

# All work conditions and occupational exposures are always multifactorial

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## Presentation

- 1973 in the car industry:
- No electric welding machines by point or robots
- Manual welding of the car bodies
- 4 workers for grinding and sandpapering the welds, the sills and gutters



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## Presentation

- Painful work:
  - Heavy grinding wheels and sanding machines
  - Awkward working postures
  - Heavy leather hood protecting head, chest, back and arms from incandescent projections: heavy sweating
  - Deafening noise.



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## Intervention

- Occupational physician, cardiologist, concerned about the physical load
- JM: noise and thermal stress.
- We first measure:
  - Peaks of 170 bpm of heart rate (Holter)
  - 95 dB (A)
  - Water compensation > 2 l/day
  - Hoods dripping with sweat
- 40-page report with many graphs of heart rate and sound recordings.



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## Modifications

### "Grill band": "investment of work humanization"

- 4 successive stations with the car body mounted on a spit and rotating so as to present the sills and ledges to 65 cm in height.
  - Grinding and sandpapering done now at good height
  - Physical load greatly reduced
- Distance of 4 m between 2 workers:
  - No projections of the machines of the colleagues
  - Much lighter hoods with frontal protection
  - Thermal constraint reduced
- Noise level reduced to 91 dB(A) due to distance and a acoustic wall between the neighboring assembly line.

Results considered very positive by the Direction and us

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## Limitations

- Vibration? obvious but not (yet) "fashionable"
- Vision problems behind the hood due to the smoke

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## Three months later

- High absentee rate at these 4 stations
- Constant demands for transfer to other workplaces
- What's going on?
- We finally meet with the workers

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## Group organization at the former station

- Prescribed organization:
  - 2.5 min. for the 4 workers to process a body + 30 s. "rest".
    - Insufficient to store the machines, remove the hoods, cool off, get dressed and pick up the machines
- Group organization
  - 3 workers process 3 bodies successively in 9 min.
    - the 4th worker is resting (drinks, cigarettes, contacts...)
  - One minute of "rest"
  - Next cycle of 3 bodies
    - Another 4th worker at rest
    - Permutations of tasks: grinding and sand papering
- Good harmony and support in the group
- Low absenteeism managed by the group

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## New work organization

- NOW:
  - Fixed workplace and task for each one (grind or sandpaper the same sills or ledges) during 8 hours
  - Virtually no autonomy: no more social contact, nearly complete insulation
  - 30 s. max. between two bodies
  - Necessary recourse to the supervisor for any break of more than 30 seconds...

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## What is the objective?

- The absence of accidents and occupational diseases
- or
- Health according to WHO: (1946!!!!) "*A state of complete physical, mental and social wellbeing*"
    - Definition little concretized by hygienists, ergonomists, doctors, safety officers, psychologists...

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## Recently: multidisciplinary "fashionable"

- In many cases, exacerbate the gap between these "specialists"
  - Chemical agents for the hygienist
  - Accidents for the safety officer
  - MSD for the ergonomist
  - Stress for the psychologist
- Fragmentation of the concerns in the absence of
  - a in-depth reflection on the meaning and implications of the INTERdisciplinarity
  - and reappraisal of the training programs.

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## Herzberg (theory motivation and hygiene 1950)

2 types of factors influences the behavior:

- The context in which the worker works
  - Factors of dissatisfaction**
    - Physical working conditions: work organization, requirements of the task, physical factors...
    - Economic conditions: wages, financial advantages, insurances
    - Welfare benefits
    - Direction, colleagues, policies and company regulations
- The possibilities of
  - Using and developing his capacities
  - Managing difficult things
  - Exerting responsibilities
  - Deserving the admiration of the others

**Factors of satisfaction**

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|                              |   |  |  |
|------------------------------|---|--|--|
| Need for achievements        | Interest in the work<br>Responsibilities<br>Personal Development  | Factors of satisfaction                                    | Wellbeing                                    |
| Needs of self-esteem         | Promotion<br>Recognition<br>Status                                |  |  |
| Social needs                 | Relations with other<br>Supervision<br>Colleagues<br>Subordinates | Sources of dissatisfaction                                 | No accidents<br>no diseases<br>no discomfort |
| Security needs               | Technical Supervision<br>Organizational policy<br>Job Security    |  |  |
| Physiological needs          | Working conditions<br>Salary<br>Personal life                     |  |  |
| Hierarchy of needs<br>Maslow |   | Motivation and hygiene<br>Factors<br>according to Herzberg |  |

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## Conclusions

1. Questioning of the current conventional approach of evaluation of the risks
  - Achieve more economically, faster and easier coherent action plans
  - Approach directly targeted towards prevention
  - Risk assessment is only one step, not always essential

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## Conclusions

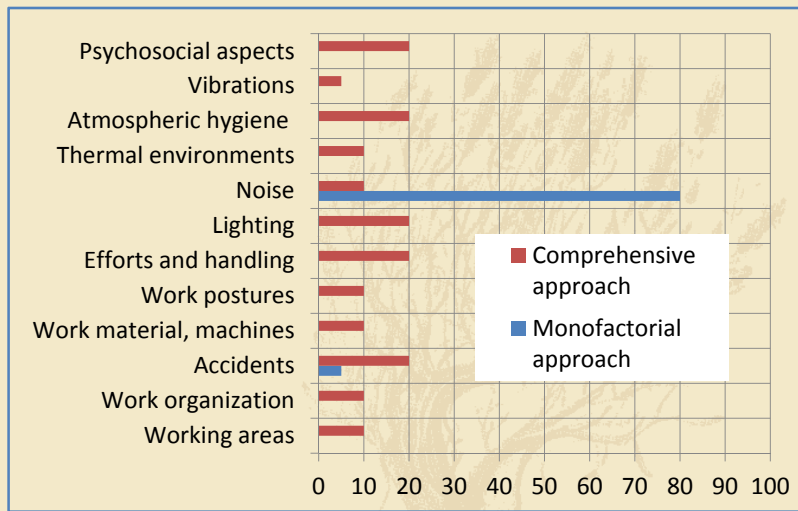
2. Objective: maintain or improve the wellbeing of the work collective (employees and local management)
  - No coherent action without the knowledge of the work situation that only this work collective holds
  - This collective IS the main "actor" of the prevention and not merely its "object".
3. Participation and not merely consultation:
  - Direct, active and equitable cooperation (dialog) within the work collective on THEIR living conditions together in the company.

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## Conclusions

4. All exposures are multifactorial
  - Absurd to treat the eczema of someone without taking care of his diabetes and his hypertension
  - Absurd to worry about the noise, without taking care AT THE SAME TIME of the chemical environment, the physical load and the psychosocial environment.
5. Whatever the problem considered (noise, physical load...)
  - Place it in the general context of the work situation
  - Deepen it if necessary, if problem not solved immediately and if the risk is very high risk (chemical risks, accidents....).

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### Profil Renault Sirtes

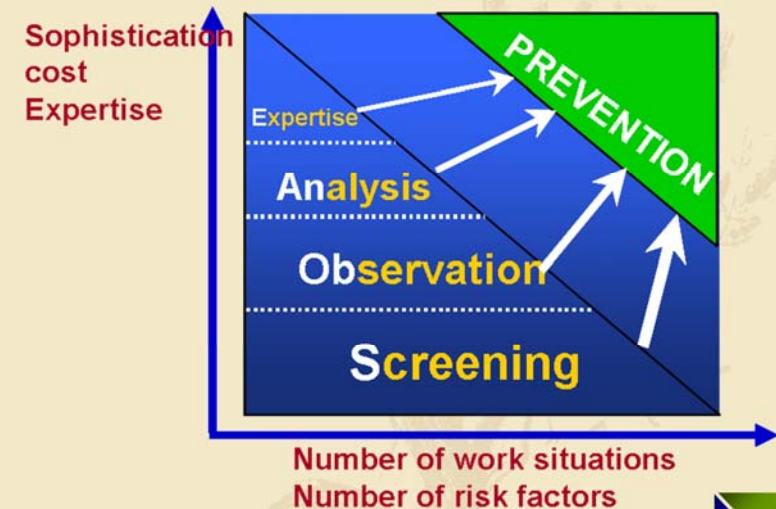
|                         | ++ | + | +/- | - | -- |
|-------------------------|----|---|-----|---|----|
| Hauteur éloignement     |    |   |     |   |    |
| Alimentacion Evacuacion |    |   |     |   |    |
| Accessibilité           |    |   |     |   |    |
| Commandes et signaux    |    |   |     |   |    |
| Sécurité                |    |   |     |   |    |
| Ambiances thermiques    |    |   |     |   |    |
| Ambiances sonores       |    |   |     |   |    |
| Eclairage               |    |   |     |   |    |
| Vibracions              |    |   |     |   |    |
| Pollution chimique      |    |   |     |   |    |
| Aspect du poste         |    |   |     |   |    |
| Posture principale      |    |   |     |   |    |
| Efforts de travail      |    |   |     |   |    |
| Efforts de manutention  |    |   |     |   |    |
| Opérations mentales     |    |   |     |   |    |
| Niveau d'attention      |    |   |     |   |    |
| Autonomie individuelle  |    |   |     |   |    |
| Autonomie de groupe     |    |   |     |   |    |
| Relations indépendantes |    |   |     |   |    |
| Relations dépendantes   |    |   |     |   |    |
| Répétitivité            |    |   |     |   |    |
| Potenciel               |    |   |     |   |    |
| Responsabilité          |    |   |     |   |    |
| Intérêt du travail      |    |   |     |   |    |

### Déparis guides

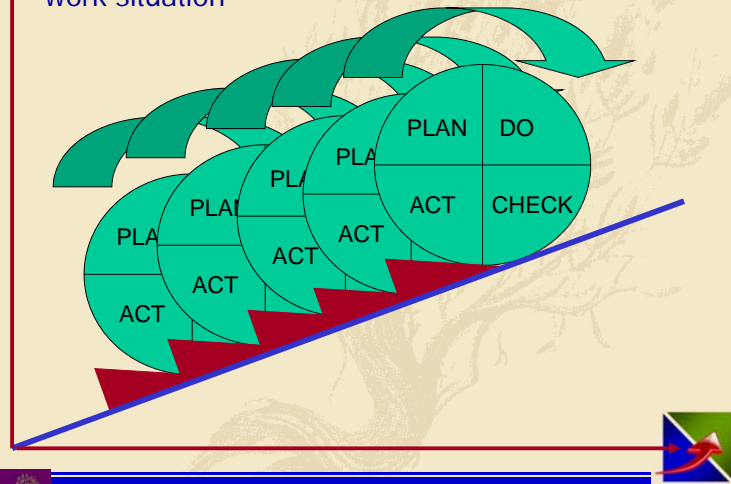
#### Situation of work:

|  |    |
|--|----|
| 1. Working areas   | ☹️ |
| 2. Work organization                                     | 😊  |
| 3. Work accidents  | 😊  |
| 4. Electricity, fire and explosions                      | ☹️ |
| 5. Controls and signals                                  | 😊  |
| 6. Work material, tools, machines                        | 😊  |
| 7. Work postures   | 😊  |
| 8. Efforts and handling operations                       | 😊  |
| 9. Lighting  | ☹️ |
| 10. Noise  | 😊  |
| 11. Chemical and Biological risks                        | 😊  |
| 12. Thermal environments                                 | 😊  |
| 13. Vibration  | ☹️ |
| 14. Autonomy and individual responsibilities             | 😊  |
| 15. Work content   | 😊  |
| 16. Time constraints                                     | 😊  |
| 17. Relationships between workers and with the hierarchy | 😊  |
| 18. Psychosocial environment                             | 😊  |

### Organize the use of skills



Quality of the work situation



There is no such thing as an exposure to a single chemical (Dr Yang) to a single factor

Everything is in everything

« Tout est dans tout, et réciproquement » (P. Dac)

**SOBANE**

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*Thank you for your attention...*