

**ETUC/ETUI Conference Brussels  
26.01.2009**

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**Biomechanical Overload Risks in the Car  
Industry in Italy**

**Collective Bargaining**

**Risk assessment agreement**

**Improvement of Working Conditions**

**Role of Safety Reps and Union Delegates**

# Upper limb work-related musculoskeletal disorders (WRULDs ) in Italy - 1

- WRULDs represent about 25% out of all occupational diseases.
- In the last years medium size and great companies have been becoming more “sensible” about the methodologies to assess risks of WMSD’s, in particular OCRA (Occupational Repetitive Actions Index and Check List).

# Upper limb work-related muscle-skeletal disorders (WRULDs) in Italy - 2

- Management fear sanctions in case of report of occupational diseases.
- Companies are worried for the working days lost because of WRULDs.
- Companies intend to use standardized methods for assessing risks of WRULDs as technical proof of absence of causal relation between WRULDs and work.

# The Fiat Case

- In 2001 Fiat increased the rate of production (+ 20/30%) at Mirafiori Plant (Turin).
- In 2002, 200 workers charged the company with upper limb diseases.
- In 2006, the sentence proved the casual relation between the diseases and the working organization and procedures.
- The management were condemned to compensate the workers.

# Mirafiori Agreement

- After the sentence, in July 2007 it was reached an agreement at Mirafiori Plant in order to make a new assessment of the risk of WRULDs.
- The agreement is based on:
  - a) a method shared by the company and the workers for assessing the exposure to repetitive actions and for introducing preventive measures;
  - b) an increase of the number and of the length of breaks;
  - c) a plan of information and training.
- The agreed risk assessment is divided in 2 stages.

# Indicators of Method 1 (“Filter”)

- Frequency: n° of actions/minute
- Posture: arms/shoulder, elbow and wrist movements, way to keep hold (pinch etc.)
- Force: moderate or strong
- Repetition of same gestures
- Additional factors (e.g. use of tools)
- Organizational factors (n° of breaks)

# Method 2 (OCRA Check List)

- Synthetic index measuring exposure to repetitive actions (EN 1005-5 – ISO 11228-3)
- OCRA Index springs from the following ratio:

Daily number of actions  
of upper limbs in repetitive tasks

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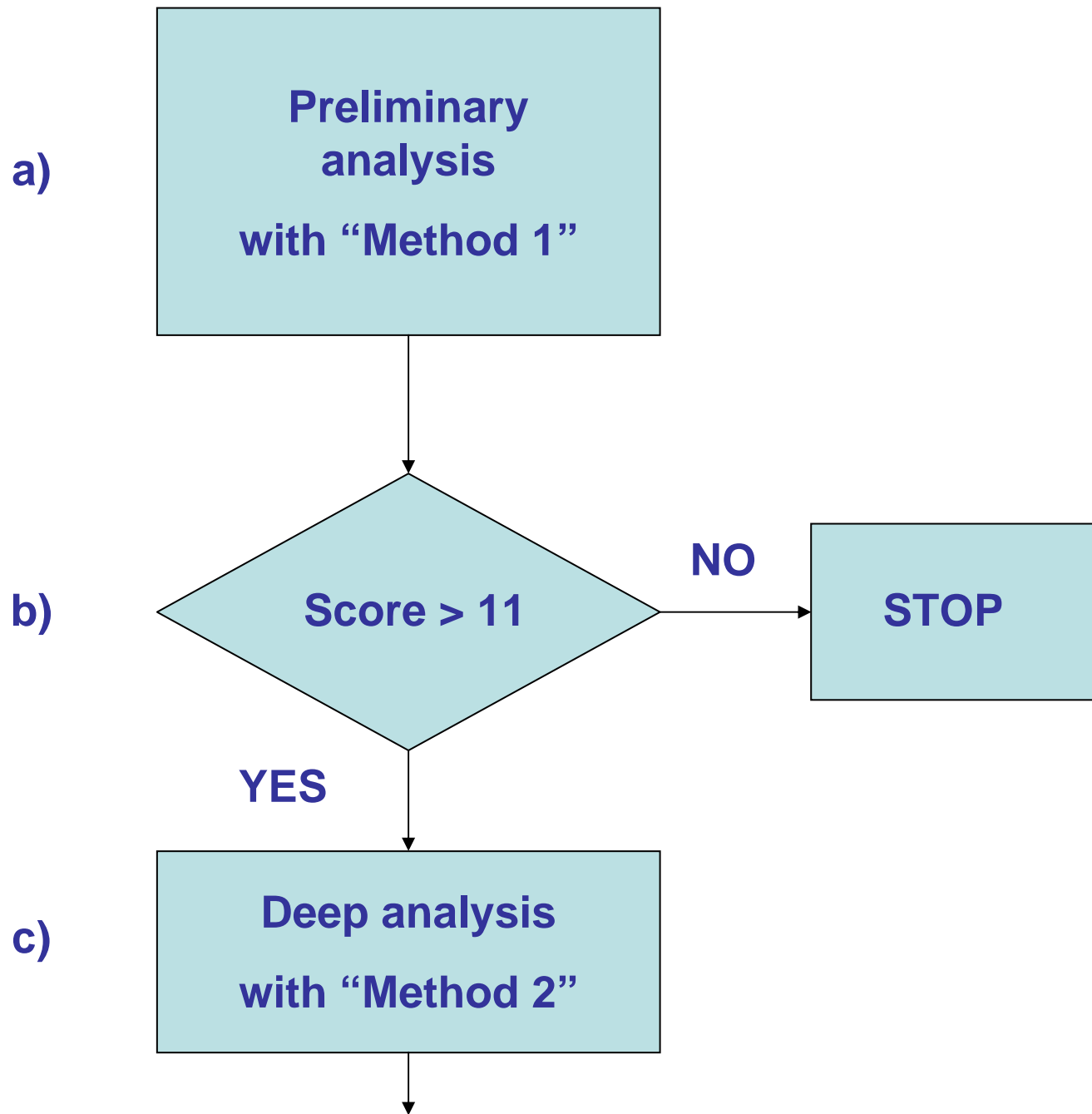
Corresponding number  
of recommended actions

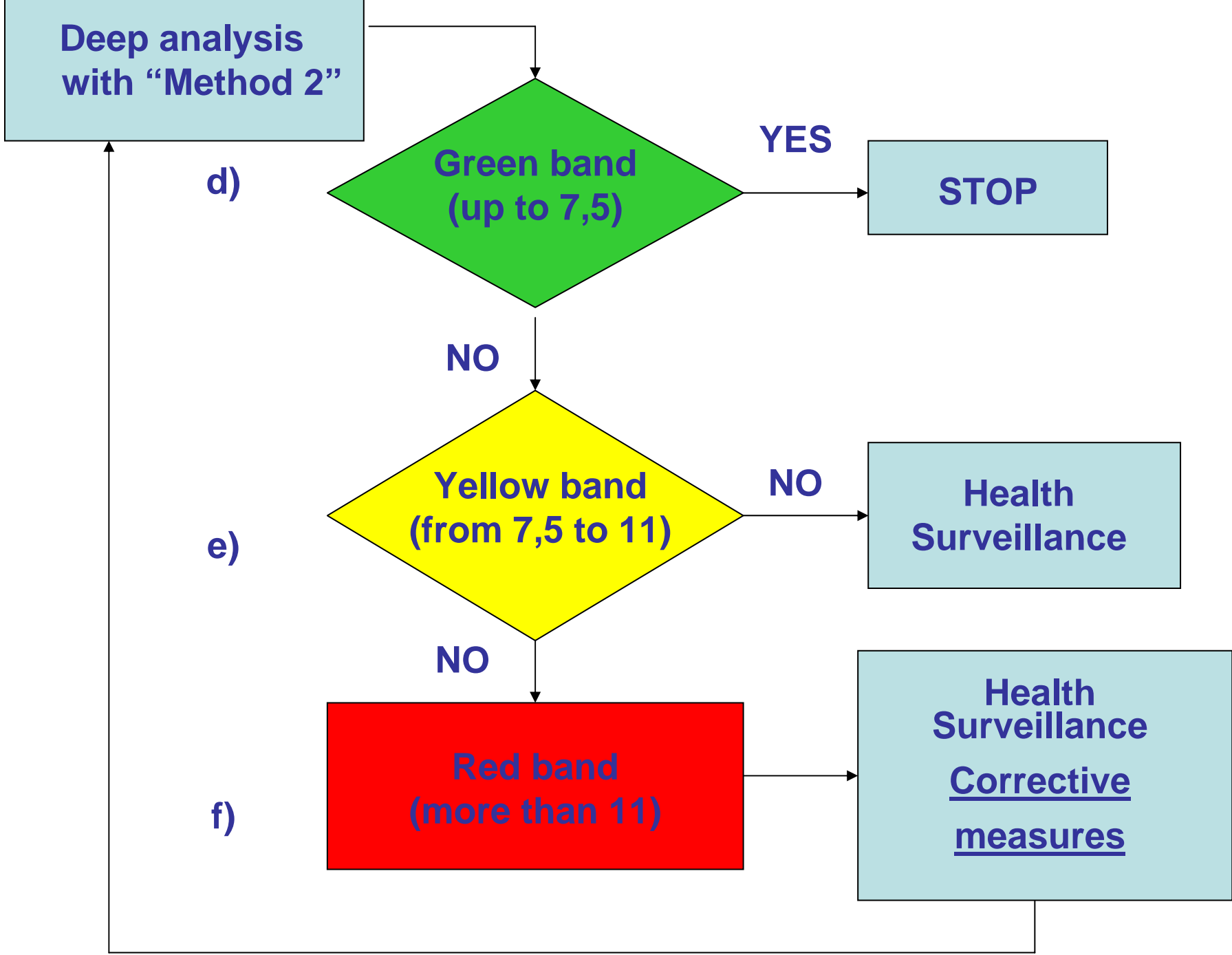
# OCRA Indicators

- Recommended actions are calculated as a constant (representing the action's frequency), assumed as effective in optimal conditions, decreased according to presence and features of other risk factors, as:
  - Force
  - Posture
  - Complementary Factors
  - Breaks
- Resulting exposure Index indicates an intrinsic risk band for the analysed job.

## Risk Index is shared in bands according to this table

| Check List<br>OCRA         | OCRA                   | BAND                    | RISK                        |
|----------------------------|------------------------|-------------------------|-----------------------------|
| UP TO 7,5                  | 2,2                    | GREEN                   | ACCETTABLE                  |
| 7,6 - 11,0                 | 2,3 - 3,5              | YELLOW                  | BORDERLINE OR VERY<br>LIGHT |
| 11,1 - 14,0<br>14,1 - 22,5 | 3,6 - 4,5<br>4,6 - 9,0 | LIGHT RED<br>MIDDLE RED | LIGHT<br>MIDDLE-SIZED       |
| >= 22,6                    | >= 9,1                 | VIOLET                  | HIGH                        |





# Corrective measures

- Re-examination of constitutive elements of the job (movements, postures, frequency, force, complementary factors etc.).
- Separating and redistributing in a greater number of jobs the actions.
- Job rotation.
- Global re-examination of the job according to ergonomic measures

# Implementation of the agreement

- Since July 2007 at Mirafiori Plant it has been carrying out the assessment of 500 jobs out of 1.800 and working conditions have improved.
- The risk assessment document has been supplemented with the new measures.
- Fiat has become more sensible about WRULDs and has decided to assess the risk of biomechanical overload in all its Italian plants.
- Workers interested are more than 40.000.

# Fiat Plants in Italy

**Torino  
(5.000)**

**Brescia (5.000)**

**Mantova (3.500)**

**Modena (2.000)**

**Atessa  
(3.000)**

**Termoli (2.500)**

**Cassino (3.500)**

**ROMA**

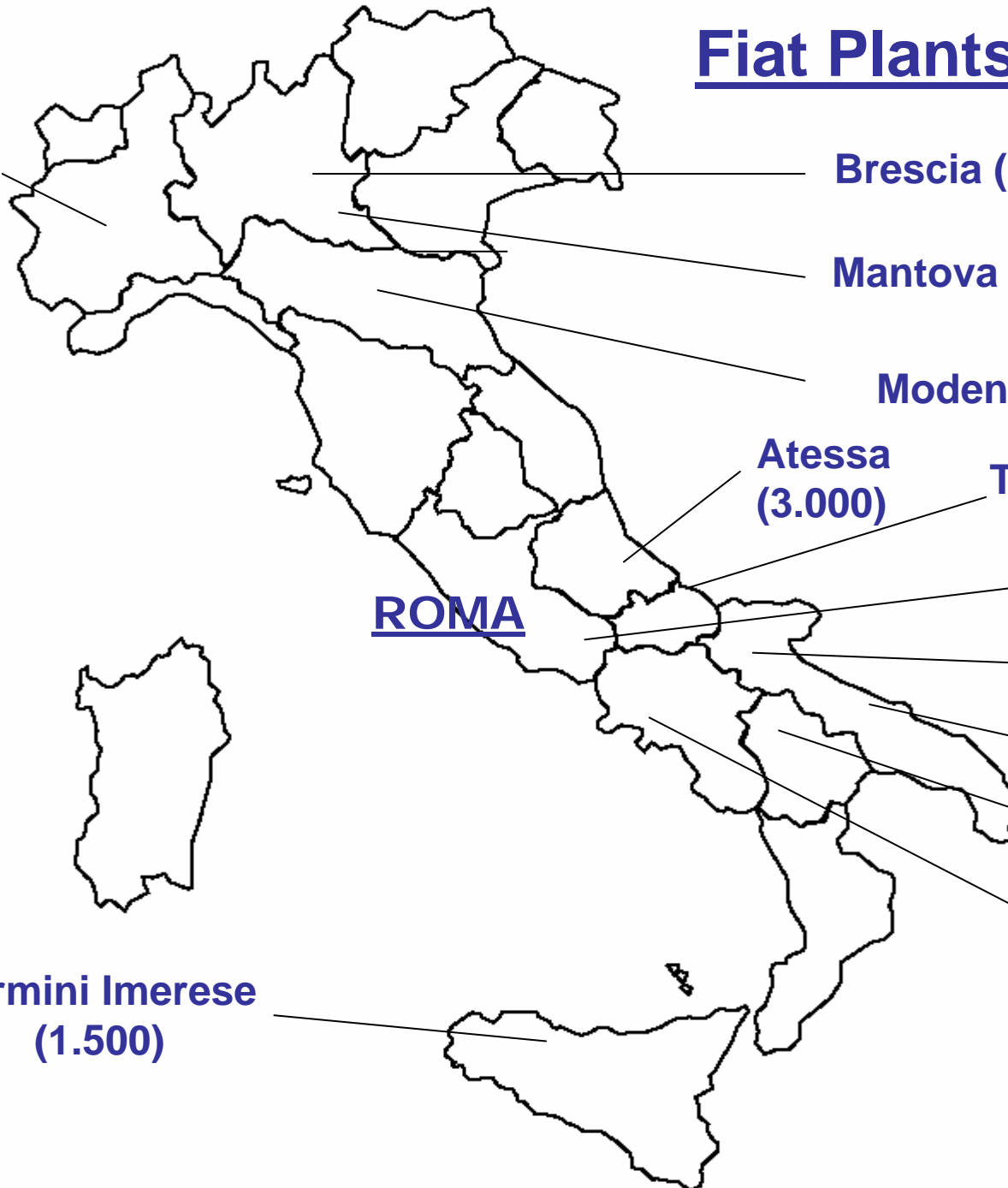
**Foggia (1.500)**

**Bari (1.500)**

**Melfi (5.000)**

**Pomigliano  
(5.000)**

**Termini Imerese  
(1.500)**



# A Trade Union Plan

- National training plan aimed to enable Workers Safety Representatives and Union Delegates to read critically the risk assessment of the company and to face the technical management.
- 25 participants each plant.
- Plus 2 experts each plant.
- Coordination of experts.

**Thank you  
for your attention**

