Sample solutions

Reduce force when lifting, carrying, pushing and pulling:
- automate processes where high forces are needed, for example assembly tasks;
- use powered tools instead of hand operated tools;
- find out if it is possible to redesign the task: would it be possible to achieve the goal of the task in a different way, in a way that requires less force exertion;
- hang heavy tools to a balancer;
- use better, ergonomically designed tools, that requires less manual power;
- offer training with attention to work techniques so that the applied forces are not higher than needed. Teach employees why limiting force exertion is so important and at the same time teach that workers can influence the required forces (for instance: besides using the correct work techniques, request the right tools, request the proper maintenance of tools);
- properly maintain tools, for example sharpen knives and scissors regularly, to prevent unnecessary high forces while cutting;
- use help devices for lifting or moving parts.

Improve working postures:
- replace manual tasks with an unfavorable posture by machine operated tasks;
- improve workplace design:
  - optimal working height: make sure the working height is not too low, so that the trunk and neck can stay in an upright position while working. At the same time the working height should not be too high in order to make sure that the arms are not elevated without proper support. If you have several employees working at the same work station, the working height should be easily adjustable to the body length of the individuals;
  - organize materials and tools well (within easy reach and in front of the body), so that reaching out far away from the body, sideways or backwards is not needed frequently;
  - make sure there is good lighting, without reflections, backlight or shadows, so that workers will not have to bend their head forward to be able to see the materials well.
- offer training in order to improve working postures, and to improve awareness of how important a good working posture is;
- the prevention officer or ergo coach could make some photos or record movies while seeing employees do their work (with the workers’ smartphone, considering their privacy) and afterwards showing the pictures and movies that were made. It is often difficult to imagine or feel how your working posture actually is. Using images is an easy way for employees to keep a 'mirror' in front of them;
- use tools for a proper working height, such as lift tables (industry), high-low beds (care) and adjustable tables where you can either sit or stand (offices);
- use tools for body support when working close to the ground, such as the ‘vlijkar’ (street makers) and the select/wicked car (agricultural sector);
- use ergonomically designed tools to improve wrist postures;
use proper knee pads when working on the knees;
if prolonged sitting or standing is required, a sit-stand support should be available;
avoid disruption of concentration, especially during work that requires high concentration (prevent disruptive noises and disturbing images);
reducing the precision requirements of work tasks by modifying the task, bringing the task closer to the eyes or by offering tools such as a magnifying glass, etc.

**Better recovery of physical work (work durations and breaks):**
- introduce job rotation or adapt job requirements, so that tasks with high physical load can be interrupted by tasks that are less physically demanding. Alternate as much as possible when working in these positions: kneeling, squatting, standing and sitting. For example, alternate work as a crane operator with other tasks on the ground or, in construction, executing physical work with preparatory tasks.
- create sufficient possibilities for recovery by inserting breaks; preferably for at least 7.5 min after 1.5 hours of work during which the worker has a break or conducts other work. This way workers are able to leave their workplace and the high load on the muscles is broken;
- bring variation in the work requirements during working days, so that one does not have to do the same tasks every day;
- allow workers to take their breaks at times when they feel the need to recover from the workload;
- make sure breaks are really breaks and are not interrupted by work issues.

**Reduce Vibrations:**
- check whether there are other, vibration-free or low-vibration tools, or tools with anti-vibration handles;
- use anti-vibration gloves to reduce vibration.

**Solutions aimed at workers:**
- provide information and training for workers about the risks of awkward working postures and force exertions at work and explain what they can and should do to reduce risks. For example, inform them about good work habits like 'neutral' working postures where possible, adjust the working height where possible, use of proper tools, sufficient alternating tasks and taking breaks;
- make sure it is clear for the workers who they can turn to with health complaints or with questions or problems regarding physical demands concerning their work.

**Solutions to 'other factors':**
- allow workers to take their breaks at times when they feel the need to recover from the workload;
- climate: adjust the climate to such extent that employees are able to work comfortably. In any case try to avoid cold and draught;
- concentration: avoid disruption of concentration, especially during work that requires high concentration (prevent disruptive noises and disturbing images);
- contact: ensure a good grip on tools and materials, so that the applied force is not higher than required for the task;
- use (thick) gloves, a handle that is slippery or a handle which is not well designed can disrupt the grip handle;
- precision: reduce precision requirements by modifying the task, bring work closer to the eyes, offering tools such as a magnifying glass;
• Precision: ensure that the speed of execution of precision work can be freely chosen, instead of specifying a speed requirement;
• Precision: ensure good visual, auditory or tactile feedback on the task performance (for example, a beep sound when something goes wrong);
• Precision: prevent that precision work is done with (thick) gloves because it makes it difficult to experience what one is feeling/feedback).