

URBAN TRAINING: PROGRAMMES D'ACTIVITÉ PHYSIQUE EN VILLE

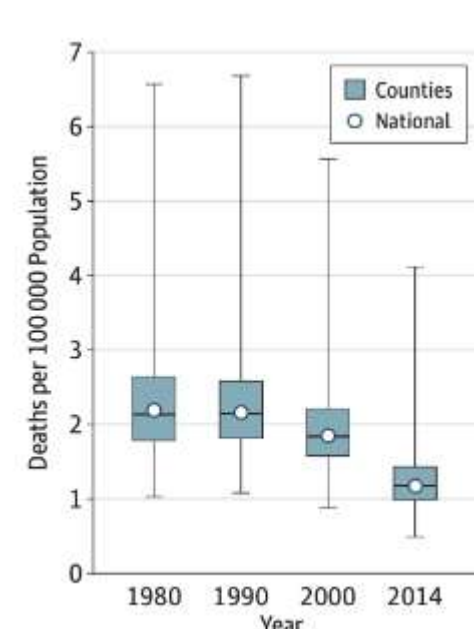
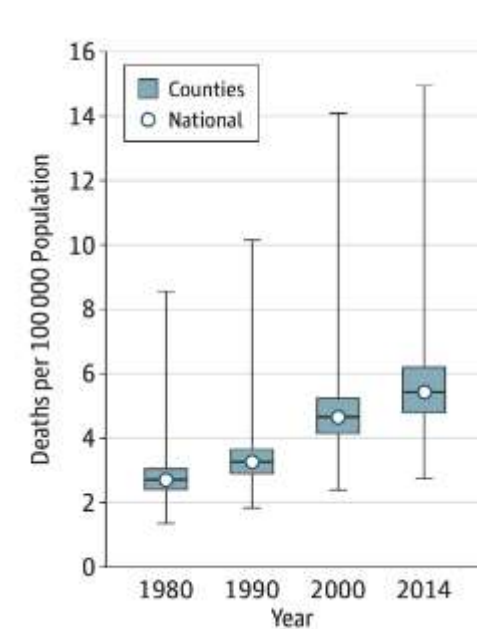
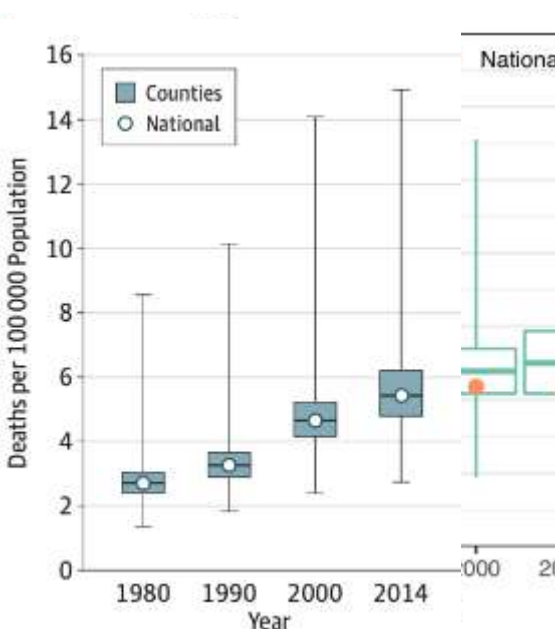
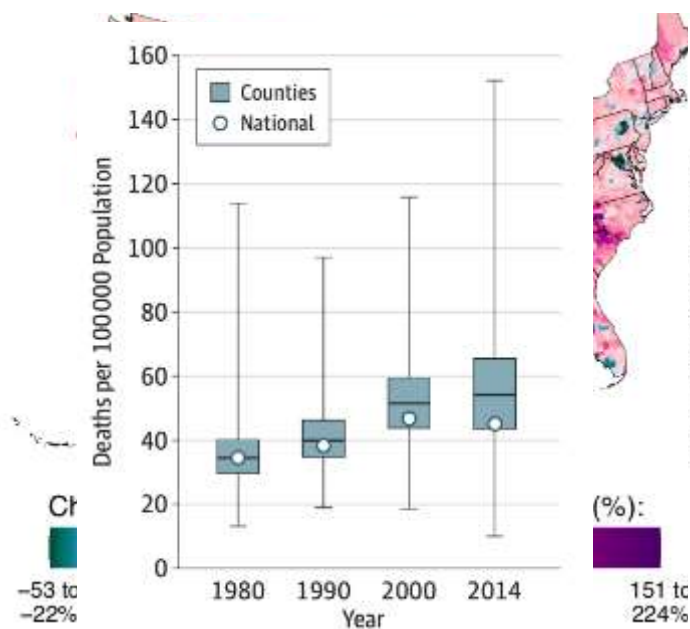


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Pas de surprise, les maladies respiratoires chroniques sont à la mode...



Augmentation de 29,7% mortalité par maladies respiratoires chroniques 1980-2014

Sarcoidose

Asthme

Pourquoi elles affectent autant l'activité physique?



Inflammation systémique:

Stress oxydative, activation cellules inflammatoires, augmentation de cytokines

Altération nutritionnel et perte de poids:

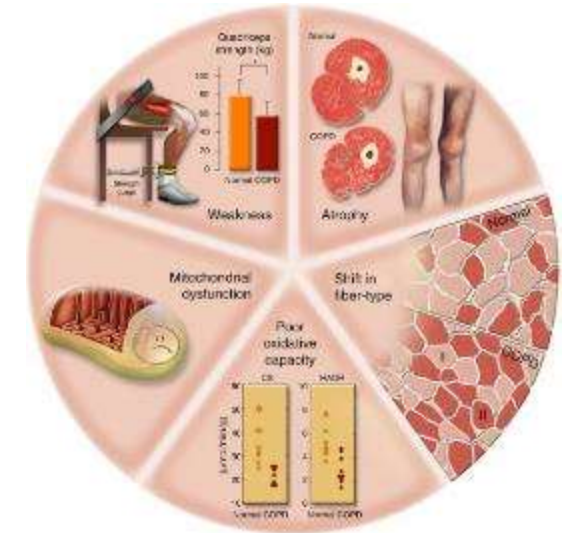
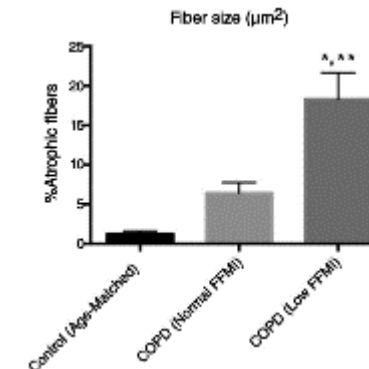
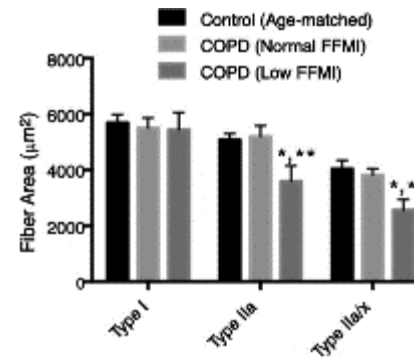
Augmentation de la consommation énergétique en repos, composition corporel altéré, métabolisme aminoacides altéré

Dysfonction musculaire:

Perte de masse musculaire, altération structure / fonction, limitation activité physique

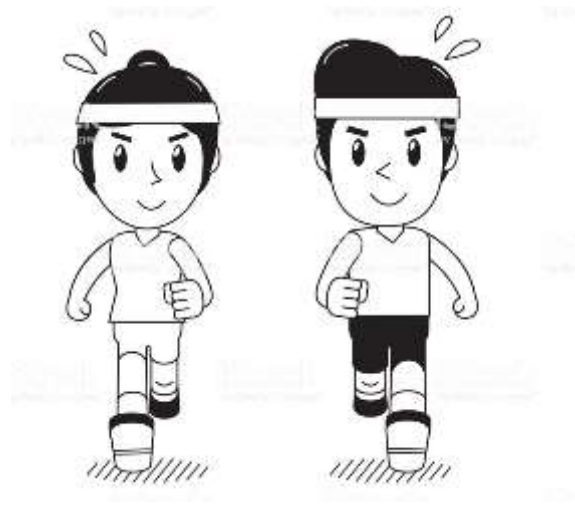
Autres effets:

Cardiovasculaires, neurologiques, musculo-squelettiques



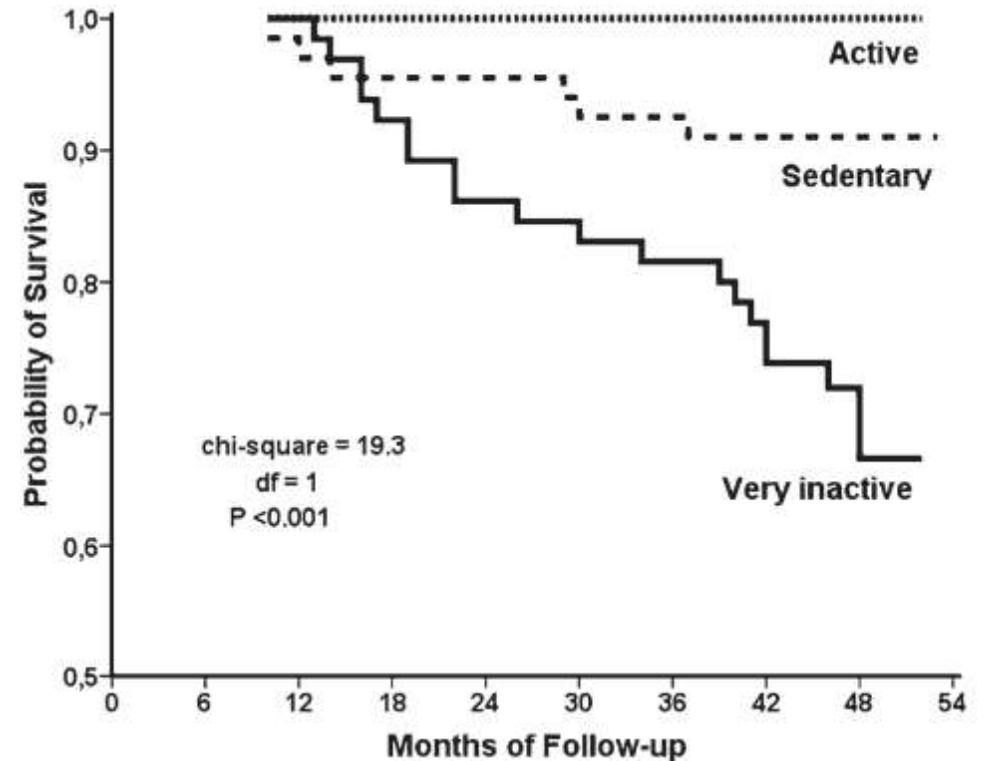
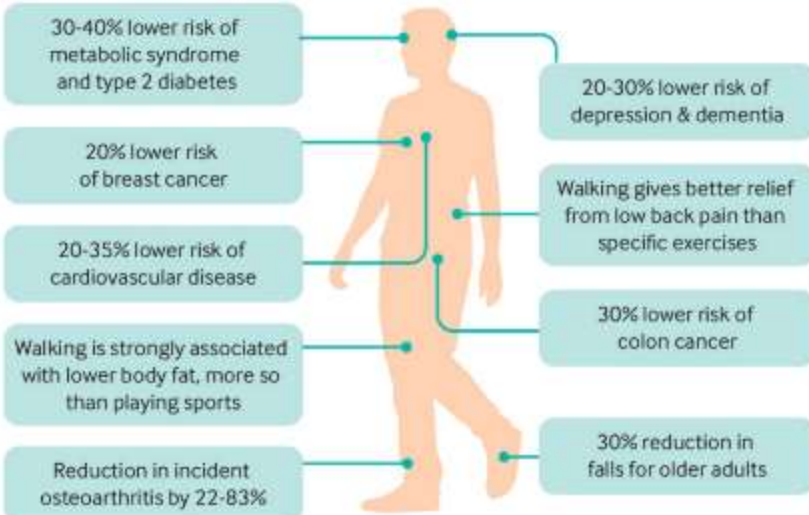
Qu'est-ce qu'on propose à ces patients?

“



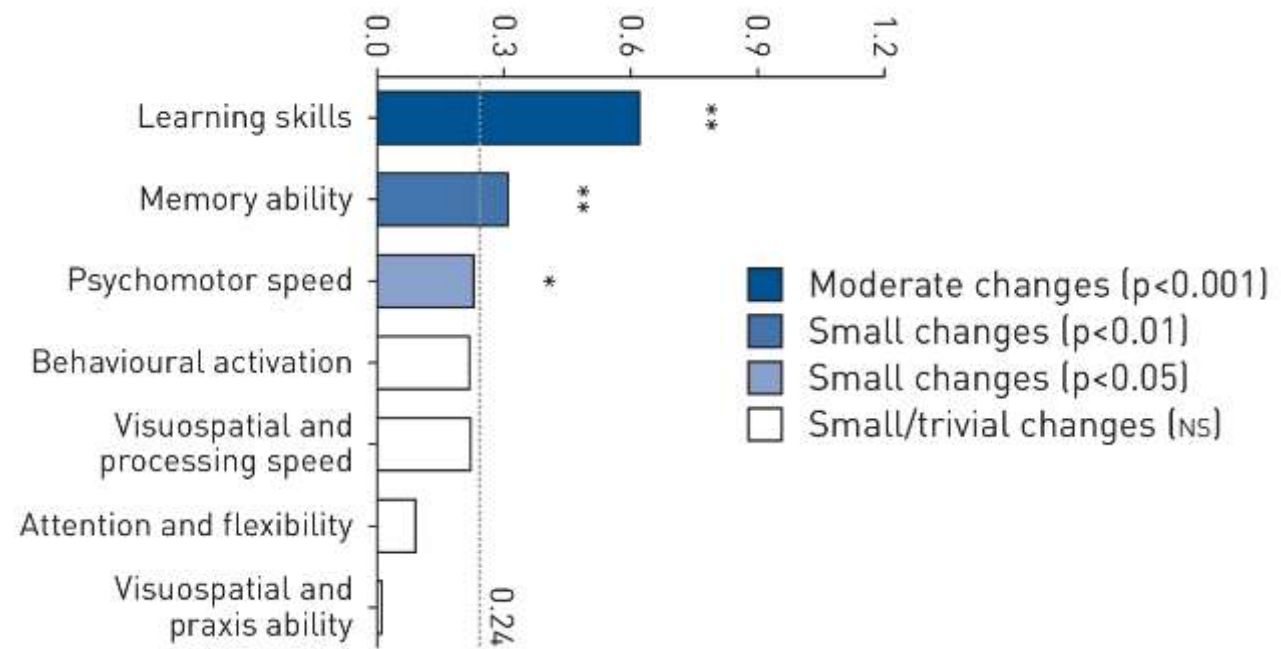


30% lower all-cause mortality comparing most active individuals with least active. Even 10 minutes of brisk walking a day is likely to reduce mortality by up to 15%, irrespective of baseline fitness.



PROGRAMMES CLASSIQUES

24 BPCO transplantés
Tapis roulante / vélo
5-6 fois / jour
~ 50 min / jour

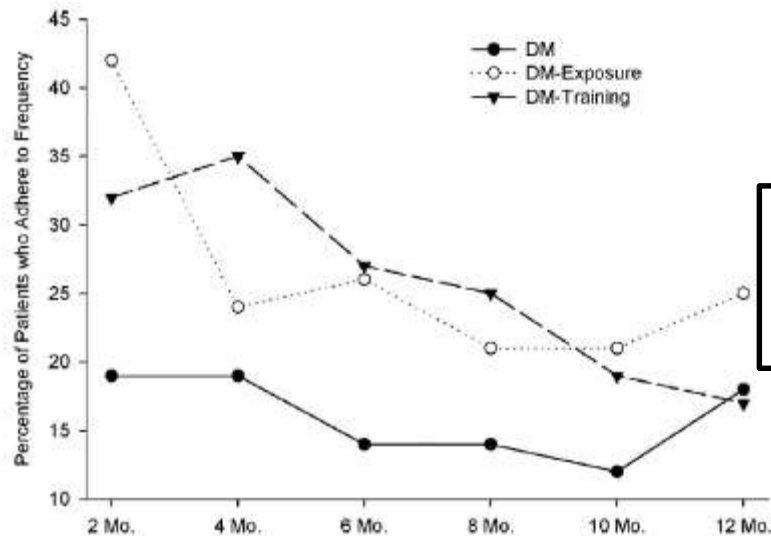


Time to PR months	LTx recipients n	t	ES		p-value
			Mean±SD	95% CI	
1-2	45.8% 6	3.66	0.15±0.11	0.05-0.25	0.011
2-12	5	2.67	0.28±0.28	0.02-0.54	0.037
>12	13	3.12	0.34±0.28	0.07-0.60	0.020

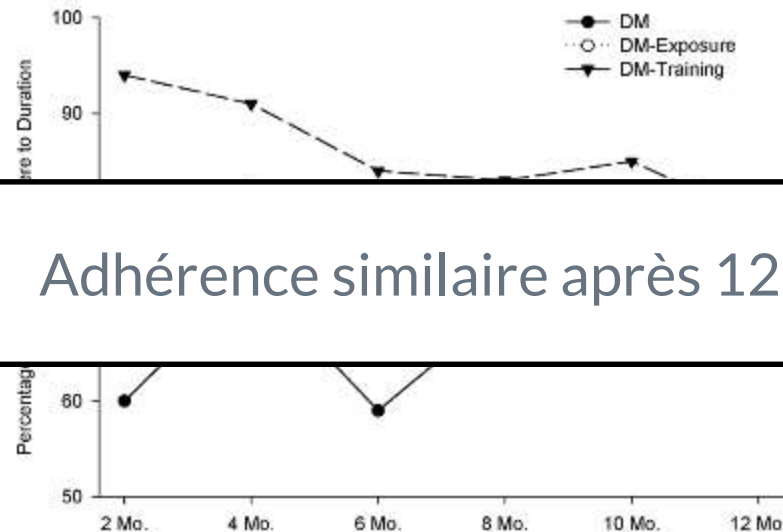
PROGRAMMES CLASSIQUES

103 BPCO FEV₁ ~ 45%
Cours à pied
30 min/jour
4 j/semaine

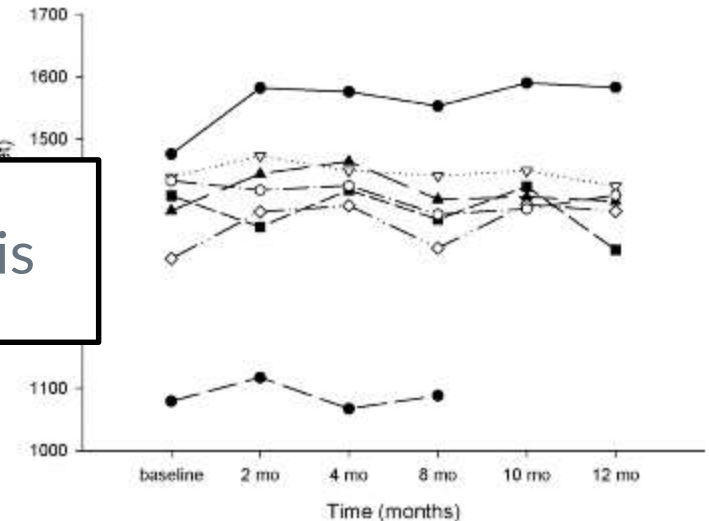
- ▷ DM: entraînement sans suivi
- ▷ DM *experience*: suivi IDE pendant le 1^{er} mois
- ▷ DM *training*: suivi IDE pendant 4 mois



Marche 4 j/semaine



Marche > 20 min / session



Adhère selon TDM6

Adhère similaire après 12 mois

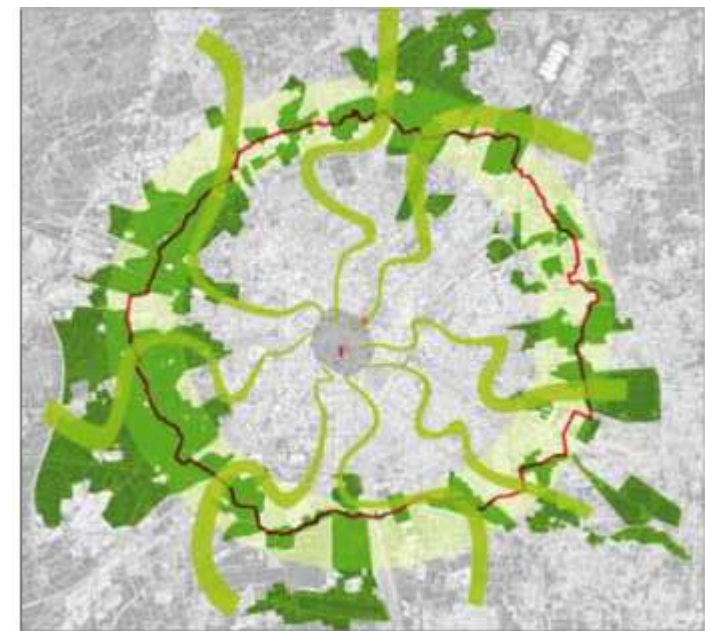
URBAN TRAINING

- ▷ Programmes de marche à pied dans la ville
- ▷ Circuits validés par kinés, pneumologues, APA's
- ▷ Accessibles en transport public
- ▷ Différentes niveaux de difficulté
- ▷ Différents environnements: ville, plage, zones verts
- ▷ Objectifs réels





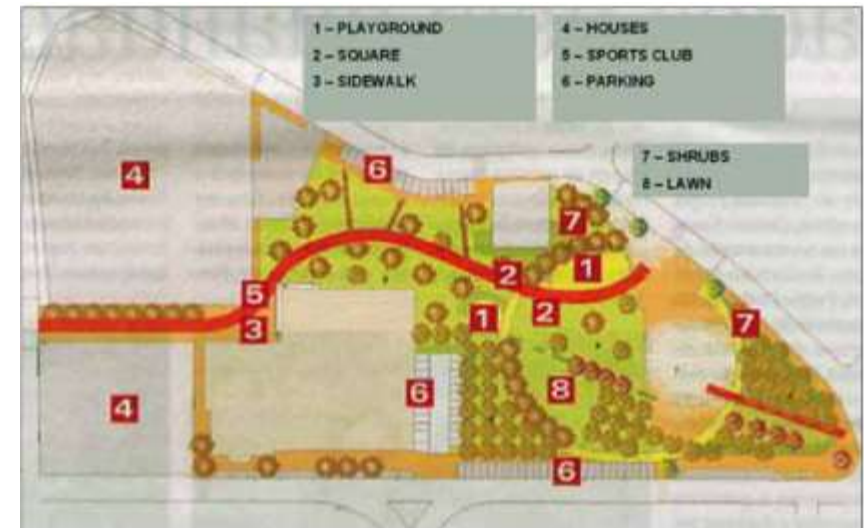
Nouveau centre commercial Bursa, Turquie



Réseau vert Milan



Zones verts Copenhague



Parc Lisbonne

URBAN TRAINING: 1. VALIDATION

P < 0.001

10 BPCO FEV₁ 41 (18)%
10 sujets sains

Circuits prédéfinis

3 parcours:

- Zone verte
- Rue
- Plage

3 intensités:

- Basse
- Moyenne
- Elevée

Table 3. Physiological and clinical response on identical intensity trails from three public spaces (boulevard, beach and park) in healthy subjects.

	Low intensity trail	Boulevard	Beach	Park	p-value
Peak HR (beats/min), m (SD)		110 (13)	107 (9)	108 (8)	0.74
Walking speed (m/s), m (SD)		1.5 (0.2)	1.7 (0.2)	1.6 (0.2)	0.03
Final dyspnea (Borg score), median (p25-p75)		0 (0-1)	0 (0-0)	0 (0-0)	0.40
Final leg fatigue (Borg score), median (p25-p75)		0 (0-2)	1 (0-2)	1 (0-2)	0.75
	Moderate intensity trail	Boulevard	Beach	Park	p-value
Peak HR (beats/min), m (SD)		120 (9)	114 (10)	116 (10)	0.40
Walking speed (m/s), m (SD)		1.5 (0.1)	1.7 (0.2)	1.5 (0.1)	0.02
Final dyspnea (Borg score), median (p25-p75)		0 (0-1)	0 (0-0)	0 (0-0)	0.36
Final leg fatigue (Borg score), median (p25-p75)		1 (0-1)	1 (1-2)	1 (1-2)	0.57
	High intensity trail	Boulevard	Beach	Park	p-value
Peak HR (beats/min), m (SD)		119 (12)	118 (10)	130 (15)	0.07
Walking speed (m/s), m (SD)		1.5 (0.1)	1.6 (0.2)	1.6 (0.2)	0.08
Final dyspnea (Borg score), median (p25-p75)		0 (0-1)	0 (0-1)	0 (0-1)	0.91
Final leg fatigue (Borg score), median (p25-p75)		1 (1-2)	2 (1-2)	2 (1-3)	0.71

Table 2. Physiological and clinical response to walks on three intensity trails in COPD patients.

	Low intensity trail	Moderate intensity trail	High intensity trail	p-trend
Peak $\dot{V}O_2$ (mL/min/kg), m (SD)	15.9 (3.5)	17.4 (4.7)	17.7 (4.4)	0.02
Peak $\dot{V}CO_2$ (mL/min/kg), m (SD)	13.3 (4.6)	14.7 (5.5)	15.1 (4.4)	0.02
Peak RER, m (SD)	1.0 (0.1)	1.1 (0.2)	1.0 (0.1)	0.48
Peak VE (L/min), m (SD)	33.7 (5.1)	35.3 (6.7)	36.6 (7.2)	<0.01
Peak HR (beats/min), m (SD)	120 (18)	125 (20)	126 (20)	0.01
Energy expenditure volume (MET-min), m (SD)	60 (23)	64 (26)	72 (31)	<0.01
Walking time (s), m (SD)	994 (258)	1087 (337)	1136 (290)	<0.01
Walking speed (m/s), m (SD)	1.2 (0.3)	1.1 (0.3)	1.1 (0.3)	<0.01
Steps (n), m (SD)	1789 (536)	1856 (708)	2001 (576)	<0.01
Time for breaks (s), m (SD)	42 (101)	60 (91)	59 (112)	0.18
Final dyspnea (Borg score), median (p25-p75)	3 (2-4)	4 (3-5)	4 (3-5)	0.02
Final leg fatigue (Borg score), median (p25-p75)	2 (0-4)	2 (0-4)	2 (1-2)	0.21

URBAN TRAINING: 2. EFFICACITÉ

407 BPCO FEV₁ 57 (17)%

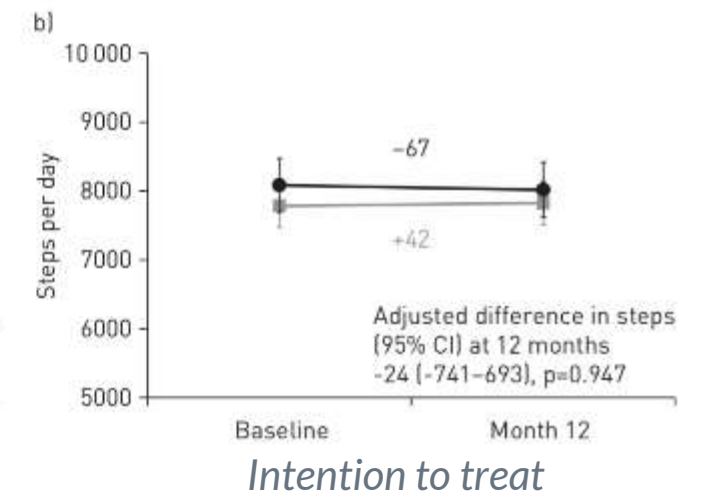
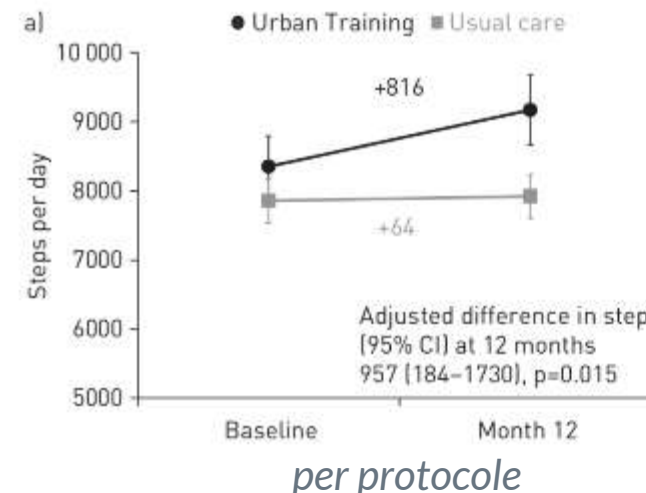
Course à pied vs Circuits prédéfinis

12 mois



P < 0.05

	Usual care [#]		Urban Training [#]		Adjusted difference (95% CI) at 12 months ¹
	Baseline	12 months	Baseline	12 months	
Subjects n	145		88		
Primary outcome					
Steps per day	7846±3845	7911±3830	8355±4177	9171±4704*	957 [184-1731] ¹
Secondary outcomes					
Any severe COPD exacerbation in previous 12 months %	14	16*	5	15*	0.15 [-0.7-1]
ΔMWD m	503±79	496±86*	509±83	502±97	3.6 [-6.9-14.2]
BMI kg·m ⁻²	28.2±4.5	28.2±4.5	28.3±4.5	28.5±4.5	0.2 [-0.2-0.5]
FFMI kg·m ⁻²	19.6±3.2	19.5±3.0	19.5±2.8	19.5±2.8	0.1 [-0.4-0.6]
Health-related quality of life CAT	12±8	11±7*	12±7	10±7*	-0.7 [-2.1-0.6]
Health-related quality of life CCQ total	1±1	1±1	1±1	1±1	-0.1 [-0.3-0.1]
Anxiety HAD-A	5±4	4±4*	5±4	5±4	0.2 [-0.5-0.9]
Depression HAD-D	3±3	3±3	3±3	2±3*	-0.5 [-1.1-0.1]
Exploratory outcomes					
Cognitive status (phototest)	37±5	36±5	36±5	36±6	0.5 [-0.4-1.5]
Physical activity experience (C-PPAC total score)	79±12	78±11	79±11	84±11*	5.2 [1.3-9.2]*
Physical activity experience of amount (C-PPAC amount)	75±15	74±14	76±12	80±13*	5.7 [1.1-10.2]*
Physical activity experience of difficulty (C-PPAC difficulty)	83±13	81±13	83±16	88±14*	5.0 [0.3-9.6]*

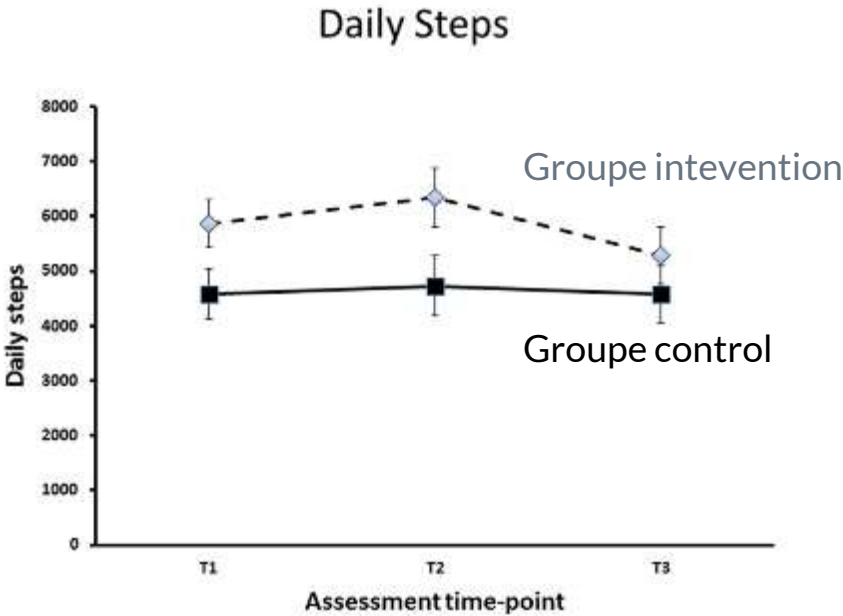


URBAN TRAINING: 3. ADHERENCE

86 BPCO FEV₁ 43 (16) %

Impact suivi 12 mois

N = 86		N = 62		N = 43
T1 baseline	2 mois de suivi - Groupe controle - Groupe intevention	T2	12 mois de suivi - Pas de feedback - Feedback	T3

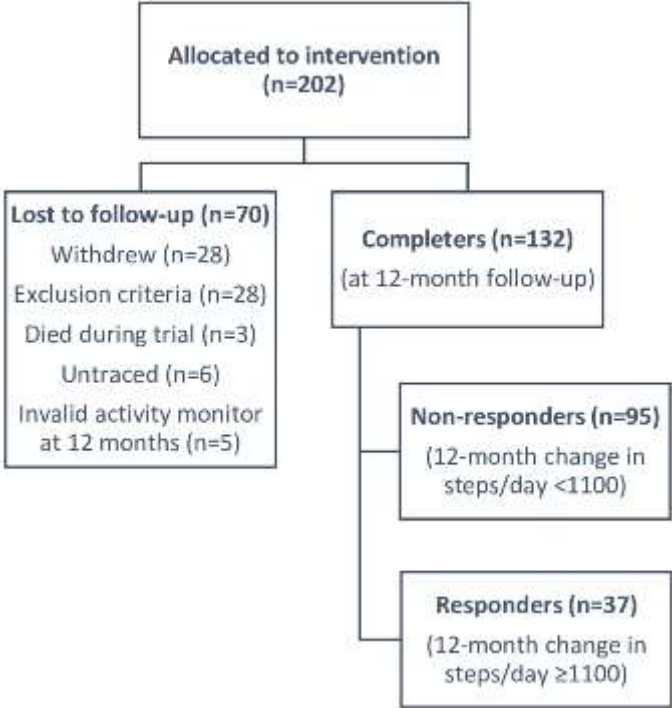
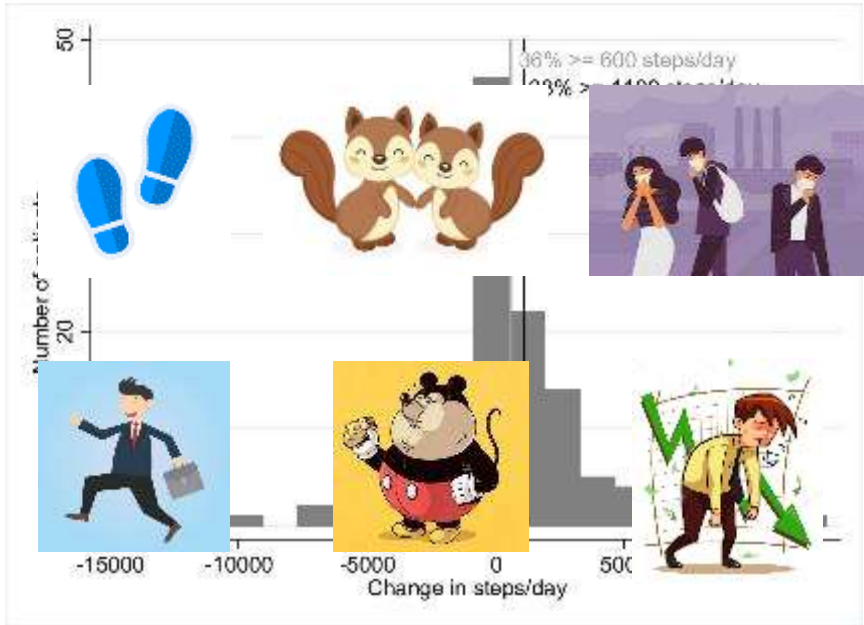


Les participants ne portent le podomètre que pendant les activités physiques

URBAN TRAINING: 4. AUTRES FACTEURS

132 BPCO FEV₁ 56.4 (17.1) %

Impact suivi 12 mois



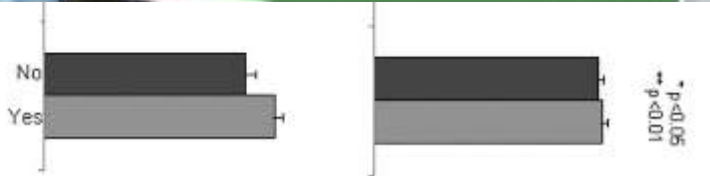
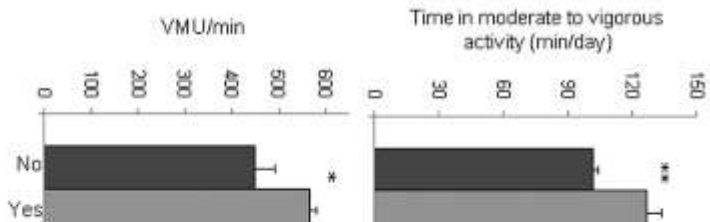
	OR (95% CI)	p-value
Steps/day (per increase of 1000 steps)	1.11 (1.02–1.21)	0.012
Living with a partner (vs single/ widowed/ divorced)	2.77 (1.41–5.48)	0.003
Urban vulnerability index (per increase of 0.1 units)	0.70 (0.57–0.86)	0.001

	OR (95% CI)	p-value
Active workers	3.14 (1.05–9.33)	0.040
Endocrine, nutritional and metabolic diseases [‡]	4.36 (1.49–12.80)	0.007
Unwillingness to follow the intervention	0.21 (0.05–0.98)	0.047

URBAN TRAINING: 4. AUTRES FACTEURS



Dog walking
Grandparenting
Neighborhood distribution
Residential environment
Residential proximity to green or blue spaces



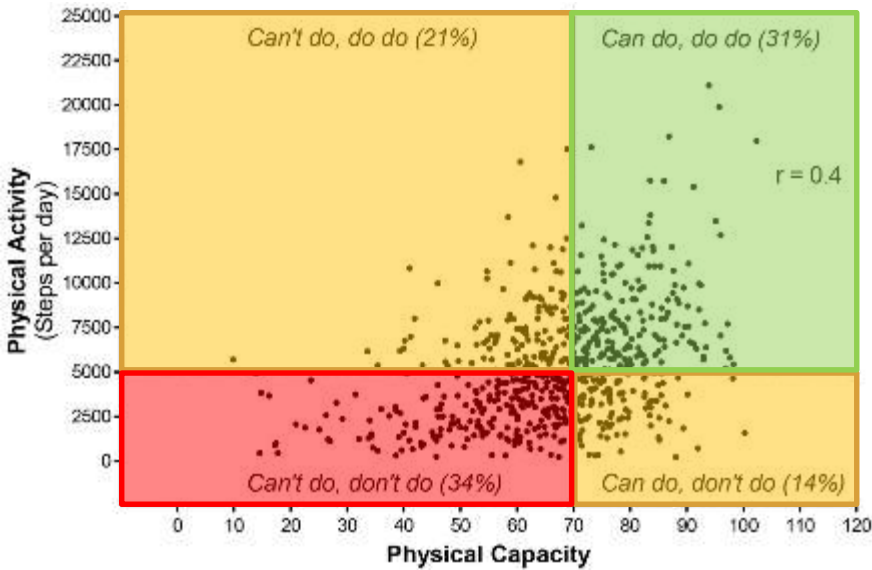
	Time in physical activity of moderate-to-vigorous intensity (min/day)		VMU/min	
	β (95% CI)	p Value	β (95% CI)	p Value
Dog walking	19 (7 to 32)	<0.01	88 (13-163)	0.02
Grandparenting	8 (-0.3 to 17)	0.06	55 (4-105)	0.03
Age (years)	-0.7 (-1.3 to -0.2)	0.01	-3.6 (-7 to -0.3)	0.03
Sex: male	3 (-9 to 15)	0.62	24 (-49 to 97)	0.51
Low SES: IV, V	10 (1 to 20)	0.03	86 (30 to 141)	<0.01
Active smoking	-20 (-30 to -10)	<0.01	-148 (-207 to -89)	<0.01
Dyspnoea (mMRC, 0-4)	-11 (-16 to -5)	<0.01	-59 (-90 to -28)	<0.01
6MWD (m)	0.1 (0.1-0.2)	<0.01	1 (0.8 to 1.5)	<0.01
Anxiety (HAD-A score, 0-21)	1.1 (0.01 to 2.2)	0.04	3 (-4 to 9)	0.40

URBAN TRAINING: 4. AUTRES FACTEURS

662 BPCO FEV₁ 56 %

Déterminer la distribution:

- Capacité physique
- Activité physique



CAN'T DO & DO DO TDM6 < 70% pred ET > 5000 pas par jour	CAN DO & DO DO TDM6 > 70% pred ET > 5000 pas par jour
CAN'T DO & DON'T DO TDM6 < 70% pred ET < 5000 pas par jour	CAN DO & DON'T DO TDM6 > 70% pred ET < 5000 pas par jour

L'activité physique est indispensable chez les patients respiratoires chroniques

L'adhérence est faible aux activités physiques classiques

L'urban-training est une alternative efficace

Différentes niveaux de difficulté et environnements

Facilite l'adhérence avec des messages visuelles ou audibles d'encouragement

Prendre en compte les facteurs environnementaux des patients

Différencier activité physique et capacité physique

PERSONALISER L'ACTIVITÉ PHYSIQUE

¡ GRACIAS !

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