

Central nervous system Dizziness, memory loss, loss of co-ordination, depression, brain damage, dementia (solvents, metals exposure, pesticides); behavioural changes, sleeplessness, irritability, anxiety, headaches (toxic metals, solvents, carbamate/organophosphate (OP) pesticides, stress). Others: Parkinsonism (manganese, OP pesticides); Alzheimer's (aluminium); impaired IQ (metals, particularly lead); multiple sclerosis, motor neurone disease (solvents).

Mouth and jaw Bleeding/blue gums (lead), tooth loss (mercury/metal poisoning), mottled teeth (hydrofluoric acid), decayed teeth (sugar dust), damaged enamel (acids), broken teeth (abrasion from dust etc); lockjaw (tetanus); garlic breath (selenium or tellurium exposure); mouth ulcers (glutaraldehyde).

Neck and back Soreness, pain, stiffness, loss of mobility (strain injuries, accidents, stress, poor posture, driving, excessive movement, poor job design/equipment, thoracic outlet syndrome from bag carrying etc).

Chest and lungs Wheezing/shortness of breath (asthma from chemical/dust/biological irritant or sensitiser exposure); congestion (inhalation of dust or fumes); coughing up blood (TB, inhalation of chemicals causing pneumonitis). Other breathing disorders: pneumoconiosis (lung scarring from exposure to dusts, eg asbestos, silica, coal dust); alveolitis (grain dust, flour, cobalt); cancer (inhalation of asbestos, nickel, chromium etc); chronic bronchitis and emphysema (dust and fumes, including welding, coal dust, steelwork, construction) organic dust toxic syndrome (various dusts eg wood, animal droppings).

Arms, wrists and hands Pains in arms/hands/wrists/shoulders (strain injuries caused by repetition, poor ergonomics, poor job task design); fingers curling towards palm (Dupuytren's contracture - use of vibrating tools, shovels); deformed fingertips (vinyl chloride monomer (VCM) exposure, asbestos disease, cyanide); pins and needles/loss of sensation in fingers (vibration white finger, VCM, solvents, strain injuries); floppy wrists (lead).

Stomach Ulcers (stress); pain/cramps (lead colic, metal, chemical, pesticide poisoning).

Liver Damaged/enlarged liver (solvents, DMF; metals including arsenic, cadmium, chromium and nickel, epichlorohydrin, VCM, PCBs, furans; pesticides, vibration, viral hepatitis, Weil's disease from exposure to rat urine); cancer (angiosarcoma from VCM exposure; liver cancer from exposure to solvents, aflatoxins in nuts).

Kidneys Back pain, swollen ankles, infections (cadmium, mercury, lead, poisonings, hot work dehydration).

Bladder Urinary disorders eg blood in urine, pain, infections (lack of toilet facilities); bladder cancer (rubber or dye industry work - exposure to naphthylamine, azo-dyes, coal tars, aniline dyes, benzidine); green urine (tetralin, phenol, hydroquinone exposure); dark red urine (stibine exposure).

Bones and joints Arthritis/joint pain/stiffness/aches (wear and tear, vibration, Lyme disease from tick bites, metal fume fever, polymer fume fever); bone damage (osteonecrosis from tunnelling/diving work at pressure, hydrofluoric acid, VCM exposure).

Eyes Pain (arc eye from welding); redness, irritation, dryness, watering (close/microscope work, dust, chemicals eg ammonia, indoor air quality, sick building syndrome); fatigue, temporary short-sightedness, blurring (computer vision syndrome); rust marks (iron splinters); darting eyeballs (nystagmus in miners etc); blindness (toxocariasis from dog poo, solvents); disturbed vision (solvents, tertiary amines); red eye (selenium); colour blindness (solvents).

Ears Infections (work in dirty conditions/water; using headsets, earplugs); ringing in ears (tinnitus from noise); difficulty hearing (noise, solvents); vertigo/loss of balance (noise, infections).

Nose and throat Sneezing, coughing, itching, dryness (chemicals, dusts, low humidity, sick building syndrome); sore/runny nose (chemicals causing mucus membrane disease, allergic rhinitis from chemicals/biological dust and fumes, high humidity); nose bleeds (dusts, eg calcium propionate, copper); sore/whistling nose (chrome ulcers, perforated nasal septum); voice loss (talking/shouting, low humidity, vocal nodules); nasal cancer (wood dust, formaldehyde).

Breasts Breast cancer (exposure to organochlorine chemicals; xeno-oestrogens).

Blood and heart Palpitations (stress, solvents, chlorofluorocarbons); coldness in hands/extremities (vibration, cold, RSIs); chest pain/breathing difficulties (cor pulmonale from dust exposure); high blood pressure (stress, overwork). Others - fatigue (anaemia - pesticides, lead, benzene); heart failure (carbon disulphide, nitrotoluene compounds, endocarditis following on from Q fever; cardiomyopathy from cobalt/hard metal exposure); increased blood fat caused by PCB exposure); stroke (cold work, overwork ie Karoshi, pesticides eg endrin; hard metal dust); infections (eg HIV, hepatitis); leukaemia (benzene, radiation, pesticides).

Reproductive system Miscarriage, irregular periods, damaged offspring (chemicals, particularly lead, mercury, anaesthetic gases; exposure to lambing in pregnancy; radiation; electromagnetic fields; stress; lifting; prolonged standing); pain in testes (lifting strain), testicular cancer (DMF), reduced sperm count (chemicals including glycol ethers, xeno-oestrogens); erection difficulties (pesticides eg Derbyshire droop, VCM, chemicals).

Skin Itching/redness/dryness/scaliness/rash (dermatitis caused by chemical irritation, physical abrasion or allergy); ulcers (chromium, acids); acne (chlorinated chemicals, particularly PCBs); "bulls-eye" spot (Lyme disease from tick bites); moles (skin cancer from UV/sunlight exposure, mineral oils); skin discoloration (hydroquinone vitiligo, PCBs); yellow complexion (jaundice from tetanus, other serious liver problems).

Peripheral nervous system Pins and needles, pain, numbness, blanching of skin (vibration white finger, solvents, strain injuries); twitching (pesticides/mercury poisoning).

Muscles Cramps (poisoning, including lead, pesticides; overwork; repetition; fixed work posture; hot work/sweating); twitching (muscular fasciculations - carbamate/organophosphate pesticides, mercury, solvents); loss of control (ataxia - pesticides, solvents); muscle wasting (nitrous oxide).

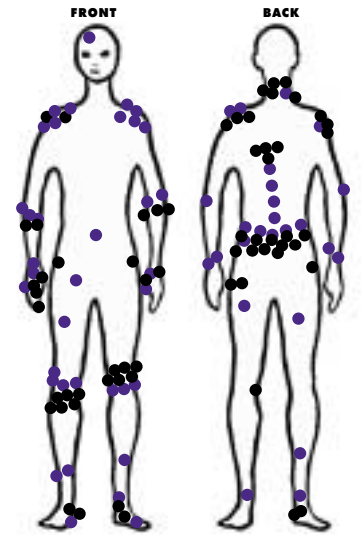
Legs and knees See bones, plus arthritis (walking, standing, climbing ladders, movement under foot, eg on-board ship). Fluid/swelling on joint (knee from pressure on joint eg kneeling); varicose veins (standing); pain in legs (sciatica from back problems).

Feet and ankles Itching/infections (athlete's foot/trench foot); frostbite (cold); corns (hair/fibres embedded in the skin); droopy foot (lead); painful achilles tendons (strain injury from repetitive foot/ankle action); pins and needles/numbness (vibration).

What's hurting you?

Substances? Vapours, liquids, fumes, mists, solvents, dusts.
Environments? Noise, vibration, radiation, dry, wet, hot, cold, ventilation, indoor air.
Job design? Control, stress, bullying, ergonomics, work pressure, insecurity, harassment, discrimination, violence.
Welfare? Toilets, facilities, cleanliness.
Accidents? Trips, falls, slips, cuts, scalds, burns, lifting, reaching.
Work patterns? Overtime, long hours, piecework, shifts, homework, telework, rest breaks, rush jobs.

Body mapped: This body map shows where construction workers felt the pain



Detective work Clues to some workplace health problems and possible causes are shown around the body. But remember, the list is not comprehensive and body mapping can also identify new problems - believe what your workmates and their bodies tell you!

Body of evidence

Body mapping can unearth the health hazards in your workplace.

If everyone at work suddenly developed an apple green-tongued tongue and hair, you'd be pretty certain it was the job that was to blame. This can happen - if you work in a copper smelter.

For most of us, the effects of our working environment on our health are not so easy to work out. But if all the workers doing a particular job pool their information about health problems that are unexplained or just might be related to the job, patterns can quickly emerge. This is the purpose of body mapping.

It's simple - a safety rep could arrange a mapping session for his or her members in or outside the workplace, or the union education department could be asked to arrange a course.

Getting started Body mapping starts with two large outlines of a body, similar to those top right, but much larger (see resources). One represents the front of the body, the other the back.

Workers are each supplied with small sticky labels which they all apply to the body maps where they think their own job is making them sick or hurt. A large felt

tip can be used if stickers are not available. Different colours can be used to represent different health effects: red = pain/soreness; green = aches; brown = reproductive problems; black = stress.

Be careful to think about all the possible ill-effects of all parts of the job - dizziness when using degreasing solvents, itchy skin from detergents, headaches from stress or breathlessness, menstrual problems, nausea, weakness, fatigue or other problems for which the job could be to blame. Even if you are not certain, the body map might help indicate whether it's a problem for just you or for everyone

doing your job.

As the stickers are applied, each worker should explain briefly why they placed one in each particular place. Notes can be kept around the edge of the body map.

Workers undertaking the body mapping exercise should usually be doing the same or very similar jobs.

Different groups from within the workplace can compare completed body maps to see how problems differ between jobs, and which problems are likely to be caused by the job.

Bodily harm

Different jobs tend to show different, very specific patterns of dots. A group of professional drivers might produce a map with dots concentrated on the lower back (from sitting and whole body vibration), on the knee and wrist (from gear changes etc) and on the stomach (digestive problems from inadequate meals and meal breaks).

Bricklayers might map out wrist, elbow and shoulder pain (repetitive movements), skin (cement irritation or allergy) and lungs (chestiness from dust).

It might also be useful to

risk map the workplace (see *Hazards* 60) to obtain more information on the jobs or working environments that are leading to problems.

Workers should talk through the findings together. Have any new problems been identified? Are known problems more extensive than previously thought?

By law, an employer must do everything reasonably practicable to protect the health, safety and welfare of their staff. Body mapping can be crucial evidence to show not enough is being done and to assist negotiations for improvements. No-one should get ill as a

result of their job... once you've mapped the problems, tackle them.

Resources

Hazards body mapping charts. Packs of 10 large (A3) blank body mapping charts are available priced £5.00 from Hazards, PO Box 199, Sheffield S1 4YL. Tel: 0114 276 5695. Fax: 0114 276 7257. Email: whin-hazards@mcr1.poptel.org.uk

A group method for improving risk mapping. 1996. Details from: University of California (LA) Labor Occupational Safety and Health Program (LOSH), Institute of Industrial Relations, 1001 Gayley Avenue, Los Angeles, California 90024-1478, USA. Tel: 00 1 310 794 0369.

Mobilising for survival. Papers of the Canadian Union of Public Employees (CUPE) 7th National Health and Safety Conference. Details from: CUPE Health and Safety Dept, 21 Florence Street, Ottawa, K2P 0W6, Canada. Tel: 00 1 613 237 1590. Fax: 00 1 613 233 3438.