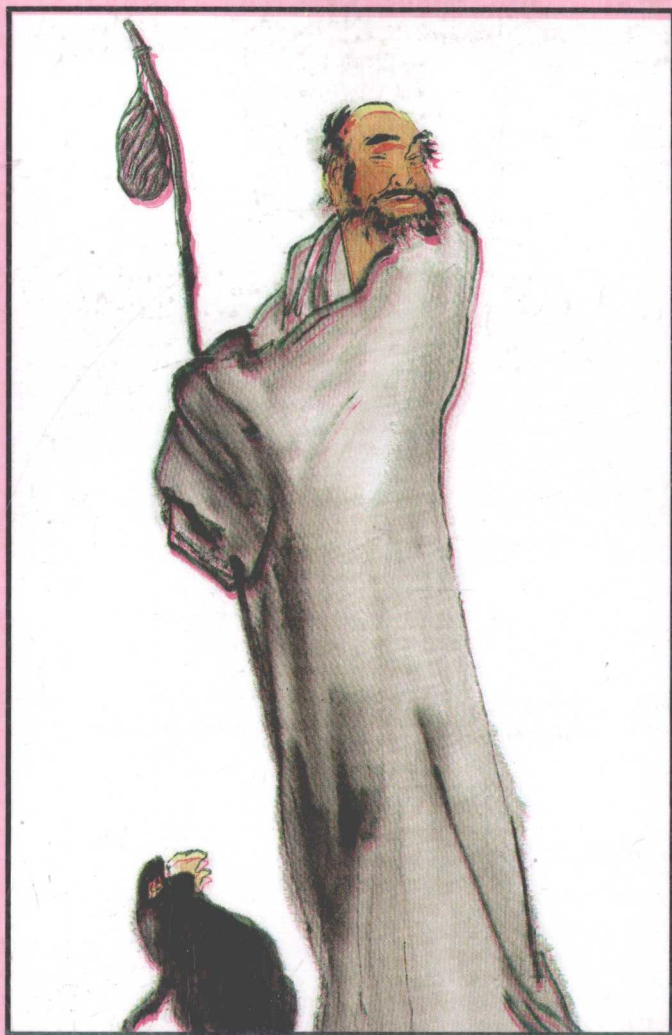


# STRESS, CAUSES, TREATMENT & RESEARCH



*Stress Books*

J.K. Burns

*Stress, Causes,  
Treatment and Research*

By



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## Stress

A general and broad understanding of stress is desirable in prevention and treatment, in patient and therapist, doctor and nurse, counsellor and psychologist. The present account is written for all of these. It explains general principles and concepts, psychobiology, anxiety and psychiatry, relevance to ways of life, to world cultures and religions. Causes of stress and suffering are detailed ; factors involved in coping, and treatment by western and oriental techniques described. Research advances are simplified and underlined in relation to the need to measure the 'ordinary' brain chemicals such as noradrenaline. The present account explains principles which help us to understand the universal intertwining network of stress, to prevent it, and to cope with stress if and when it affects us.

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## 1. Knowing and Understanding Stress

Life science should form part of a broad education. We should respect life - plant, animal, human, and development of cultures and traditions. Our respect becomes more firmly founded by knowledge and education, which enhance understanding of life, stress, suffering, their prevention and amelioration. General understanding of stress helps in convincing us of the need for a way of life which avoids excesses - which is based on moderation, avoidance of stimulants and drugs; exercise, regularity, balance of work and play, cultivation of friendships, respect for cultures, interests, hobbies, appreciation of physical and intellectual - including emotional development.

Normally, we suffer moderate stress - anxiety, worry, tension. Humans have learned, and still learn from suffering : 'Pathei Manthanein' (Greek) means to suffer is to learn. We also learn from history, literature, drama, philosophy - from education, from elders, cultures, religions. Human consciousness looks backward - and forward, laterally in space, in confidence or fear, with hope or despair, planning according to culture and education. We consider ourselves - subjectively and

objectively - to a unique degree, in comparison with other species. Our unique mental capacity and character imply sensitivity, intelligence, emotionality and potential for good and evil unparalleled in animals. This capacity and sensitivity also imply complexity and susceptibility to breakdown, failure, fragmentation of thought, perversion of emotion and behaviour.

Anxiety is an accompaniment of the human intelligent dimension, for ourselves and others - also fear, concern, compassion, and sometimes hate leading to aggression. A 'normal' level of anxiety spurs us to action, hopefully appropriate in degree, composition and intent, to a way of life which is considered, careful and deliberate. Planning is largely based on anxiety - and behaviour in accordance with requirements. The whole process of human design, thought, and behaviour is based on complex physico-chemical processes in the brain, whose sensitivity exposes them to 'derailment' or derangement. Too much, or too little of any normal - or abnormal substance or influence can interfere with normal brain functions causing stress.

Excess is a common cause of stress. The avoidance of excess is most important in its prevention. This applies to any food - or drink, medication, exercise, work, dependence on one

person. Excess reaction to loss or other life event is more difficult to control. Some religions e.g. Hinduism, advise that we control our attachment to any thing (or person) on earth - they advise against the principles of materialism. Buddhism prescribes moderation in all things, which is ideal in prevention of stress. Meditation is practised in both of these religions, and aims to control mental activity. The level of consciousness reduction, however (to "nothingness") may be excessive for some, preventing normal creativity, emotion and motivation - even interfering with work and leisure. Some benefit, others may not be suited by (transcendental) meditation as an approach to stress. It is primarily religious in origin.

Psychosomatics should be understood, if we are to understand treatment of stress. Psyche means mind; soma, body, and psychosomatics a psychological effect - of mind on body, in mental stress. Since there is a mental dimension and a resulting physical one, treatment may be aimed at either, or both. The chemical changes found in the brain, normally and in mental stress, are mirrored in the body, including (especially) circulation and digestive system. These changes involve especially neuronal production of acetyl-choline, noradrenaline, serotonin etc. The gut produces many other



chemicals which are found in brain cells. Treatment of digestive symptoms - or cardiac - often involves blocking agents for some of these transmitters. The same, or similar agents are used in therapy aimed at moderating brain activity. The problem with medical treatment in psychosomatics (stress) - and psychiatry - is that blood levels of neurotransmitters are rarely measured. Laboratories which measure these are very few. Individuals exhibit marked variation in capacity - and stress response to information of neurotransmitters. Many drugs are used which modify their production or release. And yet there is often a 'hit-or- miss' approach used in psychiatry, and in stress, with use of the most potent drugs affecting brain chemistry, directly or indirectly. Brain chemistry laboratories must be provided to facilitate treatment of stressed and psychiatric patients. We do not treat diabetics without measuring blood sugar, nor, hopefully, blood disorders without blood examination. The same principle applies to diagnosis and treatment of stress.

Psychosomatics does apparently predispose to diseases - especially infections and cancer, duodenal ulcer, allergies, 'blood pressure' (hypertension), migraine, headaches, hyperthyroidism, coronary thromboses, strokes and many skin conditions. The success of placebo treatment, in many

illnesses, is attributed to stress responding to psychological 'intervention'. The effect mediated by psychosomatics in disease is based on the principle that moderation of hormone (ACTH , cortisol, adrenaline) release increases immunity by releasing immunoglobulins, while excess stimulation causes depletion of these, 'fatigue' and exhaustion. These same principles apply in stress and psychiatry to brain response, in moderate stimulation and in relation to excessive stress and response.

Stress symptoms should be monitored in relation to treatment response as well as in diagnosis - especially in the absence of neurochemical analyses of blood samples. These symptoms include particularly anxiety, depression, headaches, sweating, rapid pulse, elevated blood pressure, nausea, smoking and alcohol or drug ingestion. The biphasic and paradoxical effects of low and high drug doses, the opposing effects of cholinergic and adrenergic blocking agents , the well established phenomena of adaptation and resistance - all of these underline the need for scientific data on brain chemistry in initiation of treatment, choice of drug, dosage and response. Never should such potent medication be administered without adequate laboratory data.

The following sequence of topics is used in a summary of stress assessment and therapy:

1. Way of life, diet, smoking, drinking etc.
2. Occupation - work suitability
3. Interests, hobbies, leisure
4. People, friends, social activities
5. Understanding of stress principles
6. 'Western' medicine
7. 'Alternative' medicine
8. Education, housing
9. Relaxation
10. Family and community
11. Counselling and Psychotherapy

This suggested order is not indicative of priority or relative importance. These will vary and depend on personal circumstances, nature and level of stress, and possible need for psychiatric assessment and assistance.

### 1. Way of life

'Western' way of life often leads to stress, caused by food, drink etc. Overeating is prevalent, leading to overweight and lack of fitness. Consumption of animal and fatty foods is

considered to lead to circulatory problems, including atheroma which is a deposit that narrows arteries, weakens them and causes haemorrhage. High calorie diets in animals increase the incidence of cancer. Excess fat in a meal is followed by high concentration of fatty droplets in the blood which include high levels of cholesterol. Smoking and alcohol enhance these effects and are toxic in other ways. Smoking damages capillaries, especially in the lungs - it is now shown to cause lung cancer, and emphysema. Effects on the heart include increase in the incidence of coronary thrombosis.

High fat and carbohydrate content in Western diet, associated with lack of exercise, and stress is associated with increased incidence of diabetes. Cancer of the mouth, tongue, throat and stomach result from alcohol ingestion - especially concentrated in whisky, brandy etc. Cirrhosis of the liver is also caused by alcohol, which is toxic as well as sedative. Consumption of alcohol, and smoking increase in stress, since they promote relaxation. This is produced by nicotine and alcohol by blocking nerve junctions or synapses.

Exercise is beneficial in inhibiting blood accumulation of fat - also in promoting circulation, preventing stress, enhancing metabolism, production of endorphins, and decreasing fibrinogen level in plasma.

Exercise has been shown to be beneficial in diminishing stress response, e.g. changes in circulation and in brain metabolism (noradrenaline, prolactin, cortisol etc.).

## **2. Occupation, work suitability**

Responsibility is an important factor in stress related occupations. These include directorships, managerial positions, medicine, teaching, administration. There is often a combination of mental stress, sedentary occupation, unhealthy diet, alcohol and smoking. Working at a slower rate over longer hours, delegating duties, relaxation techniques and moderation in life style all help to ameliorate stress which is primarily occupational. Suitability of occupation is of fundamental importance.

Sometimes change in occupation is advisable.

## **3. Interests, leisure**

Motivation and emotions - how one feels, is determined also by leisure activities and interests. People under stress are well advised to keep reasonably busy. Pastimes, hobbies, exercise, crafts, social work etc. all help to keep body and mind occupied and relatively free from stress. Education, culture and parental encouragement should promote healthy leisure

pursuits. "Unhealthy" pursuits include excessively long parties, discos, and associated use of 'uppers' - drugs which stimulate metabolism temporarily while being followed by fatigue and stress; sometimes drug addiction. Interests promote social interaction as well as healthy mentality.

#### 4. People, friends, social activity

Isolation and social deprivation are often causes of stress. These are increased in lower income groups, unemployment, low I.Q. and remote communities. Social interaction is crucial in maintaining normal social attitude and in contentment. Problems in being able to communicate, make friends and socialize are often evidenced by compensatory alcohol consumption, escapism, migration to cities etc. A broader, international education and provision of social and leisure facilities are helpful. Culture is also important, in determining attitude, especially friendliness and consideration. Some cultures are clearly superior to others in this, in being open and benevolent.

#### 5. Understanding stress

The basic principles of stress should be known before specific diagnosis and treatment are pursued. Knowledge is the first essential in any problem before a solution is sought. The role

of excess - and of insufficiency, of any substance, physical or biological change, or force is probably the most important cause. Knowledge helps the patient as well as the doctor or counsellor. The doctor's time and effort are applied initially to explanation and advice. The drugs of choice and the need to monitor brain chemistry must eventually be appreciated by all. Understanding stress helps patients to moderate their work and leisure , attend to planning and appropriate work-pace. Knowing the need for monitoring chemical changes in stress should help in persuasion of public authorities to provide laboratory facilities.

#### 6. 'Western' medicine

Use of drugs which act on the mind and body is predominant in Western medicine. These moderate, stimulate or inhibit secretion or uptake of acetyl choline, noradrenaline, dopamine, serotonin or histamine etc. Receptors, with which neurotransmitters react are also facilitated or inhibited by drugs. The field of brain chemistry is becoming more complex with more neuropeptides and receptors being isolated and their structure elucidated. The relation between chemical structure and function is poorly understood for neuropeptides in particular, and advances are anxiously awaited.

## **7. Alternative medicine**

Acupuncture, Chinese and Indian herbal medicine, moxibustion, transcendental meditation, massage, reflexology, postural exercises, homeopathy, hypnosis, dietary regimes, tests for allergy, desensitization: all of these have their proponents. A hit or miss choice applies - as in use of Western drugs. Alternative medicine requires prolonged and adequate training, and has sometimes given results comparable to Western medicine. Both, however require more effective monitoring - of central nervous neurotransmitter changes, in investigation, diagnosis and treatment.

## **8. Education, housing**

The company we keep, at school, in a housing estate, block of flats etc has an important influence on us, particularly in youth and adolescence. Close parental supervision, a good education, suitable cultural and religious background - all of these contribute to development of behavioural patterns. They affect and reflect character and form part of the general environment which is a factor in determining life style and susceptibility to problems.



## **9. Relaxation**

Time off, or spent alone is a general requirement and varies according to personality, sociability, interests, career, culture, sensitivity, emotional and intellectual development.

## **10. Family and community**

Influence of family is very important in determining response to stress and to situations involving loss. Support by family and community is required particularly following death or serious emotional upset. Friends, family, neighbours, associations, societies, community events - all add up to support - or lack of it, when a life event seriously tests emotional stability.

## **11. Counselling, psychotherapy**

These are relatively modern in terms of training, techniques, psychological expertise and can be a considerable help, especially where family and friends are too busy to fulfil the requirement of social support. It obviously helps to talk - and listen, to learn, understand, be comforted, guided; to have someone 'expert' to lean on or come to for advice. Personality, empathy, experience all combine to make a counsellor good. Cultural background and sincerity are clearly relevant in a profession so important to grieved or bereaved, or otherwise stressed patients. It would not be inappropriate to attempt to