PSYCHOLOGICAL FACTORS

INTRODUCTION

All of the previous, Phase I Modalities are very clearly physical and biological in nature. In addition to those areas, there are certain psychological factors which are known to have an impact on physical health; and here, we will be concerned with those factors. It should be emphasized that those aspects of psychology which are beyond or remote from having a direct biological impact are not discussed here but, instead, will be the subject of the chapter on Psychology.

As a general statement, it is true that any psychological problem or malfunction, of sufficient intensity and duration, can jeopardize physical health; but it is also true that the body is "buffered" to a great extent from the mind and that a great deal of the psychological content (even negative content) does not have any observable consequences on the body. Also, there is an extremely high, individual variability in psycho-somatic relationships, with the important variables being such things as: the proper patterning of individual psychological content, the stability of individual biochemistry, and the degree of “stress” which is caused by one's environmental circumstances.

Differentiating the mind from the body can be difficult because of their mutual impact on each other. Mistakes can be made in both directions (i.e., a person's symptoms can be diagnosed has having a biological etiology when, in fact, the cause is psychological; on the other hand, a person can be diagnosed as being neurotic, when, in fact, the etiology is a biological malfunction). Depression is a prime example. Depression is a very common problem, and usually it is thought to be a psychological phenomenon caused by interpersonal and circumstantial factors (e.g., family relationships, economic hardship, early childhood experiences, etc.). However, many metabolic malfunctions can cause psychological depression; and a depressed state can easily lead one into abusive types of behaviour with such things as food, smoking, and alcohol. Then, excess food, smoking, and alcohol can easily cause further metabolic disruption as well as psychological and social problems, all of which further exacerbate the depression. Frequently, it is impossible to diagnosis whether it is the psychological patterning, the social matrix, or the metabolic instability which is the most important; and successful correction almost always requires working on all three aspects simultaneously.

Making an attempt to describe the great diversity of the ways in which psychology can effect biological health and vice versa would be far beyond the scope of this section. If, in your Testing & Evaluation Data, you report significant psychological problems, then an evaluation should be made of your particular situation; and that is a process of your own introspection and the evaluation of any counselors who might be working with you.

Beside the strictly personal, psychological factors which might be impinging on the health of a particular individual, there is a more generalized psychologically phenomenon which has come to be known as "stress" and which affects everyone to some degree and can affect certain individuals

to a very significant extent. A considerable body of knowledge exists on the subject of psychological stress [1, 2]; and in this section, we will deal mostly with this particular condition.

Psychological stress, vis a vis its precise relationship to health and disease, is a highly debated subject within scientific and medical circles; and the issues are by no means resolved at this time. However, apart from details and nuances of that controversy, it is generally agreed that perhaps 30% or more of all medical complaints are either purely psycho-somatic or, to a significant degree, psychologically induced. Consider the following basic facts. In the United States, the three most prescribed medications in the 1980's (Tagamet for ulcers, Valium for muscle tension, and Aldomet for hypertension) all relate to conditions which have a significant element of psychological stress. Those simple observations alone attest to the significance of stress in terms of general physical health. Further, there is evidence which links psychological stress as a causal element in the major sources of the morbidity and mortality, such as: heart disease [3, 4, 5, 6, 7]; cancer [8, 9, 10, 11, 12]; hypertension [13, 14];

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1 Goldberger L and Breznitz S (Eds.), 1982; Handbook Of Stress : Theoretical And Clinical Aspects; Collier Macmillan, 1982.

2 Bieliausk LA, 1982; Stress And Its Relationship To Health And Illness; Westview Press, 1982

3 Armstrong G and Friis R, 1981; The Stress-Heart Disease Connection.

4 De Faire U and Theorell T, 1984; Life Stress And Coronary Heart Disease.

5 International Symposium On Stress And Heart Disease (1984 : Winnipeg, Man.) Pathogenesis Of Stress-Induced Heart Disease : Proceedings Of The International Symposium On Stress And Heart Disease, June 26-29, 1984, Winnipeg, Canada;edited by Robert E. Beamish, et al.;1985.

6 Psychophysiological Risk Factors Of Cardiovascular Diseases : Psychosocial Stress, Personality, And Occupational Specificity : International Symposium; M.Horvath and E.Frantik, editors; 1982 #33.

7 Steptoe A, 1981; Psychological Factors In Cardiovascular Disorders;by; Academic Press, 1981.

8 Cancer, Stress, And Death;edited by Jean Tache, Hans Selye, and Stacey B. Day; Plenum Medical Book Co., c1979.

9 Simmons HE, 1979; The Psychogenic Biochemical Aspects Of Cancer; Psychogenic Disease Pub. Co., 1979.

10 Psychosocial Stress And Cancer;edited by Cary L. Cooper; Wiley, c1984.

11 Stress And Cancer; edited by Kurt Bammer and Benjamin H. Newberry; Hogrefe, 1981.

12 Symposium on behavioral biology and cancer (1981 : national institutes of health) biological mediators of behavior and disease, neoplasia : proceedings of a symposium on behavioral biology and cancer, held may 15, 1981 at the national institutes of health, bethesda, maryland, usa; Elsevieor Biomedical,1982.

13 Stress And Hypertension; editors, J. Bahlmann, H. Liebau; Karger, 1982.

14 Sudakov KV et al., 1983; Emotional Stress And Arterial Hypertension : Review Of Experimental Data; Published for the National Library of Medicine and the National Science Foundation,

gastrointestinal disorders [1]; back pain [2]; alcoholism [3]; and psycho-pathologies [4].
Although the scientific evidence which associates stress and biological disease is impressive, some people go to the extreme and tend to believe that most everything is in the mind; and that is clearly wrong. Most serious disease is strictly physiologic and biochemical in nature; and many diseases take their course, for the most part, independently of any real influence of the mind. Indeed, it is much easier to make the case that biological diseases cause negative states of mind rather than the reverse.

Suffice it to say that the relationship between stress and ill health and disease is complex with many inter-dependent variables; and with that general qualification in mind, the position which we will be taking here can be summarized as follows.

> Stress-inducing, environmental stimuli causes psychological anxiety which, in turn, can create biological states which, if they continue over sufficient time and are of sufficient intensity, will erode biological vitality, thus causing disease and/or making a person more susceptible to disease. The negative effects of these stress reactions can be mitigated by following the Phase I recommendations which were made in the previous sections; and further, they can be controlled more directly by learning how to voluntarily induce the relaxation response and by controlling environmental stimuli. Once again, keep in mind that we are not concerned here with all psychological irregularities but rather only with general psychological stress, which affects everyone to some extend and which is associated more directly with diminishing biological vitality.

In this section, we will first define stress and discuss some of the basic mechanisms which are involved. A good conceptual understanding of how psychological stress affects biological states is probably the single most important therapy in and of itself because such an understanding gives a person the means to personally and directly observe the phenomenon and thereby begin managing the condition by oneself. Such management is largely a process of internal control, and the basis of internal control is *understanding*.

After the general discussion about basic mechanisms, you will then be asked to review your own Testing & Evaluation Data for elements of stress; and after that, we will explain the general methods for dealing with stress causing factors.

Washington, D.C., by Amerind Pub. Co., 1983.

[1] Dotevall G, 1985; Stress And Common Gastrointestinal Disorders : A Comprehensive Approach; Praeger, 1985.

[2] Sarno J, 1984; Mind Over Back Pain : A Radically New Approach To The Diagnosis And Treatment Of Back Pain; W. Morrow 1984.

[3] Poulos CJ et.al, 1976; Alcoholism, Stress, Hypoglycemia, With Diets; Davis Pub. Co., 1976.

[4] Psychological Stress And Psychopathology; edited by Richard W.J. Neufeld ; McGraw-Hill, 1982.

More specifically, we will discuss the following concepts:

1) the biological reflex which is called the "flight/fight response" or "startle reflex" and its relationship to the concept of "stress";

2) stimuli over-load and emotional anxiety as the two major, stress-causing forces and how they can cause an over-excitation of the startle reflex which, in turn, can exhaust biological vitality and thereby increase one's susceptibility to disease;

3) the fact that many modern stimuli evoke inappropriately the startle reflex;

4) psychological "buffers" to environmental stimuli and how their individual variability can making certain people more susceptible to psychological stress;

5) how to assess one's personal psychological stress factors; and

6) how to lower and manage those factors if they are elevated.

THE "FLIGHT/FIGHT RESPONSE" OR "STARTLE REFLEX" AND THE CONCEPT OF "STRESS"

Certain environmental stimuli and certain internal thoughts, both associated with defense and aggression, cause a uniform biological response which is called the "flight/fight response" or "startle reflex". In general, that reflex makes the body tense and ready for action. In many circumstances this reflex is very appropriate and necessary for survival; in other circumstances it is not necessary. It is the unnecessary activation of this reflex which is the cause of what is called "stress" and which, if chronic, can erode biological vitality.

To illustrate, imagine the following example. While walking in the hills, you almost step on a snake which goes slithering through the grass. Reflexively, with lightening-bolt speed, your body tenses and a variety of reactions occur which together constitute a generalized biological response that prepares you to jump and flee or attack. The reaction to a snake represents the extreme end of the flight/fight or startle response. All of those reactions to this emergency situation are caused by reflex circuits which are "hard-wired" into the nervous system, and they happen automatically and independently of volition, with the role of the conscious mind being more of a witness than an active participant. The event is highly exciting, and it is traumatically registered in memory. Depending on the intensity of the situation, the memory can be sufficiently vivid that, even many years subsequent to the actual event, the retrieval of the memory can cause a replay of the biological reactions.

A point which deserves to be emphasized is that the startle reflex, with its biological responses, happens at a subconscious, autonomic level of the mind; and this reflex is not naturally controlled by the mind. Indeed, it takes a great deal of effort and training to consciously over-ride and control it.

The mechanism of this reflex has been studied for some time and is well understood and three general references are cited for more in-depth reading [1, 2, 3]. The reflex operates along the following lines of action. The sensory organs (mostly the eyes and ears, but also touch, and to some extent probably the smell, and taste) are connected to circuits in the mid-brain portion of the spinal column, and those circuits communicate directly to various visceral organ systems which are involved in the startle response. Certain types of stimuli automatically and subconsciously trigger the startle reflex, which involves a variety of emergency types of biological responses. Somatic muscles flinch and tighten in preparation for action, pupils of the eyes dilate to increase the intensity of vision, and conscious attention and other senses are heightened. The secretion of adrenal hormones is stimulated, which accelerates the heart and breathing also diverting blood from the intestine to the muscles and causes sugar to be injected into the system. This stress response can be short lived with the system restoring its homeostasis rapidly or, in some extreme situations, the arousal can last for months. Over several billion years of evolution, by the process of survival of the fittest through natural selection, those animals which had the startle response to threatening things survived better and reproduced more; and we have inherited that mechanism from those ancient ancestors. Today, most of the primordial sources of jeopardy have been eliminated; but the reflexes remain intact and are still useful. Today, we do not very frequently need to fear snakes in the bush, but we do need to fear cars on the street. The problem arises from the frequency of the danger. We always need to fear the snakes in the bush; but even in the jungle, there are not that many snakes; thus, in that environment, we do not use the startle reflex very much. With the cars in the streets, we also need the reflex but only on certain occasions; yet our biological reflex does not necessarily make the appropriate differentiation; and living near traffic or driving or simply walking down the street, the startle reflex may be constantly discharging without real need. Its frequent and inappropriate discharge, over a long period of time, can put one in the exhaustion phase of the "General Adaptation Syndrome", which was discussed in the Toxicology Section. In the exhaustion phase, there is a general biological fatigue caused by the depletion of adrenal hormones; there is a decrease in immunologic resistance; chronic secretion of gastric juices which can cause ulcers, and many psychological symptoms occur, including low-grade depression and lack of alertness - all of which translate into lower performance, lower adaptive capacity, and increased susceptibility to disease.

Consider another, more elaborate example. Imagine this time that you are in a department store, and suddenly, you hear an extremely loud ringing of a bell. Such an intense stimulus will evoke, independently of any mental processes, the startle response, and you will automatically prepare to

[1] Lenta TL, Nerves And Nervous System;in Encyclo.Brit., vol.12, pg.983d et.seq.

[2] Barrington EJW; Hormone; in Encyclo.Brit., vol.8, p.1082-1083

[3] Dilger WC Animal Behaviour; in Encyclo.Brit., vol.2, p.812g-813

flee. In these circumstances, everyone in the store will respond in the same way. The reaction would be universal, and it would be very appropriate and adaptive under those circumstances, because the bell most likely would be signaling a fire or some other danger. Now, on a different occasion, the store uses a very soft, but clearly audible, bell to signal employees for purposes such as alerting internal security to the presence of a thief. If you are the normal customer, going about your normal shopping, the soft bell causes no biological response and is probably not even registered in the conscious mind. But if you are a security guard, your mindset or psychological preconditions would be such that even the soft ring would ignite the startle response, and you would biologically switch to a state of tension and preparedness. In this second case, it is mostly psychological factors that have caused the biological response even though the reactions were triggered by a physical stimulus (i.e. the bell ring was physically not loud enough to evoke the reflex by itself). This example demonstrates how the individual's psychological predisposition can make a particular person susceptible to the stress response.

Extending the last situation a little further, another aspect of the stress reactions can be demonstrated. The security guard, while at home and asleep, has a dream in which he imagines hearing the bell and chasing after a thief. Such a dream, even though a totally imagined and purely psychological event, would still evoke the biological, flight/fight response, and he might well be expected to suddenly wake up with heart pounding and in a cold sweat, unable to return to sleep for hours. This demonstrates how the process can become a purely internalized, psychogenic phenomenon. If the security guard were to have such dreams or run such thoughts needlessly, it would create useless emotional anxiety and biological tension, which over a protracted period could deplete biological vitality.

To summarize, the neurology of stress can be envisioned as follows. Certain types of environmental stimuli initiate the startle response, which is a natural, biological reflex and which is characterized by a state of excitation and preparedness and which is mediated through the nervous system. In the type of natural environment in which our nervous system originally evolved, the startle reflex was used with great intensity but not with great frequency. In the modern environment, many elements needlessly and inadvertently trigger the startle response, perhaps not so intensively but much more frequently. Further, because of traumatic situations which have been encountered in the past by a particular individual, the startle response can be evoked within that individual by relatively minor and unrelated cues from either the environment or internal thoughts.

If the startle reflex is evoked too frequently, even at lower levels and whether or not for real or imagined reasons, it can exhaust biological systems, causing physical disorders which are said to be stress related. As an attempt to deal the stress, over-eating, drug abuse (alcohol, tranquilizers, etc.), psycho-somatic disorders, and neurotic behaviours are common, compensatory responses. The treatments for excessive stress reactions involve mainly two aspects: 1) controlling the stress causing stimuli in the environment, and 2) desensitizing one's reactions to stress causing stimuli.

Before discussing the details of the methods of treatment, the concept of stress should be further explained.

The word "stress" is a generic term which originated in physics and which is used to mean simply the amount of tension, within a form, that arises from externally applied forces. Strictly speaking, stress, *per se*, is not necessarily negative; and indeed, a certain amount is required to maintain structure and form. Therefore, what we are really discussing is "dis-stress" or "stress over-load". The term "stress" was introduced in the section on Toxicology in connection with the metabolic burden which is placed on the body by toxic chemicals and in connection with Selye's concept of the General Adaptation Syndrome; and those concepts are generally applicable to this section. Stress, in terms of its psychology context, means the degree of bodily tension that is caused by states of mind or is caused by inappropriate reactions to environmental stimuli. A person's ability to cope with psychological stress is analogous to the mechanisms which were described in Toxicology, and the "toxicity" of a psychological stressor is a function of three factors:

1) the virulence of the stressor in terms of its force,
2) the amount of the stressor in terms of its duration of exposure, and
3) the intrinsic vitality of the host.

One's ability to cope with psychological stress depends on the interaction of the three factors which are cited above. Although unlikely and in the extreme situation, it is theoretically possible that one very virulent episode of stress could, if one's intrinsic vitality were low, overcome the adaptive capacity of a person and cause severe biological damage, including even death. Conversely, very stressful conditions over a long period of time, might have no observable effect on certain people who have psychological "buffers" which are highly stable. Thus, the inter-relationship between the force of the stress and the vitality of the individual is all important.

STRESS CAUSING STIMULI

In terms of health and disease prevention, we are interested primarily in those psychological factors which unnecessarily activate the flight/fight response and thereby place the body under unnecessary, chronic tension and stress.

The modern world, probably more so than any time in human history, is filled with psychologically stressful forces which needlessly evoke the startle reflex and which, therefore, can cause a depletion of biological vitality.

Change, in and of itself, is a prominent source of stress. In contemporary society, people, places, and things are in a state of fairly rapid flux, and the elements of change and uncertainty are a prominent source of psychological stress. The causes of our current state of flux are numerous. To mention only a few: economic turmoil from shifts in technology and multi-national political

forces; integration of different racial groups and cultures; the information explosion; and rapid technological innovations; all of which force personal and social reorganization.

Another source of stress is over stimulation. The human mind can take a great deal of stimulation; and in fact, requires a good deal of it in order to thrive. But there are limits, and many people probably suffer from an "over-loaded" of stimuli. Perhaps, of more significance than the amount of stimuli, are the elements of coherence and meaning; and much of the stimuli with which we are bombarded is "noise" rather than "signal". In other words, the stimulation to which most people are subjected is not only quantitatively intense but it is also qualitatively confusing and inappropriate rather than organized and relevant. Thus, the very amount of stimuli can be one stress factor in itself; and the way it is organized is another. Consider the element of television as an example.

Television is good example of how the modern environment has introduced totally new and different kinds of elements that can generate psychological stress; and it is a particularly important example because television now represents a major portion of one's daily life (i.e. the average viewing time is about 4-6 hours per person per day). In the first place, television is multi-sensory (i.e., vision and hearing), and therefore, it is neurologically more intense than radio or print media. Therefore, using our definitions above, television is more "virulent" than other media. Seeing a news report of a war zone on television has orders of magnitude greater intensity than the same report in the newspaper. Second, because so much time is devoted to it, the "duration of exposure" is long. Another aspect relates more to the medium itself. Television gathers information from all over the world, and slams it through to you in a very rapid and highly condensed form without providing, at the same time, any means for the viewer to act on the information or to integrate it into one's personal context. Accordingly, the messages are frequently not "in-formation" but instead are fragmented and chaotic stimuli. The inability to assimilate and respond to an input of stimuli causes frustration and can easily confuse; and that causes psychological stress. Another aspect about television, a more insidious one, is that its program producers seem to deliberately use what can be called "modulated confusion" in addition to exciting certain biological instincts (i.e., aberrant and distorted configurations of violence and sex) in order to attract and hold the attention of viewers. Most media producers would deny that; but, *prima facie*, it is obvious. Modulated confusion (i.e. a type of confusion which creates just enough uncertainty and anxiety to hold attention but not too much to lose it) is used to catch and hold the viewer's interest; and things such as exaggeration violence and sex heighten and hold attention by arousing the two most basic of all biological instinct - self survival and reproduction. Viewers who are biologically excited and tense are more alert and pay greater attention, which translates into bigger viewing audiences, greater advertising revenues, and more product sales, all of which correspond to the economic/survival interests of everyone along that chain of vested interests; everyone that is except, in many cases, the viewer's, who are essentially the victims.

Many of the stressful element in the modern world can be subliminal and subtle. The issue of territoriality is a good example. Biologically, we are programmed with instincts for territoriality

which require a certain amount of geographic space between individuals. At some deep instinctual level, when another person comes too close, we feel a potential threat and tension is caused. In animal experiments with over-crowding, reproduction declines below the maintenance rate, violence and psychotic behaviour is rampant, and many individuals simply die from the emotional tension. In densely packed, industrial work places and urban environments, personal territoriality is continuously violated, and that can be a ubiquitous source of subconscious stress.

Apart from the sources of stress which have been cited already, many other elements in modern life can inappropriately cause the startle reflex to be triggered, and it is for each individual to observe and map what particular things cause one to be tense and anxious.

PSYCHOLOGICAL BUFFERS

Different individuals will respond to environmental stress with different degrees of emotional intensity. The higher the emotional reaction, the more sensitive, it can be said, one is. The nature of the mechanisms which cause the differential are unclear; but for our purposes here we will use the idea of psychological "buffers". Stimuli, coming in from the senses, must be mediated by some type of interface buffer which discriminates between the multitude of stimuli, disregarding most of it and focusing attention on the relevant. Otherwise, without such a buffering process, one would be psychologically and biologically reacting indiscriminately in a thousand different ways at the same time, and coping would be impossible.

Proper adaptation requires that one have properly functioning psychological buffers; and there are many factors which influence the functioning of those buffers. Some of those factors are strictly biological such as the ones which have been discussed in the previous sections. For example, if one has an actual disease or subclinical disorder, if the nutrition is chronically poor, if the exposure to toxins is elevated, and/or if physical conditioning is low, then the biological substrates of one's psychological buffers may be depleted, and one might be very sensitive to stresses which, if those other factors were optimal, would have no effect. Further, with some concerted training and practice, a person can learn to consciously control emotional reactivity and thereby enhance one's psychological buffers by means of cognition and learning; and we will review some of those techniques later.

THE ASSESSMENT OF PERSONAL LEVEL OF STRESS

There are certain biochemical tests which can be performed to evaluate more directly the level of stress; however, those would apply in more extreme and rare cases and usually would not be required. A review of certain components of the Medical History and Questionnaires should be sufficient, in most cases, to make an assessment. The procedures for doing this assessment will be similar to those in the Toxicology Section.

Review the stress related parameters which are in the following section. On a scale from 0 to 10, make a judgement about whether a particular factor is non-existent (i.e. 0) or of LOW intensity (i.e., 1, 2, or 3) or of MODERATE intensity (i.e., 4, 5, or 6) or HIGH intensity (i.e., 7, 8, 9, or 10). Afterward, make a judgement about whether your total psychological stress is a significant factor for you. Usually, the stress assessment will be an aggregate of all of the factors; however, it is possible that one factor can be of sufficient intensity that it alone can place one's health in jeopardy. Therefore, it is not simply a matter of numbers but also involves a qualitative judgement.

COMPREHENSIVE STRESS ASSESSMENT

Subject Id., _____ Date _____

From the Specific Medical Signs & Symptoms Questionnaire, make an assessment of the following:

		LOW			MODERATE			HIGH			
Tension in neck	0	1	2	3	4	5	6	7	8	9	10
Sleep disturbances	0	1	2	3	4	5	6	7	8	9	10
Sleepiness	0	1	2	3	4	5	6	7	8	9	10
Nervousness	0	1	2	3	4	5	6	7	8	9	10
Anxiety	0	1	2	3	4	5	6	7	8	9	10
Headaches	0	1	2	3	4	5	6	7	8	9	10
Anger	0	1	2	3	4	5	6	7	8	9	10
Flushing	0	1	2	3	4	5	6	7	8	9	10
Tremors	0	1	2	3	4	5	6	7	8	9	10
Light headedness	0	1	2	3	4	5	6	7	8	9	10
Disorientation	0	1	2	3	4	5	6	7	8	9	10
Fatigue	0	1	2	3	4	5	6	7	8	9	10
Irritability	0	1	2	3	4	5	6	7	8	9	10
Rapid heart beat	0	1	2	3	4	5	6	7	8	9	10
Apprehension	0	1	2	3	4	5	6	7	8	9	10
Confusion	0	1	2	3	4	5	6	7	8	9	10
Poor concentration	0	1	2	3	4	5	6	7	8	9	10
Drowsiness	0	1	2	3	4	5	6	7	8	9	10
Fear	0	1	2	3	4	5	6	7	8	9	10
Changes in emotion	0	1	2	3	4	5	6	7	8	9	10
Depression	0	1	2	3	4	5	6	7	8	9	10
Muscle twitching	0	1	2	3	4	5	6	7	8	9	10
Sighing/yawning	0	1	2	3	4	5	6	7	8	9	10
Thoughts of suicide	0	1	2	3	4	5	6	7	8	9	10
Boredom	0	1	2	3	4	5	6	7	8	9	10
Diminished libido	0	1	2	3	4	5	6	7	8	9	10
Unhappiness	0	1	2	3	4	5	6	7	8	9	10
Handwriting changes	0	1	2	3	4	5	6	7	8	9	10
Speech difficulties	0	1	2	3	4	5	6	7	8	9	10
Poor memory	0	1	2	3	4	5	6	7	8	9	10
Itching	0	1	2	3	4	5	6	7	8	9	10
Slow healing	0	1	2	3	4	5	6	7	8	9	10
Dandruff	0	1	2	3	4	5	6	7	8	9	10
Hair loss	0	1	2	3	4	5	6	7	8	9	10
Digestive problems	0	1	2	3	4	5	6	7	8	9	10
Nausea	0	1	2	3	4	5	6	7	8	9	10

COMPREHENSIVE STRESS ASSESSMENT

		LOW			MODERATE				HIGH		
Involuntary urination	0	1	2	3	4	5	6	7	8	9	10
Cry often	0	1	2	3	4	5	6	7	8	9	10
Difficulty with decisions	0	1	2	3	4	5	6	7	8	9	10
Repetitious dreams	0	1	2	3	4	5	6	7	8	9	10
Loneliness	0	1	2	3	4	5	6	7	8	9	10

From the Personal Medical History, have you ever had any of the following.

		LOW			MODERATE				HIGH		
Chronologic age	0	1	2	3	4	5	6	7	8	9	10
Nervous breakdown	0	1	2	3	4	5	6	7	8	9	10
Psychiatric disorders	0	1	2	3	4	5	6	7	8	9	10
Phobias	0	1	2	3	4	5	6	7	8	9	10
	0	1	2	3	4	5	6	7	8	9	10

From the Life-Change Index, transfer the evaluation below.

		LOW			MODERATE				HIGH		
Total impact value	0	1	2	3	4	5	6	7	8	9	10

From the Biological Parameters Section, assess the following.

		LOW			MODERATE				HIGH		
Blood pressure	0	1	2	3	4	5	6	7	8	9	10
Resting heart rate	0	1	2	3	4	5	6	7	8	9	10

From the different Life-Extension Procedures Section, assess the following.

		LOW			MODERATE				HIGH		
Curative medicine profile	0	1	2	3	4	5	6	7	8	9	10
Disease risk profiles	0	1	2	3	4	5	6	7	8	9	10
Nutritional deficits	0	1	2	3	4	5	6	7	8	9	10
Toxicology profiles	0	1	2	3	4	5	6	7	8	9	10
Physical exercise deficits	0	1	2	3	4	5	6	7	8	9	10

EVALUATING YOUR STRESS PROFILE

To repeat what has been said before, there is an extremely high, individual variability in psycho-somatic relationships. Depending on individual psychological content, individual biochemistry, and individual circumstances, each particular person will respond differently to the above symptom scales and risk factors. Also, the more one ages, the greater is the sensitivity to stress. Usually, psychological stress is a function of the aggregate amount of many factors; however, it would be possible to have all of them, except one, in the low category but that one high factor may be of sufficient intensity to cause major stress.

PROCEDURES FOR LOWERING AND MANAGING STRESS FACTORS

OPTIMIZATION OF THE OTHER PHASE I MODALITIES

For most people, psychologic stress will not be a significant health risk factor if the other Phase I procedures are close to optimal. If there are no significant medical problems, if the disease risk profiles are low, if the body weight is good and appropriate supplements are being taken, if the exposure to toxins is low, and if one maintains fairly routine physical conditioning practices, then a great deal of psychological stress can be endured without diminishing health.

Most "high performance" types of people do not want less stress in their life but, instead, just the opposite. They want to take on more achievement and stress, to the extent that they can adapt to it adequately and to the extent that it does not cause dis-stress and thereby jeopardize biological health. Getting all of the other Phase I procedures in reasonable order should enable just that, making optional the other recommendations below.

WITHDRAWAL

If one's circumstances are such that there is a feeling of being over-loaded and if the ability to cope with those circumstances is significantly impaired, then the most straight forward and obvious procedure for stress reduction is withdrawal. Withdrawal from the stress causing forces simply gives the individual an opportunity to restore the homeostasis which is required to endure the stress. Frequently, a rest is all that is needed. Withdrawal can take thousands of different forms.

Vacations are one of the better forms of withdrawal, and they have been institutionalized in the life of most people. However, many types of vacations are such that they probably increase the stress level rather than decrease it; and if one is going to withdraw for the purposes of stress reduction, then a more formal retreat is preferable. Religious types of retreats, in which there is an environment which is quiet with low levels of stimulation and conducive to reflection, are excellent for this purpose. Sometimes, just periodically spending the week-end in bed, with the

television and radio off and the telephone disconnected and with an escape oriented book, is sufficient to recondition one for a long time. Hobbies, such as horticulture, can serve the same function if they allow one to disconnect from their usual circumstances and subjects of thought. Even more practically, taking a mid-day nap or a brief meditation can be, in effect, micro vacations and can do a considerable amount of restoration within one's daily routine.

CONTROL OF STIMULI

Obviously, a person usually cannot retreat for any great length of time; and learning to adequately cope with one's normal circumstances is the best form of stress reduction. One of the most challenging philosophical pursuits is to find purpose, meaning, and some degree of equanimity within the usual commotion and fray of every day living. Organizing the stimuli in one's work and living environment in such a manner that most of the irrelevant ones are eliminated and most the relevant ones are ordered so that they can be acted upon as rapidly as possible will reduce stress to an immense degree as well as make one more productive.

EVOKING THE RELAXATION RESPONSE

The startle reflex causes a series of events which result in body tension. By learning how to voluntarily evoke the relaxation response one can over-ride that reflex and dissipate the tension. Many different techniques accomplish essentially the same thing; and we will review several here.

Autogenic routine. This technique [1, 2] dissipates somatic tension by exaggerating muscular tension. Sit in an upright position in a chair in a room by yourself. Slowly, shrug the shoulders up against the neck until you reach maximum tension. Hold the tension for about 15 seconds; and then, suddenly, let go and slump to a resting position. Remain there, feeling the body relax, for about 1 minute. Repeat the routine 3 or 4 times, each time attempting to increase the tension in the shoulders and deepen the relaxation when you let go. The Autogenic routine releases tension by physical force, and it is a direct and easy practice that can be very effective.

Breathing routines. The startle reflex and somatic tension operate at an autonomic, subconscious level, which is difficult to reach by conscious thinking. Breathing is a function which usually is autonomic and subconscious, but it can also be directed consciously. Thus, by simply thinking about your breathing you can consciously intervene in an autonomic function. Periodically, remind yourself to think about your breathing. Take a deep breath; focus on inhalation by the lower abdomen rather than the chest; and release your breath slowly, thinking about letting go of your body. You should automatically experience a measureable somatic release of tension.

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[1] Luthe W, 1969; Autogenic Therapy; Grune & Stratton, 1969

[2] Relieve Tension The Autogenic Way; trans.by Hannes Lindemann from the German by Konrad Kellen; pub.by P.H.Wyden, 1973

Biofeedback conditioning. Stress and tension can be electronically measured in various ways: muscle tension (EMG), skin moisture (GSR), and brain wave activity (EEG). These parameters can be measured by instruments and displayed in the form of variations of sound, color, and voltage meters. Simply connecting one to such an instrument and knowing which way the meter or display device should go to reflect a lowering of tension will train one in the relaxation response. After due training on the electronic instruments, you can evoke the response by conscious command without the instruments. In addition to electronic instruments, one can use other devices. For example, by looking at one's face in a mirror, you can see tension; and consciously changing the look of tension can help release it. Similarly, by paying attention to proprioceptor sensation or the way your body feels, you can sense the areas of tension; and by focusing your attention in that area, you can learn to release it.

CONTROLLING THOUGHTS

In addition to the build-up of somatic tension as caused by environmental stimuli, the conscious display of anxiety-provoking thoughts (i.e., thoughts which are usually associated with fear and aggression) can evoke, at a lower level, the startle reflex and therefore cause, psychologically, somatic tension. There is a purpose for thinking about subjects which cause you anxiety, and in most instances, you should let them replay themselves until they have been psychologically resolved and integrated. However, many times this type of thinking can become obsessive and detrimental; and in such cases, effort should be made to cancel the anxiety producing thoughts. Various techniques for doing that are discussed below.

CANCEL AND RELEASING

First, by introspection and analysis, identify the particular thoughts and subjects which cause the anxiety. Note them in a journal for periodic review. Become aware of when those thoughts enter your conscious mind. When they do, hold them in your awareness; take a deep breath, as discussed above; and as you are releasing the breath and feeling the relaxation response, say in your mind: "cancel and release". Let the thought go and move on to something else. This technique can be used also in situations where you are making behaviour change (e.g., eating habits, smoking, coffee, inter-personal relationships, etc.). In such case, catch the undesired behaviour as it starts; stop its completion; take a deep breath; and while relaxing, say in you mind: "cancel and release". In behaviour change, it is critical to jam the completion of the action; a behaviour which is not exercised, atrophies. This internal process of "editing" thoughts is difficult, and requires effort and persistence.

SUPPRESSION OF THOUGHT BY CONCENTRATION

A standard technique in most systems of mediation is to suppress thinking by concentrating on one thought. Frequently, one uses a non-sense thought (usually a sound rather than a picture); and you simply repeat it over and over in you conscious mind. Consciousness is such a narrow

window of the mind that it can only hold a few images at once; and by concentration on one thought, other thoughts simply cannot enter. If a thought cannot enter consciousness to be periodically "refreshed" and reinforced by expression into behaviour, then it atrophies. The problem with this mediation approach is that it suppresses generally all thoughts and is not selective; and it is possible that excessive mediation can decondition one too much and become a cause of maladaptations.

PLEASANT THOUGHTS

Certain kinds of thoughts cause one to feel somatically at peace and at ease; and by reading or contemplating such types of thoughts, one can release body tension. Remembering times when one was secure and at peace and imagining one to be in such a place can cause relaxation. Any material which emphasizes unity, forgiving others from transgressions, and the assurance that all things have a purpose are effective techniques for calming the mind. Certain types of religious and metaphysical literature work well in this regard. Also, surrounding oneself with pleasant pictures, colors, and furnishings are environmental factors which evoke pleasant thoughts.

Other devices of reducing stress include some of the following: pleasant distractions, massage, dancing, prayer, taking care of a pet, psychological counseling, hypnosis, and play. There are a large number of books and workshops on stress reduction, and the subject is worthwhile pursuing to the extent of ones interest and need. However, in one way or another, they all are based on the principle of controlling the flight/fight or startle reflex. Although further discussion of this subject might be helpful, one really learns this subject by personal practice. Participants at Level 5 or higher are given basic training in those techniques. Also, in the Psychology chapter, we will be dealing with methods which coincidentally have application in stress reduction.