Who is an expert?

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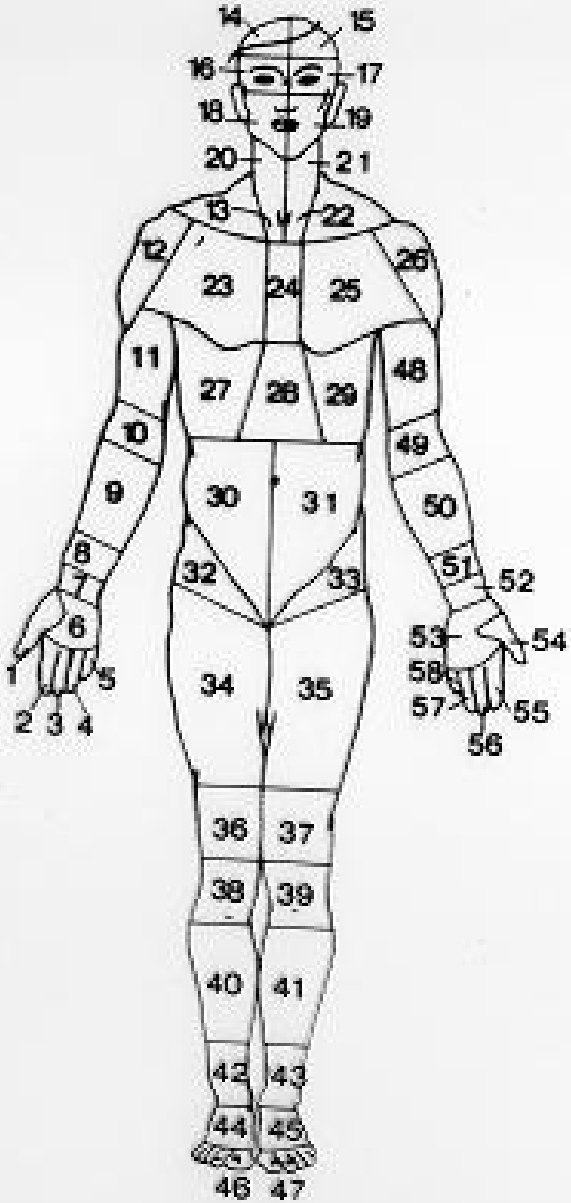
Is the solution in a black box?

A group of researchers different specialities (engineer, psychologist, physiologist, physician) in Tallinn University of Technology (Estonia) has carried out research in work physiology and ergonomics on healthy workers in industrial enterprises during tens of years. These enterprises were interested in different aspects of improving working conditions and financed these works.

2147 subjects of different jobs of light, dairy, automotive and building material industries of Estonia, Russia, Ukraine and Moldova participated in these studies in 1980-2007. Main work was done during Soviet time. Most studied groups included 30-50 male and female workers.

Among physiological, psychological and ergonomic methods, we widely used quantitative subjective assessments of discomfort and fatigue in various body regions.

We developed the chart of 100 body regions where every region had specific reasons and physiological mechanisms of fatigue.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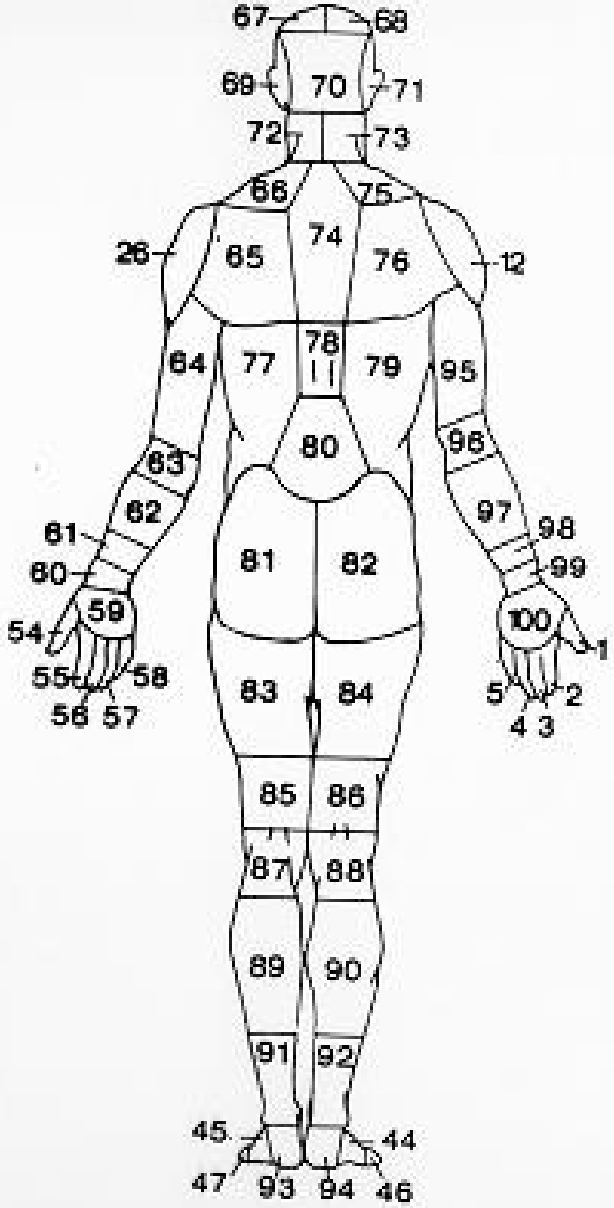
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The chart takes into account the following:

- spatial expansion of the symptoms of fatigue in different body regions;
- disposition of anatomical regions;
- symptoms of pathology of the musculoskeletal system;
- localization of symptoms caused by unfavourable changes in the visceral organs;

- to increase the sensitivity of the chart for analysing the sensations of fatigue, motions and palpation of the parts of one's own body can be used;
- spatial threshold of discomfort sensations;
- making the distinction between the regions of fatigue symptoms easy for workers;
- special role of upper extremities;
- maximum equality of the size of different regions.

Using this chart was very informative in finding regions where the fatigue was the most intensive and possibility of MSD was big. We proposed very different solutions (mechanization, rotation, physical exercises, etc.) to diminish the probability of disorders of these regions.

Our studies showed that in great many cases developing MSD was possible to avoid.

Where can we get most information for reducing MSD in some workplace? From a worker? From a doctor? Somebody else?

The best prevention is based on detail risk assessment and taking into account very early symptoms

The worker has his empirical know-how, lessons from practical experience

This points to the the worker’s role

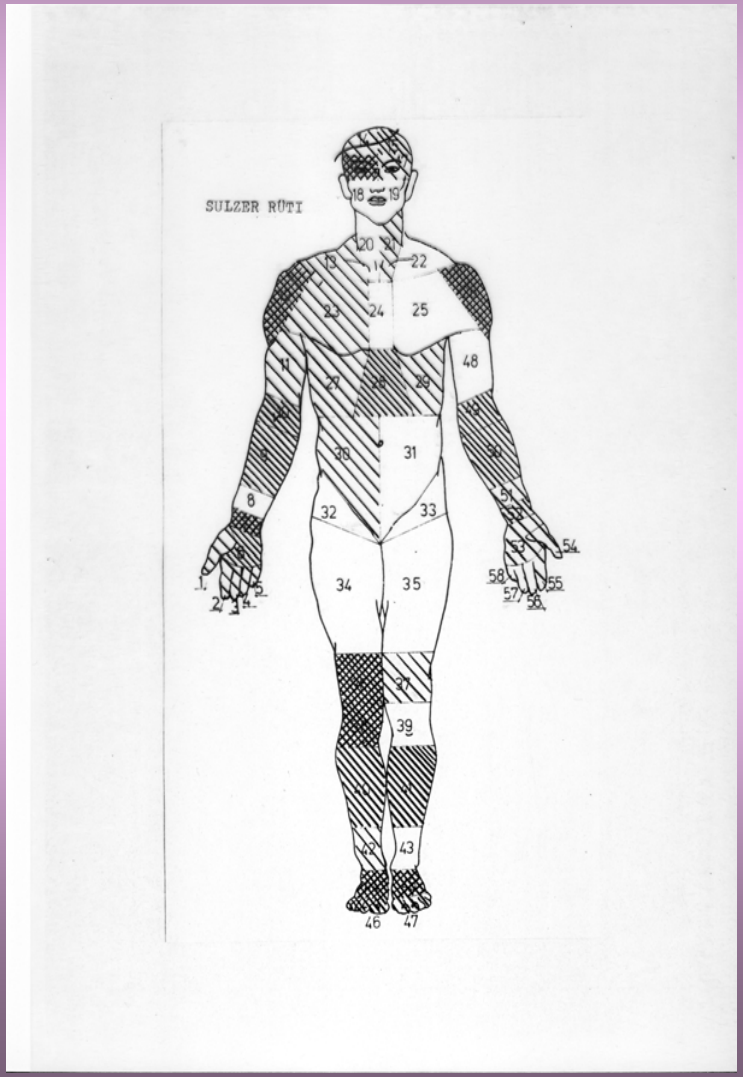
The worker

has various sensations and feelings in connection with work and workplace, that depend on previous life, work and other activities –

- perceived strain
- discomfort and fatigue of different body areas
- health complaints

A worker feels different intensity of discomfort and fatigue in many regions of the body in the end of workshift

- this gives valuable information about possible harm to his/her organism in the future
- this tells about early signs of MSD



Additionally, the worker is also assessing qualitatively and quantitatively his/her

- workplace
- work itself
- working conditions

Example

Our research has shown that excessive local fatigue and developing musculoskeletal disorders are closely connected with unaccustomed activity of the worker. Only the worker himself is aware of his/her unaccustomed activity.

In finding unusual hazards

- peculiarities of the physical load, body position during the shift, etc. and
- risks – probabilities of these hazards in his/her own workplace

a worker is a great specialist

Doctor

- is a specialist in typical risk factors of concrete situation of MSD
- he/she knows scientific truths, mainly available on paper or in electronic databases
- knows well about possible outcome of MSD
- but he/ she badly knows peculiarities of concrete situation without the help of the worker

There is a huge role of

- individual peculiarities of the organism and
- the concrete work

E.g. there is no lifting technique that has a major impact on the relative risk of back injury

The direct and active participation of the worker essentially helps in information gathering, building up knowledge about the concrete workstation and proposing feasible solutions

Both are needed for getting information in MSD prevention

Thank you
for your attention!