CONVEGNO

*"**EBP e Lavoro : La Prevenzione efficace dei rischi e danni da lavoro"***

FIRENZE - 23-24 ottobre 2008

"Trial non randomizzato sul mal di schiena tra video terminalisti"

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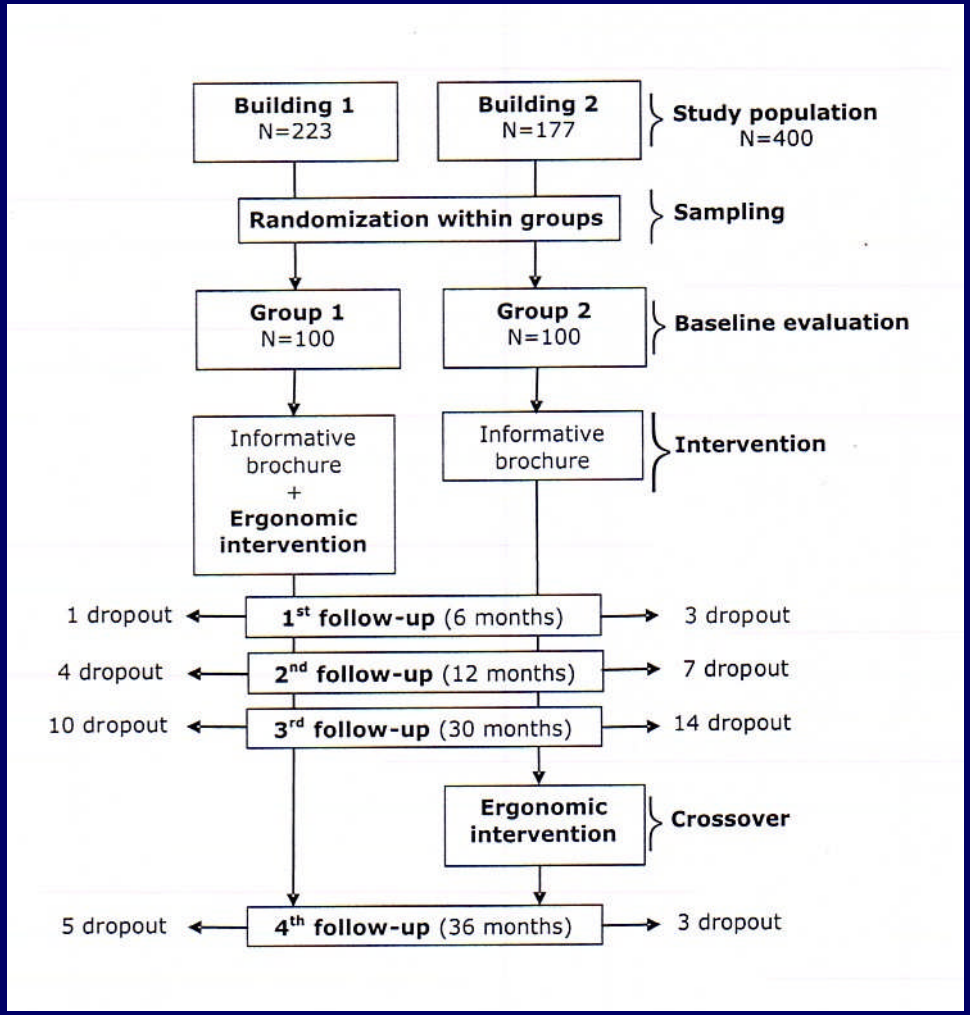
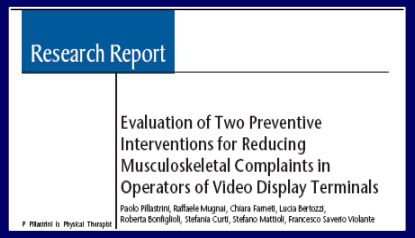
Background and Purpose

Background and Purpose

The purpose of this study was to evaluate the efficacy of a preventive ergonomic intervention, which was provided by physical therapists, on spinal and upper extremity work-related posture and symptom complaints of workers who use video display terminals (VDT)

Study design flow diagram

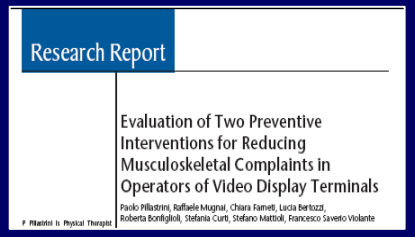




Participants

The study population — composed of administrative personnel of the town hall of Forlì, Italy — consisted of 400 employees who used VDTs for at least 20 hours a week. The participants, all of whom performed the same tasks, worked in separate buildings. In order to avoid possible contamination, we randomly assigned 100 participants from some buildings to group E (which received an ergonomic intervention plus an informative brochure) and randomly assigned 100 participants from other buildings to group I (which received only the brochure)

Materials and Methods



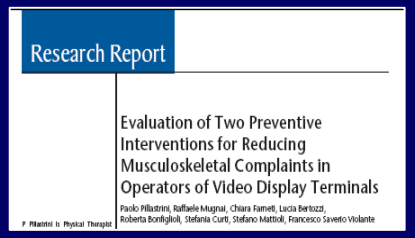
Procedure

The study had a duration of 6 months. Upon obtaining written, informed consent from the participants, measurements for 2 different outcomes were obtained from both groups: (1) spinal and upper extremity work-related posture and (2) physical discomfort. The measurements were taken 2 weeks before the intervention and at a follow-up examination after 5 months by 2 different health care professionals who were unaware of the group assignments

Materials and Methods

Procedure

At the beginning of the intervention, both groups were provided with the same informative brochure, which was based on the relevant Italian legislation, and on scientific evidence dealing with the main musculoskeletal complaints resulting from VDT use



Materials

Both groups were evaluated at the beginning of the study and at a follow-up 5 months later. The following tools were used:

a) **Rapid Entire Body Assessment (REBA) method** to assess spinal and upper extremity work-related posture

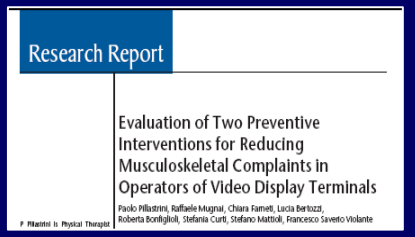
b) **Pain Drawing** to assess the symptoms

Materials and Methods

Rapid Entire Body Assessment (REBA) method

The REBA method analyzes posture by measuring the articular angles and by observing the load or force and repetitiveness of movements and the frequency of position changes. The postures of the neck, trunk, upper and lower arms, legs, and wrists are grouped into ranges. Each posture range, relative to the anatomical regions evaluated, is associated with a score corresponding to values that get progressively higher as the distance from the segment's neutral position increases

Materials and Methods


Research Report

Evaluation of Two Preventive Interventions for Reducing Musculoskeletal Complaints in Operators of Video Display Terminals

Paolo Pillastrini, Raffaele Mugnai, Chiara Fameli, Lucia Bertozzi, Roberta Bonfiglioli, Stefania Curti, Stefano Mattioli, Francesco Saverio Violante

P Pillastrini Is Physical Therapist

Rapid Entire Body Assessment (REBA) method

Each operator was photographed while performing daily tasks by a third health care professional who also was unaware of group assignments on sagittal (left and right side) and coronal (front and back) planes. The camera was positioned 1 m above the floor, about 3 m from the operator. As required by the REBA method, the photographs were used to calculate the values of the articular angles by placing a goniometer directly on the images

Materials and Methods

Rapid Entire Body Assessment (REBA) method

Group A			**Group B**			
Posture/Range	**Score**	**Total**	**Posture/Range**	**Score**	**Total: Left and Right**	
Trunk			**Upper Arms (Shoulders)**		L R	
Upright	1	If back is twisted or tilted to side: + 1	Flexion: 0° - 20° Extension: 0° - 20°	1	Arm Abducted/Rotated: + 1 Shoulder Raised: + 1 Arm Supported: - 1	
Flexion: 0° - 20° Extension: 0° - 20°	2		Flexion: 20° - 45° Extension: › 20°	2		
Flexion: 20° - 60° Extension: › 20°	3		Flexion: 45° - 90°	3		
Flexion: › 60°	4		Flexion: › 90°	4		
Neck			**Lower Arms (Elbows)**		L R	
Flexion: 0° - 20°	1	If neck is twisted or tilted to side: + 1	Flexion: 60° - 100°	1	No Adjustements	
Flexion: › 20° Extension: › 20°	2		Flexion: ‹ 60° Flexion: › 100°	2		
Legs (Knees)			**Wrists**		L R	
Flexion: 30° - 60°	1	Bilateral Wt Bearing; Walk; Sit: + 1 Unilateral Wt Bearing; Unstable: + 2	Flexion: 0° - 15° Extension: 0° - 15°	1	Wrist deviated / Twisted: + 1	
Flexion: › 60°	2		Flexion: › 15° Extension: › 15°	2		

%

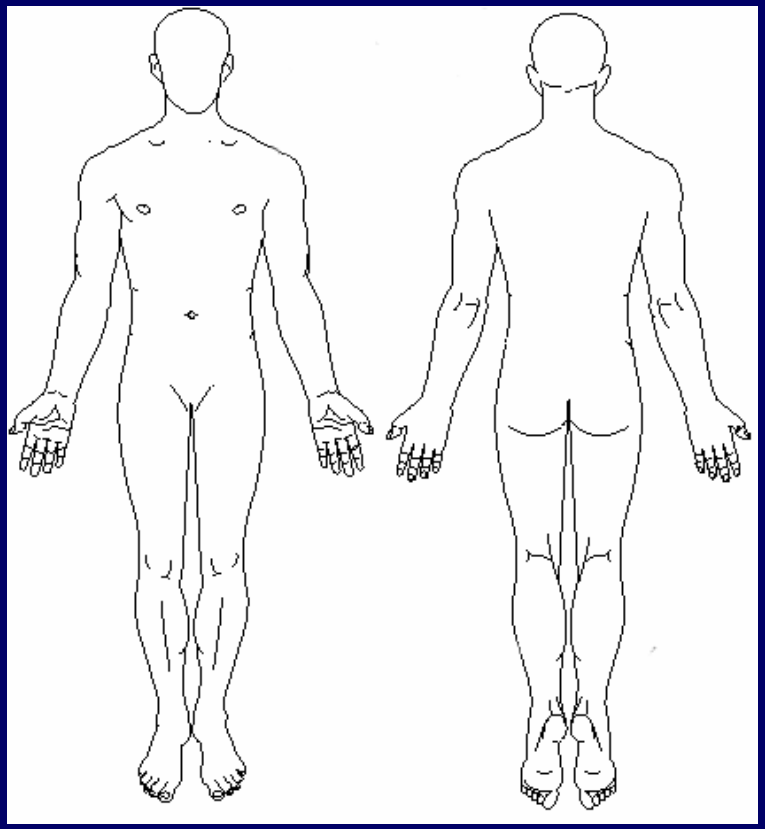
Materials and Methods

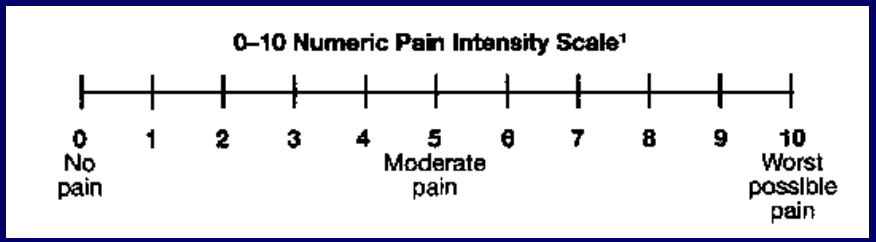
Rapid Entire Body Assessment (REBA) method

Score from Table A			**Score from Table B**		L	R	
Load/Force			**Coupling**		L	R	
< 5 kg < 11 lb	0	Shock or Rapid Buildup: + 1	Good	0	No Adjustements		
5 - 10 kg 11 - 22 lb	1		Fair	1			
> 10 kg > 22 lb	2		Poor	2			
Score A (Table A + Load/Force Score)			Unacceptable	3	Left	Right	
Activity			**Score B (Table B + Coupling Score)**		L	R	
One or more body parts are static for longer than 1 minute		+ 1	**Score C (Score A + Score B)**		L	R	
Repeat small range motions, more than 4 per minute		+ 1					
Rapid large changes in posture or unstable base		+ 1	**REBA Score (Score C + Activity Score)**		L	R	

Materials and Methods

Pain Drawing with V.A.S.





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Materials and Methods

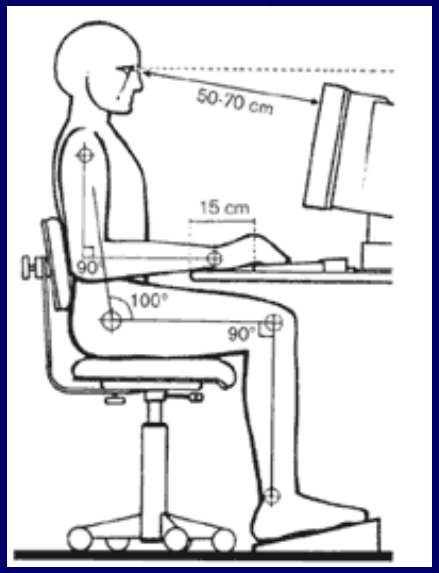
Intervention by a Physical Therapist

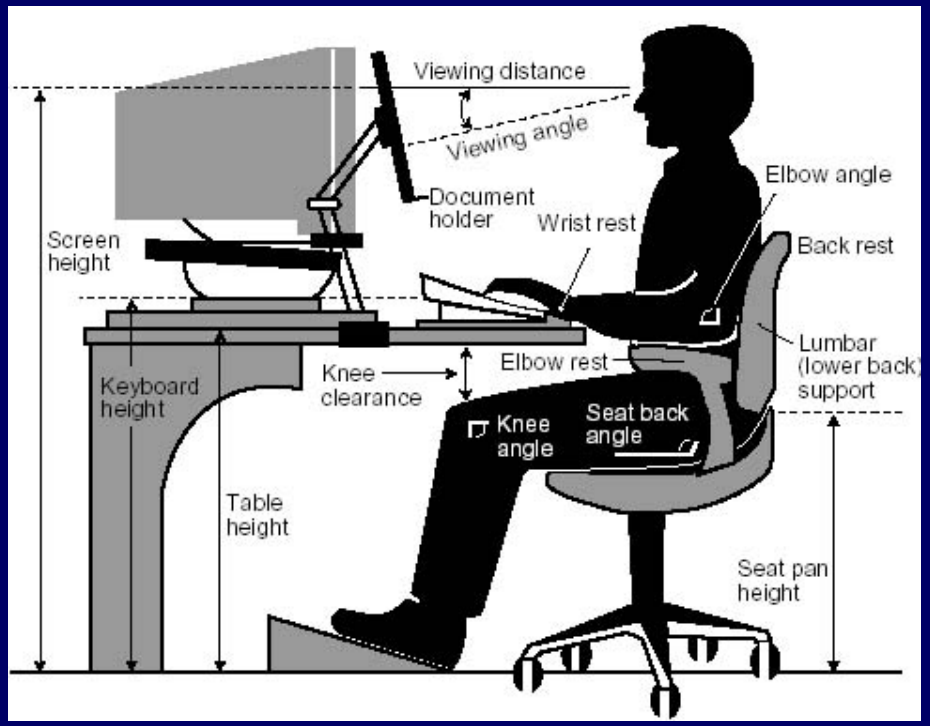
In addition to the brochure, participants from group E also received the **advice and supervision of a physical therapist** for the ergonomic adjustment of each workstation. The physical therapist, an expert in ergonomics, evaluated the posture of each participant while performing his daily tasks

Materials and Methods

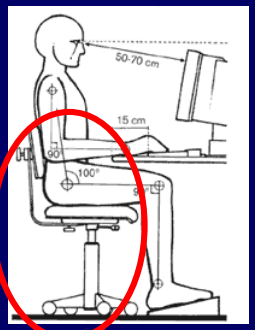
Correct reference parameters

(http://www.osha.gov/index.html)





Materials and Methods



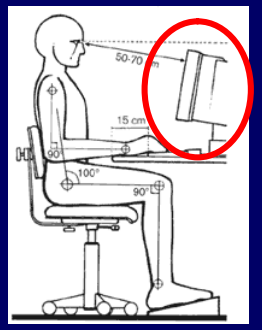
Correct reference parameters

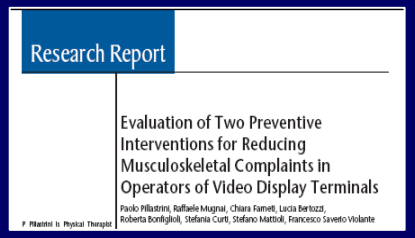
(http://www.osha.gov/index.html)

CHAIR HEIGHT

"When an employee spends from 6 to 8 hours in the chair, the height of the chair and the work surface are critical. The human body dimension that provides a starting point for determining correct chair height is the "popliteal" height. This is the height from the floor to the point at the crease behind the knee. The chair height is correct when the entire sole of the foot can rest on the floor or footrest and the back of the knee is slightly higher than the seat of the chair. This allows the blood to circulate freely in the legs and feet "

Materials and Methods





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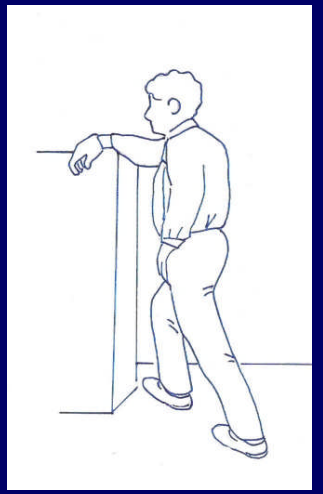
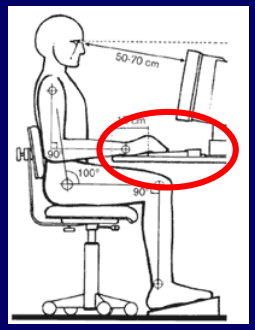
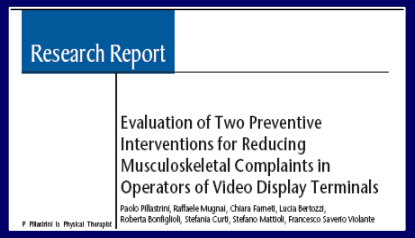


DISPLAY SCREEN

"The preferred viewing distance for VDTs ranges between 18 and 24 inches (45.72 and 60.96 centimeters, respectively). To this distance must be added the depth of the display itself. Some displays are as much as 20 inches deep (50.80 centimeters). The best way to deal with this, other than increasing table depth, is to install a keyboard extender or tray underneath the desk"

Materials and Methods





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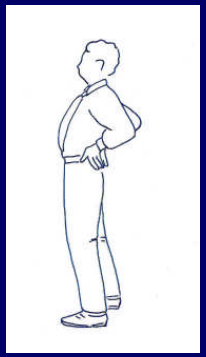
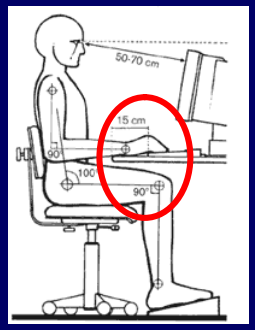


KEYBOARD

"The keyboard should be detachable and adjustable to ensure proper position, angle, and comfort for the operator. A lower-than-normal work surface may be required to keep the operator's arms in a comfortable position. This can be achieved by installing a keyboard extender or tray. The thickness and the slope of the keyboard are critical in determining the preferred height.
The preferred working position for most keyboard operators is with the forearms parallel to the floor and elbows at the sides, which allows the hands to move easily over the keyboard. The wrist should be in line with the forearm. A padded and detachable wrist rest for the keyboard can help keep the operator's wrists and hands"

Materials and Methods



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P. Pillastrini is Physical Therapist

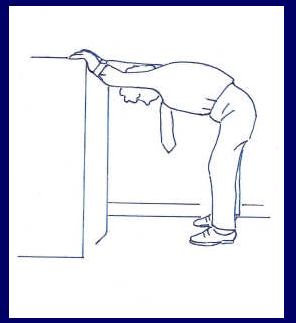
MOUSE

"The mouse should be positioned at the operator's side with his or her arm close to the body for support, while maintaining a straight line between the hand and forearm. The upper arm should not be elevated or extended while using the mouse. The top surface of the wrist should also be flat, not angled. A mouse pad or rest can be used to help maintain straight wrists"

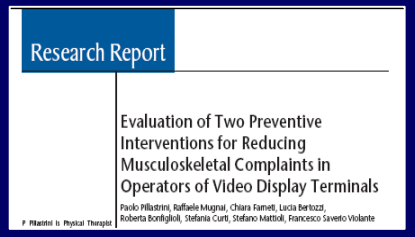
Materials and Methods

Intervention by a Physical Therapist

On the basis of the correct reference parameters and scientific evidence found in the pertinent literature, and on the nature of the tasks performed by the worker, the physical therapist executed **adjustments and alterations on the existing furniture and work equipment by modifying chair and desk height, backrest inclination, screen height, inclination and orientation, mouse location, keyboard inclination and location**



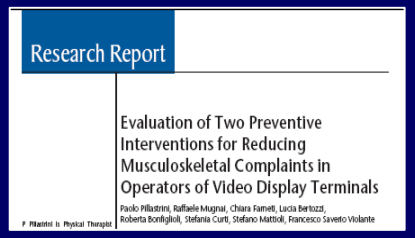
Materials and Methods



Intervention by a Physical Therapist

Only in a few cases, participants were provided with new chairs as the old ones were not adjustable. The ergonomic intervention by the physical therapist **took 2 weeks, approximately 30 minutes for each operator**. During the following 5 months, the therapist carried out his supervision and consultation twice a month, spending approximately 5-10 minutes with each operator

Materials and Methods



Intervention by a Physical Therapist

Moreover, workers were furnished with a **lumbar cushion** which functions as a physiological support to the lumbar region, a **gel mouse-pad** with ergonomic wrist support and, depending on individual needs, a **foot rest** and a **paper mount**

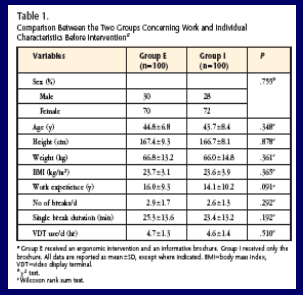


Table 1.
Comparison Between the Two Groups Concerning Work and Individual Characteristics Before Intervention*

Variables	Group E (n=100)	Group I (n=100)	P
Sex (%)			.755†
Male	30	28	
Female	70	72	
Age (y)	44.8±6.8	43.7±8.4	.348‡
Height (cm)	167.4±9.3	166.7±8.1	.878‡
Weight (kg)	66.8±13.2	66.0±14.8	.361‡
BMI (kg/m²)	23.7±3.1	23.6±3.9	.365‡
Work experience (y)	16.0±9.3	14.1±10.2	.091‡
No of breaks/d	2.9±1.7	2.6±1.3	.292‡
Single break duration (min)	25.3±13.6	23.4±13.2	.192‡
VDT use/d (hr)	4.7±1.3	4.6±1.4	.510‡

* Group E received an ergonomic intervention and an informative brochure. Group I received only the brochure. All data are reported as mean±SD, except where indicated. BMI=body mass index, VDT=video display terminal.
† χ^2 test.
‡ Wilcoxon rank sum test.

Variables	Group 1	Group 2	Test
	(%)	(%)	χ^2 (*P*)
Sex			
Male	30%	28%	.755
Female	70%	72%	
	Mean ± SD	**Mean ± SD**	**Wilcoxon rank-sum test (*P*)**
	(N=100)	**(N=100)**	
Age (y)	44.8±6.8	43.7±8.4	.348
Height (cm)	167.4±9.3	166.7±8.1	.878
Weight (kg)	66.8±13.2	66.0±14.8	.361
BMI[a] (kg/m²)	23.7±3.1	23.6±3.9	.365
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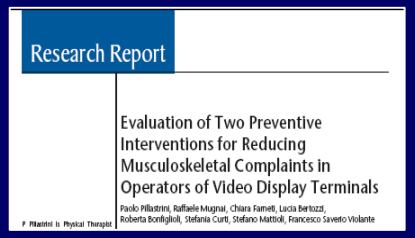
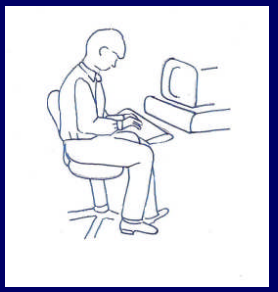




Comparison between the two groups concerning work and individual characteristics before intervention

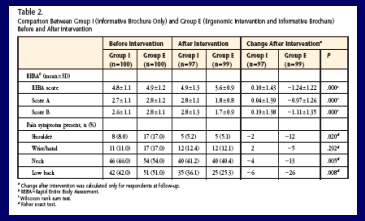
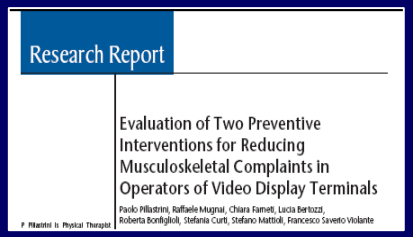


Table 2.
Comparison Between Group I (Informative Brochure Only) and Group E (Ergonomic Intervention and Informative Brochure) Before and After Intervention

	Before Intervention		After Intervention		Change After Intervention*		
	Group I (n=100)	Group E (n=100)	Group I (n=97)	Group E (n=99)	Group I (n=97)	Group E (n=99)	P
REBA† (mean ± SD)							
REBA score	4.8±1.1	4.9±1.2	4.9±1.3	3.6±0.9	0.10±1.43	−1.24±1.22	.000‡
Score A	2.7±1.1	2.8±1.2	2.8±1.1	1.8±0.8	0.04±1.39	−0.97±1.26	.000‡
Score B	2.6±1.1	2.8±1.1	2.8±1.3	1.7±0.9	0.19±1.38	−1.11±1.35	.000‡
Pain symptoms present, n (%)							
Shoulder	8 (8.0)	17 (17.0)	5 (5.2)	5 (5.1)	−2	−12	.020§
Wrist/hand	11 (11.0)	17 (17.0)	12 (12.4)	12 (12.1)	2	−5	.292§
Neck	46 (46.0)	54 (54.0)	40 (41.2)	40 (40.4)	−4	−13	.005§
Low back	42 (42.0)	51 (51.0)	35 (36.1)	25 (25.3)	−6	−26	.008§

* Change after intervention was calculated only for respondents at follow-up.
† REBA = Rapid Entire Body Assessment.
‡ Wilcoxon rank sum test.
§ Fisher exact test.



Comparison between group I (informative only) and group E (ergonomic intervention+informative) at baseline and after intervention

	Before intervention		**After intervention**		**Changes after intervention**		
	Group 1 (N=100)	Group2 (N=100)	Group 1 (N=97)	Group 2 (N=99)	Group 1	Group 2	*(P)*
REBA	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Wilcoxon rank-sum test
REBA Score	4.8±1.1	4.9±1.2	4.9±1.3	3.6±0.9	0.10±1.43	1.24±1.22	.000
Score A	2.7±1.1	2.8±1.2	2.8±1.1	1.8±0.8	0.04±1.39	0.97±1.26	.000
Score B	2.6±1.1	2.8±1.1	2.8±1.3	1.7±0.9	0.19±1.38	1.11±1.35	.000
Symptoms	Affected % (n/N)	Affected % (n/N)	Affected % (n/N)	Affected % (n/N)	Affected (after – before) (n/N)		Fisher's exact test
Shoulder	8.0 (8/100)	17.0 (17/100)	5.2 (5/97)	5.1 (5/99)	2/97	12/99	.020
Wrist/hand	11.0 (11/100)	17.0 (17/100)	12.4 (12/97)	12.1 (12/99)	- 2/97	5/99	.292
Neck	46.0 (46/100)	54.0 (54/100)	41.2 (40/97)	40.4 (40/99)	4/97	13/99	.005
Low back	42.0 (42/100)	51.0 (51/100)	36.1 (35/97)	25.3 (25/99)	6/97	26/99	.008

Data Analysis

Continuous data are expressed as **mean ± standard deviation**.

A **skewness-kurtosis test** was used to test the normal distribution of values.

For non-normal distributions, 2-sample tests were performed using the **Wilcoxon rank-sum test**.

Categorical variables were assessed using the **Fisher exact test**.

Data analysis was conducted following the **"Intent to treat"** approach. The **"worst case scenario"** was chosen as way of dealing with missing data. For the dichotomous outcome, we assumed that all dropouts in group E did not improve and that all of those in group I improved, when symptomatic.

To compare the chance of improving versus worsening, a **Logistic regression model** (adjusted for age, sex, and body mass index [BMI]) was used.

Odds ratios (OR) and 95% confidence intervals (CI) were calculated as measures of association

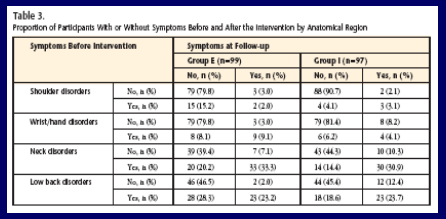


Table 3.
Proportion of Participants With or Without Symptoms Before and After the Intervention by Anatomical Region

Symptoms Before Intervention		Symptoms at Follow-up			
		Group E (n=99)		Group I (n=97)	
		No, n (%)	Yes, n (%)	No, n (%)	Yes, n (%)
Shoulder disorders	No, n (%)	79 (79.8)	3 (3.0)	88 (90.7)	2 (2.1)
	Yes, n (%)	15 (15.2)	2 (2.0)	4 (4.1)	3 (3.1)
Wrist/hand disorders	No, n (%)	79 (79.8)	3 (3.0)	79 (81.4)	8 (8.2)
	Yes, n (%)	8 (8.1)	9 (9.1)	6 (6.2)	4 (4.1)
Neck disorders	No, n (%)	39 (39.4)	7 (7.1)	43 (44.3)	10 (10.3)
	Yes, n (%)	20 (20.2)	33 (33.3)	14 (14.4)	30 (30.9)
Low back disorders	No, n (%)	46 (46.5)	2 (2.0)	44 (45.4)	12 (12.4)
	Yes, n (%)	28 (28.3)	23 (23.2)	18 (18.6)	23 (23.7)

Proportion of participants with or without symptoms with respect to each anatomical region considered, before and after the intervention

			Group 1		Group 2	
			Symptoms at Follow-up			
			No % (n/N)	Yes % (n/N)	No % (n/N)	Yes % (n/N)
Shoulder disorders	Symptoms before Intervention	No % (n/N)	79.8 (79/99)	3.0 (3/99)	90.7 (88/97)	2.1 (2/97)
		Yes % (n/N)	15.2 (15/99)	2.0 (2/99)	4.1 (4/97)	3.1 (3/97)
Wrist/hand disorders		No % (n/N)	79.8 (79/99)	3.0 (3/99)	81.4 (79/97)	8.3 (8/97)
		Yes % (n/N)	8.1 (8/99)	9.1 (9/99)	6.2 (6/97)	4.1 (4/97)
Neck disorders		No % (n/N)	39.4 (39/99)	7.1 (7/99)	44.3 (43/97)	10.3 (10/97)
		Yes % (n/N)	20.2 (20/99)	33.3 (33/99)	14.4 (14/97)	30.9 (30/97)
Low Back disorders		No % (n/N)	46.5 (46/99)	2.0 (2/99)	45.4 (44/97)	12.4 (12/97)
		Yes % (n/N)	28.3 (28/99)	23.2 (23/99)	18.6 (18/97)	23.7 (23/97)

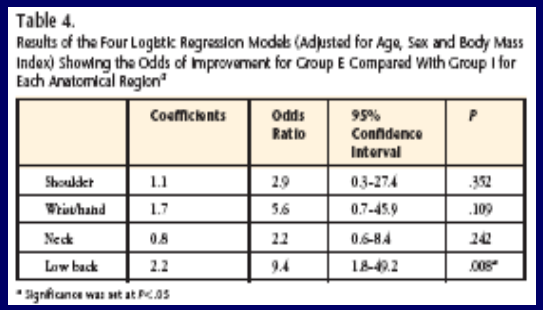
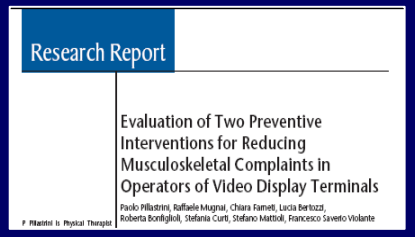


Table 4.
Results of the Four Logistic Regression Models (Adjusted for Age, Sex and Body Mass Index) Showing the Odds of Improvement for Group E Compared With Group I for Each Anatomical Region[a]

	Coefficients	Odds Ratio	95% Confidence Interval	P
Shoulder	1.1	2.9	0.3-27.4	.352
Wrist/hand	1.7	5.6	0.7-45.9	.109
Neck	0.8	2.2	0.6-8.4	.242
Low back	2.2	9.4	1.8-49.2	.008*

* Significance was set at P<.05



Research Report

Evaluation of Two Preventive Interventions for Reducing Musculoskeletal Complaints in Operators of Video Display Terminals

Paolo Pillastrini, Raffaele Mugnai, Chiara Farneti, Lucia Bertozzi, Roberta Bonfiglioli, Stefania Curti, Stefano Mattioli, Francesco Saverio Violante

P. Pillastrini is Physical Therapist

Results of the four logistic regression models (adjusted for age, sex and BMI) showing the risk of improvement for group E as compared to group I for each specific area examined

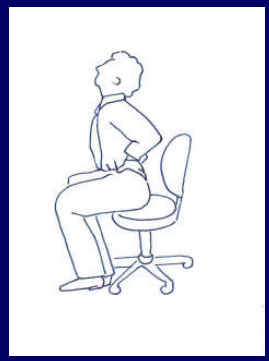
	Coefficients	OR group 1 vs group 2	95% CI of OR	P
Shoulder	*1.1*	2.9	0.3-27.4	.352
Wrist/hand	*1.7*	5.6	0.7-45.9	.109
Neck	*0.8*	2.2	0.6-8.4	.242
Low back	*2.2*	9.4	1.8-49.2	.008[a]

[a]Significance was set at *P*<.05
OR=Odds Ratio
95% CI= 95% confidence interval of OR

Results

Outcome scores in the first period and crossover follow-ups

	At baseline		After 6 months		After 12 months		After 30 months		After 36 months	
	Group 1 (N=100)	Group 2 (N=100)	Group 1 (N=99)	Group 2 (N=97)	Group 1 (N=95)	Group 2 (N=90)	Group 1 (N=85)	Group 2 (N=76)	Group 1 (N=80)	Group 2 (N=73)
REBA, mean ± SD										
REBA Score	4.9±1.2	4.8±1.1	3.6±0.9	4.9±1.3	3.7±1.0	4.8±1.3	4.0±1.2	5.0±1.2	4.0±0.9	4.0±1.0
Score A	2.8±1.2	2.7±1.1	1.8±0.8	2.8±1.1	1.9±1.1	2.9±1.3	2.3±1.3	3.2±1.2	2.4±1.1	2.4±1.2
Score B	2.8±1.1	2.6±1.1	1.7±0.9	2.8±1.3	1.7±1.0	2.4±1.2	1.5±0.8	2.0±1.2	1.3±0.7	1.3±0.5
Symptoms, % (n/N)										
Low back	51.0 (51/100)	42.0 (42/100)	25.3 (25/99)	36.1 (35/97)	31.6 (30/95)	36.7 (33/90)	35.3 (30/85)	47.4 (36/76)	30.0 (24/80)	23.3 (17/73)



Results

Outcomes comparison between groups after 30 months from the baseline and between 30 and 36 months follow-up

	Changes between baseline and 30 months follow-up (after – before)			**Changes between 30 and 36 months follow-up (after – before)**		
	Group 1 (N=85)	Group 2 (N=76)	*P*	Group 1 (N=80)	Group 2 (N=73)	*P*
REBA, mean ± SD						
REBA Score	-0.84±1.55	0.33±1.47	0.000[a]	-0.06±0.95	-1.05±1.07	0.000[b]
Score A	-0.55±1.64	0.62±1.54	0.000[a]	0.14±1.08	-0.90±1.09	0.000[a]
Score B	-1.28±1.33	-0.46±1.46	0.000[a]	-0.23±0.50	-0.74±1.01	0.000[b]
Symptoms, n/N						
Low back	-14/85	7/76	0.021[c]	-6/80	-17/73	0.016[d]

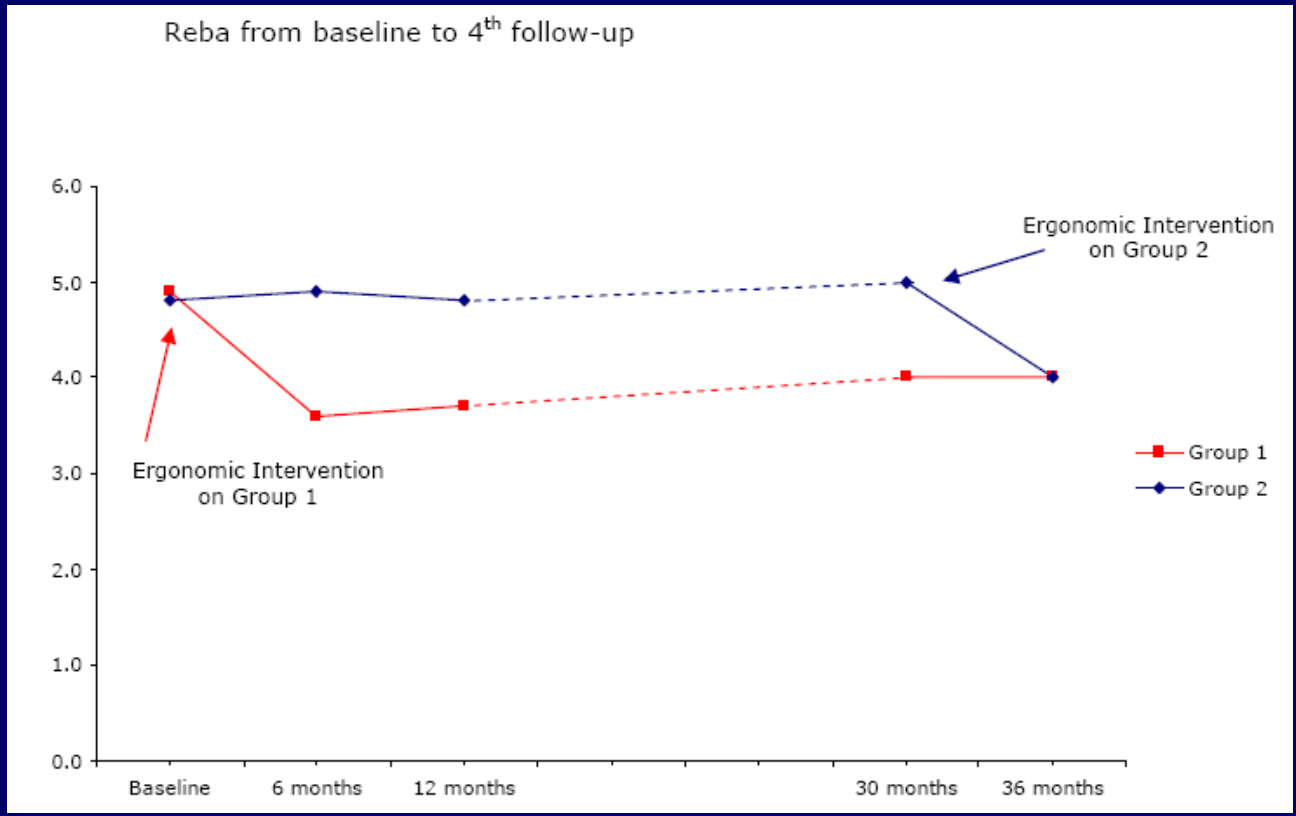
[a]T-test
[b]Wilcoxon rank-sum test
[c]X^2 test
[d]Fisher's exact test

Results

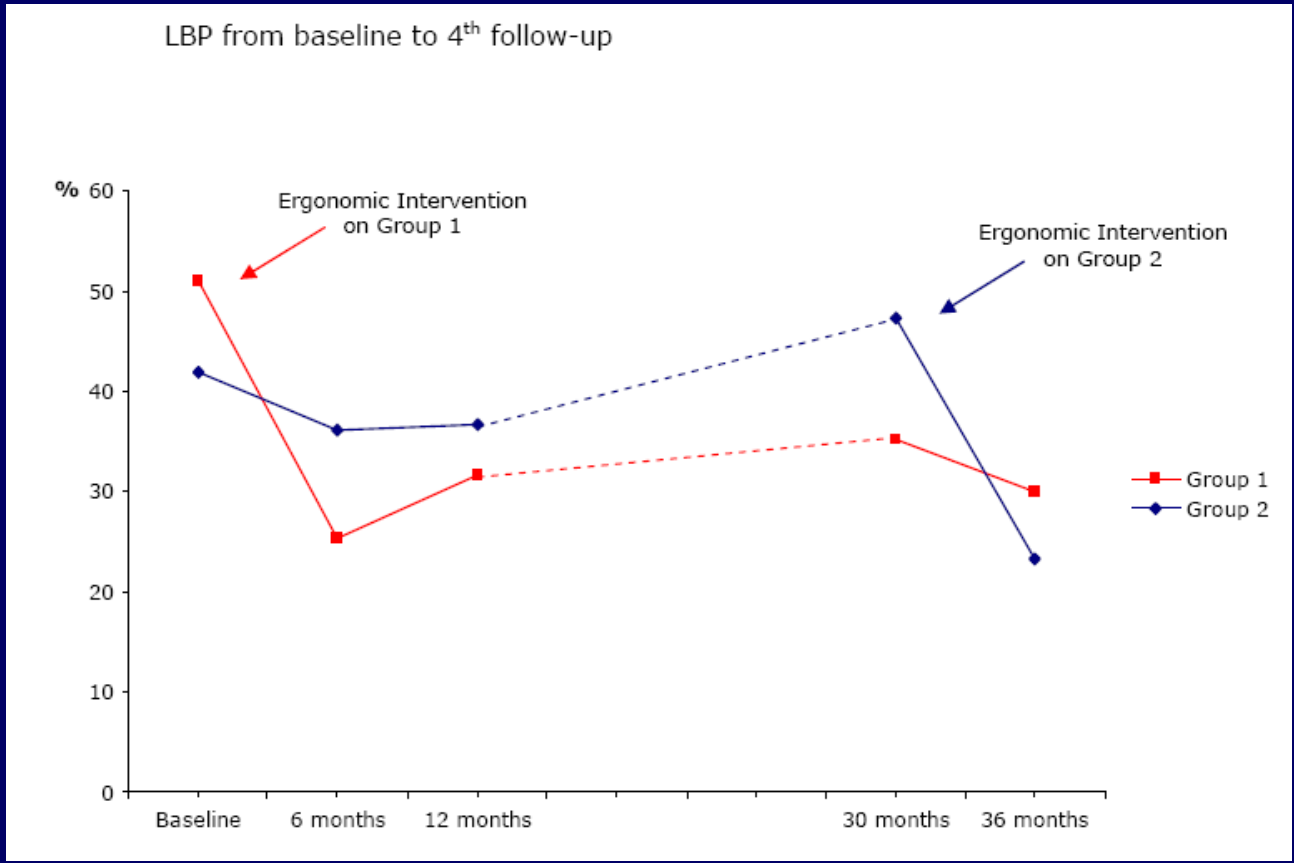
Multinomial logistic regression models with respect to changes after 30 months and between 30 and 36 months

	Changes after 30 months		**Changes between 30 and 36 months follow-up**	
	RRR	95% CI	RRR	95% CI
Nonsymptomatic at baseline and follow-up				
Treatment	1.09	0.39-3.02	1.21	0.52-2.80
Age	0.92	0.85-1.00	0.93	0.87-0.99
Bmi	1.01	0.84-1.21	1.04	0.90-1.19
Height	0.96	0.88-1.05	0.97	0.91-1.04
Male	2.42	0.42-14.07	1.23	0.31-4.92
Others				
Treatment	0.87	0.33-2.29	1.87	0.33-10.69
Age	0.96	0.89-1.04	0.86	0.75-0.99
Bmi	1.07	0.90-1.27	0.87	0.60-1.26
Height	1.01	0.93-1.10	0.87	0.74-1.03
Male	1.09	0.20-5.80	2.59	0.09-71.28
Became nonsymptomatic				
Treatment	5.37	1.20-24.15	3.94	1.37-11.30
Age	0.94	0.85-1.04	0.98	0.90-1.06
Bmi	1.04	0.83-1.30	1.05	0.89-1.23
Height	0.94	0.84-1.05	1.00	0.92-1.09
Male	2.13	0.23-19.73	0.54	0.09-3.07

Results

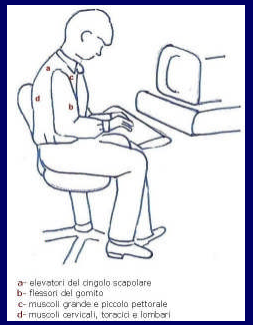

Reba from baseline to 4th follow-up
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Ergonomic Intervention on Group 2
Ergonomic Intervention on Group 1
Group 1
Group 2
Baseline
6 months
12 months
30 months
36 months

Results


LBP from baseline to 4th follow-up
%
60
50
40
30
20
10
0
Ergonomic Intervention on Group 1
Ergonomic Intervention on Group 2
Group 1
Group 2
Baseline
6 months
12 months
30 months
36 months

Discussion

Our study differs from those mentioned above in that each ergonomic intervention was personalized and appropriately studied and proposed by a physical therapist on the basis of personal tasks, needs and symptoms. The strength of this study is determined by the fact that the two groups were comparable with respect to baseline demographic characteristics and occupational factors. Moreover, a possible interaction between the two groups can be excluded as they worked in separate buildings



Discussion

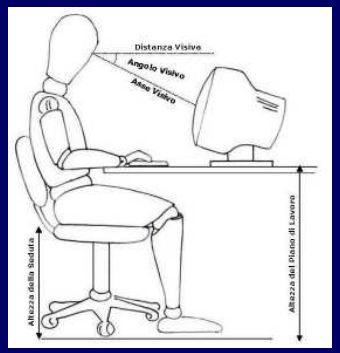
Symptoms in the low back, neck and shoulders showed the most improvement, in accordance with the findings of Ketola et al., who obtained, after an ergonomic intervention associated with an ergonomic educational program, a decrease in musculoskeletal discomfort in the experimental group as compared to the reference group in shoulder, neck and upper back areas

Discussion

The higher odds of improvement for low back disorders in group E with respect to group I can be explained as a positive effect of lumbar cushions, provided to all participants of group E, in preventing and resolving low back disorders

Discussion

Contrary to what we expected, we found no significant reduction in wrist/hand disorders for workers from group E, those who had been provided with wrist support mouse pads. Similar unexpected results were obtained by Lassen et al., who stated, after a one year follow-up study on 6943 computer users, that computer work activity or ergonomic conditions do not influence the prognosis of "severe" elbow, forearm, and wrist/hand pain among computer users



Conclusions 1

Among our study population, participants who received an ergonomic intervention along with an ergonomic educational program had a significant improvement in musculoskeletal disorders, mainly in the **low back,** compared with participants who received only the ergonomic educational program

Conclusions 2

Based on our results, we assert the importance of a **personalized ergonomic intervention** coupled with an ergonomic educational program in improving spinal and upper extremity work-related posture

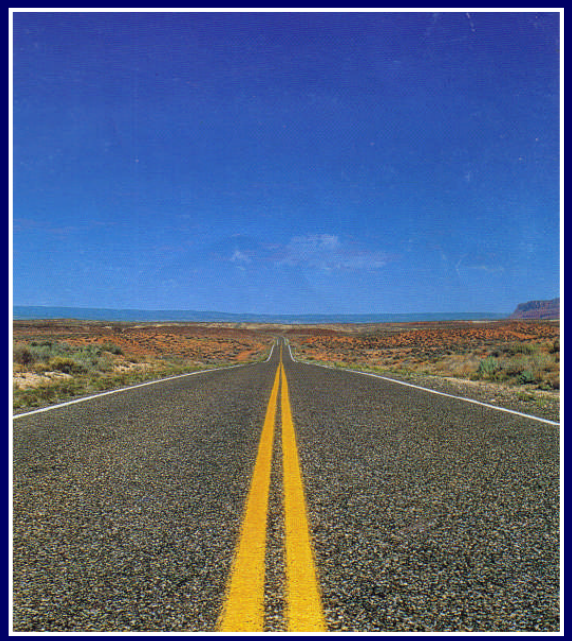
Conclusions 3

The **informative brochure alone proved insufficient** to make workers in group I adjust their workstations by themselves. Participants from group I did not change their posture according to the ergonomic criteria in the brochure they received; indeed, they appeared to be **reticent** in modifying their usual workstation arrangements without the guidance, supervision, and explanation of a professional.

This is demonstrated by the slight increase in the REBA score for group 1 at the first follow-up

Firenze, 24 ottobre 2008

“EBP e Lavoro:
La Prevenzione efficace dei rischi e danni da lavoro”



Grazie!