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FROM THE DESK

Many people have postulated theories in origin of pain. However, the recent concept of tissue injury and chemical transmission has gained momentum and support for the origin of pain. However, once sub-threshold limit of intensity of pain develops then it starts moving from origin to target organ. It is very much essential to know the origin as well as the travel path so that effective medical management of occupational back pain & other pain can be undertaken. The nerve carries the unpleasant sensation from origin to target organ where pain is felt and discomfort can be identified by self. The Physician has the clear picture of the ailment from the description and location of target. In acute case of occupational back pain, tissue injury theory has more supporting observation, thus intensity is too high and travel is too quick, an individual cannot control pain of his own. Immediate medical attention is required.

The target organ can be any part of the body either peripheral or extremities. In most injury cases it is localized and intensified because of impact man sustain. In case of tissue injury, the achridic acid secretes in the localized position and propagates the chemical impulse to trigger threshold limit value up. Thus pain persists and continues.

A handwritten signature in blue ink that reads "S.K. Saxena". The signature is written in a cursive style and is underlined with a single horizontal line.

**(S.K. SAXENA)
EDITOR -IN- CHIEF**

**OCCUPATIONAL BACKPAIN - A MYTH & MISERY AT SHOP FLOOR
- PART II
P.C.GHOSH & DR.R.IQBAL**

INTRODUCTION

The basic theories of back pain, its origin and movement in different parts of the body is the main area of discussion in this part of the article. As we have seen from our earlier discussion, the pain is a complex mixture of symptoms associated with physiological, psychological, emotional aspects of individuals, which are closely associated. It is difficult to measure, quantify, as the travel path is complex. It originates in the central, peripheral, or other parts and the opposite parts of the body feel and experience the pain, which makes the job of the physician absolutely difficult. However, the most interesting part of the literature is that it some times creates confusion, vague and leads to misunderstanding of the symptoms and makes the diagnosis very difficult. Majority of the soft tissues are the main target of pain, in case of injuries or repetitive motions in industry. Along with soft tissue, the skeletal muscles have also become the target organ of the pain. The skeletal muscles are prone to suffer this disorder during industrial operation besides the physiological fatigue, accumulation of metabolites, etc.,

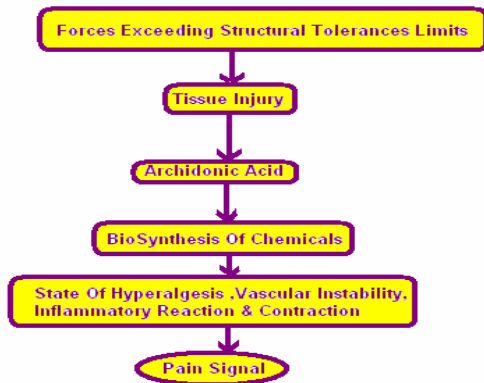
Sometimes the originated pain remains localized rather than traveling to other parts of the tissues. This does occur when the intensity of the flow of electrical current (pain impulse) is below the threshold limits. If the tissue injury is superficial, then the intensity of the pain will be less than the deep injury. However, in sudden cases, the damage of the tissues occur thus, causing acute pain and may some times prove fatality,

immobility and agony till medication is applied. A person can bear pain up to certain extent and whenever, this limit of human tolerance is exceeded then facial, behavioral and physiological changes are visible associated with psychological anxiety and as time passes, the intensity increases and turns acute. However, low intensity of pain experienced for prolonged periods in any place such as shop floor, house, etc., causes 'chronic pain', which is difficult to treat, manage, as well as to cure it totally. It is in this context absolutely necessary to understand the exact physiological mechanism and its pathological symptoms, for treatment of pain. Many theories of pain are postulated. However, among all those theories, the tissue injury theory is has strong support from the professionals, as well as from the physicians. We will discuss a few of the recent theories of pain, its origin and distribution, etc for better management and treatment.

THEORIES OF ORIGIN OF PAIN

The pain is an unpleasant sensation as we have discussed earlier, which originates in particular tissues, organ, or localized area of the body and then when the intensity of the triggering power exceeds certain amount then it starts travel from one place to another location, organ and tissue. There is a strong belief that the most frequent causes of low back pain are tear and inflammation of the soft tissues including ligaments and fascia. The medical diagnosis of such pain is given as myofascial pain syndrome (MPS). This phenomenon is purely related to chemical, physiological as

well as psychological instincts of individual. Neuro-physiology supports this thesis. It is inescapably clear that low back injuries are associated with soft tissue abnormality because of the protective covering and support offered by the muscle. If the forces applied reach sufficient strength, it herniates or ruptures an inter-vertebral disk. These forces must be transmitted first through the overlying soft tissue (annulus fibrosus, ligaments, tendons, and muscles) that binds the spine together as a functional unit and maintains its integrity and stability. These tissues when injured undergo a breakdown of the cell membranes and biosynthesis of chemicals. This induces a state of hyperalgesia, which is followed by a pain signal that evolves when excessive mechanical stimulation occurs or when chemical compounds are produced as a reaction to the injury. The nerve root does not originate the pain signal. Nociceptor is stimulated to originate the transmission of the signal.



NATURE OF PAIN

As we have discussed earlier, in number of places many physicians & researchers do not consider low back pain a disease. They consider it as one or more pathologic conditions that can trigger pain. Conventionally the low back pains are grouped under four categories.

1. Muscular / ligamentous
2. Structural
3. Disco-genic / Neurological
4. Other disorders

1. MUSCULAR / LIGAMENTOUS

- **Tension:** Resulting from stress and nervous tension.
- **Traumas:** Acute injury or cumulative type.
- **Strain:** Small tears within the muscle / tendon either acute or chronic. Acute one comes as a result of sudden stress whereas chronic is usually the result of repetitive stress.
- **Sprains:** Injury to the ligament that holds bone to bone.
- **Postural imbalance:** Creates uneven stress on the musculo-skeletal system.
- **Spasm / Contracture:** Muscle contraction that produces restricted ranges of motion, a chemical phenomenon wherein the traumatized muscle produces an uncontrolled contraction, decreased blood supply and an energy deficit contracture.
- **Weakness:** Poor muscle tone.
- **Myofascitis:** Inflammation and tenderness of the muscles and the sheaths that envelop the muscle known as the fascia.

2. STRUCTURAL

- **Spondylolysis** : A defect of the bony segment joining the articulations above and below a given segment mainly thought to be congenital and infrequently post-traumatic hyperextension.
- **Spondylosis** : Degenerative changes in all aspects of disk. A condition in which the disk is absorbed as a result of mechanical stress causing the spinal segment to collapse, bones to deform and spur and the vertebra to displace.
- **Spondylolisthesis** : A condition of forward displacement of the body of one vertebra on the vertebra below it commonly occurring at the L5 –S1 level when congenital or at L4-5 when degenerative.
- **Facet Dysfunction:** (Also Known as sublux facet joint or facet syndrome) A partial dislocation of the spinal joints.
- **Osteoporosis** : Loss of bone content
- **Scoliosis** : Abnormal curvature of the spine
- **Compression fracture** : Usually affects the bodies of the vertebrae resulting in bone weakening with loss of bone content.
- **Dislocation** :
- **Degenerative Disease** :
- **Osteoarthritis** : A degenerative disorder that affects facet joints and disk causing general breakdown of the cartilage of the joint bony growth or spurs around the edge of the joint
- **Annular Tears** :

- **Spinal Stenosis:** Narrowing of the spinal canal. A degenerative disease caused by spondylosis in the intervertebral and osteoarthritis of the facet joints. Bony spurs from around the facet joints of the spine, causing them to encroach posteriorly into the spinal canal. The enlarged joints narrow the canal and prevent the nerves from exiting, and in some cases cause nerve root entrapment syndrome.
- **Tumors** : Abnormal growth in the body involving vertebrae, (Osteoid-osteoma, Paget's disease) also pelvic and bone tumor (multiple Myeloma).
- **Trauma** : Application of load exceeding the strength of the tissue.
- **Spina Bifida Occulta:** A condition of incomplete closure of the posterior bony elements of the vertebrae at the lower spine.

3. DISCOGENIC / NEUROLOGICAL

- **Disk Herniation:** Also known as rupturing, slipping, or bulging. Herniation of the nucleus pulposus through the fiber of the annulus fibrosus. Mostly occurring in younger people (30-40 Years). Most common at L4-5 and L-5 –S1 levels.
- **Nerve Irritation:**
- **Tumors:** Involving nerve roots or meninges (Neurinoma or meningioma).

4. OTHER DISORDERS

- **Infectious Disorders:** Bacterial infection through the rich blood circulation in the vertebral body disk space (for example tuberculosis or osteomyelitis- a serious bone infection).
- **Metabolic Disorders:** Due to nutrient deficiencies (for example, osteoporosis).
- **Congenital Disorders:** Not necessarily genetic or hereditary. Among these is the transitional vertebrae, four lumbar vertebrae (a condition called sacralization) or six lumbar vertebrae (condition called lumbarization).
- **Circulatory Disorders:** Hardening of the arteries (arteriosclerosis) causing obstruction of the blood vessels going down the leg, also vascular insufficiency such as varicose veins, etc.
- **Inflammatory Disorders:** Most common is rheumatoid arthritis.
- **Psychoneurotic Problems:** Stress, hysteria, anxiety, hypochondriasis, malingering.
- **Toxicity:** Poisoning due to pollutant, industrial waste, radiation, lead, etc., which may lead to cancer and or nerve irritation.

THE CYCLES OF PAIN

A patient having chronic pain usually gets entrapped into three closed-loop cycles.

The first cycle can be called the **physical deconditioning cycle**. The patient tries to compensate for his / her pain by adopting unnatural

and restricted postures. This, in turn, results in muscle spasms, reduce range of motions in joints, shortening or contractures of the muscle, ligaments, and tendons and leads to maladaptative gait. These adaptations leads to increased pain, part of which could be in structure not originally involved.

The second cycle is called the **drug cycle**. The patient attempts to get relieved from the pain by taking drugs. As the time passes, the body develops tolerance to the drugs and additional doses are needed to suppress the pain. Some even amplify the perception of pain and none is fully effective.

The third cycle is the **depression and anxiety cycle**. Because of pain and reduced functional capabilities, the patients become depressed and anxious. This, in turn leads the patient to focus more on the pain.

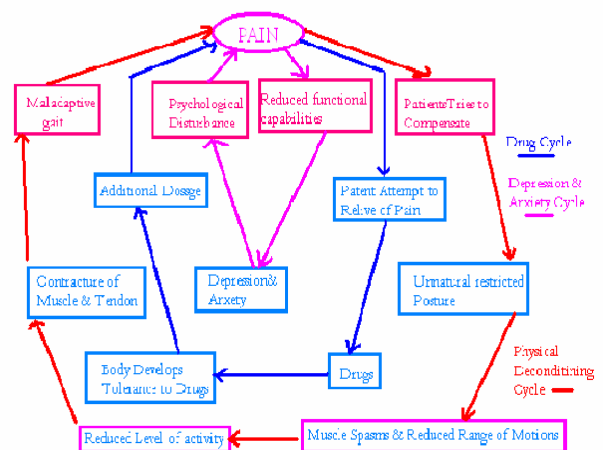


Fig-1 The three pain cycles for understanding the pain path.

DISABILITY, IMPAIRMENT & DYSFUNCTION OF LOW BACK IN PATIENTS

To manage a patient having chronic low back pain, these three cycles of pain must be broken in to Disability, Impairment, and Dysfunction. Disability and impairment are two terms that are used interchangeably and mistakenly. An impaired individual may not necessarily be disabled. Disability is the limitation in performance. It is determined based on the ability or inability to perform activities of daily living (occupational / non occupational). Disability could be partial or total. Disability can be described in terms of residual functional capacity in relation to task demands and can be determined through the use of variety of assessment instruments (medical, vocational, physical, psychological and others). Impairment is described as anatomic or functional abnormality or loss, natural or induced reduction in one or more of body's organs function. At present, the American medical association's guidelines remain as one of the most useful instruments to rate impairment for medico-legal purposes. Other impairment rating systems have been adapted by some states. An impaired individual does not necessarily have to be disabled. The former applies to human body characteristics, while the later relates to performance of a job function or demands daily living. Pain is not rated as impairment unless it is substantiated by objective medical findings. However, according to world health organization's definition of pain, chronic pain can be viewed as a sensory impairment affecting the neuro-musculoskeletal system. Low back pain in itself does not create disability. It can be thought of as a medical predicament.

It is only when multitude of socio-economical factors enters into the equation, chronic pain and disability occurs. Impairment and dysfunction are also some times misunderstood. Most low back pain patients have a dysfunction that can be treated and they may not be impaired at all.

Chronic Low Back Pain + Work loss (Dysfunction) + Hospitalization + Compensation + Inability to lead normal life + Disability

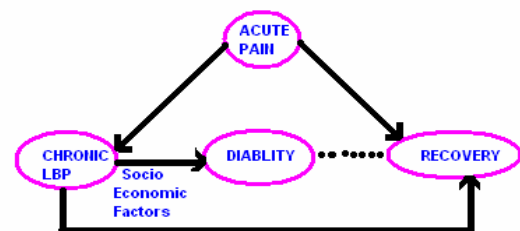


Fig-2. The house of disability an individual may recover from an acute injury or a chronic condition. Disability is the product of chronicity in the presence of other factors.

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STRESS AND ITS PREVENTIVE MANAGEMENT

ASIS K.CHAKRABARTI

INTRODUCTION

It is not unusual to come across people expressing their desire to lead a life without stress. It is, of course, a very fond desire for many. Unfortunately, to harbor such a desire to live such a life without stress may be very dissatisfying. In fact, to aspire for a life without stress is to deny life itself. Scientifically speaking, never in our life does the stress level go down to zero. It is only during death that a person can reach the zero level of stress.

Actually, stress is not always bad. To lead a healthy, meaningful, self-fulfilling life, we do need some amount of stress. Too much of stress or too little of stress is equally distressing. In other words, if we are over-stimulated by living in or creating for ourselves a very demanding life which we may find too demanding to cope with, eventually we may get 'burnt out'. Conversely, by living or choosing a professional or personal life, which is hardly demanding or stimulating, we allow ourselves to be under-stimulated to get 'rust out'. We need optimal amount of stress. It allows challenge in our life. Such challenges always give us opportunity to discover the boundaries of our capabilities. It helps to develop muscles in our body and mind to take on a little more challenge. Gradually, we extend our boundaries little more to take on little more stress at ease. In fact, here we

are talking about the attitude to harness stress. There are times when we may encounter a highly demanding situation. It leaves us with two choices. Either we succumb to that and get 'burnt out' or we look for opportunities to harness that threatening demand. In our attempt to harness that demand, there is every possibility that we may convert the distressing stress into an optimal stress. The moment that happens, it signifies that we have capability to take on any challenge and work for growth and progress.

HUMAN ADAPTIVE RESPONSES

From birth onwards, we continuously encounter the enormous world of stimuli in the environment we live, through our five sense organs. At each and every nanosecond of our existence, innumerable demands of varying types or magnitudes are being made on us by the environment we live in. These demands are encountered by us through our adaptation responses at three levels, namely physiological, psychological and behavioural. Physiological level adaptation responses are biologically acquired, such as the body's homeostatic and reflex responses. However, psychological and behavioural adaptation responses are not biologically acquired but learnt from childhood onwards through our socialization process. Thus, whatever we think, feel, imagine or decide in

response to the demands of the environment are our psychological adaptation responses and the things we 'do' or the way we 'act out' are behavioral in nature. Our adaptation responses at all the three levels get activated whenever, a demand is made upon us. For example, our adaptation responses get activated whenever we are exposed to heat, cold, dust, noise; or we are praised or defamed by people, unable to catch a flight, win a game, asked to give a speech on topic we know little, etc. These three types of adaptation responses are also known as human stress responses at physiological, psychological and behavioural levels.

TYPES OF STRESSORS:

In engineering terminology, stress is defined as an external force acting on a system. We may consider this 'external force' as 'stressor'. In the case of inanimate objects, such a stressor may lead to stress or strain on the object or system. However, this logic is not tenable in the case of human beings as they are vulnerable to another type of stressors. These are internal stressors in the form of internal value conflict 'to do or not to do' or the fear of failure that makes one to perceive a challenging situation as a threatening one. Thus stressors could be internal or external in nature. External stressors may further be categorised as environmental and psychosocial stressors.

Internal stressors may consist of values, attitudes, beliefs, introversion or extroversion, anxiety, suspiciousness, resistance for change, illness and dysfunctional personality characteristics of a person.

Environmental stressors include heat, cold, noise, temperature, odour, vibration and motion, radiation, chemical and toxic substances, pollutants in the air and water, varying intensities of light, climatic conditions, natural calamities, poor ecology, crowding, poor infra-structural or public utility facilities, etc.

Psycho-social stressors comprise of nature of inter-personal relationship (with spouse, acquaintances, relatives etc.), income, financial requirements, social, economic and political climate in the neighbourhood or the country; significant events in life namely, change of residence, marriage, death of a relative or friend, birth of a child, etc. From the perspective of occupational health, stressors can be classified as work-environmental and non-work environment stressors or occupational and non-occupational stressors. Nevertheless, in each of the stressor areas, internal stressor remain operational throughout.

Research in the area of stress has identified various work-environment stressors. Occupational stress originates in occupational demands made upon and experienced by the individual. Mismanaged and uncontrolled occupational demand is costly in terms of low quantity and quality of production, higher rate of absenteeism and medical cost, low profitability, job dissatisfaction among employees, etc. In contrast, expertly managed occupational stressors enhance productivity, reduce medical cost, lower absenteeism and improve level of job satisfaction. Some of the various occupational stressors, which have been identified as significantly

affecting the individual, are presented below.

Occupational stressors comprise of heat, noise, vibration, motion, illumination, toxic substances in the work environment, unsafe conditions of work and work station design, un-ergonomic design of tools/machines, commuting distance between workplace and residence, work under-load, work over-load, lack of feed-back, low autonomy, time pressure, role ambiguity, role conflict, office politics, poor interpersonal relationship with co-workers, boss or subordinates, lack of trust, poor communication, poor career progression, etc.

EUSTRESS AND DISTRESS

Irrespective of the nature of external stressors, namely physical, psychosocial or occupational, our adaptation responses get geared up. Adaptation response means our typical way of dealing with the demands made upon us by the stressor. At every moment of our exposure to stressors, our adaptation response takes place at physiological, psychological and behavioural level, simultaneously. Whenever our adaptation responses or coping mechanisms are successful in dealing with such demands, positive physical and psychological well - being is experienced. Hans Seyle, the eminent Canadian endocrinologist and stress researcher termed such positive outcome as EUSTRESS. Conversely, there are stressors which are too strong or too insignificant to deal with. Such a situation of too little or too much of environmental demands leads to negative consequences which are termed as DISTRESS by Hans Seyle. When the news of promotion makes an executive feels happy, jubilant, gratified

and energised, his adaptation responses lead to EUSTRESS. Conversely, the news of promotion may make another executive feel scared and panicky of the responsibilities he will have to shoulder and thereby his adaptation responses would drift towards DISTRESS. Such distress may occur when we are put in a solitary confinement wherein we are cut off from external stimuli. Eustress (derived from the Greek word 'Eu' meaning good) refers to euphoric stress responses that result in positive outcome. Experiences of eustress lead to growth, creativity, adaptability, high performance and absence of maladies both at individual and organization level. Distress connotes the unhealthy negative and destructive outcome of stress responses, which are disruptive and debilitating both at the individual as well as organizational level.

Distress symptoms at Individual level:

Physical - Hypertension, cardiac diseases, backache, arthritis, headache, allergies, ulcer, diabetes - mellitus, skin - disease, liver - cirrhosis, respiratory diseases, impotency and insomnia.

Psychological - Depression, alienation, anger, suspiciousness, irritability, frequent mood change, lack of self - confidence, neuroticism, psychiatric disorder, irrational thoughts, poor concentration and loss of memory.

Behavioral - Increased smoking, alcohol abuse, drug abuse, unsafe behaviour pattern / unsafe act, tendency to commit suicide, violence,

aggression, restlessness, avoiding people, avoiding responsibility, indifference, speech disturbance, absenting from work and clumsiness.

Distress symptoms at Organisational level: - Lowered quality and quantity of production / performance, low teamwork, low motivation, lack of trust, faulty decision making, increased rate of absenteeism, increased turnover of employees, work to rule, hike in accident rate, strikes, increased compensation awards, grievances, machine breakdown, and increased medical cost.

INDIVIDUAL DIFFERENCES IN STRESS RESPONSE

One of the bewildering phenomena in the study of human stress is the individual differences in adaptation responses and its consequences even in the case of identical stressors. Working under an autocratic boss, one may develop hypertension and lack of self - confidence while the other may develop peptic ulcer and severe depression and another may take it to his stride and work effectively without any distress. Researchers believe that there is an array of individual modifiers responsible for such diversity among individuals in adaptation responses and consequences. Two categories of modifiers namely, internal conditional factors (e.g. an individual's past experience, social learning, age, attitudes, beliefs, needs, temperaments, personality pattern including Type A behaviour, introversion-extroversion, etc.) and external conditioning factors (e.g. an individual's diet, lifestyle, climate, drug-taking behaviour, social setting, etc.) have been identified. Since the aforesaid external conditioning

factors ultimately result in social learning, habit and socialization process, both external and internal conditioning factors could be clubbed together and termed as individual modifiers of the adaptation responses and its consequences.

PREVENTIVE MANAGEMENT OF STRESS

Preventive Management is the strategy of intervention both at organizational and individual level. The purpose is to promote physical and psychological well-being through prevention of individual and organizational distress. It has a three - tier objective.

At the primary level, it aims at reducing or eliminating unreasonable and unnecessary demands.

At the secondary level, efforts are directed towards efficiently managing the optimal demand to achieve eustress. At the tertiary level, measures are taken to deal with situations which are beyond primary or secondary intervention.

OCCUPATIONAL LEVEL PREVENTIVE MANAGEMENT

In the case of occupational stressors, the four major areas requiring preventive management intervention are physical, task-related, role-related and inter-personal demands.

Physical demands

At the primary level, industrial hygiene survey, safety survey, hazard study etc., are generally conducted for the identification of physical work-

environment stressors capable of producing distress. Interventions are carried out to eliminate or modify those stressors for optimal level of human functioning.

At the secondary level, intervention is directed towards maintaining the permissible limits of exposures of various work-environment parameters, rendering safety gadgets, posture control in lifting, etc.

Tertiary level management calls for taking care for the damages already caused. Readiness for disaster control taking rehabilitation measure or formulating rehabilitation policies for disabled, unfit personnel; disability compensation, rendering medical and related welfare services, etc. form the preventive management of physical environmental stressor at tertiary level.

Task Demands

Job diagnostic survey, OCTAPACE profile, PAQ survey are the standardized procedures which may be used *at the primary level* for identification of task related factors which lead to distress symptoms. Job redesigning is the next step *at the secondary level* in converting the negative consequences of task demands to optimal for higher productivity, profitability and employee well - being.

Role Demands

Role diagnostic survey through Role Pics projective test or Organizational Role Scale (ORS) is done for identification of role related stressors at the primary level. *In the secondary level,* through organizational

development (OD) intervention, roles could be redefined to achieve eustress in the form of low medical expenditure, higher performance, creativity and low absenteeism.

Interpersonal Demands

Organizational climate survey provides empirical data on the nature and quality of interpersonal demands *at the primary level*. In the light of this, *at the secondary level,* appropriate preventive strategy through Management by Objective (MBO); team development, participative management or some other OD strategy could be developed to create a level of interpersonal demand leading towards eustress. In many organizations, Transactional Analysis coupled with various other behavioural training inputs and OD interventions are utilized for reducing the dysfunctional aspects of interpersonal relationship.

In all the above areas, *the tertiary level* of preventive management requirements is:

- Developing or availing comprehensive occupational health services with emphasis on stress management.
- Developing network of counselling services in the community.
- Developing OD cell.
- Psychiatric services with facilities for detoxification therapy.
- Conducting training program on dealing with anger and depression.
- Conducting stress management program.

INDIVIDUAL LEVEL PREVENTIVE MANAGEMENT

Anyone, at any point of his or her life, can undertake one's own action-plan for preventive management. Depending upon the nature and intensity of the problem, preventive intervention may be made at primary, secondary or tertiary level. Some of the techniques for individual level preventive management are presented below.

PRIMARY PREVENTION: STRESSOR DIRECTED

Personal Perception Related:

- Identification of negative thoughts recurring often;
- Invalidating negative thoughts by searching out life experiences contradicting them;
- Superimposing negative thoughts with positive thoughts;
- Identifying one's own strengths /capabilities;
- Believing in those strengths to energize self;
- Accepting uncertainty / crisis as challenging part of human life;
- Asking question to gather information in clarifying uncertainty / crisis;
- Working out negative as well as positive aspects of any crisis;
- Believing that every solution / opportunity is preceded by crisis;
- Avoiding brooding over crisis like a stick-in-the-mud;
- Start developing action plan to deal with crisis;
- Sharing the experience and action plan with few others;
- Avoiding being always dictated by the imagination of what others will think and feel;

- Being sincere and honest to oneself in doing anything;
- Avoiding getting crippled by the feeling of guilt;
- Deciding not to repeat the activity that might cause guilt;
- Avoiding doing two or more things at a time; and
- Accepting that nobody is cent percent or perfect, including your self.

Personal Work Related:

- Time management;
- Delegation with authority;
- Avoiding doing two or more things at a time;
- Planning based objectives and available resources;
- Developing a relationship of trust and care with others; and
- Attending personal growth / stress management related training programme.

Life Style Management:

- Maintaining a balance between working and home life;
- Relating to people stepping out of barrier of status;
- Developing interest in many aspects of life;
- Holidaying frequently with all family members;
- Keeping aside at least half an hour exclusively for oneself for reflection, etc.,
- Pursuing some higher values of life;
- Pursuing some hobbies, creative activity; and
- Maintaining moderation in diet appropriate to the age, nature of job and health conditions.

II. SECONDARY PREVENTION: RESPONSE DIRECTED

Relaxation Training:

- Deep muscular relaxation,
- Meditation,
- Autogenic training,
- Imagery,
- Bio-feedback,
- Deep breathing exercises,
- Yoganidhra form of relaxation,
- Yogasanas,
- Tai Chi etc.

Physical Work-out:

Regular in doing exercises (going to gym for aerobics, doing power Yoga, swimming, outdoor games, brisk walk, jogging, etc, for 40 minutes regularly at least 4 days a week).

Emotional Work-out:

Anger

Avoid bottling up anger. In expressing anger, start the sentence with 'I' rather than 'You'. Describe what you feel. Describe what you see. Describe what needs to be done. Don't attack the personal but the act.

Depression

Invalidate negative, self-demeaning thoughts; gather faith in one's own capabilities. Translate negative thoughts like positive ones. Talk to people.

General

Writing out, reflecting, talking out the feelings, empathizing with others and attending personal growth / stress management training programs.

III TERTIARY PREVENTION: SYMPTOMS DIRECTED

Medical Care:

- Medication;
- Physiotherapy;
- Alternate system of Medicine;
- Counselling and psychotherapy;
- Group therapy;
- Behaviour therapy.

CONCLUSION

In the Chinese language, the English word 'Stress' is expressed by two alphabets or symbols. One means 'Danger' and the other 'Opportunity' and both the symbols together it connotes 'stress' in Chinese. Interestingly, the crux of the principle of stress management is ingrained in the way word 'stress' is written in Chinese. It tells us, whenever you are in *danger* or in a threatening situation, do not lose heart or feel hopeless, start looking for *opportunities* to deal with the dangerous, crisis-ridden, stressful situation. In fact, in our life, most of the achievements precede a crisis period of danger. Many a times we are so much overwhelmed or threatened by the dangerousness of the situation that we fail to think, plan and act for a positive outcome.

The management of stress calls for inculcating an attitude of **CHALLENGE** to transform life's eventualities to one's advantage with

the **COMMITMENT** to attain certain values or goals of life. The belief that one has the ability to **CONTROL** in diffusing threatening stressful events, works like a magic to withstand and neutralise the physical and psychosocial onslaught of stress. Thus, inculcating the attitude of challenge, commitment and control, is important both at organizational and individual level in formulating preventive stress management strategies for purposeful, productive and total well being.

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Central Labour Institute, DGFASLI,
Sion, Mumbai**

FOLLOW-UP INDUSTRIAL HYGIENE SURVEY IN CHIPS AND FILM PRODUCING PLANT

This study was carried out by Regional Labour Institute, Kanpur.

OBJECTIVE

The aim and objective of the study was to monitor the levels of airborne contaminants in a polyester chips and film plant, to review compliance of the recommendations of the previous study and to recommend measures wherever necessary to improve the condition of the work environment.

ABOUT THE FACTORY

This factory was involved in the manufacture of polyester chips and films and about 342 persons were employed including contract workers. Purified Terephthalic Acid (PTA) Process was adopted for the manufacture of Polyester chips in the factory. There were two film plants in the factory to manufacture 1000 kg and 2000 kg polyester film respectively per hour. Different types of polyester chips were used as raw material to manufacture polyester film. Drying/feeding, extrusion, stretching, winding, slitting and metallizing on slit roll were the specific phases of the manufacturing process of the polyester film.

METHODOLOGY

The levels of airborne PTA dust, Silica dust, Formaldehyde vapors and Ethylene glycol were monitored in chips plant whereas Ethylene glycol, Formaldehyde, Ethyl alcohol, Methanol, Iso-propanol and Sodium hydroxide mist were monitored in film plant and filter cleaning areas. Samples of different airborne contaminants were collected from the breathing zone of the workers from both the plants with the help of personal samplers at required flow rate. The flow rate of the personal samplers was calibrated with the help of rotameter before and after collection of each sample. Repeat samples were collected from each work location to reflect true

concentration of airborne contaminants at the workplace. The collected samples were transported to the institute and subsequently analyzed in the laboratory.

RESULTS

The airborne contaminants of PTA dust in PTA handling, Silica in silica charging were within their permissible limit of exposure (PLE). At the time of opening Die Head of the casting machine, low volatiles like acetaldehyde were released into the work environment. The monitoring of Formaldehyde was carried in the chip casting area and average concentration on cutter Die Head was observed which was within the PLE. In catalyst preparation area, Ethylene glycol was also found to be within the PLE. In coating preparation area in the film plant, the levels of Ethylene glycol and Sodium hydroxide were found to be exceeding the PLE whereas other contaminants were within the PLE.

RECOMMENDATIONS

Based on the findings and general observations, recommendations were given to improve the work environment of the factory. The main recommendations of the study were providing suitable personal protection for the workers involved in handling and charging of PTA and silica and other hazardous chemicals. The catalyst preparation should be carried out in well-ventilated enclosed area and in covered drums/vessels. A suitable local exhaust system should be installed at the casting machine to remove hazardous chemicals released during the casting process. Airline respirators should be provided to the workers involved on casting machine. The preparation of coating solution should be done under local exhaust. Leakages of Ammonia when noticed in the Ammonia handling area in utility should be controlled to prevent entry of Ammonia in work areas. The information of possible hazards, in the form of precautionary notices should be displayed at the prominent places.

TRAINING WORKSHOP ON OCCUPATIONAL HEALTH PRACTICE FOR NURSES, HEALTH / MEDICAL ASSISTANTS

INTRODUCTION

Occupational health care of industrial workers is no longer a matter of welfare, but has been proved to related to growth, productivity and national prosperity. Our country is a developing nation. Occupational health care of working population, therefore, is more significant. To achieve this goal, Factories Act & Rules have been amended and reinforced to provide for regular monitoring and medical surveillance of workers to protect occupational health of workers, prevention of occupational disorders, etc. Regular medical examinations, specific tests, record keeping and regular review have become essential. It is, therefore, necessary that “NURSES, HEALTH / MEDICAL ASSISTANTS, etc.” – the most important link of health care system, having adequate basic training of health management, disorders and their care, etc. – are equipped in terms of knowledge and skills in occupational health practice, so that they provide the needed assistance to the Factory Medical Officer, workers, etc.

In view of this, Govt. of India, Ministry of Labour & Employment, DGFASLI has decided to organise specially designed “Training Workshop on Occupational Health Practice for Nurses, Health/Medical Assistants, etc.” to equip them with needed specific knowledge and skill for their effective contribution to medical surveillance programmes of industrial workers.

OBJECTIVES AND METHODS

The training programme aims at equipping the participants through class-room lectures by faculties drawn from the institute, eminent guest faculties, practical training on conducting various special tests such as audiometry, lung function test, E.C.G., vision testing, etc. It is expected that on completion of the training, the participant will be able to provide needed support to the medical surveillance system of the organization.

HIGHLIGHTS

- Occupational Diseases with special reference to notifiable occupational diseases.
- Health related provisions under the Factories Act & Rules.
- Industrial hygiene techniques.
- Medical surveillance of industrial workers.
- Accident Prevention.
- Organisation of occupational health services.
- Effective communication, industrial hygiene and industrial psychology.
- Practicals – Hearing management, Heat stress management, Lung function testing, Vision testing, Audiometry etc.

Conducted by :

**INDUSTRIAL MEDICINE DIVISION
CENTRAL LABOUR INSTITUTE
N. S. Mankikar Marg
SION, MUMBAI 400 022**

The Library & Information Centre of Central Labour Institute has unique collection of Material Safety Data Sheet of about 1,20,000 chemicals/materials taken from Canadian Centre for Occupational Health & Safety. MSDS provides extensive coverage over safety perspective with detailed evaluation of health, fire and reactivity hazards. It also provides precaution as well as recommendation on handling, storage, personal protective equipment, accidental release, etc.

PRODUCT NAME(S): STYRENE

HAZARDS IDENTIFICATION

Emergency Overview

DANGER! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND REPRODUCTIVE SYSTEM.

POTENTIAL HEALTH EFFECTS

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. A central nervous system depressant. Higher exposures can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency.

Ingestion:

May cause irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. May cause central nervous system depression. Symptoms may include lethargy, drowsiness, staggering and

sleepiness. May cause possible convulsions and risk of pulmonary edema.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain. May produce blisters. May be absorbed through the skin.

Eye Contact:

May cause irritation, redness, pain, and corneal damage.

Chronic Exposure:

Repeated exposure may cause nausea, vomiting, appetite loss, a sensation of drunkenness, general weakness, and functional disorders of the nervous system and liver. May cause dermatitis. Women may experience ovulation and menstrual disorders. May cause mutagenic and teratogenic effects.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, eye problems, liver disease, central nervous system disorders, or impaired respiratory function may be more susceptible to the effects of the substance.

FIRST AID MEASURES

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do NOT induce vomiting. Give large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

FIRE FIGHTING MEASURES

Flash point: 31C (88F) CC

Autoignition temperature: 490C (914F)

Flammable limits in air % by volume:

l_{el}: 0.9; u_{el}: 6.8 Flammable Liquid and Vapor! May accumulate static electricity.

Contact with strong oxidizers may cause fire.

Explosion:

Sealed containers may rupture when heated. Above the flash point, explosive vapor-air mixtures may be formed. Vapors can flow along surfaces to distant ignition source and flash back.

Fire Extinguishing Media:

Water spray, dry chemical, alcohol foam, or carbon dioxide. Material floats on water and may travel back to an ignition source and spread fire. Water spray may be used to keep fire-exposed containers cool. Do not allow water runoff to enter sewers or waterways.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure

demand or other positive pressure mode.

ACCIDENTAL MEASURES

RELEASE

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. J. T. Baker SOLUSORB(R) solvent adsorbent is recommended for spills of this product.

HANDLING AND STORAGE

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment,

including explosion proof ventilation. This material is corrosive to copper and copper alloys. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:

Styrene, monomer: - OSHA Permissible Exposure Limit (PEL) - 100 ppm (TWA), 200 ppm (Ceiling), 600 ppm (Max. Conc.: 5-minute max. peak in any 3 hours) - ACGIH Threshold Limit Value (TLV) - 20 ppm (TWA), 40 ppm (STEL), A4 - not classifiable as a human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face organic vapor respirator may be

worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

TOXICOLOGICAL INFORMATION

Toxicological Data:

Styrene: LD50 oral rat: 2650 mg/kg; LC50 inhalation rat: 12 gm/m³/4H. Investigated as a tumorigen, mutagen, reproductive effector.

ECOLOGICAL INFORMATION

Environmental Fate:

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to

quickly evaporate. When released into water, this material is expected to readily biodegrade. When released to water, this material is expected to quickly evaporate. When released into the air, this material is expected to be readily degraded by reaction with photo-chemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life of less than 1 day.

Environmental Toxicity:

The LC50/96-hour values for fish are between 1 and 10 mg/l.

NOTE

The above details constitute part information of MSDS taken from Canadian Centre for Occupational Health and Safety. For complete MSDS write to MIS division, Central Labour Institute, Sion, Mumbai.400022. MSDS on about 1,20,000 chemicals/materials are available with Central Labour Institute. Computer printout will be supplied on nominal charge basis.

INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH INFORMATION CENTRE (CIS)

CIS (from the French name, Centre International d'information de sécurité et d'hygiène du travail) i.e. International Occupational Safety and Health Information Centre, is a part of the International Labour Office, Geneva, Switzerland. The mission of CIS is to collect world literature that can contribute to the prevention of occupational hazards and to disseminate this information at an international level. CIS imparts to its users the most comprehensive and up-to-date information in the field of Occupational Safety and Health. The work of CIS is supported by a worldwide Safety and Health information exchange network which includes over 91 affiliated National Centres and 38 CIS collaborating Centres. Central Labour Institute, Mumbai has been designated as the CIS National Centre of India.

CIS can offer you rapid access to comprehensive information on occupational safety and health through:

- Microfiches on original documents abstracted in CIS-DOC (CISILO)
- ILOCIS Bulletin " Safety and Health at Work"
- Annual and 5-year indexes
- The CIS Thesaurus
- The list of periodicals abstracted by CIS

EXCERPT FROM CIS DOC

Title : Factors associated with self-reported musculoskeletal discomfort in video display terminal (VDT) users.

**CIS ACCESSION NUMBER
CIS 03-459**

ABSTRACT

The purpose of this study was to identify risk factors based on self-reported musculoskeletal discomfort in a population of video display terminal operators. 292 responses to a questionnaire were analysed. Questions included symptoms for several body regions, job requirements, demographic information and hobbies. The following body regions were studied: head and eyes, neck and upper back, lower back, shoulders, elbows and forearms and hands and wrists. Results indicated a statistically significant increased risk of discomfort on each of the body regions as the number of hours of keyboard use increased. Improper monitor and keyboard position was also significantly associated with head and eye and shoulder and back discomfort, respectively. These results emphasize the importance of workstation ergonomics and the need to limit the number of uninterrupted hours at the keyboard to reduce musculo-skeletal symptoms.

Note :

For details write to CIS National Centre for India, Central Labour Institute, Sion, Mumbai 400 022

**VISHWAKARMA RASHTRIYA PURASKAR AND NATIONAL SAFETY AWARDS
PRESENTATION FUNCTION - 2006 AT VIGYAN BHAVAN, NEW DELHI**



The Ministry of Labour and Employment, Government of India, has been operating the "Vishwakarma Rashtriya Puraskar (VRP)" (Previously known as Shram Vir National Awards) and "National Safety Awards (NSA)" since 1965. These Award schemes are operated by Ministry of Labour and Employment through its technical wing, the Directorate General Factory Advice Service & Labour Institute (DGFASLI), Mumbai, an attached office of the Ministry of Labour & Employment, which renders advice/service to workers, their representatives & managements in factories and docks to humanize industrial activities by promoting safety & health at work.

Every year, applications are invited in the prescribed form for consideration of the Awards from eligible applicants throughout the country through advertisement in the leading national and local dailies published in English and local languages. For VRP, the managements are required to send the applications on behalf of the workers and for NSA, the managements directly apply for awards under each scheme. The applications thus received for VRP as well as NSA are adjudged by a Tripartite Committee consisting of representatives from employers' & employees' organizations and also from Central/State Government organizations.

This year the Awards presentation function was held on 17th September, 2006 at Vigyan Bhavan, New Delhi. Hon'ble Union Minister of State for Labour & Employment, Shri Chandra Shekhar Saoo, gave away the VRP & NSA Awards for the Awards year 2005. Under VRP, a total number of 320 applications were received from different industrial establishments across the country. Out of these, 28 applications were selected for distribution of awards under three classes namely, Class A (5 awards), Class B (8 Awards) and Class C (15 Awards). A total number of 91 workers shared these 28 awards. VRP award includes cash prize and a Certificate of merit. The NSA were presented under 10 schemes. Out of 405 applications received

for the awards year 2005, a total number of 109 (64 winners and 45 runners-up) awards were distributed to various industrial establishments for their excellent performance in occupational safety. National Safety Award includes a shield and a Certificate of merit.

During the inaugural speech, the Hon'ble Minister emphasized the need to encourage more and more women participants to contest for the VRP Awards. In this connection, the Director General, DGFASLI, Shri S.K. Saxena, appealed to all the industrial establishments to sponsor more and more VRP applications from women employees so that they could have a fair chance of winning VRP awards.

**LABOUR MINISTRY PROPOSES
YEARLY UNDERTAKING BY
CENTRAL GOVERNMENT
EMPLOYEES TO DECLARE THEIR
HOMES CHILD-LABOUR FREE**

Central government employees may soon have to file an yearly undertaking before the government that their homes are child labour free, if the Union labour Ministry has its way.

With a large number of government servants engaging children below 14 years in their homes for domestic work, the labour minister has written to the Ministry of personnel and training to ask every central government employee to give an undertaking at the end of each year.

At present, every employee declares his property at the end of financial year. Likewise, it is required that each one of the employees has to declare that they have not employed a child in their homes that year.

With the centre making employment of the children as domestic servants a criminal offence from October 10, 2006, the recommendation is bound to create a ripple among lakhs of central government employees who not only hire children but abuse them too.

The Ministry of personnel and training have been notified to make it a law. The people in the government service must set a precedent for civil society by protecting children. The punishment could range from demotion to even dismissal of employees who engage children not just in their homes but even in their own personal businesses, be it a hotel or a dhaba. Once the central staff is brought under the

scanner, the states will be told to follow suit.

The Ministry will check the authenticity of the employee's claim by mulling surprise raids. However, it is one's own conscience that will stop exploitation of children in the houses.

To rehabilitate the lakhs of children who will come out of various homes, the ministry, in consultation with the other departments concerned like women and child welfare and social welfare, will set up shelters.

This is an immediate measure. The children rescued from hotels, dhabas, resorts and houses need to be put somewhere. Under the 11th plan, the Ministry of labour and employment have drawn up a scheme besides strengthening the National Child Labour Project.

Source :The Times of India

INDOSHNET

Ministry of Labour & Employment, Government of India, is developing a National Network on Occupational Safety and Health information system known as INDOSHNET. Directorate General Factory Advice Service & Labour Institutes (DGFASLI), an attached office of the Ministry of Labour will act as a facilitator of the network system. The objective of the network is reinforcement and sharing of national occupational safety and health (OS &H) information on no-profit no-loss basis with a view to pooling our information resources for mutual benefit. The sharing of information will not only confine to the national level but also includes international sources. The communication of information will be through E-mail as well as postal/courier service. DGFASLI invites industrial organisations, institutions, industry associations, trade unions, professional bodies and non-governmental organisations having information on OS&H and willing to share the same with others at the national and international level to participate as members in the network. Interested agencies may please write for proforma of organisational profile to Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022.

Note: Those who have responded to our earlier communication and sent organisation profile in the prescribed format need not write again.

NATIONAL REFERRAL DIAGNOSTIC CENTRE

Early detection and diagnosis of occupational health disorders and occupational diseases is one of the most important factors in the prevention and control of adverse health effects on workers due to various factors - physical, chemical, biological and psycho-social. The Industrial Medicine Division of Central Labour Institute, Mumbai runs a National Referral Diagnostic Centre (N.R.D.C.) for early detection and diagnosis of occupational diseases and recommends necessary measures for prevention/control of occupational health problems/occupational diseases. The diagnostic centre is well equipped for medical examination of the exposed workers and facilities are available for carrying out special investigation, e.g. Pulmonary function tests, Audiometry, ECG, Titmus vision test, Biological monitoring, etc. Medical professionals including Factory Medical Officers, ESI Doctors, Medical Inspectors of Factories and Certifying Surgeons, Doctors from Medical Colleges and Hospitals can refer suspected cases of occupational diseases to N.R.D.C. for diagnosis and advice. The communication should be addressed to the Director General, DGFASLI, Central Labour Institute Bldg., N.S. Mankikar Marg, Sion, Mumbai 400 022 for further details.

INDOSHNEWS is a quarterly newsletter that facilitates exchange of ideas and data developed through research, study and surveys in the areas of occupational safety and health. DGFASLI invites articles from individuals, industry, industrial associations, trade unions, professional bodies etc. having information on OS & H and willing to share the same with others at the national and international level.

- 1. Manuscripts for publication should be typed in double space within 3 to 4 A4 size sheets only on one side of the paper and sent in duplicate to the Editor-in-Chief. No photographs can be published.**
- 2. Once the manuscripts are accepted for publication, publisher reserves the right to make editorial changes as may be necessary to make the article suitable for publication; and publisher reserves the right not to proceed with publication for whatever reason.**
- 3. Authors should take care to ensure the accuracy of data and reference.**

**GOVERNMENT OF INDIA, MINISTRY OF LABOUR & EMPLOYMENT
DIRECTORATE GENERAL FACTORY ADVICE SERVICE & LABOUR INSTITUTES**

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) is an attached office of the Ministry of Labour & Employment Government of India. DGFASLI organization was set up in 1945 under the Ministry of Labour, Government of India to serve as a technical arm to assist the Ministry in formulating national policies on occupational safety and health in factories and docks and to advise State Governments and factories on matters concerning safety, health, efficiency and well-being of the persons at workplace. It also enforces safety and health statutes in major ports of the country.

The Directorate General Factory Advice Service & Labour Institutes (DGFASLI) comprises:

- * Headquarters situated in Mumbai
- * Central Labour Institute in Mumbai
- * Regional Labour Institutes in Kolkata, Chennai, Faridabad and Kanpur

The Central Labour Institute in Mumbai functions as a socio-economic laboratory and is a national institute dealing with the scientific study of all aspects of industrial development relating to the human factors.

Over the years the Central Labour Institute has constantly grown not only in size but also in stature and has earned national and international recognition. It has been recognised by the International Labour Organisation as a Centre of Excellence in training on Occupational Safety and Health in the Asian and Pacific Region. It also functions as a National Centre for CIS (International Occupational Safety and Health Information Centre) and the Centre for National Safety and Health Hazard Alert System. At the national level, apart from providing research and training support to the Government and functioning as a technical arm of the Ministry of Labour, the institute provides comprehensive and multi-disciplinary services to the Industrial Port sector through studies, technical advice, training and dissemination of information. It also runs National Referral Diagnostic Centre for early detection of occupational disorders and thereby controls and prevents them. It has a modern Audio Visual Studio fully equipped with sophisticated video production equipment to produce quality U-matic video films on Safety and Health. The Regional Labour Institutes are a scaled-down version of the Central Labour Institute and cater to the needs of their respective regions.

The organization is poised to grow further, and meet the increased demands on it. In a developing country with a large number of industries having diverse and complex nature, the task of protecting safety and health of workers is an uphill task. Armed with the technology, good will of the industrial society and the strength of the dedicated staff, the organization is well prepared to meet the challenges of tomorrow. It is committed to the goal of making the workplace safer.

Visit us at : www.dgfasli.nic.in

