USING THE "TMS PRO" PARTICIPATORY APPROACH TO REDUCE MUSCULOSKELETAL DISORDERS FOR PACKAGING LINE OPERATORS IN AGRIBUSINESS

General information

Country: France

Sector: Agribusiness

Type of organisation: Provincial authority

Size of organisation: Factory belonging to an international group

Location: Rural

Job/tasks: Finished product packing and packaging line operators

Workplace and task characteristics: Handling heavy loads, repetitiveness and awkward postures.

Workplace participation measures: Implement a project to prevent stress and strain as part of a Carsat TMS([1]) Pro and Health and Performance programme.

The action

Background

Project start-up

In 2014, the factory's human resources (HR) manager noted an increase in accidents at work and occupational illness. This happened despite a certain number of preventive and corrective actions set up by management, such as recruitment of a health, safety and environment manager and training team leaders in the prevention of occupational risks. Furthermore, a process for introducing automation had been taking place for several years. The number of musculoskeletal disorder (MSD) cases affecting the carpal tunnel, back and shoulders was extremely high (over 1,800 days of absence from work between 2014 and 2015). The factory's workforce was ageing (average age 44), and many employees had been working at the factory for a long time (20 years on average). The operators suffered from pre-existing musculoskeletal problems.

The factory was selected to be part of the TMS Pro programme in conjunction to the Carsat Rhône-Alpes Health and Performance programme. A Carsat referral officer guided the factory as it applied the TMS Pro approach, and an ergonomist was contracted to help roll out the project through the Health and Performance programme.

In the agribusiness sector, this programme organises sector seminars with several companies in the same industry. The programme provides participants with the opportunity to share their experiences and prevention practices. The company's health, safety and environment (HSE) manager and HR manager participated in these meetings with representatives from 10 other companies.

The implementation of both programmes between 2014 and 2018 helped the company to set up a lasting occupational safety and health (OSH) policy which they could manage on their own.

Prevention culture

In terms of OSH, the company's management set objectives every six months based on indicators defined and shared with the production teams. However, the managers emphasised that the prevention culture had not been appropriately communicated and that the oldest workers were the least inclined to apply the policy. To instigate a change, the new HSE manager, working closely with the HR manager, occupational nurse and design office, set up actions involving the employees.

([1]) TMS means MSDs in French

Participatory culture

The company had always insisted on employees participating in the improvement of working conditions. Before the TMS Pro approach was introduced, the operators had already been invited to provide input twice a year in team workshops that reported problems, defined improvement possibilities and developed shared objectives for the next six months. Alongside these meetings, seminars were organised twice a year with different managers and top management to discuss feedback from the field and establish a common vision of priorities for safety and health. All worker feedback was considered and taken into account by management. Management organised inter-team meetings when a modification concerned several production lines. When the change involved a large project (change in packing, transformation of a line, change in production), a project group and action plan were set up. Before the project was introduced, the production engineering manager ran the project with the line manager.

Again, previously, when a new line was designed or a new machine purchased, only the line technicians concerned were consulted. Top management's policy of including the opinion of the operators was not followed by all the managers.

An ergonomic packing line was designed before the start of the project. This line was the reproduction of a packing line developed on another site designed with the help of an external company and based on a biomechanical analysis of stress and strain. Some manual tasks were automated, but the resulting line design proved to be more exhausting, especially for packing in boxes.

Participants and stakeholders

Volunteer employees participated in the project, especially during the solution development phase.

The HSE manager, who had taken up this position before the start of the project, but had worked in the company for over 30 years, coordinated and led the project, working closely with the HR manager.

Carsat, a French organisation specialising in occupational health and prevention, targeted the factory site in Charancieu for its TMS Pro and Health and Performance programmes. The Carsat officer appointed to the site made sure the project was properly carried out in the company by being present during key stages for meetings with the safety and health committee or with the project coordinators.

The site director facilitated the project's roll-out by providing the workers with the means to participate, including time to take part in meetings, working groups and tests, and to allocate financial resources. A consultant ergonomist supported the company during the phase where work situations identified as exhausting were analysed. The occupational nurse, who had been recruited at the start of the project, was a member of the steering committee. The safety and health committee was called on and became strongly involved in the roll-out. Its secretary was a member of the steering committee.

Participatory approaches, methods and tools

The TMS Pro approach is divided into four steps.

Step 1: engage in the approach and provide an overview of the situation

The HSE manager organised about 20 meetings with the line managers and workers to inform them about the project. These meetings provided the opportunity to ask the participating workers about what they wished to improve.

A steering committee was quickly set up with the site manager, HR manager, HSE manager, secretary of the safety and health committee and the occupational nurse.

Step 2: formally introduce the MSD prevention project and identify priority work situations

The HSE manager, HR manager and occupational nurse compared data on lost time with the site's work situations. This allowed them to determine which workstations should be analysed as a priority. The safety and health committee was informed of the results and liaised with the operators. A packing line that had been recently transformed was selected for a more in-depth analysis of the work tasks and risks to workers.

Step 3: analyse the situation with the highest risk concerning MSDs and define a concrete action plan

An ergonomics consultant funded by the Health and Performance programme was involved in this phase to establish a diagnosis of the identified situations (end 2015 to start 2016). Top management informed other managers, the safety and health committee, the works council and the production teams about the ergonomist's role.

Working with the HSE manager and HR manager, the ergonomist prepared a map of tasks causing the most stress and strain in the workshop based on easy-to-use machine safety standards. He used photos of operators in different work situations to illustrate problems. The operators did not participate in this step.

The results were presented to the HSE manager, HR manager, concerned line managers and the steering committee. This presentation provided an opportunity to bring together the different views of stress and strain in the workshop. The ergonomist then set up working groups with the concerned line operators. The working group for the future line boxing workstation consisted of the line manager, line product technician, management technician, six packing supervisors and the HSE manager.

The working group's meetings were placed between the morning shift and the afternoon shift to include as many operators as possible. The production line operated on normal conditions most of the time, but had to be stopped a few times where the participating operators were taken out of production. The group focussed on discussing what to change in the packing line.

At the end of February 2016, the ergonomist presented the results of this stage at a steering committee meeting in which representatives from the safety and health committee and the works council also participated.

Based on the ergonomist's work, the group then made a life-size scale model of the future packing line using available furniture and boxes. The HSE manager ran work simulations on the model packing line with a panel of representative operators in terms of anthropometrics, age and experience. During the simulation, the technicians were not present so that the discussions about difficulties and the search for solutions could be more independent. One after the other, each operator tried out the model packing line. They all gave their opinions about what was good and what was not, and what could be improved. They were allowed to handle or move the boxes and furniture. Nothing was said about an operator's ideas to the next operator. At the end of the day, there was a wrap-up session with all the employees to present the ideas and validate together the specification needs. These were then sent to the design office affiliated with the company's head office.

This simulation work was carried out entirely independently without the presence of the ergonomist or the Carsat referral officer.

The future workstation plan was prepared by the design office so that it could be validated by the working group in March or April 2016.

Step 4: assess prevention approach

When the new packing line had been mechanically set up in September 2016, the working group was brought together again and included the in-house ergonomist. They assessed the workstation and looked for aspects to be improved before the line was started up again in June 2017. The HSE manager performed an additional assessment with the operators when the new line was set up and ready to operate.

As part of the new worker integration plan, several discussions were organised during the initial months. The new workers discussed their activity and working conditions with their supervisor, the line manager and the product technician. This was an opportunity to collect the new workers' opinions about the line and identify potential problems.

In this way, the participatory approach was applied by the company when hiring new workers, too. However, some managers were reluctant to accept this new approach, and company management had to continue to promote the approach to managers during formal and informal discussions.

The operators followed training on movements and postures. An important part of the training took place at the workstation to assess how the operator could adopt postures that create the least stress and strain. If less exhausting postures could not be found, the problem was noted and included in future line developments, such as the purchase of a new machine.

The new workers' supervisors were trained to look for prevention possibilities and promote occupational health and workstation safety to learners.

Safety behaviour tours were organised regularly by trained volunteer employees. These employees observed other colleagues, providing them with feedback about identified problems, for example adopted postures, ways of doing things and safety instructions. They then talked about the causes of problems and possible remedial measures to be implemented.

What was achieved

Participatory approach

Regarding the participatory approach, the following was achieved:

- The company continues to apply the approach on its own.

- The HSE manager, HR manager and members of the safety and health committee spend one day every two to three weeks on OSH activities, such as reviewing projects under way, establishing cause trees after occupational incidents or accidents and touring the workshop. The safety and health committee is encouraged to coordinate projects with the production teams on the shop floor.
- The project organisation has been reviewed: now it is line managers who coordinate projects so that the production workers can more easily be included as stakeholders. Following the recruitment of an ergonomist in 2018, the production engineers were trained to pay attention to ergonomics and therefore adopt a more ergonomic approach to technology projects.
- New lines are currently being transformed. The factory is applying the same method used for the packing line, with the support of the in-house ergonomist. Safety reviews are organised every week with the workers, line managers and assistants. The discussions often lead to easy-to-implement solutions that facilitate the work.
- When new equipment is bought, the concerned operators are involved in the choice by testing one or several models. These tests lead to specifications being prepared for the purchase. The HSE manager asks the operators to assess the equipment after it is bought.
- The site's prevention officers use ergonomists' techniques (photos, videos) to discuss work with the workers.

Improvements

- Regarding the packing line, the project received some very positive biomechanical feedback. The operators reported feeling less tired and additional handling assistance equipment has been purchased.
- The number of MSD reports dropped. While nine reports were filed in 2014, only four were filed in 2019 and none in 2020. The yearly average number of days off work for occupational illness has decreased by 40%. Between 2014 and 2016, there was a yearly average of 957 occupational sick leave days, compared with only 378 between 2018 and 2020.
- Following the intervention, the working conditions assessment with the employees is not only based on technical indicators, but also on wellbeing indicators.

Consequences of automation

Automation divided the operators. Only one or two operators are now required to control the process. The workers have always been expected to cover several workstations, and the introduction of automation and its associated psychosocial risks reinforced this trend. Being able to switch workstations means that the operators adopt different movements and postures and work with other people. Most are happy to switch workstations. For those who are more reluctant to do so, management suggests they spend a day testing a new workstation. At the same time, the prevention officers focus on communication and support to promote the benefits of versatility.

Case extracts

A working group with worker representatives was assembled to validate a new production line and look for points to be improved before the line was started up. The result of the workers' participation in the implementation process reinforced their commitment to the new workplace changes.

The middle and top management held biannual workshops to get worker feedback and establish a common vision for health and safety issues.

The ergonomist gave the company the means to run and implement their existing approach. His involvement changed the way the company viewed stress and strain analysis.

The time given to workers to participate in working groups and the steering committee allowed good participation of everyone in the projects. The financial resources allocated to automation were important, the objective being the preservation of health. Health figures have been improving in recent years.

Solution generation workshops with workers were held in different workplaces, which gave workers the opportunity to see how others have managed MSD prevention.

Resources, costs and benefits

- Time to participate in working groups, steering committee and other activities.
- Substantial financial resources available, especially for new equipment or for new manufacturing line design.
- The amount of time that the ergonomist, nurse and HR manager dedicated to the intervention.

- The HSE manager emphasises that the overall cost must not be a barrier, and that it is more important to think about the future results in terms of health protection.

Analysis

Barriers

- Difficulty convincing some managers to accept the participatory culture.
- Ageing population is not necessarily interested in the new possibilities.
- Automation can lead to a loss of the community experience.

Facilitators

- The Carsat referral officer made it possible to organise discussions with the workers and guide the company through the project so that each TMS Pro step could be validated.
- The ergonomist gave the company the means to develop their existing approach, especially tools for risk assessment and work activity analysis. His involvement changed the way the company viewed stress and strain analysis.
- The driving force of management and the dynamic outlook of the safety and health committee with worker representatives contributed to the project's success.
- The inter-company approach in which company members were involved with other companies encouraged thinking about practices and generated ideas.
- All company levels were involved in project implementation.
- The project benefitted from the resource formed by the HR manager and HSE manager combination. This meant that the project did not depend on a single person and that it was managed in a multidisciplinary way.
- The management welcomed feedback from the shop floor without any questioning and initiated concrete action plans with worker follow-up.
- The technical view of the HSE manager (who had formerly worked in production engineering) substantially evolved over the course of the project: he was able to foster participation thanks to his technical knowledge.
- The management committee has not changed since 2016, which is rare in the agribusiness sector.
- There is a certain sense of wellbeing in the company. The workers feel united (managers and operators).

Innovative features

Innovative features of the intervention include the following:

- The factory organises frequent discussions about work with the employees (weekly safety reviews, biannual meetings, safety behaviour tours, training, seminars). The resulting feedback is processed and actions are implemented. This creates a climate of trust among the employees and managers.
- The management team encourages the safety and health committee to carry out projects to improve working conditions.
- Line managers lead projects to transform their line instead of engineers.

Lessons learned

Despite the management team's determination to protect health and consider the workers' point of view, the number of work accidents and occupational diseases kept increasing before the approach was introduced. The guidance provided by both the Carsat referral officer and the ergonomist provided the company with the means to improve their existing approach by encouraging them to consider real working conditions. Following the intervention, the factory is able to run its prevention policy without any outside help.

Transferability

- The TMS Pro approach can be implemented in any business sector.
- In France, financial aid is provided to companies with fewer than 50 employees. This aid is intended to support the purchase of equipment or the provision of services, such as training and diagnostics. With this external support, the TMS Pro approach is also relevant for micro and small enterprises.

- Many resources are available in French, such as a sample dashboard, MSD risk assessment grids and prevention approach assessment grids.
- Inter-company work meetings encourage practices and foster knowledge about implementing a participatory approach to prevent MSD that can be shared.

References and further information

Assurance Maladie. (2021). *TMS pros: une démarche efficace en 4 étapes.* Available at: https://www.ameli.fr/entreprise/sante-travail/risques/troubles-musculosquelettiques-tms/demarche-tms-pros?gclid=CjwKCAjwqcKFBhAhEiwAfEr7zZrZ9R17gbnOj20dqx7MwlSZBxGpxCKwUiU-eWahUGGAbfidiryn8RoC_AEQAvD_BwE&gclsrc=aw.ds

Graveling, R. and Giagloglou, E. (2020). *France: The TMS Pros programme and other initiatives to tackle MSDs*. EU-OSHA – European Agency for Safety and Health at Work. Retrieved 20 August 2021, from: https://osha.europa.eu/en/publications/france-tms-pros-programme-and-other-initiatives-tackle-msds/view

Video of companies having implemented the TMS Pro approach (in French):

Assurance Maladie. (2018). *Trophées TMS Pros 2018, Lauréat catégorie « Plus de 200 salariés »: Brioches Pasquier Charancieu* [Video file]. Available at: https://youtu.be/0l3QjBDpiTE

Assurance Maladie. (2016). *Trophées TMS Pros* prix spécial du jury: Socomec à Benfeld [Video file]. Available at: https://www.youtube.com/watch?v=wDPAzM2oNVc

Entreprendre Ensemble. (2020). *La démarche de prévention chez Chantelle* [Video file]. Available at: https://youtu.be/Y2O-Ox9VSyE

Interviews

In addition, the case builds on five interviews with project stakeholders:

- two technicians of the designed line (members of the safety and health committee during the project);
- HSE manager;
- HR manager;
- Carsat referral officer;
- consultant ergonomist.

A half-day company visit was organised with two researchers, two technicians, the HR manager and the Carsat officer. The collective discussion about and observation of production lines and the transformed workstation completed the interview data.