

courtesy of International Labour
Office

Chapter 1

**WOMEN'S
BUSINESS:
WOMEN AND
OCCUPATIONAL
HEALTH**

The Right to Know and Occupational Health and Safety Regulations

Workers and community members throughout the world have fought noisily and with great tenacity for the right to know. The right to know about what? Fundamentally, about the risks they and their families face from dangerous substances and processes at work, or which may alter or damage their environment. The knowledge they seek is about the pro-perties of those substances; for instance, whether or not the substance is easily ignited and therefore, a fire risk, or if the substance is poisonous to humans or all living things and under what circumstances does it become so. They also want to know what to do in an emergency—how to put out a fire, how to treat a poisoned worker, and what to do if a system fails and chemicals pour into a public water source. They also want to know how to prevent the harmful effects of substances—do they have to wear special clothes or equipment, or if the workplace needs special ventilation systems. Finally, they want to know if the substance or material causes cancer or reproductive problems.

The Right to Know means that access to information is a human right.

The wording of the phrase is important to note: the *right* to know, meaning that access to information is a human right. This right forms the boundaries between the private (in the form of privately owned information and so called trade secrets), the public (our own individual health profiles), and the commons (the environment which is not owned, but is a part of commonly used and enjoyed goods). The right to know challenges the authority of private enterprise to restrict information of importance to people and their surroundings for the benefit of profit, and calls on government systems to justify the continued withholding of information for the sake of power.

In many countries, the right to know has been included in regulations or laws about occupational health, safety, and environmental protection. This legislation ensures that companies producing or using hazardous materials have to produce detailed information sheets known as Material Safety Data Sheets (MSDS) before they can export or import products. An example of one of these data sheets is found in Annex 1. A recent extension to this right to know has been the Hazardous Chemicals labelling system, in which all companies in the developing world using hazardous materials are compelled by law to hang notices of prescribed size and format outside all entrances to the grounds. These notices detail the codes of all these substances. This is for the good of the public, emergency services and maintenance personnel, and further transports information from the private to the public domain.

It is important to know that this detailed information is available as many of these dangerous products are made in the developing world—maybe even in the factory in which you or your friends work! When confronted with questioning from women, managers tend to argue that such information is not available, or that making such information public is a breach of trade secrecy agreements. Women can respond by specifically asking for the MSDS for the products the company itself makes. The company is obliged to compile them if they wish to export.

As for the trade secret argument, MSDS do not reveal compounds (mixtures) but only the data about individual parts of the compound. The secret is usually located in the proportions that are mixed or the methods and sequence of mixing. For instance, the secret of making an excellent soup is not in the actual ingredients but in how much each ingredient is in the recipe, how they are mixed, and how the recipe is cooked. Thus, trade secrets are not threatened by the provision of MSDS to workers.

ETHANOL		
PRODUCT NAME:	ETHANOL	
CHEMICAL NAME:	Ethyl alcohol	MOLECULAR WEIGHT: 46.08
FORMULA:	C ₂ H ₅ OH	
CAS REGISTRY No.	54-17-5	
RTCS ACCESSION No.	HJXK0600000	
SYNONYMS:	Medicated spirits, denatured alcohol SVH, SA, SVM Absolute alcohol	
HAZARD CLASSIFICATION:	Dangerous (toxic flammable liquid)	
PHYSICAL DATA		
APPEARANCE AND ODOUR:	Clear colourless liquid, characteristic odour, burning taste	
BOILING POINT:	78.3° C	MELTING POINT: -117.3° C
VAPOUR PRESSURE:	58.1 mmHg 20° C	SPECIFIC GRAVITY (H ₂ O = 1): 0.7904
VAPOUR DENSITY (AIR = 1):	1.59	PERCENT VOLATILE BY VOLUME (%): 100%
SOLUBILITY IN WATER:	Complete	EVAPORATION RATE (n-Butyl acetate = 100): 253

Example of a Material Safety Data

Of course, the *right to know about something implies the right to act* on this information to prevent disease or injury. Thus, the right to know can be regarded as one of the fundamentals of industrial or participatory democracy as it demands accountability and transparency in government, business, and commerce, and participative decisions on how to deal with that information. As an example, a group of women workers may believe that a commonly used substance is simply too dangerous for them to work with under existing conditions. They may decide, based on the information contained in the MSDS, to stop work until a safer substitute is found, or until they have assurances that management will fit the premises with appropriate technology to reduce the hazard.

Because, frankly, oppressive governments and even those that try to pass themselves off as democratic recognise and work by the principle that knowledge is power, many countries will not allow the right to know legislation. Instead, they insist that the people are not ready, may not understand or may be confused by such information. These are often countries where trade unions are hindered, where management blames workers, where accident rates are high and compensation

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rates low. Access to information must be made a pillar in the fight for worker's rights.

In view of the central role played by women's labour to the success of national development, women have the right to have their health and humanity respected and cared for. As the workers' movement becomes stronger, women need to think about how best to increase their education and knowledge, and how to systematise the flow of information about dangers in the workplace.

First Came the Law

It is important that all workers and especially worker delegates understand the laws which govern occupational health and safety in their country or province.

If women cannot read, there is always a friend who can help by holding study circles in the evenings or weekends. Laws are usually written in obscure hard-to-understand language, making comic books or other learning tools a vital alternative to dry and dusty legal writing.

The right to know about dangers to health in the workplace is implicit in some government regulations already in place in some countries. These regulations or codes of practice (see p. 217 for definitions) compel companies to label dangerous products using relevant international symbols (see Annex 13 for a list of these symbols), or force companies to provide technical data about dangerous substances in the form of MSDS. These same regulations or codes usually require firms to offer their workers regular health checks and spell out the rights of workers to participate in workplace committees.

When you feel disheartened, just remember that with the exception of the more enlightened Scandinavian countries (Sweden, Denmark, Finland and Norway), most Western nations were slow to give workers their rights in terms of occupational health and worker representation. Workers there have only succeeded through strong workers' organisations and careful strategy using media, education, and industrial action. Occupational health is an issue that captures public imagination and sympathy, and is a good focus for organising. Because of its dependence on workers' participation, occupational health enables women to have practical experience of democracy and muscle-flexing in countries where such behaviour is regarded as inimical to the national political system.



CONTROL OF
WORKPLACE HAZARDOUS
SUBSTANCES

National Model Regulations
(NOHSC: 1005 (1991))

National Code of Practice
(NOHSC: 2007 (1991))

The Three Circles of Health

Most people, when thinking about health, think about disease: they think of sickness, illness, and disability. Health is a *positive* state of being—a complex interplay of physical, psychological, and social well-being. One of the most significant contributors to illness is poverty, not germs but poverty. Poverty also affects self image, self-confidence, nutrition, exposure to detrimental environmental fac-

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tors, and ability to be heard.

Unfortunately, occupational health has been de-coupled from the broader health framework—maybe because occupational health was for years the domain of engineers and scientists rather than health practitioners. And maybe because the memory of poor workers in what is now the affluent West no longer lingers in peoples' minds. Perhaps some practitioners believe that to consider these other issues is to unnecessarily complicate the picture.

Occupational health in the Majority World cannot be divorced from either environmental or public health. Women frequently go to work with too little food in their bellies to be able to meet the demands of the job. They are weakened by anaemia, intestinal worms, malaria or other illness. They may live in polluted villages, close to industrial zones, absorbing in their drinking water the waste from the industries that circle their settlement. They may live in a hovel next to a busy road and be inhaling the exhaust fumes from the cars and trucks that incessantly roar past their door. A woman may be slowly recovering from the birth of her last baby having had little or no post-natal care.

So, into this bowl in which are coiled economic, social, and health factors comes occupational health. How do we begin to make sense of this mess? Where is the beginning or the end? How do we digest it into ourselves? The only thing we have is what we can know—that is to collect facts and draw together relationships which can cast light upon the life of working women. That is not to say that we have to take a complicated and complex analytical framework and apply it to what we and our friends are experiencing at work, but to simply acknowledge that what we are seeing may be made worse by factors outside the factory, and use that as a motivator to increase the well-being of our working sisters. After all, we may not have influence over traffic fumes or the quality of the village water supply. But we can control or influence what is happening at work and thus, reduce the burden of women by eradicating one contributor to the cumulative load. In the longer term, it may be that the skills, arguments, and methods detailed here can be brought to bear on public health issues. For instance, the same survey skill used to show a relationship between a solvent and dermatitis can also be used to demonstrate a link between the village water supply and children's repeated illness.

Women have been intimately involved in the healing arts for centuries. The ancient books tell stories of women who have used herbs, poultices, and methods of detection to locate and treat illness and distress. Industrialisation is a comparatively recent event, so we have few healing heroines in whose footsteps we can tread. So, it is up to this generation of women to become the industrial heroines rather than industrial victims. It is in our hands now.

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Occupational Issues of Specific Interest to Women

Sexual Harassment

The misuse of power and position to obtain sexual favours or sexual gratification is termed *sexual harassment*, and includes behaviours as obvious as demanding sex in exchange for employment or promotion opportunities, to strip searching and examining workers with the excuse of searching for goods stolen from the factory. *Sexual harassment, like rape is about power—not sex.*

Sexual harassment is a form of gender based violence that violates women's human rights and actively discriminates against workers as women. Gender based harassment contravenes several of the provisions and freedoms as articulated in the Universal Declaration of Human Rights, most particularly:

- ✓ the right to dignity
- ✓ the right not to be subject to torture, or cruel and degrading treatment or punishment
- ✓ the right to liberty and security of person
- ✓ the right to the highest standard attainable of physical and mental health
- ✓ the right to just and favourable conditions of work

In many ways, sexual harassment is where the battle lines between women workers and the male management structure are drawn. Men excuse their behaviour with the excuse of sexual attraction (“The clothes you wear are so seductive.” or “I couldn't help myself—it's normal.”). Some men are even surprised when women are outraged. That men have the power to do things to women that women find disgusting or abhorrent is a reflection of how little society values and respects women as human beings, and has nothing to do with so called normal biological urges. It is symptomatic of the subordination of women as instruments of production and not as equal partners.

In some countries, women use the term sexual harassment when they really mean to describe rape—as women feel embarrassed and shamed by the experience of rape and try to diminish it by the use of lesser words. It is important to clarify with women if indeed they are referring to the experience of rape. Because along with the risk of pregnancy and the damage to soul and spirit, there is often other damages to the body such as bruising and tears in the genital region which may need medical attention. And, of course the risk of sexually transmitted diseases such as gonorrhoea, chlamydia, hepatitis B and HIV.¹

In most countries, rape is punishable by law—although discrimination against women may make it almost impossible for women to lay formal charges without, for instance, male witnesses. Sexual harassment is regarded (by male legislators and politicians) as a lesser problem. Thus while rape can be dealt with by recourse to law, sexual harassment has to be dealt with by social sanctions.

¹Hepatitis B is a viral infection of the liver which is transmitted by the spilling of blood and by body fluids during sexual contact. It is a serious disease which can kill women weakened by other illnesses and those having hepatitis B have an increased chance of contracting liver cancer later in life.

HIV is short for Human Immunodeficiency Virus which can convert to AIDS (Acquired Immunodeficiency Syndrome). HIV is passed on by body fluids during sex (particularly if the vagina or anus is torn), through needle sharing amongst drug addicts and AIDS through the transmission of infected blood during medical procedures. The disease known as AIDS is invariably fatal to the poor as the medicine is too expensive for those in the Majority World and is not yet thoroughly researched.

Sexual harassment is demeaning, humiliating and disempowering, as it reminds women that men have control over their lives. Sexual harassment leads to stress, illness and absenteeism. It is therefore an occupational hazard to women as it affects their health, dignity, performance and well-being at work.

Research has shown that sexual harassment leads to such profound stress and shame that women suffer depression, nausea, sleeplessness, stomach problems, headaches, lack of concentration and loss of appetite. Other women show signs of psychological disturbance, with mood swings, panic, fear and loss of self-esteem. Many women choose to resign from organisations where they are being harassed, preferring to leave rather than put up with the problem. Others, having skills that are in low demand or in ample supply, simply have to stay, as they have little or no choice. Thus organisations that allow their male staff to sexually harass women, risk losing valuable skilled workers and creating absenteeism. More damningly, they are complicit in the degradation of women.

Increasingly countries (for instance, the Philippines), are passing legislation banning sexual harassment at work and providing mechanisms by which women can take action against companies and individuals that are in breach of the law. However, the legal process is slow and open to influence from opposing forces, so it is up to trade union delegates and women's groups to make the issue public and keep up pressure.

The major difficulty is to get women to speak out, as the shame of the events is often greater than the desire to seek redress. Reports frequently surface situations where the blame for both sexual harassment and rape is laid at the feet of the women. The procedures that follow induce more shame and humiliation in the face of a hostile male police force or judiciary. However, if that is the case, women still need to report the events to other women. Remember: *Silence and secrecy tend to protect men who commit offences against women.*

If laws against sexual harassment exist, women need to take legal action, even if the courts and evidential system mitigate against women. The law may be dominated by men, but it can only work for women if women continue to use it and repeatedly point out flaws in the system of justice. And women need to clear the way for their daughters. For practical strategies to deal with sexual harassment, in the face of absent or discriminatory laws, we only have to turn to actions of women in other parts of the world.

- ❖ In Jamaica, a group of women frustrated by the court's inaction put placards saying "A man who harasses women lives here" outside the man's house. They placed the placards against the offender's front wall late at night. They needed only to do it once or twice before he (and the neighbours) got the message.
- ❖ In an Asian factory, women armed with sticky tape and paper have left signs on the walls of the factory explaining what had happened to them. For instance "Today Mr. X kept touching my breasts—I wonder what his wife would think." Other women have found that simply by writing a note explaining their feelings of anger and hurt is



- enough to stop the harassment.
- ❖ Some recommend publicly shaming the man by repeating his words loudly in front of others (“What do you mean—you’d love to see me naked, what kind of suggestion is that!” or stating loudly “Remove your hands from my body!”). In West Java, Sundanese women openly mock male supervisors who harass them, pointing out that they harass to compensate for their lack of sizeable genitalia. But, always make sure you have witnesses so you will not be blamed or punished later.

Indonesian women’s groups have developed multimedia campaigns describing the effects of harassment on women and which demand changes to the legal system which protect the offenders. Another creative group of women carefully documented each episode of harassment, listing who did the harassing, what was done or said and when the event took place. This was then compiled and written in banner, which was hung over the entrance to the factory with a warning that women entering this factory risk similar harassment.

The purpose of including a section on sexual harassment in this book is to reinforce in women’s minds that sexual harassment is not only an issue of human rights, but a justifiable industrial and occupational health issue and not to be tolerated as “women’s fate.”

Fatigue and Nutrition

“I just can’t seem to wake up in the morning. I drag myself to work, sit there like a robot all day feeling so exhausted. And then I have to make it home by bus, in all that traffic, to feed my husband and kids. It wouldn’t dawn on them to help!”

—Malaysian electronics worker

The tiredness experienced by the majority of working women is one of the most debilitating but untalked about aspects of women’s existence. Many women have simply forgotten what it is like to feel alive, alert, and full of energy.



Nutrition

Not only do working women toil longer hours than men do, they also balance productive and reproductive demands. Women are particularly susceptible to fatigue as they receive poorer wages than men and so are unable to afford foods that are required to make up for the energy they expend. For reasons of culture and the demands of household tasks, women frequently wait until the men and children have eaten before eating the remains of the food they have prepared (and often bought with the money they have earned). It is not surprising that because of long hours of work, the multiplicity of roles that place endless demands on their energy and skills, coupled with the additional burden of housekeeping and child rearing, women feel hugely burdened. Many women are already weakened by anaemia due to poor nutrition as well as the physical load of childbearing and menstruation. Poor women not only do not have access to information about nutrition, they also cannot afford the major sources of protein, iron, and vitamins needed to keep their bodies healthy. The new varieties of rice promulgated by the Green Revolution have been found to be deficient in many of the micronutrients needed for healing (zinc), good vision (Vitamin A), and healthy blood (iron). Many women workers frequently enjoy a diet which consists of rice and *sambal* (chili pickle), or rice and a few vegetables. With that meagre food they sustain a 14-hour day or longer. It is simply not enough!

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Disease and Fatigue

While women in the West are able to take leave for colds and influenza (flu), women in the Majority World may not enjoy the same privilege. Most working women in the Majority World go home to settlements where clean water and sanitation are not available, so many suffer from intestinal and other parasites which further weaken their health. Tuberculosis, other low level respiratory disorders, blood diseases such as malaria, and frequent attacks of diarrhoea take an enormous toll on women workers. As many women work under a daily contractual system with no rights to sick or other forms of leave, many are compelled to go to work rather than stay home and rest when they are sick.

Poor families tend to get stuck in cycles of infection and re-infection, the classic example being that of intestinal parasites. Without adequate waste disposal systems, hygiene education, and access to plentiful clean water for washing, families continue to be re-infected despite regular treatment. Women workers whose health is compromised by long hours of work, fatigue, poor nutrition, and stress can be re-infected by their children. Because they cannot afford time off from their work to recover fully, they maintain the infective agent which then goes back to the children, beginning the cycle all over again.

Workplace Factors

Factors in the workplace significantly contribute to fatigue. Heat, excessive noise, vibration, repetitive or vigilant work demanding great concentration (electronic assembly work is a good example) or the stress of keeping up with production lines add to general exhaustion.

PRACTICAL EXERCISE ON NUTRITION

Take note of what you eat each day for three days. List all foods and drinks (keep a small note- book with you at work) that you have taken during these days.

First of all, how would you characterise your work? Do you think it is light work done sitting down? Is it moderately heavy done sitting down? Does it involve light walking and standing, or heavy work performed while walking and standing? Any work which involves chopping, lifting and carrying can be regarded as moderate to heavy work depending on the weight and frequency of the load.

Most women industrial workers would require a daily intake of 2,000-3,200 calories or kilojoules² per day, depending on the physical effort. A woman working on a plantation or handling latex from rubber trees would use more calories than a woman sitting and quality checking a line of biscuits for instance. So how does your daily intake compare with the following lists?

Intake should be distributed more or less equally through the day for maximum benefit. Digesting the food is work in itself, and having all your food in the form of one major meal per day makes it harder for the body to use it well and to keep up the energy supply for the rest of the time.

A sample of how the intake should be distributed throughout the day is listed below:

Morning meal	300-400
Morning break	0-40
Midday meal	800-900
Afternoon snack	0-50
Evening meal	1,250-1,400
Total	2,410-2,790

To know if your daily intake is what it should be, here is a list of common foods and their calorific value for each 100 grams (half a cup of uncooked rice weighs about 100 grams).

Food Name	Calories/100 gms
Cassava	344
Yam	108
Rice (polished)	366
Corn	361
Peanuts	549
Beans	337
Eggs	163
Fish (fresh)	75
Fish (dried)	335
Banana	100
Mango	62

So, does your daily diet roughly meet the needs of your body and the multiple roles that you play? Do you think that insufficient foods are what might be causing your fatigue?

Which types of food do you think you need more?

²A calorie or kilojoule is actually a unit of energy and tells us how much energy we will get from foods.

Research has proven that fatigued workers are more at risk of occupational injury and accident as their concentration and judgement are impaired by tiredness.

In addition, they are not as productive: both the quality and quantity of goods produced suffer. This lack of productivity can be disastrous in factories which pay by targets or piece rates. Women become caught in a slow, deep spiral of reduced productivity, reduced wages, less food, more fatigue, reduced productivity. There are many good arguments to support the abolition of piece rate systems—the cycle of fatigue is one of them. The energy from food needed by a woman to keep working and to maintain her health is usually more than what she is able to buy with the amount of money she receives by achieving her production target. Simply put, the harder she works, the more food she needs to keep feeding her hardworking body. If she earns only enough to buy X calories of food but she needs Y calories to keep up the energy to keep working, her reserves will be rapidly depleted.

These facts provide women delegates with a powerful argument against managers who insist on long working hours and compulsory overtime instead of employing shifts or part-time workers. The body's need for fuel also justifies the need for short, regular rest breaks. Experience has shown that these breaks more than make up for the time lost by boosting productivity and reducing fatigue. Five minute breaks each hour, for instance (with stretching exercises for women who do rapid repetitive production line work), will markedly improve both the workers' performance and health. Nutritious snacks provided twice per day by the enterprise will further enhance women's well-being and output. Good workplace nutrition, which includes the provision of balanced meals, snacks, and clean water whenever required plus control of noise, heat and other physical stresses will significantly reduce worker fatigue.

More women than men have been found to be employed under daily contractual systems. These contracts, which are widespread, do not include rights to either holiday or sick leave. Women working under these systems therefore cannot afford to be ill or to rest. Such systems openly exploit women and should be restricted by law.

Encouraging managers to allow workers to have some form of task variation will also reduce the fatigue caused by workplace boredom and monotony. Task variation reduces the incidence of muscle and joint injuries caused by rapid repetitive work (these are discussed later in the text.)

The provision of child care centres in or around enterprises can significantly reduce fatigue by removing a major source of women's anxiety (and expenditure). Women workers have organised these centres through their trade unions, as collectives, or have campaigned to have several companies provide them with a convenient location.

It sometimes appears that enterprises intentionally set out to drag the last ounce of energy from their workers. This approach is not only unenlightened, it is also uneconomical. Tired workers do not pay attention to quality, are not productive and, on the whole, do not care (nor should they). Loyalty and high levels of motivation are things to be earned by human and caring managers. It is usually up to women to educate them into understanding, believing and acting on this.

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Stress

“Oh Mina, sorry I can't go out tonight as I have the most awful headache and I feel so stressed by work at the moment.”

Stress seems to have become one of those international words recognised by us all. That is a sad testimony to our world, and how it is changing.

The word stress usually describes a complex set of uncomfortable feelings that make us think our body is racing out of control. Our body feels tight and tense (In the 1970s the word “uptight” was often used to describe stress; now some people say “strung out,” which describes something that has been pulled tight). We have trouble concentrating, are unclear in our thoughts, preoccupied and generally out of sorts. We may be healthy but we don't feel well.

This is because when we feel stressed, the body releases a set of hormones (the body's chemical regulators) that speed up our heart rate, raise our pulse, tighten our muscles, and divert blood from the stomach into the legs and arms. Our breathing becomes more rapid and shallow, and we may experience headaches or neck pain as the muscles become tighter. We become jumpy, easily startled, irritable, and suffer rapid changes in our moods. Stress is often worsened by pre-menstrual tension, when the body's chemicals or hormones, which regulate our monthly periods, combine with those released by the stress response to cause havoc in our bodies. The glands that release these hormones are known as the adrenal glands and they are found perched on top of our kidneys. The names of the hormones they release are adrenalin and noradrenalin. Athletes often talk about pumping up their adrenalin to keep up their competitive edge. The adrenalin does just what they want: speeds blood to the legs and arms for better performance. But women, who are in many ways like industrial athletes, are more likely to have to run marathons for an 8-10 hour-working day. But, unlike highly trained athletes, their hormones are not so easily banished when they are not needed.

Some psychologists believe that stress, or more precisely the stress response, is a very primitive process that allowed our ancestors to run away from danger or to stand and fight. As such, the stress response is sometimes known as the “fight or flight” response.

Strange as it may seem, the same chemical changes happen to our bodies when we experience happy or exciting things like falling in love or winning the lottery or even watching exciting sports. We feel heady, our pulse speeds up. If we examine the blood from someone who has won the lottery, we would find the same chemicals whizzing around as in the blood of someone struggling to keep up with a conveyor belt in a food processing plant! The major difference between what we can call “good” stress and “bad” stress is the duration and control. “Good” stress tends to be fleeting and while we may feel out of control, we feel safe and we have a feeling of well-being. “Bad” stress tends to hang around, be associated with fear, keeps returning, and is indicative that our world is out of control. And, after all, how many times in one lifetime do we fall in love or win the lottery, when compared with the



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time we spend at work?

Stress has generally come to refer to a feeling that is negative or undesirable. Indeed, in view of the long-term effects it has on our body, the negative side of stress has serious consequences. Think of a motor car. A car has many gears to enable it to be driven in different conditions and at different speeds. The lower gears are for slow city driving, the top gears are for racing on open roads. When we feel stressed, it is a little like the body is racing in top gear. Driving a car continually at top gear will make it run out of fuel (energy) faster and wear out the engine (fatigue) quicker. Consequently, the car begins to suffer mechanical failures (sickness). In humans, this mechanical failure takes the form of high blood pressure and the resulting risk of stroke or heart attack.

The body shows it is stressed in many ways. Sometimes the skin responds to stress by breaking out in flaky, itchy patches, or the lining of the mouth becomes ulcerated, monthly periods may be irregular or do not come at all, or you may feel nauseated all the time. It becomes hard to concentrate and judgement may be impaired. Stressed workers have a greater chance of having an accident at work or on the way home from work, and are more likely to have time off due to illness. So, prolonged stress is a matter to be taken very seriously and is a major "lifestyle" and occupational health problem in both the industrialised and industrialising worlds.

It is interesting to note that for years the major research into stress focused on so called "executive stress." It was assumed that all the heavy responsibilities and decision making exacted a huge toll on the largely male executives. It was only later that a man called Robert Karasek showed that stress was a by-product of too much responsibility without resources or power. His analysis perfectly fitted the life of blue collar workers and women! Responsibility when matched with authority and power to make things happen is more of a positive influence on health than a source of stress.

So what causes stress? The major factor producing stress at work seems to be having little or no control over the work: either the workflow, work method or work schedule. It's related in particular to process technologies which are machine driven (sometimes known as "machine-paced" work). This is exemplified by conveyor belt or assembly line tasks.

Sometimes stress is caused by the conflicting demands of work and home. Women feel squeezed between the needs of a sick child and having to go to work to earn money for medicine or going to work in the face of a husband's disapproval, despite him being jobless for many months.

In other cases, stress can be caused by the mismatch between responsibility and skill or authority. This is where women often rub against male power in the workplace. For instance, women may be responsible for making garments but have no skill or authority to get their sewing machines serviced. Servicing and repairing sewing machines is usually

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LOW STRESS

High Control High Responsibility	High Control Low Responsibility
Low Control High Responsibility	Low Control Low Responsibility

HIGH STRESS

done by men who often withhold tools or assistance to gain power or, in extreme instances, withhold women's wages or pressure them for sexual favours.

Many women name unrealistic targets as a leading cause of stress, as they feel that the work never ends. They feel they have to keep going no matter how tired they are and despite their other responsibilities, as the amount of money they take home is dependent on them achieving the set target before they leave. Many women have to work excessive hours to complete the target and then face a lonely if not dangerous trip home on their own. Women doing piece- or target-oriented work describe feeling as though they are running on the spot: no matter how fast they work, it seems as though no progress is made. Many report actually having nightmares about piles of raw materials which teeter and threaten to engulf them. Others say they are haunted by their work as they never achieve a feeling of completion or finality. Target and piece systems also encourage women to work fast, neglecting adequate rest breaks. Because of this, target systems are identified as a major source of Occupational Overuse Injuries (these are discussed in the next section) and have been severely restricted in industrialised countries. Wage structures that reward women for skill and experience should be substituted in place of inhuman and stressful forms of payment.

Loud noise and vibration are known to contribute to stress as well. For instance, many textile workers complain about headaches as they are surrounded by loud noises and vibration from the spinning and weaving machines.³ Loud industrial noise has also been associated with premature labour and possibly miscarriage, although the reasons for this are not clear at the moment. It could be that the stress resulting from exposure to loud noises causes chemical changes in the body which spur the expulsion of the baby or at least trigger premature labour. This will be discussed in more detail later, in the section on reproductive hazards.

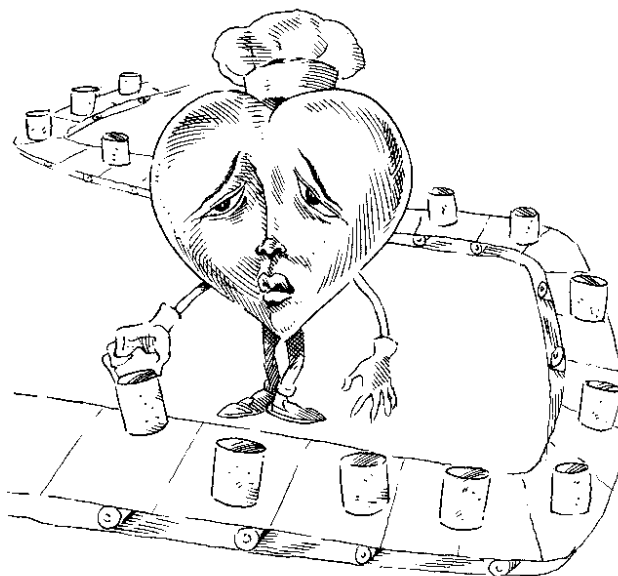
Fear of the unknown, feelings of insecurity, and change can also cause stress. A study of workers facing the threat of unemployment in an auto plant that was about to close showed a high number of heart complaints and high blood pressure among the workers as they anxiously waited to hear who would be sacked or retrained.

Stress can also stem from isolation or poor personal relationships at work. For example, women workers feel justifiably tense and anxious if their supervisor is consistently rude, aggressive, disrespectful, or sexually suggestive.

Some people find boredom, that is having insufficient work or having tasks that are not sufficiently challenging, quite stressful. In her reproductive role in the home, a woman normally performs a multiplicity of tasks which demand a complex set of skills and abilities normally associated with high level corporate management. Juggling finance, decision making, personnel and operations management, discipline, planning, evaluating co-ordination, maintenance, and much more are a normal part of a woman's life.

³An Indonesian woman described "being followed home by the machine" and "hearing the voices of the machines" in her dreams.

Work “designed for women” assumes that women have no brains, much less the complex skills mentioned above. Assembly line work is a classic example of the type of work regarded as “suitable” for women. It involves monotonously repeating the same actions. It is dull, has no sense of social relevance and does not engage the mind of most women who are expected to do it. In addition, assembly work does not allow for learning or achieving new skills. Job rotation, encouraging women to undertake training, multi-skilling, and rewarding skills and experience by graded and progressive pay scales is more likely to harvest the abilities of women.



Work is an important source of self-image and self-esteem. Most of us need the challenges and creativity of work to place ourselves in the world and to define who we are. Part of that sense of self is being intellectually and socially engaged in tasks, and feeling a sense of personal reward if a task is completed to our own satisfaction. Most managers fail to understand the need for workers to get something for themselves from work other than wages. In misunderstanding or ignoring this important facet of work, they design poor work systems and work flows that cause workers to lose interest and motivation.

Why and What Should We Do about Stress?

Many managers fail to recognise that stressed workers are not productive. The pace of work often encourages poor quality and lack of attention to detail. Workers lose motivation and are more likely to have accidents or be absent from work. Thus, it is in management's interest as well as yours, to reduce stress levels in the workplace.

What we do about stress depends largely on where it comes from. If 60 percent of women working on an assembly line feel tense and stressed by the need to keep up with the speed of the process line, then the only solution is to slow down. Demonstrating that stressed workers are not attentive to quality should convince management at least to think about taking remedial steps.

But the first thing is to discuss among yourselves the sources of stress so you can be quite clear with management about exactly what

First thing is to discuss among yourselves the sources of stress so you can be quite clear with management about exactly what needs to be done to improve the condition or situation.

needs to be done to improve the condition or situation. By doing this you will gain credibility and management may be more likely to hear you out. The best strategy is to talk in terms of “them,” not “you.” That is, emphasise how the company will benefit from reducing stress. This rule is applicable to all occupational health and safety bargaining. Strategies will be discussed later in Chapter 3.

The rule is that if one worker is stressed by a particular work process or situation, the chances are others will be in the same boat. Feeling that you are not alone is one great antidote to stress.

To Have a Healthy Heart: The Impact of Work on Heart Disease in Women

International studies have all shown that the rate of heart disease increases with the process of industrialisation. This is strange as one would think that the increase in available money would enable workers to be more healthy. Others would argue that only highly stressed executives suffer heart attacks and as industrialisation increases, so does the number of executives lining up for heart disease.

But in reality, it is not the executives who fall over but the blue collar workers. The section on stress reveals why that might be so. Studies of working men have shown that as control over work diminishes and demands at work increase, the risk of heart disease also rises. Assembly line work is a classic example of low control (no control over conveyor speed or size of parts to be assembled) and high demand work (you have to keep up your concentration as the parts go by in a never-ending stream). This led occupational health specialists to believe that the incidence of work-induced heart disease is influenced by class.

Heart disease, like cancer, is regarded as one of the so called “lifestyle” diseases. That is, changes in diet and living patterns in Majority World women mean that heart disease is becoming one of the major causes of death and disability in post menopausal women. The rate seems to be higher in women who work in what they perceive as stressful jobs.

But one stunning difference is emerging from studies into the causes of heart disease in working women. They, like men, tend to suffer more heart disease in blue collar high demand, low control jobs. But one major difference emerges. Women are more likely to have extensive networks of relationships among their own and other families, and in the broader community. These relationships tend to have a protective effect allowing women to “compensate” for high stress jobs by sharing and receiving friendship and social support. If, however, women suffer high demands at home as well as at work and get little support or assistance from their husbands or family, they are much more susceptible to heart disease. In this situation, they suffer what could be termed “double jeopardy” as they face relentless demands and little support. The strain of keeping up with the demands often lead to high blood pressure—one of the major contributing agents to a possible heart attack.

In a changing world, male members of the family can resent women's entry to the workforce as it changes the pattern of dependence and male dominance that have been carefully constructed over generations.

If women suffer high demands at home as well as at work and little support or assistance from their husbands or family, they are much more susceptible to heart disease.

POINTS OF ACTION

- Identify particular jobs, methods, situations or even people that the workgroup agrees cause stress.
- List the problems associated with the stress and the cost to productivity.
- Collaboratively develop a list of ways in which stress could be reduced.
- Take it to management.

GAMES TO DRIVE AWAY STRESS

With a group of other women or on your own, complete the following sentences. Don't think about what you put down. Just write the first thing that comes into your mind. Don't judge yourself or think yourself silly for what you have written.

I feel really tense when I have to.....

My life would be better if only

The things that drive me mad at work are.....

If I had three wishes I would wish that.....

I wish my supervisor would.....

I wish I had the courage to.....

Now share among the group or read over on your own what you have written. What is surprising about what you or your friends have written? What did you learn from this small game? Think about what you can do to make some of the solutions become a reality. What would it take to make you courageous? Maybe generate some solidarity with friends?

The second part of this exercise is to draw your stress. Take a piece of paper and draw what your stress looks like to your heart. That is, if you were sitting inside your heart and feeling all of this, how would it look to you. It can be an abstract swipe across the page. It can be a composite of faces or a mixture of scenes. Just let your emotions work through your hands and take the pencil or crayon on a journey across the paper. When I do this myself, I end up with something that looks like a strike of lightning on the page!

Give yourself time to let it all emerge from your internal being. Now look at it and talk to the drawing. Tell the drawing what you think and feel.

Now take the stress and do with the paper whatever feels right. Most workers screw up the paper, toss it out the window or stamp on it. One woman calmly cut hers into bits with scissors while another man set his on fire! The thing is that for a moment you will have control over that feeling that sits in your chest. Now it is outside yourself. It is no longer part of you. This is a good ritual when things get very tense and is a good way to let off steam (even if you do feel a little silly at first).

These games enable you to be a little clearer about the sources of stress in your life. Being clear is the first step to taking control and remedial action.

In the past, men's role as bread winners (which blindly avoided looking at women's contribution to food security and family upkeep) enabled them to keep women oppressed and lacking in confidence.

Women's new-found economic independence and their important role in economic change can threaten men's traditional domination. In some cultures, men have been reluctant to take on a larger proportion of the family-based caring and nurturing roles, which can mean that women find themselves in "no win" situations. Their freedom becomes a prison.

Muscle and Joint Injuries: Occupational Overuse Injuries

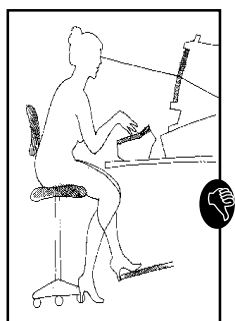
"Sometimes I come home at night and I can hardly pick up a fork to eat. My hands are so painful...stiff and swollen. I cry with frustration as I am hungry but I can't carry the food to my mouth. It's so humiliating. I feel like a baby."—Filipina process worker

Stories such as the one above are not rare among women process line workers. Musculoskeletal⁴ injuries—otherwise known by encompassing terms such as Repetition Strain Injuries (RSI), Cumulative Trauma Syndrome or Occupational Overuse Injury which include injuries to the back, shoulders, neck, arms, wrists and hands, sometimes feet and ankles—are the most common form of industrial injury affecting women. This is because women are expected to perform rapid, repetitive work, often in fixed positions and using some degree of force. For example, working on a production line screwing the tops on jars of cosmetics, packing biscuits, garment assembly, data inputting, machinery assembly as well as working foot-operated machine, are types of work that produce muscle injuries. You will find these injuries under the category of Hazards in many of the industries listed in Chapter 2. This discussion is to help you understand why they happen and how to detect them in your workplace.

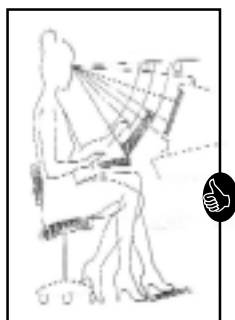
When I use the word *injury* here, I do not mean it in the way that it is usually meant—an acute or sudden event where parts of the body are wounded. Here, the word injury is used in the sense of a strain or sprain—where the damage is inside the body tissue and can only be experienced or perceived by the person suffering the injury.

The fact that the injury has no surface signs except for occasional redness and swelling means that it is hard to convince managers of the reality and seriousness of the injury. Women in Australia and the USA, where the introduction of new process and information technologies resulted in an "epidemic" of these injuries, were at first reluctant to report their situation as they knew they would not be taken seriously. Indeed this proved to be true. Repetition Strain Injury was for a long while called the "Australian Disease" since it was felt that it was a form of "infectious hysteria" among Australian women office workers. In many ways this was a "new" disease which had surfaced because of the changing expectations associated with computer-based technology.

⁴This complicated word refers to injuries that involve the muscles, tendons, or ligaments (known also as soft tissue injuries), and of the bony skeleton, including the joints.



Bad positioning



Ideal body posture

The major marketing point made by computer companies was that the new machines could enable data processing and computer operators (until then known as typists) go faster. Some bosses put key stroke monitors on the machines to make sure data processing operators were going fast enough! However, the body is not unlimited in its potential and the demands for speed resulted in a lot of bodies in revolt.

In Australia, a factory manager sacked all his women workers as many of them complained of neck, arm, and hand pain shortly after he introduced some new process technology that demanded shorter, more rapid work cycles. He based his decision on his belief that women were the "weaker sex." He hired men to replace the women. In two weeks the men had walked off the job complaining of (surprise, surprise!) neck, arm, and hand pain. While it had taken women four months to complain, the men had had enough in two weeks!

After the women in offices brought the complaint to the public's attention, it became known as a "pink collar disease" that only struck white middle class women. Later, however, men and women in the so-called blue collar industries such as meat processing, motor vehicle assembly and garment making along with musicians, athletes, and artists revealed that they too had been living in pain and, in most cases, had more long-standing injuries. Their "coming out" destroyed the class and gender based obstacles to the recognition of the illness and underlined the seriousness of its impact.

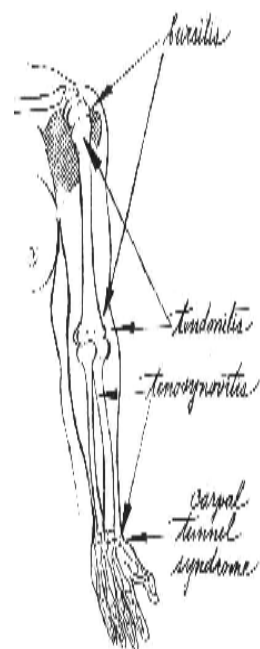
Specific injuries arise from rapid repetitive work demands. These injuries can be very disabling in the longer term, particularly for women who are expected to carry the dual function of caring for family and home in addition to being full-time workers. In fact, a lot of the tasks performed by women at home such as chopping wood or meat, knitting, and ironing tend to make the injury worse. The courts often blamed women's home activities for the RSI, preferring to ignore the importance and primary nature of occupational factors.

Although it is not important for you to know about these diseases in detail, the following descriptions may assist you to assess if the problem exists in your enterprise.

Tenosynovitis. Pain in the hands (usually at the back of the hands, wrists, and arms) caused by rapid repetitive fine movements such as keyboard and data entry work, and fine manipulation of components in electronics. To understand why this happens, it is important to know how the hands and fingers work.

Hold your hands out in front of you with the palms down. Now wriggle your fingers. You will see a series of cords moving under your skin. These are tendons which move your fingers and which are attached to the muscles in your arm. These tendons run inside fluid-filled sheaths. The fluid lubricates the tendons and makes movement easier. When you do rapid repetitive work, the sheaths have to work overtime making the fluid to keep the tendons sliding freely. Sometimes the body cannot keep up and the fluid becomes thick and viscous. At this stage, the tendons begin to "stick" inside the sheath and the worker experiences sharp, hot, and "tearing" or "grabbing"⁵ pain in the hands and wrists. This is known as tenosynovitis (*teno* referring to the tendon, *syno* referring to synovial sheath, *itis* meaning inflammation).

Tenosynovitis: pain in the hands (usually at the back of the hands, wrists and arms) caused by rapid repetitive fine movements.



Tendonitis. Inflammation of the tendons caused by rapid, strong muscle movements such as in packing, taping boxes, and packing biscuits. This is characterised by pain close to the joint where the tendon attaches the muscle to the bone. The area can become hot and swollen.

Bursitis. Inflammation of the joint arising from static loading. One example is working at shoulder height with extended arms—this often happens if there is a mismatch between workers and their task (see Ergonomics in Chapter 3). Joints are surrounded with fibrous, gristle-like stuff that encloses the fluid that makes these joints work smoothly. Sometimes excessive loading on the joint caused by working overhead for long periods (such as what happens when painting ceilings or high walls, or working on motor assembly plants where the car passes overhead) will result in inflammation of the joint, thickening the fluid and possibly dragging the joint capsule into direct contact with the bones of the joint (*bursa* refers to the bubble of fibrous tissue surrounding the joint, *itis* is inflammation). Bursitis is typically marked by “crunching” feelings of the joint.

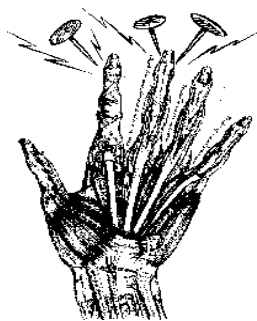
Carpal Tunnel Syndrome. Under the fine skin on the inside of the wrist where it moves the hand lies a band of tough tissue whose job is to keep the blood vessels, nerves, and tendons in place. Thickening of this band puts pressure on the very vessel it protects. One of the first signs is a continuous feeling of pins and needles in the index and middle fingers which, after a while, may begin to curl upward and inwards into the palm. It is caused by continually twisting the wrist and repetitive movements with some force, such as when using a screwdriver or twisting components together. In some cases, hormonal change at pregnancy and menopause can bring on carpal tunnel syndrome. This complaint can be ameliorated by changes of task which require different movements but, if left too long, may require surgery to release the sheet of thickened tissue.

All these complaints cause severe disabling pain, weakness, and swelling which can last for years but *can all be prevented by sound management practice* including prevention of stress. Stress plays an important part in the onset of occupational overuse injuries because when people experience stress, they tend to unconsciously “armour” themselves by allowing their muscles to become quite tight. Tight muscles tire much faster than relaxed muscles as the blood vessels which bring nutrients to the hardworking body are squeezed tight by the contracting muscle. Therefore, the muscles cannot be adequately “fed,” and neither can the blood efficiently carry away the waste products made by muscles as they work. This waste builds up in the muscles in the form of lactic acid. It is this build-up that causes feelings of pain and “heat.”

There are some simple rules to the prevention of occupational overuse injuries (a more thorough description will be given in Chapter 3 in the Ergonomics section).

1. Break patterns of rapid repetitive work with short exercise breaks. This can be achieved in three minutes. Take time out every hour to stretch—a series of suitable exercises are found

⁵ These are words used by workers to describe the pain.



One of the first signs of Carpal Tunnel Syndrome is a continuous feeling of pins and needles in the index and middle fingers which, after a while, may begin to curl upward and inwards into the palm.

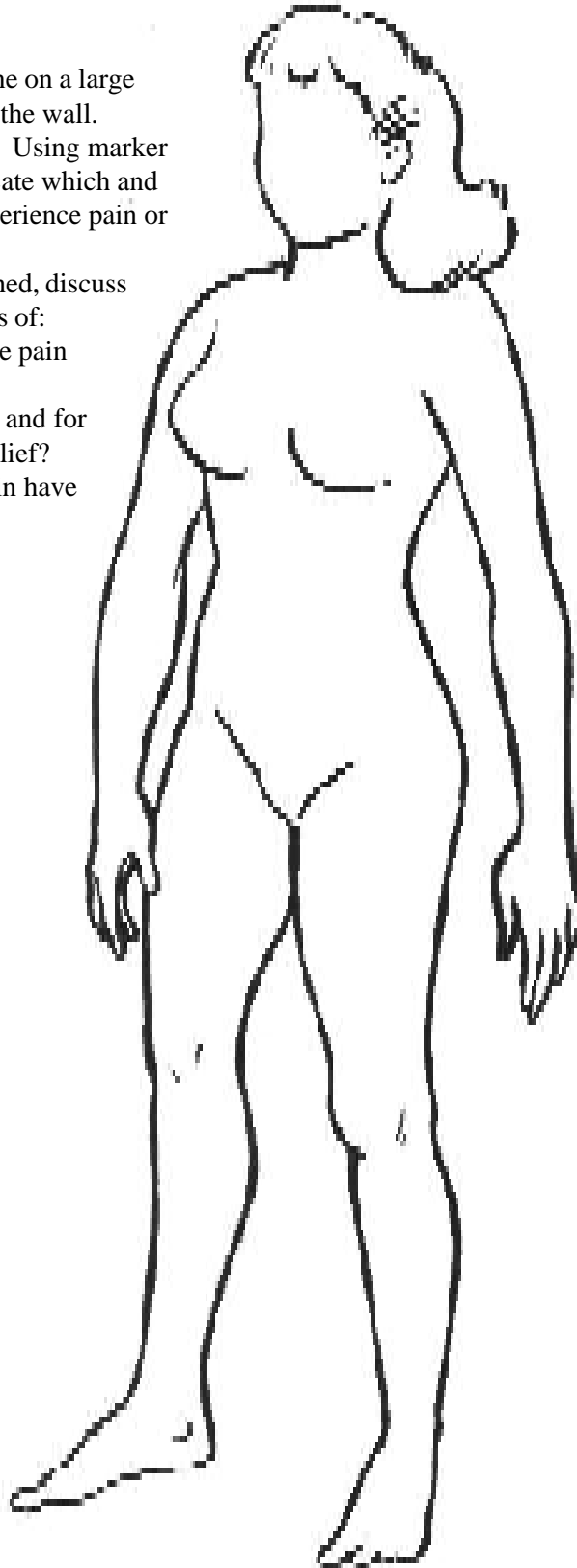
GROUP ACTIVITY FOR MUSCLE STRAIN INJURIES

Copy a figure like this one on a large sheet of paper and stick it to the wall.

Ask women to come up. Using marker pens, ask the women to indicate which and where on this body they experience pain or discomfort everyday.

When they have all finished, discuss what you have found in terms of:

- v How do you think does the pain relate to the work you do?
- v When does the relief come and for how long? Why was there relief?
- v What impact does this pain have on your personal life or relationships with others?



in Chapter 3 in the Ergonomics section.

2. Better still, mix or rotate tasks which require different movements with a combination of sitting, standing, and walking. Design the job so each operator, for instance, has to fetch her own components. Work systems based on piece or target systems of payment actively preclude this type of work reform. Women should work together to rid industry of this plague that traps women into believing that if they only work harder and faster they will be richer. Forms of payment based on targets should be replaced with those based on skill and experience.

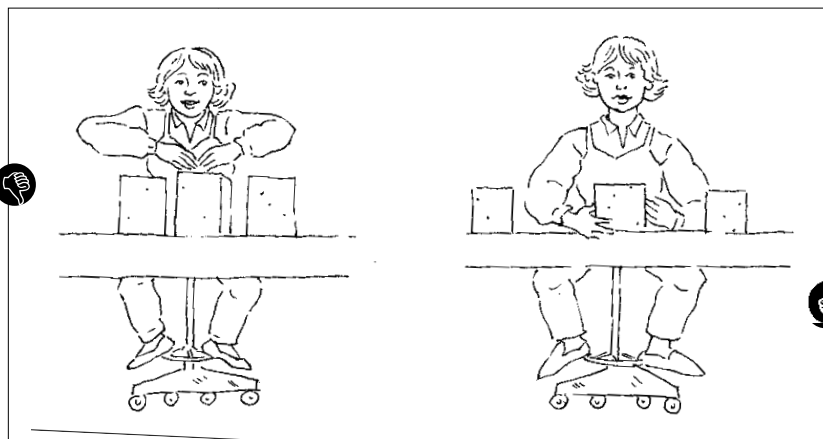
3. Reduce stress levels by reducing noise, slowing down work and introducing job security and skill-based payment systems. Improve management; give praise where it is due and give encouragement when needed. Institute training for new workers to reduce the fear and risk of failure.

4. Ensure that work can be done in relaxed body positions with arms resting at the sides. If the task requires arms to be raised either at the sides or in front, it is an easy matter to change the position of the worker by using a raised wooden platform or by raising or increasing the height of the chair on which the woman sits. (If you do this, ensure that the higher chair is still very stable and not likely to tip over. A good form of insurance is to ensure that the chair has five legs. High chairs or stools with three or four legs are not stable). Feeder trays reduce the need to stretch forward and the strain on muscles and tendons of the neck, shoulders and upper arms.

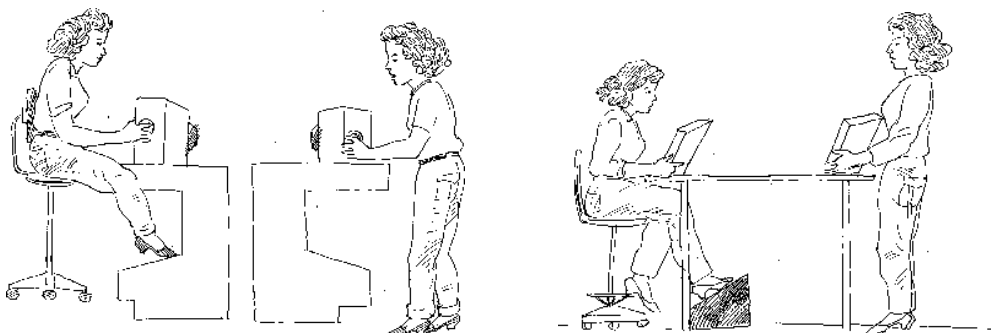
5. Ensure worker comfort by giving all workers chairs with backrest. This simple modification significantly reduces fa-

Women should work together to rid industry of this plague that traps women into believing that if they only work harder and faster they will be richer. Forms of payment based on targets should be replaced with those based on skill and experience.

employees should be able to perform jobs with their arms low and elbows in.

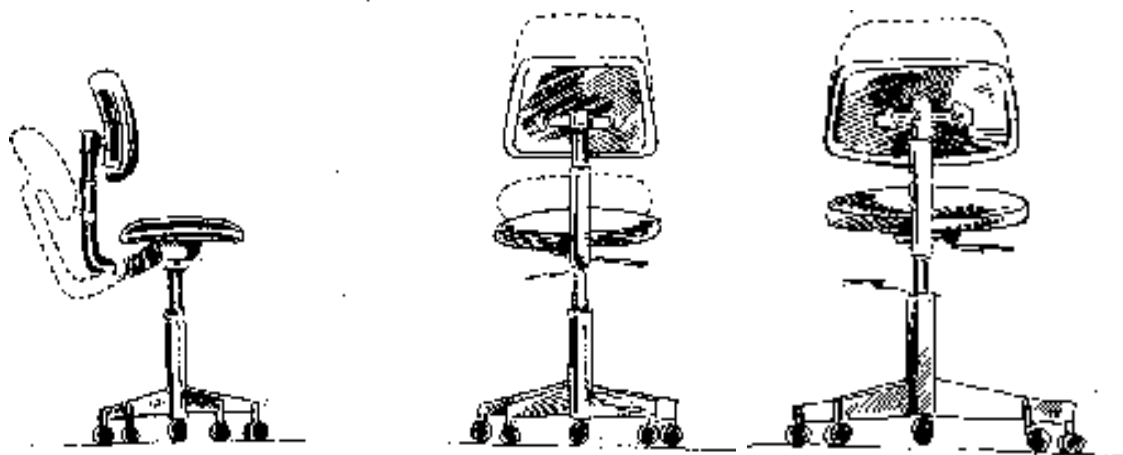


Alternate sitting and standing positions at work.



tigue levels by supporting the muscles of the spine. It does not, as some bosses think, make workers lazy!

Occupational Cancer



“We know of at least three women working in one textile factory who all developed cancer of the bladder around the same time. They all came from one village and started work together. Then, about seven years later, they all got this awful disease. One has already died.”—Indonesian activist from a women’s NGO

Cancer is a scary word. Most of us are afraid of this mysterious disease that kills without mercy. Cancer causes so much pain to the sufferer and their family who have to stand by and watch life drain from people they love.

Yet, research has shown that a surprising number of commonly used industrial chemicals cause cancer. Australia recently reported that more people died from occupational cancer and chemical intoxicants than from road accidents! In many of the industrialised countries, use of those materials is carefully monitored. Some of the more seriously dangerous chemicals have been banned from ordinary use. But in the industrialising world, they are often used without caution or without the workers knowing about the potential effects.

Cancer as an occupationally linked cause of death and disease of women has been largely overlooked and underestimated. For all the same reasons that women do not report other illnesses and injuries that happen as a result of working conditions, women commonly do not report early illness that may herald the development of cancer. Most people, including occupational health practitioners, know very little about the origins of occupational cancer. The linkages are very complex and may involve the interaction of many chemicals (chemical cocktails). The arguments between scientists studying the origins and

Research has shown that a surprising number of commonly used industrial chemicals cause cancer.

causes of these illnesses leave the public dizzy and frustrated. In addition, much of the work in occupational health does not appear in mainstream medical journals so that doctors may not link working conditions with the illness found in their patients.

By the time women are very ill with cancer, they have usually been fired from work or have voluntarily resigned. Usually the illness or deaths are not attributed to the industry which, of course, means that the women rarely receive compensation. It also means that many hazardous industries remain undetected and the extent of the problem underestimated.

In view of the fact that a lot of hazardous materials and processes are exported to developing countries, it is probable that the rates of occupational cancer may be quite high. But because those countries have poor reporting systems and low rates of participation of women in trade unions (if indeed trade unions are allowed to exist), valuable data is lost.

At the end of this book, you will find lists of industries and chemicals which are known to cause cancer. These lists, however, only reflect the experience in industrialised countries such as the United States and Britain. In these countries, exposure limits and work practices are more stringently controlled. The gender division of labour may also be different in other parts of the world. For instance, while men have traditionally worked in dye plants in the textile industries of Europe, in Indonesia, it is women who work there. So, these lists may not reflect the complete picture.

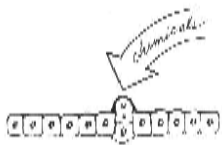
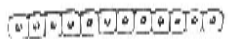
Let us now look at how cancer develops and review a little about the latest research.

How Does Cancer Happen?

All of the cells that make up our body hold tiny strands called DNA. These strands are the smallest building blocks inside our genes. They are spread through all the cells in our body. Our genes and the DNA they contain determine things like our sex, hair colour, and shoe size. These microscopic particles function a little like computer chips and control our rate of growth and the shape we will end up. Moreover, they contain the design or plan of our bodies when we are still inside our mother's uterus. This plan ensures that we have all the right body parts—like lungs, hearts, and nervous system—and that they grow in the correct sequence. When these organs need maintenance, these strands tell the body how many new cells are needed and where they are to go.

Like most things that happen in our body, the way these strands work is influenced by a complex series of chemical reactions. All of our body's actions are made possible by these chemical reactions. We are in many ways like walking laboratories, with chemicals continuously whizzing around causing reactions and changes to other substances!

Sometimes, the chemicals we encounter at work interfere with the chemical reactions that go on in those strands and, therefore, on how they influence the body. The strands start to create too many cells and these cells may be the wrong shape or have the wrong function. The cells grow out of control and replace normal body organs or put enormous pressure on body parts. For instance, a cancer growing inside the



Other cancer cells grow long tendrils or thread-like structures that invade and damage other body organs.

head has nowhere to go so it pushes on other parts of the brain, or on the blood vessels that supply the brain. In the more dangerous types of tumours, bits of a cancerous growth break off and travel to other locations in the body to grow. So the body becomes overwhelmed with strange tissues that do not function but replace tissues that function. Others grow long tendrils or thread-like structures that invade and damage other body organs.

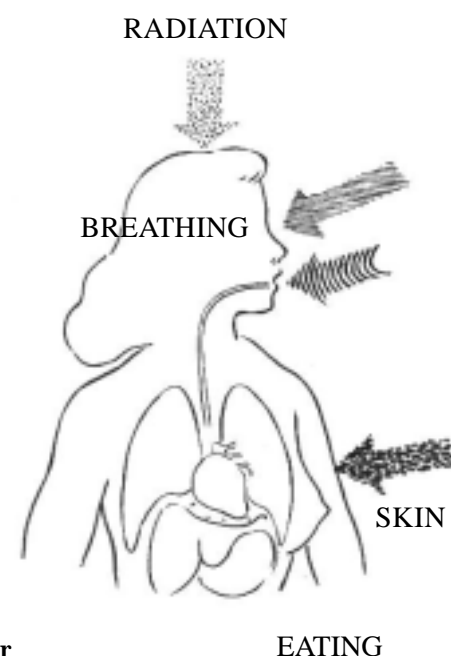
Not all types of cancer kill. For instance, some forms of skin cancer are very slow growing and non-invasive—that is, they don't enter other normal body tissues and start to grow. But non-dangerous cancers can become dangerous if they obstruct important ducts or organs. For instance, pushing on major veins carrying blood or on the part of the brain that controls our breathing.

In the case of bladder cancer, chemicals used in many textile dyes are known to influence the way the cells in the bladder grow and develop. When the bladder changes shape or function, we cannot pass urine and toxic products from our body that are normally shed when we urinate, making us very ill. Damage to the bladder also causes bleeding. Cancer of the bladder spreads very fast and is almost always incurable as it rapidly replaces normal tissues.

Cancer of the lungs replaces the very densely bubbled tissues in the lungs, which is especially designed to absorb lots of oxygen, with hard non-absorbent materials so the lungs lose their elasticity and, over time, cannot take in enough oxygen to keep the body adequately supplied.

What Causes Occupational Cancer?

Occupational cancer is caused by prolonged exposure to specific cancer-causing agents. Being around them is not enough to get cancer. The substance has to enter the body, usually by breathing it in (inhalation), by being absorbed through the skin, being irradiated by certain dangerous forms of radiation, or by accidentally or unknowingly swallowing the dangerous substance. While eating cancer-causing agents may seem like a strange thing to do, knowledge of the earliest recognised form of occupational cancer affecting women arose after a doctor noticed an abnormally high rate of cancer of the jaw and mouth in young women who painted luminous radium-based paint onto watch dials.⁶ As they licked the tips of their brushes to get a sharp point, radium would enter their mouth where it caused the fatal cancer. As said before, some dyes used to colour fabrics, for instance, contain ingredients such as chemicals called naphthylamines that are known to cause cancer when absorbed through the skin. A few of the solvents, chemicals which are widely used in industry to dissolve other chemicals and are good for cleaning or mixing, are known to cause cancer through inhalation or absorption through the skin. Carbon tetrachloride and 1,2 Dichlorethane, both used in the dry cleaning indus-



⁶ The radium-based paint makes the numbers and hands of a watch glow in the dark.

tries as cleaning agents, are known to cause cancer.

Are Women at Greater Risk of Occupational Cancer?

While there has been relatively little research into women and occupational cancer, there is evidence that women *may* be at no greater risk—except where the cancer-causing agent specifically attacks women's reproductive tract such as those that may cause cancer of the ovary, breast, or the lining of the uterus.

It is thought that women may absorb and store many of the dangerous substances at rates different from that of men. For instance, many solvents bond easily with body fats (which is why they are good at cleaning greasy surfaces). New research indicates that women, who normally have greater amounts of body fat located in the hips and buttocks, may be at greater marginal risk of cancer. Instead of getting rid of (excreting) the substances through urine or defecation, they are stored in the body fat. But that slight increase in gender-based risk is offset by the fact that men, being on the whole taller and bigger than women, have a larger body surface available to absorb dangerous and cancer-causing substances.

How to Prevent Occupational Cancer

"If only we had known the stuff was dangerous, we could have staged a demonstration before those workers died to let the bosses know how angry we are that they were playing games with our lives."—Filipina trade unionist

The key to prevention is information and then the elimination of cancer-causing agents from the workplace and environment. This principle is universally true for all occupational hazards. First and foremost though, women workers need to know if they routinely use any of the substances that causes cancer.

But without technical assistance, it is sometimes extremely difficult for workers to discover the chemical names of the substances they are working with, much less the types of health problems these materials can cause or if they cause cancer at all. The list at the back of this book may assist you to identify cancer-causing agents in your workplace. The other major source of information are the MSDSs. These sheets can tell you whether or not the substance is known or suspected of causing cancer and what precautions are needed to avoid negative effects. One way to gain access to these sheets is to partner with a trade union in one of the developed countries such as Australia, Canada, New Zealand or Britain, and ask them to send you information. Some of these sheets are a bit daunting as they contain a lot of technical information and are invariably written in English. But with the help of a dictionary and someone who has some technical training, you can find out a lot about the stuff you are working with.

Obviously, the first priority is to take action to convince the industry to avoid using the cancer-causing substance. *There are no safe levels of exposure to cancer-causing agents.* Heat can make them more volatile thus, are easily absorbed into the body as vapours. Using the media to highlight the problem is one method that sometimes helps to change the bosses'

It is thought that women may absorb and store many of the dangerous substances at rates different from that of men.



The key to prevention is information and then the elimination of cancer-causing agents from the workplace and environment.

minds. Other methods are to convince them to:

1. *Redesign or re-engineer the workplaces* so that workers do not come into contact with dangerous materials or processes. This may mean that the tasks that use carcinogens (cancer-causing agents) are mechanised. This strategy also demands good maintenance to ensure that substances do not leak into the working environment due to malfunctioning systems.
2. *Remove the hazards and substitute safer materials.* As an example, instead of using glues that contain dangerous and cancer-causing solvents such as toluene or benzene (commonly used in the shoe industry), they can be replaced with glues that use non-toxic base materials. For instance, many of the new water-based or heat-curing glues are very strong and safe.
3. *Purchase and distribute protective clothing and equipment.* In the case of all occupational hazards including cancer-causing substances, the idea of using protective clothing and equipment is to stop dangerous compounds from entering the body. The major drawback to this method of prevention is that women would be required to wear heavy gloves or masks, face shields, and maybe overalls. Some chemical industry workers have to wear suits that make them look a little like astronauts to protect themselves from the substances they are using or making.

In many tropical countries, wearing such clothing is uncomfortable, heavy, and hot. Because the idea of protective clothing is to stop liquids and dusts from getting through to the skin, use of protective clothing may actually cause problems. This is because the clothing doesn't "breathe." This causes the body's internal temperature to rise. At the same time, the clothing limits the body's natural cooling mechanisms, in particular, the ability to sweat. Cooler, light weight materials such as Tyvek are more costly and managers may be reluctant to spend money on buying suitable outfits.

As a final point, a lot of these clothing and equipment such as breathing masks (respirators) are designed for Western men with big noses. Sometimes, women in the industrialising world find the masks do not fit their faces, leak, are too heavy, and gener-



ally useless.

For all of these reasons, the use of protective clothing and equipment should be a last resort.

Basically the only acceptable solution is the removal of all cancer-causing agents from your workplace. Reducing concentrations may *reduce* the risk, but it does not *remove* the risk.

Women who have used or are still using cancer-causing agents should have health checks every six months and at the company's expense. The types of medical tests to be undergone are specific for each type of chemical (see Annex 6). A general medical check may not pick up the beginnings of a disease if the doctor does not know what she is looking for. Women should be given reports from the doctor, detailing their findings in simple language.

But you should not rely only on the company doctor. Taking responsibility for health requires women to be alert to changes in their body. Women should take note if they have any sores or wounds that do not heal, if any lumps appear in their bodies, particularly in the breast. They should notice if they have any abnormal and persistent sharp pains, if there is any strange blood in their urine or faeces, or if there is abnormal bleeding between periods. Notice any change to the body's functioning such as abdominal bloating, blurred vision, or inability to pass urine.

Note that smoking can increase your risk of contracting cancer from other sources, such as wood dust, by up to 50 percent. Further, there are many tragic diseases that arise from inhaling tobacco smoke such as heart disease and cancer of the lungs. While it is increasingly fashionable to smoke, smoking has been directly associated with cervical cancer. Research also indicates that women contract tobacco-related diseases at younger ages than men. In an article in the (August 1996) *Herald Tribune*, the findings of another piece of research indicate that smokers are more prone to wrinkles! If you don't give it up for health, give it up for vanity!

In addition, smoking is an expensive habit. Ask yourself if you should choose cigarettes over good nutritious food. Smoking will reduce the birth weight of your babies if you smoke while pregnant. There is considerable evidence to show that children of smoking parents suffer lung and breathing problems, the most common of which is asthma.

Stopping smoking is a good start to saving your life and improving the life of your children. Stopping or refusing to smoke is a slap in the face for the male-dominated cigarette companies whose aim is to make more women tobacco addicts. Their slick campaigning throughout the world makes smoking look like a fashionable and liberated thing to do. In fact, all they are doing is selling addiction and illness. Remember, 70 percent of all drug-related deaths are caused by tobacco, not by heroin or other "notorious" drugs. It is not liberating to have cancer.

Reproductive Rights and Health at Work

Reproductive Health

"I wish I had never done it, but I was scared."—An American cyanamid woman worker who underwent sterilisation to keep her job in a lead work

"I'm sterile. That's all there is to it. I've been cheated."

—A male worker sterilised by exposure to DBCP at the Occidental Chemical Corporation

Instead of cleaning up the factories and ensuring safety, the major strategy has been to make women the victims of exclusion policies.

Women are defined and often define themselves in terms of their reproductive function. In some nations, women's "nature," that is, their ability to become pregnant and have children, has been and still is the excuse used to insinuate that women are weak, feeble, or in need of care or segregation from the community or from certain responsibilities. It has been used in developed countries to exclude women from certain industries where products known to cause reproductive difficulties are used. That is, instead of cleaning up the factories and ensuring safety, the major strategy has been to make women the victims of exclusion policies.

In other societies, a woman's inability to bear children or to follow through with a successful pregnancy means that her marriage and thus her status or economic security is at risk. Thus, for women in the Majority World, reproductive health and reproductive rights come laden with heavy overlays of meaning.

Men, happy to beam and smile at the birth of a baby while people admire the proof of their manliness, are often not prepared to entertain the idea that it is *their* failure, not the women's, which may lead to reproductive problems. As this part of this book will show, men and women alike are both at risk of workplace risks to reproduction. Women should not be discriminated against on the grounds that work may put their reproductive function at risk. Because if a substance is a hazard for women, it is likely to be dangerous for men as well. That goes for lead, mercury, ionising radiation, and many chemical toxicants (a list of some of the substances thought to cause reproductive disturbances is in Annex 2). There are many documented risks that exclusively affect male reproductive function. This include the pesticide DBCP (dibromochloropropane), methyl cellosolve (used in the photographic and paint industries), ketone and those known as exogenous oestrogens (female hormones) in the pharmaceutical industry.

To make matters worse, it is becoming increasingly obvious that environmental factors are combining with occupational factors to reduce male fertility, in particular. Breakdown products⁷ (that is, the variety of substances that a chemical breaks down into over time) from organochlorines (such as pesticides) are known to act like oestrogen on the body. In males of any species, this results to what is primarily known as feminisation. Men experience breast enlargement, loss of body hair and lowered sperm production, thus, reducing the

⁷ Many chemicals are unstable and after a while break into their original component chemicals or combine with others. What is left behind are called breakdown products. Sometimes these breakdown chemicals can be non-dangerous such as water and nitrogen. Some break down into long-lasting chemicals than can enter the food chain through plants that are then eaten by animals. Others enter the water supply. In any case, we all absorb varying levels of both dangerous and harmless dangerous breakdown products in our food and water each day. This is because chemicals, including agricultural chemicals, are used so widely nowadays.

chance of making their partners pregnant (see Reproductive Process later in this section). Recent studies seem to indicate that the breakdown products of pesticides can affect male fertility. Some pesticides, such as DDT⁸, which was used widely by health authorities to kill malaria-bearing mosquitoes, have been found to break down into products very similar to oestrogen. Many of those products end up in the water supply and, it is believed, reduce the number of sperm produced by wildlife and humans who consume the contaminated water and animals with heavy "body burdens" (this term refers to the amount of a chemical or metal that is stored in the body, usually in fatty tissues).

Therefore, reproductive health is of great importance to both women and men. It is not simply a process of excluding or protecting women as has been done in the past. Instead, the demand for work reform should protect everyone and should involve all steps on the way. For instance, it is now readily recognised that because in the West, reproductive hazards are not considered a threat to life, the routine testing of chemicals, which has become the responsibility of Western countries, has not until recently included tests for reproductive effects. Chemicals are tested for their ability to poison people or to produce cancer, but not for their ability to disturb the reproductive process. In addition, reproductive toxicity testing is a long and complex procedure, and as so many chemicals enter the market each year, it is almost impossible to test them all. For instance, a single chemical may not cause a reproductive effect except when combined with another chemical or drug that one of the partners is taking.

The issue of reproductive health at work is really very complicated not only because of the reasons outlined above but also because the actual processes of reproduction itself are complicated. They involve not only a set of chemical reactions in the body but emotional responses as well. Interference in those processes and feelings can occur at any stage. What looks like the effect of a reproductive hazard at work may simply be the reaction to changed hormonal levels after coming off the contraceptive pill. It is only when a number of women or men working at the same enterprise and in the same condition begin to experience similar events that you can clearly suspect that strange reproductive experiences may be related to things going on at work.

Examples of workplace and other factors that are known to disturb reproduction are:

- ▶ **Radiation.** These are medical and dental X-rays, and the radiation found in laboratories and testing procedures, pearls, semiconductors, electronics industries, microwaves, in food processing. Radiation raises nervousness in people as it cannot be seen, smelt, heard or felt. It could be in the air around us, sneaking up like a pickpocket to ruin our lives. In fact, radiation comes in many forms including rays from the sun which warm our backs. Radiation also makes our radios work by sending beams of energy which are picked up by our receivers. Radiation, in fact, just means the passing of energy from one source to another as in radio waves.

- ▶ **Biological agents.** Viruses (German measles or rubella, hepatitis B, mumps, cytomegalovirus, toxoplasmosis) may be hazards

⁸ DDT is one of a group of chemicals known as organochlorines, which are increasingly implicated in male infertility and thought to contribute to breast cancer in women.

for child care workers, laboratory, health care, and laundry workers.

▶ **Prescribed drugs.** Can also disturb the reproductive function. Some forms of antibiotics can cause birth defects if taken in the early phases of pregnancy—often before the woman knows she is pregnant. Women working in companies that produce drugs are at risk of absorbing significant amounts through breathing in the fine antibiotic dust in the air.

▶ **Stress.** Leads to reproductive problems because of the effects on sex drive, menstrual regularity, and the risk of premature birth.

▶ **Other physical agents.** Heavy lifting, extreme heat, and long term exposure to vibration can also adversely affect pregnancy.

▶ **Chemicals.** Many commonly used chemicals are known to cause a variety of reproductive problems.

The amount of damage to a worker's reproductive function depends on:

▶ The nature of the hazardous materials that the worker is exposed to (is it very toxic or only mildly ?)

▶ The time in the pregnancy when the woman is exposed (early or late?)

▶ How long the worker is exposed

▶ The amount of the substance to which they are exposed (how much actually enters the body and in what form?)

▶ Individual susceptibility (for instance, a stressed woman is more likely to suffer health problems)

▶ The combination of substances that the workers are exposed to. While some are safe on their own, when combined with certain other chemicals, a safe product can become dangerous—the combination of chemicals having toxic effects.

▶ Some scientists have mentioned that the increase in breathing, heart rate, blood circulation, and changes in the rate at which a woman produces urine (and thus, needing to increase her intake of fluids) may also make women more susceptible to the effects of chemicals. ▶ Women's body mechanisms work faster and thus, absorb more from the exterior world—more air, more water.

▶ Finally, we must admit that humans are on the top of the food chain. So, if what we eat is contaminated with substances that disrupt reproduction, these substances are bound to eventually end up entering our bodies and in some cases stay there and accumulate. This accumulated load of potentially toxic substances (body burden), when, for instance, released in breast milk (see Breastfeeding Workers) the baby exposes to dangerously high levels of poisons that have been stored in fatty parts of the body like the breasts. This situation may in the future make breastfeeding a matter of serious debate. While it is currently safer for babies to be breastfed, the rising levels of environmental contamination may in the next 20 years cause women to rethink the possibility of assuming breast milk is safe.

▶ But just when you feel so overcome with pessimism that you might as well give up now, think again. There are now close to six

billion people on the planet. The fact that we humans, have been around for so long means that our reproductive processes are very well guarded by Mother Nature's design. Reproductive hazards are comparatively rare and limited to only few industries.

What is Normal?

In developed countries such as America and Australia, one in 12 couples are diagnosed as infertile; that is, unable to make a baby without drugs or other forms of artificial assistance (many more than, say, 20 years ago). Ten to 20 percent of pregnancies end in miscarriage within the first three months of pregnancy. Some researchers think that anything up to seven percent of fertilised eggs are lost even before they can be implanted into the uterus. The picture may be very different in your country.

Approximately seven percent of pregnancies end with an early or pre-term birth, and around two to three percent of newborns have some form of deformity or disability. Now, how many of these problems are just "normal" events of nature or are caused by some harmful exposure, is not known. Many miscarriages occur because the baby is somehow damaged and would not survive birth. Nature does not allow these babies to develop and mature. Older women have a higher level of miscarriage. In reproductive terms, being over 30 means you are old. Obstetricians call women over 30 "*elderly!*"

What is known is that there is a background level of "normal" problems that occur in any population. What women (and male) workers need to work on is how many *additional* problems can be blamed on working conditions or environmental exposures. Workers need to ask the Department of Health in their country for the national data so that they can get some idea on how their region or company compares to national averages.

Reproductive Process

In both men and women, the reproductive process is carefully and cleverly controlled by hormones are released by the brain. Any disturbance to these delicate body chemicals will unbalance the finely tuned processes.

Male Reproductive System

Men's genitals are found outside the body. Within the testicles or "balls" hanging below the penis is the production facility for sperms which are introduced into a woman's body.

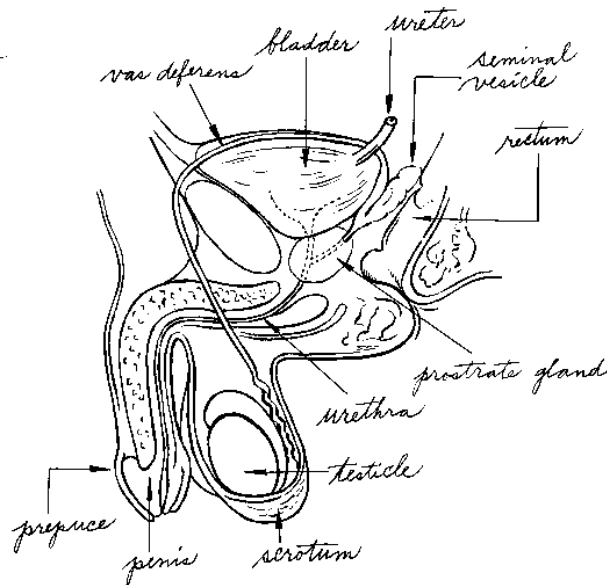
The testicles hold a spaghetti-like complex of fine tubes that convey the sperms to the penis. They are sensitive to heat and hang outside the body to keep them cool. Excessive cold will make the testicles retreat into the body, as will fear or sexual touch.

The two major hormones which control the male sexual response are androgen and testosterone. However, female hormones in small amounts are also involved. Sperms are continually being produced as they have a limited life span. Millions are made daily as they travel through the long and tiny tubes to be stored in the testicles. They undergo maturation which allows them to be capable of fertilising a

woman's egg. The whole process from the creation of the initial germ cell to maturation of the sperms takes 74 days.

When a man becomes sexually aroused, his penis rises, a reflex which has its beginnings in the nerves in the spine. This is because blood is diverted into the spongy tissue of the penis (a bit like a sea sponge which has been dipped in water), which makes it rigid. As the man becomes more aroused by sexual penetration or other activity, the sperms which have their beginnings in organs which sit at the base of the bladder—between it and the rectum—move along tubes which are coiled in the testicles, entering the tube which runs through the penis. As the sperms travel along these tubes, various fluids are secreted into the tubes which enable the sperms to swim more strongly—a bit like vitamin tonic. At the point of orgasm or climax, the sperms are released with a contraction of the testicles and spasm of the tubes. Normal sperms are lively and able to make the journey along a woman's vagina to the uterus, and then up the fallopian tubes where the egg lies waiting. In a real sense, this is an extraordinary journey with no signposts (and we all know that men refuse to ask directions) and in a chemically hostile environment. The secretions in a woman's vagina can kill sperms!

Sperms left inside the penis are emptied out (in effect, cleaned out) when the man urinates. Others simply disintegrate inside the penis. Sometimes they are also lost during sexual dreams when a man ejaculates while asleep or during masturbation.

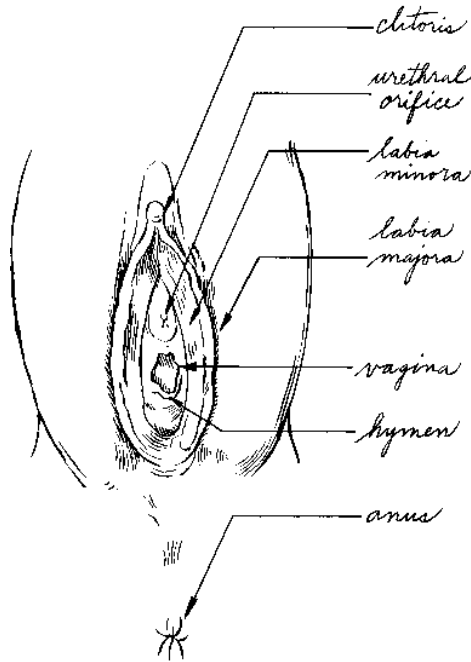


Female Reproductive System

A woman's reproductive structures are largely inside her body adding, as some romantics would say, to a woman's mystery. It also means that women are often unfamiliar with their own sexual terrain and geography. However, she also has several important structures that are visible, namely, her breasts which are both an aid in the sexual arousal process and in providing food for babies, and her inner and outer lips which guard the entry to her vagina. Embedded next to these are the glands which lubricate the vagina for sex.

At the front of her body, hidden by pubic hair, is a fatty mound which acts as a cushion during sexual activity. In addition, the point of women's sexual excitement is her clitoris, hidden beneath the fleshy outer lips of her vagina. The clitoris bears a lot of similarity to the penis, becoming stiff and engorged with blood during sexual excitement. In fact, at the beginning of a baby's development inside the uterus, it is almost impossible to tell a girl from a boy as the genital structures are so similar. Some women have the outer lips and the clitoris removed due to cultural and social (often dressed up

as religious) demands which insist on female cleanliness and control. (In view of the structural and functional similarity between the penis and clitoris, one wonders what men are *really* doing. Removing symbolic rivals perhaps?) Inside her body, a woman's vagina is linked to the uterus or womb by a muscular ring called the cervix.



The womb is where the fertilised egg is implanted. Between menstrual periods, the wall of the uterus builds up, becoming thick and warmly endowed with blood and nutrients. It lies in wait for the moment at which a fertilised egg becomes embedded in the walls, at which point it can begin to provide nutrition to a growing baby. If the egg is not fertilised, the lining of the womb peels away and is lost through the cervix each month in the monthly bleed or period.

Attached to the top of the uterus are two tubes which, like branches of a tree, gracefully reach to meet two globular structures at each end. These are the ovaries or the glands that release matured eggs. Each woman is born with her entire lifetime supply of eggs waiting to develop. Once that supply of eggs is finished (at around 50 years of age when menopause arrives) there are

no more. Men, on the other hand, can keep producing sperms throughout their lives.

The release of eggs, build up and loss of the uterine lining as well as the processes set in train if the egg is in fact fertilised by a sperm, are also dictated by a delicate balance of hormones. Each month, somewhere around the tenth to fifteenth day after a period, the ovary releases an egg to the fallopian tubes. This process is known as *ovulation* and is marked by a change of vaginal secretions: from sticky, white, milky mucous to elastic, lumpy secretions which look a little like half-dried glue. A woman checking the secretions each day can tell if she is ovulating by noticing this change. At that time (when the secretions are elastic), she should avoid sex if she wants to avoid pregnancy.

The elastic secretion is the mucous plug which normally blocks the entry to the uterus. It does this when the uterus is not yet ready to receive a fertilised egg. When the lining of the womb is "ripe," the mucous plug is released to enable sperm to enter. It is this plug that sits in your knickers like half-cooked egg white. For those wanting to get pregnant, this secretion lets you know that this is a good time to grab your partner for some fun and games or serious activity depending on how you see it.

Most pregnancies are the results of having sex up to 12 hours after ovulation has occurred, when the egg is still "fresh." At this stage, the egg is still inside the fallopian tube. The cells of the sperm and egg combine to make a single cell which has the genetic characteristics of both sexual partners. This single cell then begins to split in half to make two cells. Each of these then splits to form four cells and so on. The ever increasing cluster of cells travels slowly down the fallopian

tube until it is lodged in the wall of the womb. This process takes about five days.

In the first 10 weeks of pregnancy, the growing baby has the beginnings of almost all major body organs, such as the heart, lungs, nerves, and facial features. This is often before a woman is sure she is pregnant.

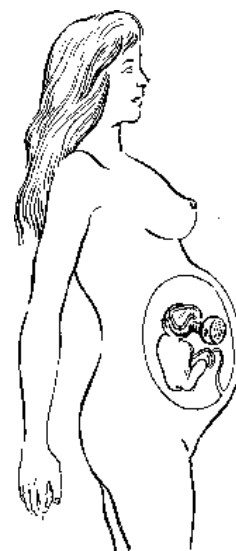
Seventeen days after fertilisation, the small cluster of cells which will become a baby embeds itself in the lining of the womb. That lining is rich and nourishing and will support the growth of the baby. That lining is known as the placenta or after birth. This means in theory that any potentially dangerous chemicals that enter the woman's body (and which blend easily with fats like solvents—see Chapter 3) can enter the baby's circulation and cause damage.

How Do Chemicals Interfere with Reproductive Function?

If asked to define a reproductive hazard, most people would say "something that causes birth defects." In fact, substances and materials in both the workplace and the living environment can cause subtle interference at all stages of the male and female reproductive processes.

- ▶ Some chemicals like lead affect a worker's ability to experience sexual arousal, men's ability to achieve erection or his ability to make sufficient or undamaged sperms. Others, like carbon disulphide and toluene, can disturb or inhibit women's menstrual periods so that ovulation is upset and the uterus is not prepared for implantation.
- ▶ Occupational factors can bring about early labour or miscarriage, along with low birth weight or illness in the newborn. Solvents have been increasingly implicated as chemicals that cause spontaneous abortion or miscarriage—often before the woman is aware she is pregnant.
- ▶ Other chemicals impede the fertilised egg from implanting itself into the nourishing wall of the uterus, and others can affect the baby's growth rate and disturb the way the baby's body develops.
- ▶ Research has also shown that children of parents exposed to some reproductive hazards can show profound behaviour disturbances later in life, and can be infertile themselves. Childhood cancer has also been shown to be related to parental exposures at work. That is, the effects show up much later, maybe when the workers have forgotten that episode in their lives. In this way, many companies producing or using dangerous products escape responsibility for their actions.

Disturbances of reproductive function can also be non-chemical in origin. For instance, it has been shown by research in Scandinavian countries that working in areas where the noise level is above 90 decibels (commonly found in bottling, canning, or textile factories) can result in low birth weight babies, particularly if the woman is expected to stand for long periods or do shift work. While the research could indicate that the low birth weights are due to standing or shift work, the link with loud noise is strengthened by other studies on the effects of



Research has also shown that children of parents exposed to some reproductive hazards can show profound behaviour disturbances later in life, and can be infertile themselves.

aircraft noise, which has shown links with low birth weight and perhaps an increase in premature births. While none of the work is conclusive as yet, if women workers notice such effects in their workplace by systematically studying the outcomes of their own pregnancy and that of their fellow workers, they can add greatly to research efforts.

Radiation, particularly X-rays and gamma radiation, have been positively linked with birth defects and childhood cancer, particularly leukaemia (cancer of the blood forming cells in the bone marrow). Women working in diagnostic facilities, or in areas where radiation is used for testing or for laboratory analysis should be aware of the hazards of exposure while pregnant. Recent studies have indicated that men and women planning for pregnancy should avoid exposure to what is known as ionising radiation (X-ray, gamma, beta, and alpha radiation) as much as possible in the one or two months before trying for pregnancy. (This is discussed in greater detail in later pages.)

What Can Workers Do ?

Keeping track of all chemicals and their effects is, as you would appreciate, a difficult task and we have to rely on clusters of events such as miscarriages or infertility to alert us that something serious is going on. Workers can do this themselves if they are concerned about events in the workplace.

Over a one year period, they should keep a record of all the women in the workplace who become pregnant, and those trying and not succeeding.

Then they could note the outcomes of all the pregnancies and attempts to become pregnant. If they are concerned about what looks like a very high rate of miscarriage or infertility, contact should be made with the local health clinic or Department of Health. They should be asked if they think this is abnormal (that is, how does the rate in that

workplace compare with the national average). Remember that not all pregnancies will be successful, and the older the woman, the greater her chances of miscarriage. So what looks high to them may only be a normal range of occurrences.

A list of most of the known and suspected reproductive hazards is found in Annex 2. So if you suspect that some of the substances you routinely use at work may be adversely affecting women's reproduction, take the list with you to the workplace or give it to a representative who can check it against what is in the storeroom. You may be able to recruit the store's clerk into helping, particularly if he or she is concerned about his or her

Bossco Corporation

No. of women pregnant	102
No. of preterm births	24
No. of abnormal babies	2
No. of women unable to get pregnant	15
No. of women workers	380

Department of Health Data

No. of women pregnant	102
No. of miscarriages	12
No. of preterm babies	3
No. of abnormal babies	2
No. of women unable to get pregnant	3

Adjusted to the factory population you can see that miscarriages and infertility numbers are much higher in the factory, so you would suspect that something is causing these abnormally high numbers.

own health.

If, on the other hand, you or your friends are concerned about a substance and it is *not* on the list, *do not ignore your evidence*. Testing for reproductive effects takes many years, and thousands of new chemicals and compounds enter the market each year. Researchers admit to being far behind in their work because of the sheer size of their mission. If you or others have collected data that indicate that a substance in a workplace may be interfering with workers' reproductive systems, it is wise to contact the central Department of Health, and give them a photocopy of your information.

You may suspect something is toxic to reproduction if groups of workers in one or more sections of the enterprise which use the same compound or are exposed to the same processes complain of:

1. Lack of sexual feelings
2. Lack of ability to have sex, e.g., the male cannot achieve an erection
3. Lack of menstruation or changes in menstrual patterns, e.g., occasional bleeding or heavy periods (see Menstruating Women)
4. Reduced sperm count or sperm that don't swim (low motility confirmed by a doctor)
5. Inability to get pregnant
6. Recurrent miscarriage
7. Recurrent premature labour
8. Birth defects, particularly those that are similar in nature, e.g., deformities of the mouth or nervous system
9. Failure of the baby to grow or develop normally
10. Low birth weights
11. Early or premature labour
12. Similar patterns of behaviour problems in workers' offspring, e.g., children who won't sit still, who scream all the time, or have trouble concentrating

Workers' research may be the very thing that helps uncover new risks to health and well-being of women, men, and their children.

Of course, to discover these things requires a degree of openness with sexual matters that may be inappropriate in some cultures. Similarly, although women-to-women conversation may tolerate such freedom, women-to-men discussions may be taboo. While the issue demands a degree of openness to gain information that may be of benefit to many, the author acknowledges the limitations that are present in various countries. Talking about pregnancy or organising lunch time ante-natal sessions may be the best way to encourage wider discussions.

The major comfort to us all is that reproductive processes are well protected by the body. That is why our global population is so large. If industrial changes brought about drastic effects to our ability to reproduce, the number of people would be much less than the six billion that currently inhabit Earth. After all, industrialisation has a long history extending over 300 years. We have still managed to produce many

If industrial changes brought about drastic effects to our ability to reproduce, the number of people would be much less than the six billion that currently inhabit Earth.

children in that time. The major focus seems to be shifting to environmental factors these days.

Pregnant Workers

“It was horrible. I had to stand all day at the machine as the Korean supervisor told us that having chairs would make us lazy. My legs and feet would swell, and my back hurt so much I would often cry. I needed to go to the toilet a lot as I was quite late in the pregnancy but he would threaten me, saying that I was just lazy and avoiding work. In the end, I quit. I don't think they would have given me maternity leave anyway.”—Indonesian textile worker

Pregnancy is a normal state during which most women are healthy. It is a time of joy, uncertainty, and change. Women can feel very vulnerable during this time, as their hormones race out of control developing a nurturing environment for the growing child within.

Body Changes and Impact on Work

Many changes to the body's shape and particularly to the musculoskeletal (muscles and bony frame) structure occur during pregnancy. This is to accommodate the shape of the growing baby. Women report that they feel uncomfortable late in pregnancy as the enlarged uterus (womb) puts increasing pressure on the bladder and lungs. Therefore women experience shortness of breath, particularly when exerting themselves. They also need to use the toilet very often. Because these changes also affect the woman's sleeping pattern (the uterus, unfortunately, does not magically shrink at night) the pregnant woman is likely to be very tired. Employers need to be sensitive to these changes and not penalise women for reduced performance, much less to prohibit her from frequent toilet use as has been documented in some countries.

The majority of healthy women are able to continue working throughout their pregnancy, but should see a doctor who is familiar with the nature of their workplace. Encourage pregnant women workers to take note of all the processes and materials they use routinely and to take that information to the doctor with them.

Pregnancy: The Process

Summarised below are some of the major changes in the body as pregnancy advances.

First Three Months

The woman usually feels tired, sometimes nauseous, and needs to urinate frequently. She may become sensitive to bad odours, heat, and humidity. Anaemia, which is very common amongst women in the Majority World, often becomes worse at this stage, making her feel even more tired than usual. During this time she is more susceptible to agents that bond with blood and those that affect the ability of the blood to carry oxygen, or with the blood forming function of the bone marrow. Therefore, chemicals such as carbon monoxide, lead, toluene, and benzene should be avoided during pregnancy.

Second Three Months

Many symptoms of tiredness lessen or disappear if the woman is healthy.

As the foetus grows, the woman's normal centre of gravity is displaced and she may suffer low back pain of varying degrees of severity. Chairs with good back rests are essential to prevent severe discomfort. The chair should be at a height that allows the pregnant woman to put her feet flat on the floor.

Because blood tends to settle in the legs due to changes in blood flow, some women faint if made to work standing for long periods of time. Ideally, work should combine a mixture of walking, standing, and sitting-based activities to encourage circulation. The muscle movement during walking and active standing acts as a muscle pump, squeezing the walls of the veins so that the blood is pumped along back to the heart.

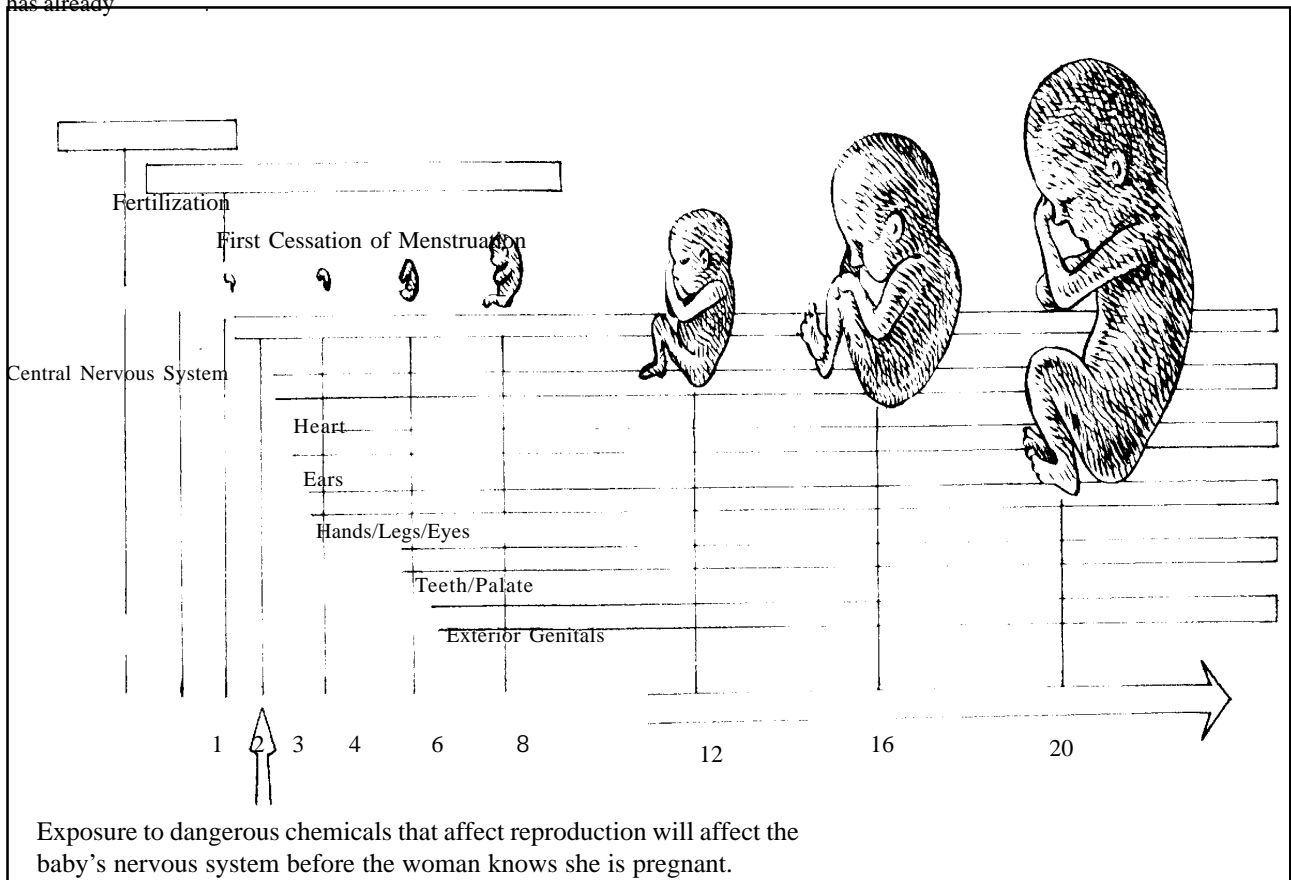
As the foetus grows, the woman's normal centre of gravity is displaced and she may suffer low back pain of varying degrees

Last Three Months

Women experience shortness of breath as the baby pushes upwards towards the lungs and diaphragm. Legs swell and the need for good seating increases as both back and legs begin to really ache.

Carrying weights becomes very difficult because the load cannot be handled close to the body. The ligaments in the back and pelvis

The organs of the foetus begin to take shape very early in pregnancy—many of them during the third up to the sixth week. At this early stage the organs are highly sensitive to exposure to hazardous substances. But it is almost impossible to protect the foetus from early exposure to chemicals by moving the pregnant woman to another job. A gynecologic examination does not confirm a pregnancy until menstruation is three to four weeks overdue. At this point, the development of the heart, brain, eyes, arms and legs of the foetus has already



become loose and more elastic, which makes the back and hips more unstable.

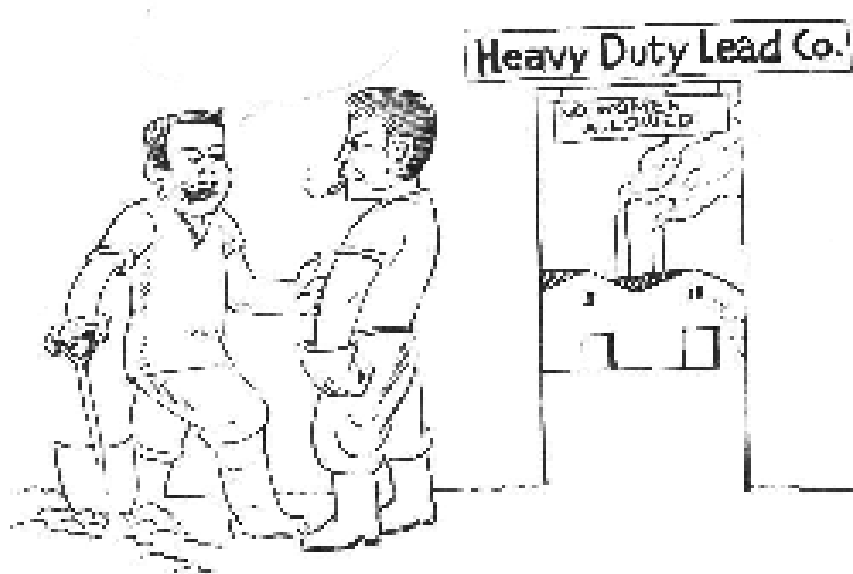
As pressure mounts on the bladder, frequent trips to the toilet become imperative and toilets should be close by. The woman may suffer varicose veins and haemorrhoids (bleeding and enlarged veins around the anus), particularly if she spends more than two hours per day standing

At this stage, heavy lifting and exertion should be avoided, as these types of work are associated with premature labour. Women doing heavy work late into their pregnancy have been found to take longer to recover after birth, and to have lingering problems with varicose veins and back pain.

Pregnancy and Toxic Substances

Many years ago, women in the USA were prohibited from working in factories which produced lead or products made from lead unless they had evidence that they were sterile or were past menopause. While this clearly discriminated against the right of women to seek employment, it also ignored the impact of lead on male reproductive function. Evidence began to mount about birth defects in couples where the man was exposed to lead. Male lead workers complained of impotence and lack of libido. It was obvious that the law was not passed to protect workers but to protect the large companies manufacturing and using lead from law suits; Americans have a reputation for the eagerness to sue. It was that very tendency that persuaded employers to lobby the legislature to pass the "protective legislation." They were afraid that women having deformed babies would take them to court and, in view of the emotional nature of the case, would have a good chance of winning. The legal actions came despite the legislation—but from men. Under pressure from the law and from women's rights activists, the legislation was withdrawn.

This case clearly demonstrates the cynical use of the law to protect companies, as well as the futility of laying all the responsibility for



If a substance is a hazard for women, it is likely to be dangerous for men as well.

Do they need sex education there or what?

good reproductive outcomes on women. More importantly, it points to the responsibility of employers to clean up their factories for the benefit and respect to all.

During pregnancy, six times more blood flows through a woman's hands, and the rate of blood flow to her feet doubles. This has implications for the absorption of toxic substances, as research has shown that absorption through the skin (known as dermal absorption) is greatest through the hands and feet. With more blood flowing through the hands and feet, it is likely that chemicals are taken into the body of a pregnant woman at a slightly higher rate than in a non-pregnant woman. In hot countries, where most women wear sandals for comfort and for cost, the absorption through the feet may be more rapid.

The same applies to respirable (breathable) hazards. The amount of air taken into a pregnant woman's lungs increases by about 40 percent in mid-pregnancy, which means she is inhaling more airborne materials than a non-pregnant woman. This research is still in its infancy, so little is definitely known about whether or not this constitutes an increased hazard to pregnant women.

The degree of jeopardy involves both the woman and the baby. Any chemical absorbed will most probably cross into the baby's blood circulation and may damage susceptible parts of its body, as well as have adverse consequences to the pregnant woman's health.

Animal experiments show that an injection of substances known to cause birth defects into a mouse or rat in early pregnancy (after three or four days—the equivalent of a woman receiving the dose at four weeks of pregnancy) causes severe damage particularly to the nervous and circulatory systems. The implication is that in hazardous workplaces, women may be exposed to toxic chemicals that can harm the foetus before the woman has her pregnancy confirmed. Primiparas (those who are pregnant for the first time) may be unfamiliar with the feelings of pregnancy, and thus continue to work around toxic materials until six or 10 weeks. By this time, if the substance is known to cause defects (these chemicals are known as mutagens or teratogens), severe damage may already have been done.

These experiments, when combined with the research above, indicate that the so-called protective legislation which allows for pregnant women to be moved from hazardous jobs may amount to closing the door after the horse has run away. Women should be aiming at achieving prevention. *That is, workplaces should be made safe for all: women and men, pregnant and non-pregnant workers.*

Some Special Substances of Relevance to Pregnant Workers

There are some substances that deserve to be discussed in greater detail. These are commonly found in the developing world where regulations, if they exist, are not strictly enforced. Some of these substances have become environmental as well as occupational hazards. Lead, for instance, is becoming a major hazard in the crowded and polluted mega-cities of Asia where car fumes gather over poor housing complexes hovering next to congested roads. Many of the developed countries dump waste containing toxic materials, such as lead, in an attempt to solve their domestic political troubles with the excuse that recycling such materials creates jobs in the Majority World.



The degree of jeopardy involves both the woman and the baby. Any chemical absorbed will most probably cross into the baby's blood circulation and may damage susceptible parts of its body, as well as have adverse consequences to the pregnant woman's health.

1. Lead

Lead is an increasingly important hazard to workers and the communities in the developing world. The growth of domestic motor vehicle industries, the presence of lead additives in fuel, and the export of dangerous battery reclamation industries from the industrialised world in addition to the large number of batteries needed to keep public vehicles on the road means that lead is becoming a sinister part of the background picture. Lead is also found in the paint industry, in coatings of venetian (slat) blinds, in metallic wrappers, and in low cost cosmetics (face powders and lipsticks).

While the adverse health effects of lead have been known for a long time, the action needed to curb both environmental and occupational exposures has been slow or non-existent. Reforms are typically spurred by public health concerns or consumer action, rather than concern for worker safety.

Battery Reclamation

Battery reclamation is a major source of occupational lead poisoning as it involves cutting the battery case open to reveal the two lead plates. Both the plastic and lead are reclaimed. These spent batteries contain lead sulphate (the result of the lead mixing with the sulphuric acid), the other dangerous substance inside batteries, and lead oxide.

The old batteries are usually taken apart by hand; the lead broken up into chunks and taken away for recycling. This operation creates many opportunities for lead-based compounds to enter the body, as does the manufacture of new lead acid batteries. In addition, if the workplace does not have adequate hygiene facilities—that is, places to wash and change clothes prior to going home—workers can transport the lead dust home to children or relatives. Researchers following workers home from their battery reclamation activities found that the workers had taken home hazardous levels of dust in their clothing.

What Does Lead Do To Workers' Health and How Can It Harm a Pregnant Woman's Baby?

In 1860, Constantine Paul, a French doctor, described the outcomes of pregnancies in which the women or their partners had been exposed to lead. Many babies did not survive, others came prematurely or died shortly after birth. The scope of his work was later broadened by a German, Dr. Otto Rennert, by the study of male ceramic workers who used lead glazes. He found that the majority of their children had brain damage and suffered from convulsions. In both studies, the parents did not show any sign of lead poisoning.

Lead damages the nervous system, the kidneys, and the system that makes red blood cells in both adults and the growing baby. It can cause male and female sterility, menstrual disturbance, impotence, damaged sperm, miscarriage, stillbirth, slow infant development, and retardation. However, the most serious impact is on babies and children.

Lead exposure can damage adult genetic structures (genes) and the foetus, being poorly formed, will be miscarried or be deformed at birth. At lower levels of exposure, lead severely affects learning abilities in children. While the effects of women's exposure to lead are, in some ways, more serious as their blood and therefore their body bur-

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den⁹ of lead is shared by the baby, male exposure has proven to be also very damaging to fertility and the outcome of pregnancy. Exposure of both parents produces the worst outcomes.

If you want to know how much lead a worker is exposed to—that is, their body burden—blood samples must be taken. The results are expressed as micrograms per 100 millilitres of blood (ug/100 ml). Adverse effects have been noted at levels as low as 25 ug/100 ml.

All women are encouraged to find out what the exposure limit is in their country. And, if they (or their male partners) work in factories that use lead, they should insist on regular blood testing and air monitoring. Factories should aim to achieve absolute safety standards (that is, keeping limits to below the minimum standard as prescribed by law in the Threshold Limit Value (TLV or maximum daily exposure) or Code of Practice. See Chapter 3).

2. Pesticides

While the international Integrated Pest Management¹⁰ movement is gradually reducing the amount of pesticide and herbicide (chemicals that kill insects and weeds) used in various parts of the world, chemical companies keep up their marketing pressure, often assisted by national Departments of Agriculture.

The greatest modern day industrial disaster—that which occurred in Bhopal, India—was the result of gas leaking from a pesticide plant. The gas, methyl isocyanate, was fatal to thousands of workers who died horrible deaths. Tens of thousands of others have been left blind or gasping for their life's breath each day.

With poor urban planning, dangerous factories are constructed in densely populated areas where the local people pay the price of any management failure to control the dangers. Aerial drift of raw materials or compounds, leakage into the water supply, or loading and transport disasters are unacceptable risks to the communities that live around these plants. But memories of disaster are short, and the voice of the small person is rarely heard over the roar of money and power.

It is the ingredients and the formulated (mixed) pesticide that are toxic to humans and the environment. Many of these products are persistent in the soil; that is, they do not break down into neutral, non-dangerous compounds. Instead, they accumulate in the soil until they enter the food chain through water or are absorbed by plants. After being eaten by humans, they then accumulate in fatty tissue and breast milk. High levels of DDT and other residues have been found in breast milk.

Women and men farmers and those working in pesticide factories are at risk not only from reproductive hazards but of general poisoning (intoxication), and skin and nerve disorders. Women commonly work in market gardens, vegetable farming, and assist in rice and other grain production. They are often seen weeding inside a mist of pesticide, while the men move among them with backpack sprays. While studies of the general health of farmers and professional sprayers found that levels of intoxication were higher than originally thought,¹¹ how many women and men suffer reproductive failure as a result of broad-scale

Women and men farmers and those working at the plant are at risk of not only reproductive hazards, but of general poisoning (intoxication), and skin and nerve disorders.

⁹The amount of toxic material being carried by a person is known as the body burden.

¹⁰ IPM, as it is known, is the practice of observing insect population in crops and using low toxicity chemicals when the population reaches a critical number.

use of pesticides can only be guessed. While more women farmers are using chemicals themselves, they are also often expected to wash the sodden overalls of clothes worn by the men in the family. Observation has shown that children play in waste water or irrigation ditches contaminated with pesticide residue.

Most of the studies on reproductive outcomes have been done in industrialised countries where the number of farmers is small and the concentration, toxicity, and number of agricultural chemicals used are much less than in developing countries. Many people are also too embarrassed to tell doctors about sexual dysfunction, such as lack of libido or inability to have an erection, so accurate evidence of adverse effects is hard to gather. Most of the existing data comes from animal experiments and can be difficult to apply to humans. However there are some chemicals, like 245 T and DBCP, in which the evidence of reproductive hazard is virtually conclusive.

While a list of the pesticides that are suspected of causing reproductive hazards can be found at the end of this book, it is worth remembering that many new ones come into the market each day and are sold in various countries under different trade names. That makes it even more important that workers gather data from their own and their friends' experience and use it to stimulate more research.

What should you be looking for? The answer is clusters of similar occurrences among groups of people who are exposed to the same substance. For instance, if a group of women working in a district that has many market gardens find that their newborn babies have cleft palates or split top lips, or that a group of men working in a pesticide formulation plant when joking at lunch time let slip that they can't make their wives pregnant, then something serious may be going on.

The effects of pesticides, herbicides, and other formulations designed to kill snails or fungi are hugely varied and may be very subtle, such as inducing tremors, behaviour change or, more obviously, causes miscarriages or still births.

Menstruating Workers

"I was thirteen when I started to have periods. Then I started work at the textile mill. I was fifteen. Since then, my moon has not come. It's been almost three years since my moon came regularly."—Indonesian textile worker

The first menstrual period signals a major coming of age for women. In some cultures, for instance the Micronesian islands, it is celebrated with community festivals. The newly menstruating young woman is given especially delectable foods and recognition by the chief of the village. In other cultures, it is a time of shame, the blood being regarded as dirty. Some major religions ban women from religious activities or touching food during this time. American Plains Indians celebrate menstruation as a time when a woman is open to the spiritual guidance of the ancestors. As a consequence, women are relieved of all duties during this time and moved to a special hut so they may focus on the stories being sent by the ancestors and to being attuned to the Universe. The ancient religions that worshipped the Goddess as

¹¹ A comprehensive study was done of Indonesian farmers and professional sprays. The study looked at vegetable and rice farmers. Very high rates of pesticides related symptoms were found in those studied.

the creator of the universe and all that is life celebrated the moon, acknowledging powerful female life nurturing forces. Since the arrival of patriarchal religion, this symbol of womanhood has become reviled.

Menstruation is a signal that our life as fertile reproductive women has begun, and it continues to punctuate our lives with the flowing of monthly blood.

This blood is a potent symbol of female fertility and as such is a symbol of power that males envy and cannot control—maybe that is why they construct religious taboos to shame women. However, those religions that link shame with menstruation usually worship pregnancy. This may be because menstruation symbolises the failure of sperm to accomplish fertilisation, or represents that women live without a male presence.

The monthly bleed is a sign that we are not pregnant. It signifies the shedding of the endometrium (lining of the uterus) into which the descending fertilised ovum would have settled to be nurtured by the mother's blood supply. In the absence of the ovum, the endometrium has no purpose and leaves the body through the cervix and vagina. Another cycle begins, a new endometrium grows; spongy and rich tissue which awaits new life.

This process is governed by a complex set of chemical (hormonal) signals which, in a healthy woman, can begin to operate at any time between nine and 15 years of age. In countries where women tend to be undernourished and anaemic, the first period tends to come later in life. Some researchers contend that menstruation will not commence until a certain body weight is reached. Women in Mediterranean countries, for some reason, tend to menstruate earlier than women in other places.

Some women have a good relationship with their moon (as menstruation is sometimes called in Indonesia), looking forward to the tide of blood as a marker of their lives. Western women regard their periods as inconveniences or events to be tolerated or endured, sometimes giving the event masculine names like "George" or "Harry," or calling it the "Curse." Only recently has the mood changed, and Western women are re-associating their bleedings with powerful feminine forces.

So when menstrual function is disturbed, as sometimes happens due to occupational factors, women themselves often become disturbed.

There are a few known factors that can upset the menstrual cycle, namely:

1. Anaemia
2. Stress and major life events
3. Pregnancy
4. Prolonged exertion
5. Medications
6. Chemicals, including medicines
7. Premature menopause

Similarly, menstruation itself has been associated with pain (especially in women who have not had a child), memory disturbance, mood swings, bloating, and other body distress—and increased rates of industrial accidents.

Menstruation is a process governed by a complex set of chemical (hormonal) signals which in a healthy woman can begin to operate at any time between nine and 15 years of age.

Blood provides a highly suitable breeding ground for bacteria. Lack of suitable hygiene facilities at work or at home can lead to chronic vaginal infections which are uncomfortable and unpleasant and, if allowed to persist, may enter higher into the reproductive tract and cause longer term problems. The worst outcome of chronic infection is infertility.

The religious and social contexts in which you live will largely determine your own attitude to menstruation and how difficult or easy it may be to discuss it openly or seek treatment for menstrual disorders. How sympathetically menstrual disorders are dealt with in society has a lot to do with how broader gender issues are dealt with.

In the West, menstrual disorders like muscle strain injuries were, until recently, regarded as evidence of women's hysteria and weakness. Feminists on the other hand were reluctant to study menstruation as it epitomised one of the basic differences between men and women and, thus, they felt it undermined their fight for equality. Only in recent times has the balance been struck and new research is underway.

Disorders of menstruation take various forms. Here, I will use the clinical names so you can be familiar with them:

Amenorrhea (Absent Periods)

Amenorrhea comes in three forms.

1. The periods occur but the products are not able to escape as the hymen is not broken or does not have a sufficiently large hole in it. Many women do not realise that the hymen already has a hole in it, even in women who have not had sexual intercourse. This is to allow menstrual flow to leave the body. The size of this natural hole varies from woman to woman and in countries where virginity is worshipped, a woman with a larger than normal hole in her hymen may be erroneously considered not to be a virgin. In countries that practice female circumcision, this type of amenorrhea is more common, as scar tissue can seal up the hole left to allow menstrual fluid and urine to escape.
2. Young women who have, for some reason, not started to menstruate well into their teenage years. This often requires the process to be "jump started" by an injection of hormones.
3. In the occupational arena, amenorrhea usually refers to women who, like our Indonesian worker at the top of this section, was menstruating normally and then stopped.

The causes of amenorrhea are many and complex in origin, but one set of factors are life disturbances. These include leaving home, loss or trauma in the family or among close friends, being engaged in rapidly rotating shifts, anaemia, stress at work, or a sudden loss of weight. These can prohibit menstruation.

In the industrial sphere, chemicals such as carbon bi and disulphide (used extensively for viscose rayon production and the rubber industry) are known to interfere with the menstrual cycle. The same with xylene and toluene (widely used in the textile, plastics, sports shoes, and paint industries). See Annex 2 for more information on chemicals and their effects on the body.

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Workers producing steroids and products containing artificial hormones such as contraceptives and medicines may lose their periods. This is a sign that the airborne levels are too high and the controls being instituted are insufficient.

Women stopping use of contraceptive pills sometimes find their periods are slow to return. Medically prescribed drugs and hormonal changes can lead to what is known as "premature menopause." This is when a major life change, usually scheduled for around 45-50 years of age, occurs much earlier.

Women who are involved in strenuous sport or exercise regimes, such as athletes or dancers, also find their menstruation can cease to arrive. Fashion models, who have to reduce their weight to abnormally low levels to comply with society's view of the "ideal woman," have been found to be amenorrhoeic as well.

Dysmenorrhoea (Painful Periods)

Many women industrial workers report that since commencing work, they have experienced pain during the onset of their periods. They speak of prolonged cramps and discomfort, with back pain and aching legs. Most reported standing for long stretches, sitting down only to have lunch. Research has found that exposure to cold, such as working in food packing or cold storage plants, and heavy physical exertion may also be contributing factors to painful periods. Research on hairdressers seems to indicate that some of the dyes and perming solutions they use may also cause painful periods.

It is worth seeing a doctor if you experience disabling pain since sometimes painful periods are indicative of something more serious such as tiny outgrowths of fibrous tissue in the reproductive tract (fibroids, polyps, or ovarian cysts).

Wearing an intra-uterine device for contraception (IUD) can lead to both more profuse bleeding and the experience of painful periods.

Menorrhagia (Severe Bleeding)

This needs to be checked by a doctor to eliminate the chance of a structural problem. Often, things called fibroids, which are like small bits of coral in the uterus or vagina, can rupture and cause excessive bleeding. If left without attention or regular checks, some have been known to convert into cancer and severe anaemia.

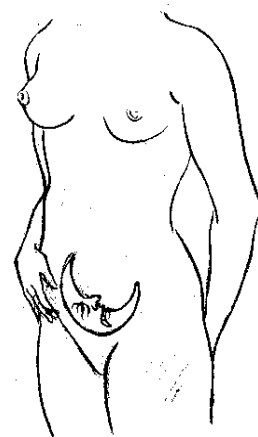
Some industrial chemicals, along with pharmaceuticals that reduce blood clotting time, can be the root of widespread heavy bleeding in women workers.

Workplace Facilities for Menstruating Workers

Cloths and pads used by menstruating women can be sources of cross infection if any of the women have Hepatitis B or C, or HIV. So it is important to safely dispose of blood-stained cloths. Appropriate facilities should be made available for the disposal of sanitary napkins during menstruation. A lidded plastic or metal bin should be placed inside each toilet and this should be emptied everyday, the contents burned or buried in a deep trench.

A shop, vending machine, or other sources of suitable material for sanitary protection is required in each workplace to prevent women from having to use unhygienic materials such as cotton waste from the

In the industrial sphere, chemicals such as carbon bi and disulphide (used extensively for viscose rayon production and the rubber industry) is known to interfere with the menstrual cycle.



floor or recycled cloths. Pelvic and local infections are common in women who do not have access to clean materials. Having access to soap, water, and most importantly privacy is vital to prevent infection and to encourage women to maintain personal hygiene.

Menstruating women may experience severe fatigue on the first day, and should not be expected to stand for long periods or work in extremely cold or hot conditions.

Menstruation and Accidents

While it has not been fashionable in the past to study gender based issues such as menstruation for fear of enhancing the gender gap, there is enough evidence to indicate that women experiencing their periods tend to have marginally more industrial accidents just before they begin to bleed or in the first few days of their menstruation. This is part of a complex set of body chemistry that may affect co-ordination and attention. Rather than using this to discriminate against women (like the issue of pregnancy), menstruation should provide the stimulus for work reform and preventive measures, for instance, the proper guarding of all machines, a reduction in work pressure, the abolition of target systems, and the training of women in all facets of occupational safety at work.

Unfortunately, experience suggests that rather than rising creatively to the challenge of prevention, bosses, particularly male bosses, tend to use any excuse to punish and hold workers in contempt. Countries such as Indonesia have a law that allows women two days a month of menstruation leave. This law makes sense in a country where the majority of women are still anaemic due to poverty, and social expectations place women at the end of the food line. While this law is progressive and appropriate to women's needs, some factories demand proof of menstruation, asking to see women's sanitary napkins before they accept the need for leave. These actions constitute a serious breach of human rights.

Only solidarity and action will change such attitudes.

Breastfeeding Workers

Throughout the world, health authorities have recognised the importance of encouraging breastfeeding. A baby's chances of survival are greatly enhanced by mother's milk, and the household economy of poor women is enhanced by not needing to buy artificial milk and fuel to heat water to kill the germs usually found in water, bottles, and teats.

International milk companies like Nestlé have tried all sorts of methods to encourage women to use powdered milk and bottles. Advertisements on television showing fat laughing babies being fed on milk powder are seductive, and women have to be strong to resist this and other social pressures.

Working women are at a disadvantage. Because they frequently have to travel long distances to and from work, they commonly arrive home stressed and tired and not in a mood to "let down" their milk to a hungry baby. Maternity leave is usually about six weeks. But most medical experts who know about the realities of poverty and women's work agree that babies should be given breast milk for up to two years. Most

A shop, vending machine, or other sources of suitable material for sanitary protection is required in each workplace.

poor women do not have refrigerators at home in which to keep expressed milk, so many give up breastfeeding when they return to work.

Some countries have encouraged workplaces to allow women to feed their babies at work. But without proper on-site child care, this is impractical, for many of the same reasons noted above. How is the baby to get to the work site? How much will it cost in transport costs? Will the mother want to “let down” at the baby’s demand just after she has left a stressful production line? Should she just relax for those few precious minutes at lunch time?

Another reason to be wary of on-site breastfeeding is that very young children are more vulnerable to the hazards of industrial chemicals than adults. If chemicals are poorly controlled and fumes pervade the workplace, babies are most at risk.

More alarmingly, concentrated chemicals are being found in human breast milk. These arise from workplace or environmental exposures. In many instances, the levels of chemicals in breast milk are very highly concentrated; these chemicals are soluble in fat and breast milk is high in fat. Pesticides like DDT and some organochlorines are easily taken up by breast milk. Mercury, lead, things called halogenated hydrocarbons, some solvents and chemicals called PCBs (used in the electronics industry) collect in breast milk and are passed on to the baby in large concentrations. In fact, the concentration of some of these substances has been found to be more than 10 times higher in breast milk than in blood! This means that the baby is, in relation to its size, receiving a very nasty dose of toxic or dangerous material.

All these materials, with the exception of mercury, PCBs, and DDT, are easily passed from the body when the worker is no longer exposed. Another reason for absolute safety at work!

Migrant Workers

“You should come to our office. We have lots of photographs of the babies of migrant workers. Most of them have foreign fathers—the products of rape. Migrant workers have so little choice. They have to come home to have their baby and then go back to this place that tortures them to earn the money to give the child an education.”—Indonesian activist

The last few years have shown a huge increase in the number of poor women going to rich countries to work. Many have heard stories of the wonders of overseas life. Muslim women see it as an opportunity to make the Hajj¹², something they may not otherwise be able to do. Others see it as a way of accumulating consumer goods; returning to their village with electronic gadgets, gold jewellery, new clothes and, for Muslims, maybe holy water from Mecca. The various labour brokers tell them of the riches that can be earned. Many brokers, it seems, are not telling the truth. For many of the women who succumb to the lure of the international trade in workers, the reality of overseas life is grim. They have to endure arduous work, sexual harassment and rape, unreasonable working hours, and enforced separation from family and friends.

While the politics and economics of migrant labour make for an interesting discussion, this book is about occupational health and there is no doubt that certain occupational hazards are attached to working

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overseas.



Workers have returned with burns and wounds inflicted by their employers for minor or invented misdemeanours.

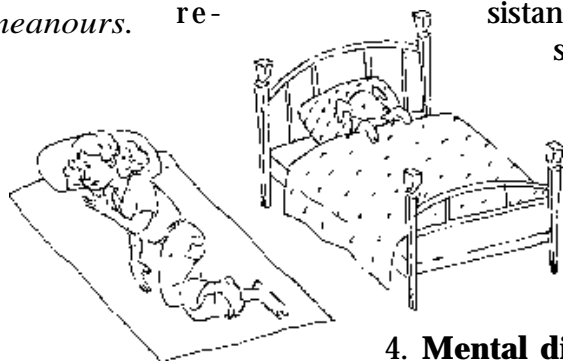
Hazards

1. Physical violence. Some employers physically abuse workers. Some workers have disappeared and others have been murdered. In Middle Eastern countries, women whose husbands have taken other wives have been known to take out their rage on the migrant worker, knowing they are powerless to fight back. Physical attacks from children, dogs, and family members have all been reported. Workers have returned with burns and wounds inflicted by their employers for minor or invented misdemeanours.

2. Sexual harassment, rape, and pregnancy. This exposes women to the risk of sexually transmitted diseases, Hepatitis B, and AIDS (particularly as many male employers are known to visit internationally notorious sex centres where STDs and AIDS are a significant health hazard).

3. Exotic diseases from the host nation. While all of us live in germ ridden or disease plagued societies, we remain healthy as we develop what is known as "herd immunity." That is, as we experience each illness from early childhood, our bodies begin to become resistant to those diseases, so as adults we rarely

suffer the bouts of diarrhoea or malaria that afflict foreigners in our culture. Migrant workers do not have herd immunity against the diseases they may encounter in the recruiting country and initially become quite ill.¹³ While some encounter sympathetic bosses, many are punished for what is regarded as laziness.



4. Mental disorders. Many workers report that they suffer anxiety and/or low self esteem as a result of loneliness, violence, or non-adaptation. Workers tell of being virtual prisoners in their employer's house, some being assigned to sleep with the family dog if the house is too small to afford a spare room. Without a social support group, women can become very depressed and anxious. Some even attempt suicide.

5. Occupational injury. As migrant workers are usually not fluent in the host country's language, they may not understand safety instructions. Some household chemicals are very toxic. For instance, oven cleaners may injure women if they cannot read the instructions. Training courses in safety and health are not always understood and accidents occur.

6. Public health problems. These arise from poor housing and overcrowding. In some countries women migrant workers are forced to live next to sewers or in areas without clean water. If any of their colleagues have tuberculosis (TB) or other infectious diseases, overcrowding will spread the disease.

Agencies that assist migrant workers are growing stronger. One

Workers tell of being virtual prisoners in their employer's house, some being assigned to sleep with the family dog if the house is too small to afford a spare room.

¹² The Haj is the pilgrimage to Mecca, one of the five pillars of Islam.

¹³ For instance, the change in water or new varieties of flu may be enough to make new workers quite ill; a change in the balance of the parasites or bacteria were found in those studied.

of the most well organised, the Asian Migrant Workers Centre in Hong Kong, encourages overseas workers to organise and support each other so as to be able to systematically collect data on problems for which they need assistance. Language skills, counselling, and training are obvious pre-departure strategies, but often nothing can prepare women for the reality of the migrant worker experience: for the loneliness, the rude or violent behaviour, and the personal indignities.

Arrival counselling is as important as pre-departure counselling and must be done by skilled women counsellors who offer practical support and non-judgmental assistance. Women should be encouraged to have a confidential medical check for various exotic ailments and sexually transmitted diseases, particularly AIDS, on arriving home.

Young Workers

As countries struggle to maintain competition in the international markets, they seek to further reduce labour costs. Many of them do so by hiring child workers.

Despite numerous international committees and working parties which oppose child labour, the same participating nations exert pressure on developing nations to enter the so called global economy. This in turn ensures that more and more children will be put to work in the factories that are sprouting around every major Third World city.

Young bodies are still developing and growing. Hormones that cause and control body growth and development are easily influenced by chemicals. Bones that are not yet meant for heavy weight-bearing activity can become bent and distorted. Developing nervous systems are not up to performing heavy, repetitive, and fixed-posture work. For instance, I once saw a young girl making teddy bears in an Indonesian factory. She was no older than nine years. Her job was to sew up the head after the bear had been filled with dacron stuffing. After 20 minutes, she developed a severe tremor in her hands as she was not strong enough or co-ordinated enough to do such fine and intense work. She had to exert great pressure on the needle to push it through the dense fabric and her body protested.

In an ideal world, child labour would not exist. Children would be free to attend school and to play and enjoy their lives before having to take the responsibilities of adult work. However, this is an increasingly difficult world—one in which ideals have little place—so labour activists have to be aware of the special needs of children at work.

Children, being largely poorly educated, are employed to do the dirty, onerous, and heavy work. It also means they cannot read safety precautions on labels or on machinery. Being smaller in stature, they often cannot reach work surfaces or control buttons, so they risk muscle strain injuries, amputations, cuts and burns. They are often not strong enough to pull or push major control levers, and so again risk severe injury.

Growing tissue is much more easily damaged by sources of radiation chemicals and dusts. Children are prone to chest disease from the inhalation of dust. Children that have to work often come from the poorest communities, so they face the additional or multiple risk of

POINTSOFACTION

- Ensure proper training.
- Provide information on sources of help or emergency contacts.
- Provide a medical/health list, including condoms.
- Make contracts that are clearly understood by everyone.



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tuberculosis, coupled with dust diseases. Because of their small size, they are often sent into confined spaces to clean up or scour tanks, and risk being overcome by fumes that displace air or that are simply toxic.

Young girls are at risk of sexually transmitted diseases and rape from employers who believe that having sex with children will allow them to escape AIDS and other STDs. Girls at work in factories are powerless to resist sexual pressure from male supervisors unless supported and guarded by the women in the workplace.

All women need to be responsible for the children in their workplace. Children are not organised into trade unions, so they effectively have no advocates other than the others with whom they work.

Child labour needs to be exposed to the public. If children are working in factories that you are familiar with, then the situation should be documented and reported to the Department of Labour, Department of Health, local office of the International Labour Organisation, or to the press. Employers get away with child labour because employers and labour inspectors (and other workers/parents) connive to cover up. Like sexual harassment and rape, keeping child labour secret means that it will keep on happening.

If children have to work, they should do so for only a maximum of three hours per day. They should be given education at the workplace to reduce the need for travelling to a school that may be distant and may not want to take part-time pupils.

Child labour is not the solution to poverty. Paying better wages to adult workers and distributing the profits of development to all, by more stringent taxation of the rich and social security systems for the poor, are more effective methods. Countries like Indonesia, which charge poor parents too much for education, encourage child labour. Structural adjustment policies, as instituted by the International Monetary Fund and the World Bank, reduce government support for social programs such as education and health services and, as such, spur child labour. Low income or farmers simply cannot afford to have children at school.

Older Women Workers

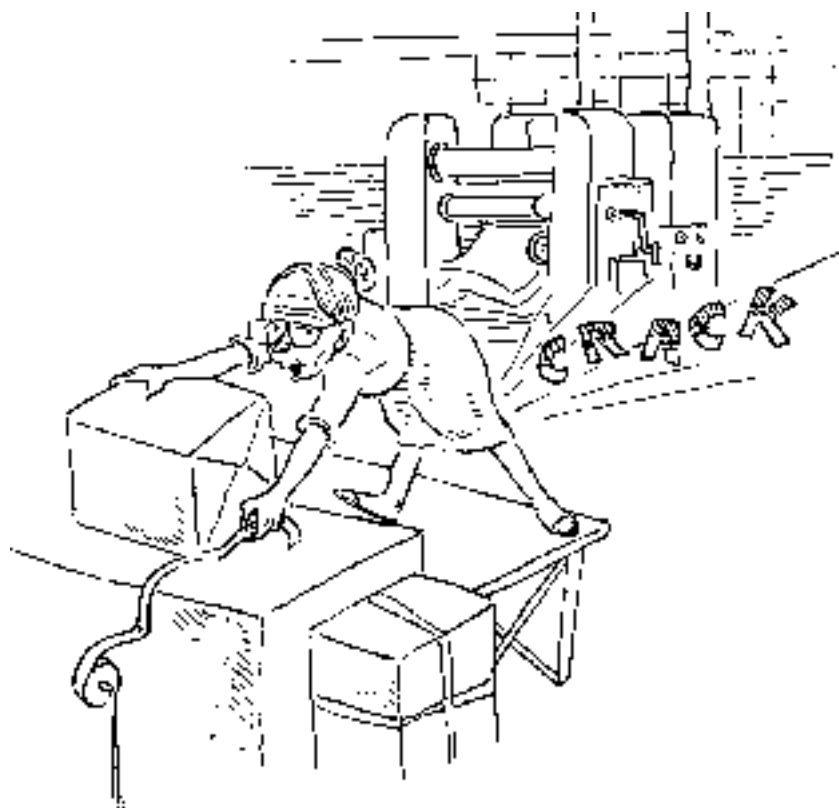
Older women are usually confined to less skilled tasks. Because of timing and their place in history, they lack the formal education or vocational training to give them entry into the more highly paid jobs. In many nations, the escalation of the industrialisation process occurred recently, long after these women had left school and had already begun having a family. As a consequence, with few marketable skills, they are left to do the hard manual tasks such as carrying, cleaning, lifting, and packing.

Older women may experience more stress due to lack of job security. They do not have the flexibility or mobility of younger women already have thin bones. Poor women may not have eaten enough calcium sources in their younger years to have made their bones strong. Hard work and the risk of falls may place these women at risk of bone fracture.

Women over 40 need to pay more attention to diet to ensure they gain the nutrients needed for work and for life. Menopause make life more difficult, causing mood swings and changed patterns of bleeding, some cultures may

POINTS OF ACTION:

- Reduce working hours of child workers.
- Bosses should provide schooling.
- Reduce amount of physically heavy work to be done by children.



POINTS OF ACTION:

- Discuss with older women their special needs.
- Draw up a priority list.
- Ensure rest breaks with nutritious snacks.

regard post menopausal women and useless and valules, which adds psychological burdens to women trying to cope with physical changes and a change of status in the family.

Many older women are simply tired out after years of of hard work and raising children, or caring for others. Research has shown that women work at least 20 hours a week longer than men even in the West, where years of feminism have attempted to redress the balance.

As women throughout the developing world flood into new factories that are sprouting up on the edges of major settlements and cities, it is important to stop and think what lies in store for them. Challenges, fears, loneliness, romance, friendship, learning and independence are all on the menu to be tried and tasted. However, among these are health and safety problems that may or may not be obvious. This chapter has reviewed the relevance of work to women and placed special emphasis on the reciprocal (two way) impact of work on women. The impact of women on work is beginning to be felt in various parts of the world. Hand tools, for instance, are being manufactured with smaller hand grips, which better suit women's hands. Tables of figures which offer dimensions for machines and work stations now include dimensions more suitable for women's shorter reach or stature. These changes may take many years to make it to your workplace, but the objective of this book is to inform and give encouragement.

This concludes the first part of this book. You are encouraged to write notes about your thoughts, questions, feelings and recollections. You may want to jog your memory about an issue which you want to research further, or write a note to the publisher to ask for inclusion of data on a subject that you did not find here.

¹⁴A prolapse of the uterus describes the condition in which the ligaments supporting the uterus become loose due to frequent pregnancies and hard physical labour during pregnancy. This causes the uterus to drop inside the body. The cervix (the tight opening to the womb) slips lower into the vagina, and in extreme cases, protrudes from the body—hanging out of the genital opening. The risk of infection is very severe, and of course prolapse is very uncomfortable and painful.