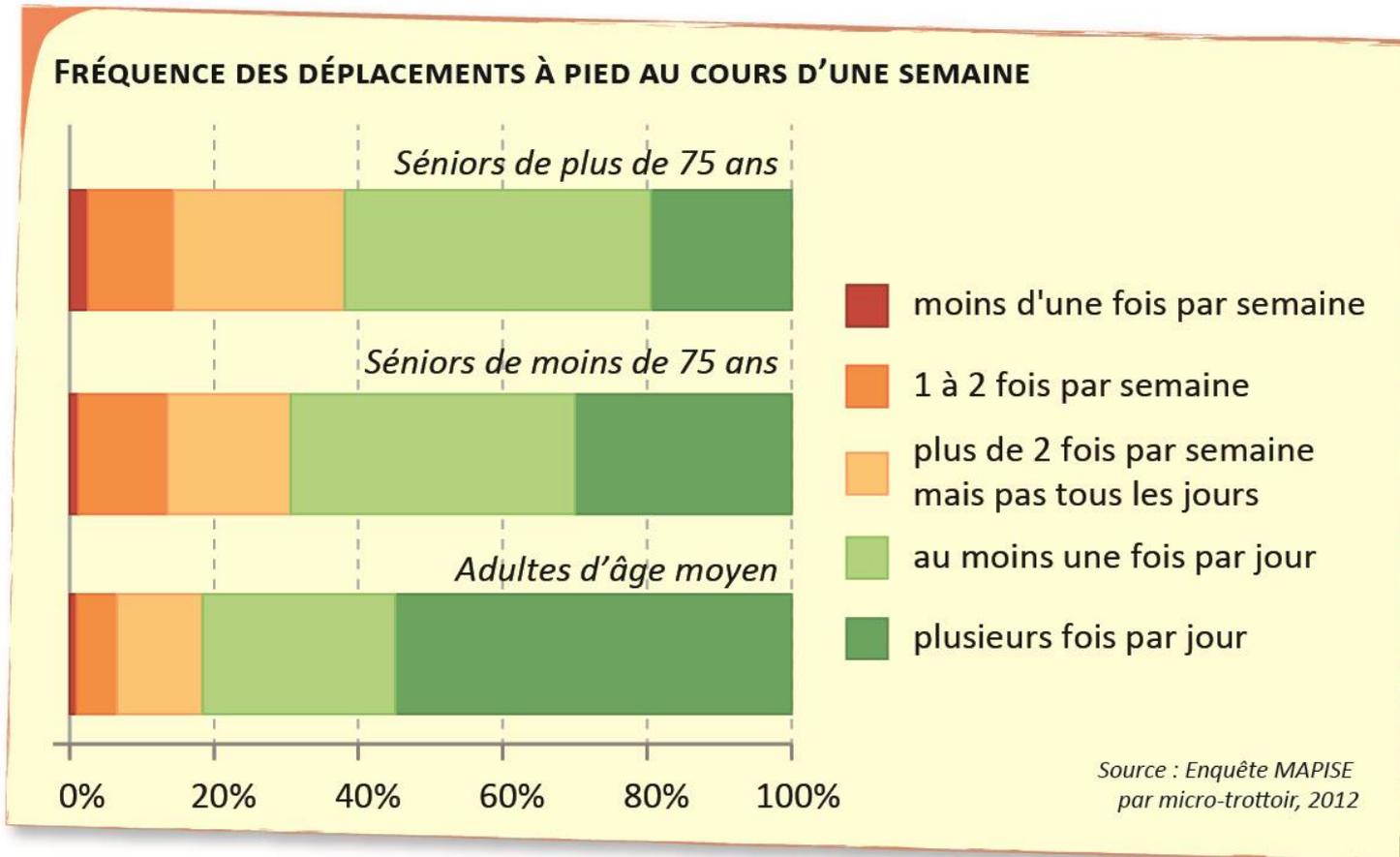
Decreasing mobility over the years

- ... but the older we get, the more we use walking and less use other modes of transport to move around the city (CERTU, 2002)



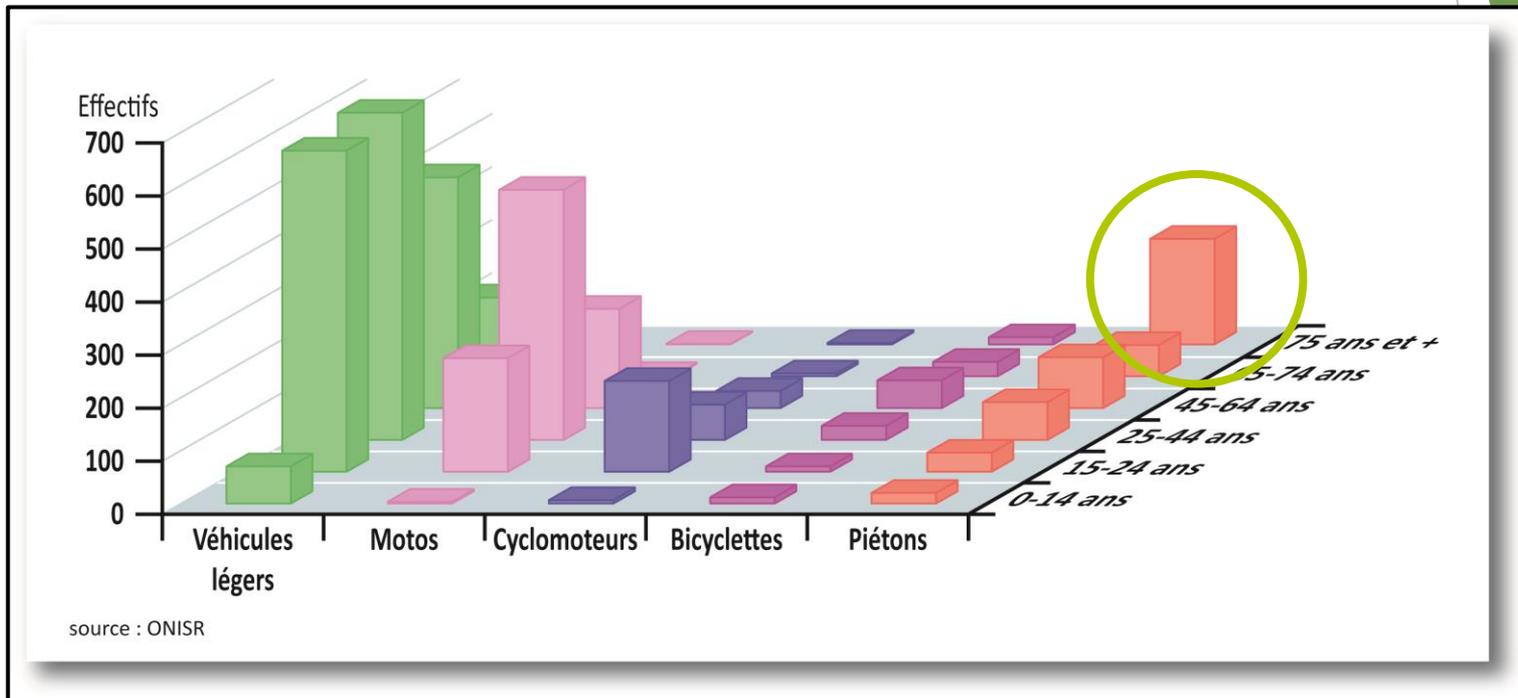
For people over 75 years old

- ▶ A decrease in the frequency of movements, even walking



For people over 75 years old

- An increase in the risk of accidents (ONSR, 2008)



For people over 75 years old

- An increase of number of falls in the public space

PART DES PERSONNES INTERROGÉES AYANT DÉCLARÉ SELON LEUR AGE :

<i>au cours des 2 dernières années</i>	Séniors de plus de 75 ans	Séniors de moins de 75 ans	Adultes d'âge moyen
avoir augmenté leur pratique de marche	13 %	22 %	22 %
avoir diminué leur pratique de marche	59 %	40 %	21 %
avoir diminué leur vitesse de marche	74 %	41 %	12 %
conduire une voiture	25 %	50 %	59 %
avoir des difficultés pour traverser la rue	37 %	24 %	14 %
avoir chuté dans l'espace public	32 %	26 %	20 %
avoir eu un accident en tant que piéton	12 %	6 %	7 %

Source : Enquête MAPISE par micro-trottoir, 2012

1. Framing data
2. **Crossing behaviours linked with age of pedestrians**
3. Walking potential of urban area and limitations of walking practices

Careful behavior increases with age

- Older pedestrians run less often when approaching the crossing path, and while crossing.
- Older pedestrian wait more often on sidewalk before crossing the street.
- Older pedestrian look at the ground before crossing, rather checking the traffic → compensation strategies of fear of falling.
- Older pedestrian wait for the green light to cross the street.
- **Compensation strategies to declining physical abilities of old pedestrians.**

Rule-abiding behavior increases with age

- ▶ Older pedestrians do not choose to put themselves in danger to go to the shortest path → globally, older pedestrians cross the street on crosswalk.

AVERAGE OF NUMBER OF CROSSINGS BY AGE AND TYPE OF OBSERVED CROSSING (MAPISE, 2014)

	On crosswalk	Out of crosswalk	All crossing
Young people	2	0,5	2,5
Middle age	1,8	0,6	2,4
Young old	1,8	0,8	2,6
Old old	1,7	0,5	2,2
All people	1,8	0,6	2,4

Decrease of walking speed over the years

WALKING SPEED AND OBSERVED AGE (MAPISE, 2014)

	km/h	m/s
Young people	5,3	1,4
Middle age	4,7	1,3
Young old	4,8	1,3
Old old	3,8	1
All pedestrians	4,6	1,2

1. Framing data
2. Crossing behaviours linked with age of pedestrians
3. **Walking potential of urban area and limitations of walking practices**

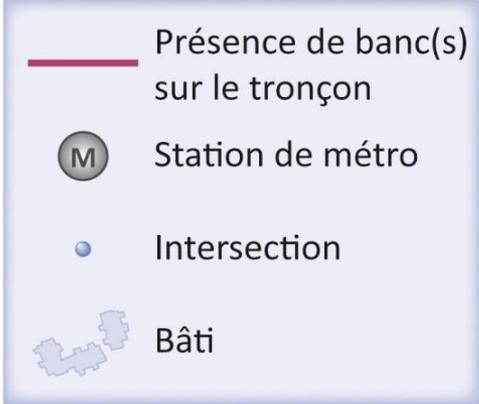
Several limitations to practice walking for elderly from scientific literature

- High difference and holes on pavement of sidewalks (CHAUDET, 2012)
- The distance from shop (NADER, 2012)
- The absence of public benches (ATE, 2014 - HUGUENIN, 2012)
- Insufficient lighting (CHAPON, 2012 - BLACKMAN, 2003 - BADLAND, 2005 - HUNTER, 2010)

- The fear of being pushed or knocked down (CHARLES, 2013 - CHAUDET, 2012 - LORD, 2009, NADER, 2012)

- The fear of bad encounters, and the feeling of insecurity (BLACKMAN, 2003 - CERIN, 2013 - GRANT, 2010 - HUNTER, 2010 - NADER, 2012 - NATHAN, 2014 - VINE, 2012)

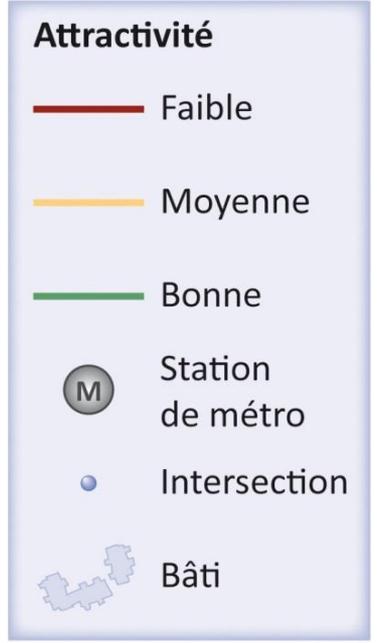
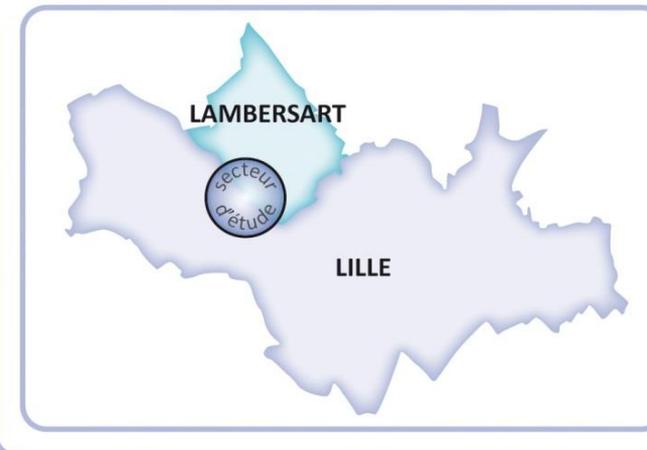
Presence of public benches (Lomme-Lambersart, France)



0 200 m

Source : MAPISE, 2013.

Attractiveness of streets (Lomme-Lambersart, France)



Several limitations to practice walking for elderly from maps of walkability

- ▶ Walkability = original index to evaluate quality, safety and attractiveness of design's street
- ▶ Strong difference of the walability from a section of street to an other section → unsecured accessibility
- ▶ Strong difference between the comfort and safety of urban spaces → secondary streets vs main streets



Three several elements of urban design to promote walking for elderly

- ▶ Narrower crossing paths
- ▶ Decongestion of sidewalks
- ▶ Quality of pavements that allows a comfortable walk



Conclusion

- Two sub-groups within the heterogeneous population of the elderly: **the health factor more important than age.**
- Interest for studies about the mobility: the population of elderly in situation of **fragility**, just before a loss of autonomy
- Promote that walking is more than a simple way mode of transport, it is a way of "being in town", and to be alive

Thank you for your attention !



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Publications

- ▶ HUGUENIN-RICHARD, F., GRANIÉ, M.A., DOMMES, A., CLOUTIER, M.S. ET COQUELET, C. (2015). *Piétons âgés : leur mobilité au prisme de l'accessibilité et de la sécurité*. In *Viellissement et mobilité*, sous la direction du PREDIT, La Documentation française, 55-77.
- ▶ Dommès, A., Granié, M.A., Cloutier, M.S., Coquelet, C., & Huguenin-Richard, F. (2015). Red light violations by adult pedestrians and other safety-related behaviors at signalized crosswalks. *Accident Analysis & Prevention*, 80, 67-75. Available from: https://www.researchgate.net/publication/275015888_Red_light_violations_by_adult_pedestrians_and_other_safety-related_behaviors_at_signalized_crosswalks [accessed Nov 24, 2015].
- ▶ HUGUENIN-RICHARD, F., DOMMES, A., GRANIÉ, M.A., CLOUTIER, M.S. ET COQUELET, C. (2014). La marche à pied chez les personnes âgées : enjeux de mobilité et de sécurité. *Actes du colloque « Bien vieillir en milieu urbain : le parcours dans l'espace et dans le temps »*, Pôle Allongement de la vie Charles Foix de l'Université Pierre et Marie Curie, novembre 2013, Ivry-sur-Seine, France.
- ▶ HUGUENIN-RICHARD, F., CLOUTIER, M.S., & GRANIÉ, M.A. (2014). *MAPISE : la marche à pied pour les séniors, un mode de déplacement « durable » ?* Rapport final du PREDIT 4 - GO2, 78 pages. Mis en ligne en 2015, consulté le 20 juillet 2015. URL : <http://www.predit.prd.fr/predit4/derniers-rapports>