

The Newsletter of THE AMERICAN INSTITUTE OF STRESS

Volume 2 Number 6, 1989

2nd International Montreux Congress on Stress November 19-21, Hotel Excelsior, Montreux, Switzerland

State of the art presentations on Stress and Cardiovascular Disease include the Pathogenesis of Mitral Valve Prolapse in Anxiety Disorders and Stress, The Stress Connection to Sudden Death, Stress-Related Cardiovascular Hyperreactivity in the Pathogenesis of Atherosclerosis and Coronary Heart Disease, The Role of Stress and the Sympathetic Nervous System in the Pathogenesis of Hypertension, and Hypertension as a Disorder of Communication. Other sessions are devoted to Stress, Emotions, Personality and Health, and include an update on Personality Traits As Predictors of Mortality from Cardiovascular Disease and Cancer and the Beneficial Effects of Stress Reduction Strategies. Other segments are devoted to the Stress Reduction Effects of Spa Therapy, How to Design and Deliver an Effective Stress Reduction Program, Psychophysiologic Stress Assessment Techniques, etc. The concluding presentations are devoted to the Biobehavioral Effects of Low Emission Electromagnetic Energy and their use in the treatment of insomnia, depression, anxiety and addictive disorders.

In response to a number of requests, we will be devoting certain issues of the Newsletter to specific topics. The format will include an introductory general overview followed by summary articles reporting on recent relevant research reports. This issue features *Stress and the Immune System* as well as other articles.

Stress and Resistance To Disease

The close relationship between stress, emotions and health has been recognized since antiquity. Two thousand years ago the celebrated Greek physician, Galen, noted that melancholy women were much more likely to develop cancer of the reproductive organs. He attributed this to an excess of "black bile" (Gr. melas chole). Succeeding generations of physicians, poets and literary figures have written about various illnesses and afflictions believed to be due to stress. Anecdotal tales and folklore in almost every

culture provide abundant additional support. However, it has only been in the past few decades that scientific advances have enabled us to verify and explain how such effects may be mediated.

We commonly think of the body's response to stress in terms of the "fight or flight" reaction to a severe *physical* threat. The resultant outpouring of adrenalin-like hormones had *immediate* effects on the cardiovascular, endocrine and central nervous systems that were purposeful for primitive man. Rapid breakdown of fat and carbohydrate stores increased the blood sugar and cholesterol to provide more energy. Accelerated blood clotting lessened the likelihood of severe bleeding from laceration or internal hemorrhage. Increased heart rate and blood pressure provided more blood flow to the brain to improve decision making. Similarly, the circulation was shunted away from the gut to the large muscles of the
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For further information on the original source of abstracts and other reprints available on similar subjects, please send a self-addressed stamped envelope to: Reprint Division, American Institute of Stress, 124 Park Avenue, Yonkers, NY 10703.

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The Newsletter of
**THE AMERICAN INSTITUTE OF
 STRESS**

Paul J. Rosch, M.D., F.A.C.P.
 Editor-in-Chief

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Stress and Resistance To Disease

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extremities to increase strength in combat or speed of locomotion away from a scene of potential peril. However, the nature of contemporary stress is no longer apt to be the life threatening physical challenges faced by our ancestors. Today, these formerly useful automatic and immediate reactions are not only inappropriate, but have become harmful. Repeatedly invoked several times daily, instead of once or twice a month, it is not hard to understand how they could contribute to diabetes, ulcers, muscle spasm, heart attacks, strokes, or sudden death. Modern day stress more often stems from a host of psychosocial stressors and daily hassles. These chronic and subtle pressures may invoke "fight or flight" responses, but more often produce their insidious adverse health effects through quite different pathways. Loneliness, social isolation, loss of important personal relationships, disruptive family ties have all been linked with a variety of diseases that seem to result from depression of the immune system.

The immune system is the body's defense mechanism to resist attack from viral, fungal, bacterial and other factors that cause disease. Although we are continually exposed to a variety of infectious and cancer causing agents, an efficient immune system can recognize and repel such threats. This ability weakens as we grow older which may explain the increased incidence of malignancy and infection in the elderly. It has also been demonstrated that certain types of stress can similarly depress immune

system activities, thus making us more susceptible to various infections, and tumors, including herpes, AIDS, and breast and lung cancer.

However, it's not all bad news. All of the great integrative systems of the body operate on a system of self regulatory checks and balances. The involuntary nervous system has counterbalancing sympathetic and parasympathetic components. Similarly, the endocrine system is largely governed by feedback mechanisms that function much like a thermostat, so that pituitary stimulating hormones are produced only when blood levels of target gland hormones fall, and signal the need for replenishment. Thus it seems likely that if negative emotions or "bad" stress can weaken the immune system, there are quite likely positive emotions and "good" stress that can strengthen it. There are also a variety of stress reduction strategies, such as that provided by this videotape, which can effectively dampen or block the injurious effects of stress on the body. Additional information on some of these topics is provided in the following abstracts based on recent medical reports.

"A great many open minds should be closed for repairs."
 — Toledo Blake

The Fatal Link Between Cancer And Depression

As noted previously, ancient Greek and Roman physicians believed that depressed or melancholy women were much more likely to develop cancer. This suspicion now also appears to have been confirmed for men. Over two thousand white male employees of a large corporation underwent a comprehensive physical examination between 1957 and 1958. This included a psychological evaluation using the Minnesota Multiphasic Personality Inventory (MMPI), which consists of responses to 566 self descriptive statements. Various profiles or subscales can be constructed by analyzing responses to groups of selected statements, thus revealing a tendency towards depression, paranoia, schizophrenia, introversion, hostility, etc. The study group, was recently followed up whether their psychological profile 20 years previously could predict future health status, and specifically deaths due to cancer or heart disease. The results revealed that the death rate from cancer was significantly higher in those individuals showing high depression (Continued on page 3)

The Fatal Link between Cancer and Depression

(continued from page 2)

scores, even when possible confounding factors such as cigarette smoking, alcohol consumption, family history of cancer, etc., had been accounted for. In another thirty-year retrospective study of medical students, it was similarly found that those who were emotionally withdrawn or depressed were more likely to develop cancer."

In patients with malignant melanoma, depression proved to be a powerful predictor of early mortality. Those with the most pessimistic attitudes also had the lowest levels of natural killer cells, which help the immune system ward off malignant invasion. Depression was also associated with an increase in suppressor T cells, which have the opposite effect and suppress immune responses. This observation is of particular interest since lithium, which is often used to treat manic depressive illness, reduces suppressor cell activity.

Widowed individuals die from cancer in the 12-18 months after loss of a spouse at rates three to twelve times higher than their married counterparts. Several research groups around the world have now confirmed that following the death of a loved one, there is apt to be a prompt and impressive decline in immune system components responsible for resistance to cancer. While none of this proves that stress or depression can cause cancer, the evidence is certainly strong, and tends to support numerous anecdotal observations.

"The optimist expects his dreams to come true, a pessimist expects his nightmares to."

— Anonymous

Stress and AIDS

As its name implies, the basic problem in AIDS is a deficiency in the immune system. Since stress can also depress immune function, it seems likely that it might contribute to the clinical appearance of AIDS or aggravate existing signs and symptoms. Many patients who harbor the AIDS virus never develop the disease, or do so only after an incubation period of up to twelve years. Many authorities believe that stress plays a crucial role in precipitating the appearance of AIDS in apparently healthy carriers, as well as the subsequent course of the disease. Conversely, it has been observed that AIDS patients who have developed a stress resistant attitude of being in control are able to fight their illness much more effectively. Several reports reveal that immune system function is improved in patients who are able to openly express their emotions, and have a strong feeling of control over their condition. As with many cancer patients, maintaining an aggressive

spirit and denial of illness, also appears to be associated with longer survival. In one report, researchers studied 39 homosexual men who had been recently diagnosed as having the AIDS virus. Immune system function was poorest in those who reported the most depression, anxiety, and loneliness. Individuals rated as having an attitude of vigorous denial, and an improved ability to express anger and other emotions, had the best immune system responses. In another study, sixty-four recently diagnosed AIDS males attended 8 two-hour weekly sessions in addition to an all day retreat. They learned stress-reduction techniques such as yoga and meditation, and received instruction and training in nutrition and exercise. However, the major emphasis was on how to recognize and manage stress. The program resulted in a surprisingly sharp reduction in the frequency and number of sexual contacts, which had not been anticipated. However, it also improved immune system function to a degree similar to that achieved with the use of the leading AIDS drug, AZT.

The average life span after an AIDS diagnosis is eighteen months. In a New York City study, 20% of more than 57,000 AIDS patients had died within three years, and there was only a 5% chance of living longer than five years. However, effective stress reduction training appears to reverse this trend. A recent newspaper article reported on a 40-year-old patient diagnosed as having AIDS four years previously. When faced with the facts, he gave up his stressful job of crisis intervention with the emotionally handicapped in New York City, and moved back to Kansas which he described as a "low stress-low risk area." He began a program of regular meditation, daily exercise, and embarked on a healthier diet in an attempt to take control of his physical and mental health. Despite the fact that he took no medication, his skin lesions of Kaposi's Sarcoma, which is usually fatal for AIDS patients, miraculously disappeared.

At present a five-year European study of 500 AIDS patients with the AIDS virus is under way to determine whether or not certain stress-related psychological variables can be correlated with both the development of clinical illness as well as its severity and duration. The researchers postulate that AIDS positive patients may live longer when:

- 1) they see a purpose in life
- 2) they see their illness as a challenge and do not simply succumb or become resigned to their fate
- 3) they have a strong social support system
- 4) they have a greater feeling of control over their illness
- 5) they are more optimistic and less depressed about their situation
- 6) they have developed good coping strategies to combat stress

A variety of self-help AIDS groups also report improved health benefits and life expectancy which they attribute to an improved ability to reduce and cope with stress.

Stress, Breast and Ovarian Cancer

The latest government figures report a puzzling increase in the incidence of breast cancer in middle-aged females, despite a decline in the rate of other malignancies. Although experts have no explanation for this, there has been increased interest in the role of stress in breast cancer with a recent book being devoted entirely to this subject. One possible factor may be related to the increased number of women entering a male-dominated work force. It has been well established that the earlier a woman becomes pregnant or has her first child, the less likely she is to develop breast cancer. This protective effect of pregnancy is thought to be related to a reduction in prolactin, a pituitary hormone that stimulates breast tissue growth and promotes breast cancer in experimental animals. As more and more career oriented women enter the work force, they tend to remain single, marry and decide not to have children, or do so only when they are much older. The percent of women having their first child after the age of 35 has almost quintupled since 1970.

We have also seen that stress can depress the immune system defenses against cancer. Many working women are now increasingly subjected to intense stress because they have to juggle work responsibilities with being a wife, supermom, single parent, or providing custodial care for an aging relative. In addition, many find that despite equal or superior training, experience, and ability, they are paid less than their male counterparts and usually reach a dead end when they attempt to climb the upper rungs of the corporate ladder. Often they are subjected to subtle as well as overt sexual harassment. An aggressive attitude is justifiable if not encouraged in males who are striving to get ahead. However, it is not considered ladylike or feminine and is apt to be viewed as undesirable if not unacceptable for aspiring female executives. Thus, working women are often frustrated because they have to "act like a lady, think like a man, and work like a dog" just to survive. Further examination of the available data could corroborate the link between job stress and the "puzzling" increase in breast cancer in middle-aged women.

Similarly, a recent medical report revealed that "career-oriented women, especially those with no children, may fit the highest-risk profile for deadly ovarian cancer." The stress of life in the fast lane was also thought to be a factor. Single career women have fourteen times the average risk of ovarian cancer than a matched group of homemakers.

"Destiny is not the amount of chance; it is a matter of choice. It is not a thing to be waited for; it is a thing to be achieved." — William Jennings Bryan

Stress and Herpes

As noted above, it is believed that stress contributes to cancer and various viral infections because it depresses our immune system's ability to resist such threats to our health. Despite the plausibility of such a hypothesis, it is difficult to prove and critics point out that numerous other factors may be involved. What we arbitrarily label as "The Immune System" really consists of many disparate components whose functions and status are measured by very specific techniques. Thus we could measure the numbers and ratios of B and T cells, helper cells, suppressor cells, natural killer cells, various immunoglobulins, interferons, interleukins, etc. Depending upon what is being measured, it is quite conceivable that "stress" could improve certain aspects of immune system function while lowering others. Stress can depress immune system components which provide defenses against cancer and other viral linked illnesses, but that still does not prove that stress is necessarily the cause of such problems. Evidence is not the same as proof.

It has long been observed that patients suffering from herpes tend to have recurrences of their problem when under stress. All of us know about "cold sores" and "fever blisters." Herpes patients provide a uniquely valuable population to study the relationship between stress and viral illness. The herpes virus resides in an inactive or dormant phase in the cells of affected nerves. Under certain stresses, such as fever, menstruation, or emotional upset, the virus becomes activated, and rapidly reproduces itself, and travels down conducting fibers to the skin, where it results in the formation of typical "cold sores" or blisters. In a recent study, men with recurrent herpes were evaluated both psychologically as well as immunologically. The findings in married men were compared to matched controls who were separated or divorced. The assumption was that the latter group would score higher on scales of loneliness and depression and would exhibit a correspondingly higher incidence of herpes episodes. The psychological tests did confirm that single or divorced males were more "anxious, depressed, and lonely than their married counterparts" and they also had higher levels of herpes virus antibodies. These antibodies rise during periods of reactivation of the virus which produce clinical signs and symptoms and thus reflect the inability of a depressed immune system to keep the infection under control. Even in the married group, those who reported poorer personal relationships also exhibited higher viral antibody levels and other immune system alterations consistent with decreased resistance to infection. The immune system is also suppressed during the acute "fight or flight" response, providing further support for the stress — decreased immune response — disease hypothesis.

Stress, Cancer, and Brain Messengers

In addition to its adverse effects on the immune system, stress and emotional depression may contribute to cancer via other pathways. Depression is also associated with decreased levels of the brain neurotransmitter, dopamine, although it is still not clear whether this is cause or effect. Other brain messengers such as the endorphins, also have powerful effects on mood and behavior and are intimately involved in the response to stress. A depression-dopamine-cancer pathway is supported by a recent report from India, demonstrating that dopamine injections markedly reduced experimental tumor growth in mice. Tumors were only half as large in the treated group, and their life expectancy was 40% greater than untreated controls. Other studies show that dopamine levels are increased in "novelty-seeking" individuals and people who are usually curious. A high degree of curiosity has also recently been found to be associated with improved immune system function. Psychotherapists have previously emphasized the significant benefits that can be achieved by encouraging the development of curiosity and novelty-seeking traits in depressed cancer patients. Another brain messenger known as corticotropin-releasing factor (CRF) may also play a role. When CRF is injected into the brain, there is a prompt reduction in natural killer cell activity. These specialized agents seek out and destroy cancer cells. Clinically depressed individuals have been shown to have lower levels of natural killer cells, and it has been suggested that this may be due to increased CRF activity. Responses to CRF and adrenal steroid administration are frequently used to diagnose and differentiate different types of depression. It is quite likely that other brain neurotransmitters and hormones are also involved in the complex relationships between stress, immune system function, and other mechanisms that determine our resistance to cancer and infections.

"Men call vices the pleasures which escape them, and virtues the infirmities which they have left."

— Alfonse Karr

Microstress and Arthritis

We have seen that severe stress or trauma can precipitate rheumatoid arthritis, probably mediated by effects on the immune system. Other reports suggest that "microstress" or everyday "hassles" can have a similar effect. An Arizona study investigated immune system function in 33 women with rheumatoid arthritis. The participants were also asked to list their exposure to a number of minor

stresses or hassles during the preceding month. These included getting a parking or speeding ticket, family fights, arguments with co-workers, customers, friends, etc. Women with higher "hassle" scores also showed a decrease in certain white cells of the immune system which seem to protect against arthritis flare-ups. Some of the more than 200 minor life stresses identified fell into the following categories of problems:

- 1) recreational/social life — having to call off a vacation, losing a close friend, arguments with friends, death of a pet.
- 2) money and finance — unexpected expense over \$50 but under \$500, unfavorable errors in checking balance, increase in rent or mortgage payment.
- 3) transportation — car breaking down, long wait in traffic, parking or traffic ticket.
- 4) children (under 18) — can't find a babysitter, discovering that child has a problem with the teacher or the school, disobedience or failure to adhere to family rules.
- 5) love and marriage — criticism from spouse or mate, minor sexual problems, suspicion of infidelity.
- 6) health and illness — not being able to stop smoking, increased alcohol use, not being able to stay on a weight reduction diet, allergy flare-ups.
- 7) household events — problems with plumbing or electricity, objectionable neighbors, repairman fails to show up on time or does faulty work.
- 8) job problems — rumors of impending layoff, having more responsibility but less authority, being responsible for poor work done by subordinates, etc.

Among the stress reduction techniques which were taught were:

- a) meditation — sitting with the eyes closed in a comfortable, quiet location and concentrating on breathing regularly or on a single word that is repeated at regular intervals with expiration.
- b) guided imagery — taking a mental stroll through a beautiful garden or a walk on a peaceful, secluded beach, often with the help of an appropriate guide or tape recording.
- c) deep muscle relaxation — which involves slowly tensing and relaxing progressive muscles until a wave of relaxation passes through the body.
- d) self hypnosis — by concentrating on simple positive suggestions such as, "my arms are filled with helium; I can lift them without pain."

"To learn all kinds of things, one must relate to all kinds of people."

— Anonymous

Reducing Stress Reduces Arthritic Complaints

The main complaints associated with arthritis are pain and loss of mobility or function. Teaching patients how to reduce stress by developing a sense of control can provide impressive benefits. In one study, arthritis sufferers received detailed background information about their disease and were also instructed in exercises to improve mobility. One year later, when compared to a control group who had not been involved in the program, it was found that there had been a significant improvement in pain and range of motion in the affected joints that could be verified objectively. The researchers were curious as to whether it was the information or the exercises, which were primarily responsible for these benefits. To their surprise, neither of these two components, appeared to account for the marked improvement.

Puzzled, they looked into the matter in greater detail by extensive interviews with the improved patients. What they found was that the program had produced a significant change in the attitude of the participants. The best way to characterize this might be that it had given them a sense of control—a belief that they could *do* something about their disease. That seems to make a lot of sense. If “bad stress” can make arthritis worse, isn’t it likely that opposing factors, or “good stress” could counteract such influences and bolster immune defenses. Stress is not a very useful word for scientists, simply because it is a highly personalized phenomenon that cannot be objectively defined. What is distressful for one individual, may actually be pleasurable for another, or alternatively have no significance. However, all of our clinical and laboratory research suggest that the sense or feeling of being out of control is uniformly and extremely distressful. Thus, it would follow that developing a sense of control could significantly reduce the harmful effects of stress. It was apparently the development of this feeling, or what has been called “self-efficacy,” that was responsible for the improvement in pain relief and joint mobility.

There is other evidence to support this. Scientists have been studying what happens in the central nervous and endocrine systems when one develops a sense of control or capability. One of the prominent changes appears to be the release of adrenalin and noradrenalin in the brain. These catecholamines are produced in large amounts by the adrenal glands as part of the “fight or flight” response to acute stress. In one study, women who had a severe phobia about spiders, were taught certain strategies to overcome their fear. It was found that the more successful the women were in learning the techniques to conquer their problem, the less they secreted these hormones. Other neuroendocrine transmitters, such as the endorphins, which have

powerful effects on mood and pain perception may also be involved.

Interviews with the arthritis patients who had participated in the program also revealed a strong connection between feelings of depression and pain. Depression is often characterized by feelings of helplessness, hopelessness, or lack of control. When the participants were rated as to their extent of improvement, it became quite clear that their ability to achieve a sense of control by reaching attainable goals, was consistently predictive for a similar degree of pain relief. Those who had participated in the program which promoted self-efficacy experienced a 35% reduction in pain, 20% decrease in swollen joints, and a similar improvement in depression. In addition, the quality of their lives had improved as a result of the social support benefits provided by the group sessions.

“True success can only be measured through the inner satisfaction of getting there.”

— Anonymous

Social Support and Adjustment To Rheumatoid Arthritis

If “bad stress” can make you sick, then it’s probably quite likely that there is such a thing as “good stress” that promotes health or counteracts the effects of distress. Having a positive attitude, developing a feeling of control seem to reduce stress, as does having a strong social support system and sense of belonging. All of our automatic reactions to stress have developed as adaptive changes were required to insure survival, during the hundreds of thousands of years of man’s evolution. Although some of these are no longer appropriate or may even be harmful, many still provide important benefits.

Group activities, particularly those which are directed towards a common goal, would obviously have been purposeful or even life saving for primitive man. Banding together to fight a pack of ferocious wolves, or to withstand the ravages of a natural disaster such as a flood, would have had survival value for our ancestors. Therefore, it could be argued that individuals, not so motivated, would have died more frequently and at younger ages, leaving survivors with more altruistic and social support tendencies. A sense of strong social support also appears to improve immune system defenses against viral infection and cancer-causing agents.

In one study, over one hundred patients with rheumatoid arthritis were interviewed extensively. A particular focus of inquiry was their satisfaction (Continued on page 7)

Social Support and Adjustment to Rheumatoid Arthritis

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with various components of their social support. Physicians and other health care providers were also asked to rate their opinion of the patient's overall support systems based on personal observation and specific questions. There was good agreement between self ratings and those made by others with respect to adequacy and efficacy of social support. The relationship between support satisfaction and psycho-social adjustment seemed to increase with the patient's level of disability, suggesting that social support provided a powerful stress buffer. It also appeared quite evident that disturbance or disruption in established social relationships was a significant source of stress, that was often manifested by a flare-up of symptoms.

"Man gradually comes to associate his doings with the consequences."

— John Dewey

Improving the Immune System with Vitamin E

It is well known that as we grow older the incidence of certain infections and malignancies appears to increase. This is thought to be due to an age-related decline in immune system function. Certain oxidative changes occur in the cells of various tissues as part of the aging process. These make them more vulnerable to attack by viruses and other cancer-causing agents. Vitamin E is an antioxidant and in large doses can counteract such damaging oxidative injuries. In one study, 32 healthy individuals over 60 were given either vitamin E or placebo for one month, and immune system function was evaluated before and after the experiment. Most of the vitamin E group showed a significant improvement in immune system function, with a 10 to 50% boost over pretreatment values.

However, the dosage of vitamin E used was 800 international units, about 26 times the recommended daily allowance. Patients in the placebo group showed no change. Another experiment in chickens infected with lethal bacteria, demonstrated that mortality could be reduced by as much as 80% simply by providing a diet with six times the usual content of vitamin E. Adding megadoses of vitamin E to an antiviral sheep vaccine more than doubled its protective effects again suggesting that it can improve immune responses. In another study, large doses of vitamin E reduced the oxi-

dativ damage often seen in smokers, and which are thought to play a role in the development of lung cancer.

"The greatest discovery in our generation is that human beings by changing the inner attitudes of their minds can change the outer aspects of their lives."

— William James

Can Vitamins Reduce Risk of Cancer?

Animal studies suggest that vitamin A related compounds known as retinoids can reduce the development of breast and other cancers. Comparisons of vitamin A intake in breast cancer patients and normal controls revealed that the cancer risk for those with the lowest vitamin A intake was about double that of the highest group. A large study is now under way in Italy in 5,000 women who have had cancer of the breast to determine whether the administration of vitamin A rich retinoids will reduce the appearance of cancer in the unaffected breast. Retin-A creams protect against skin cancer and in the laboratory, retinoids have been shown to halt or interfere with the growth and development of leukemic and precancerous cells. Another large study in smokers suggests that retinoids may reduce the incidence of lung cancer.

As noted elsewhere, there is also evidence that large doses of vitamin E may improve immune system defenses against cancer. None of these research findings prove any causative effect, but merely demonstrate an association. Many other factors not accounted for may have an important influence. Thus, a long-term follow-up study of college graduates revealed that sedentary females had almost twice the rate of breast cancer as those who were athletic and active on college sports teams. Stress may also play an important role since it may increase the production of prolactin which contributes to breast cancer. Stress can also lower the body's immune activities which provide defenses against malignancy.

"There is much pleasure to be gained from useless knowledge."

— Bertrand Russell

**Mark Your Calendar:
2nd International Montreux
Congress on Stress
November 19 - 21, 1989**

Book Reviews • Meetings and Items of Interest

Book Review

Stress Management for Chronic Disease, Russell, M.L. (ed). Pergamon Press, New York, 1988, 316 pp., \$45.00.

This volume addresses a serious problem that is increasing both with respect to diversity and intensity. As our elderly population rapidly increases, so does the incidence and complications related to chronic disease. Stress-related problems are particularly prominent because of growing social isolation in the aged, difficulties related to the continuing care of disabled relatives with Alzheimer's or Parkinson's disease, and a host of other afflictions and infirmities which interfere with the quality of life, but not necessarily its duration. Lack of control over one's activities because of poor health is the most common source of stress in senior citizens. And their problems can cause severe stress in frustrated caregivers, as is demonstrated so frequently in the relatives of Alzheimer's disease victims who remain at home. This volume, which is part of the Pergamon General Psychology Series, grew out of a local conference held several years ago in Houston, so that most of the authors are from the surrounding area and the 16 chapters reflect their areas of particular expertise. Thus chapters are devoted to stress management and hypnosis, TMJ syndrome, headaches, obstetrics and gynecology, eating disorders, etc., which are not really top priority problems for the elderly or even chronic disease. Most of the chapters are well written and referenced, but the level of presentation is uneven and the scanty Index is only one-and-a-half pages long. The title of this book promises more than it delivers. That is probably a reflection of the fact that it is essentially limited to the expertise of local authorities. While the presentations are commendable and some are superb, they would probably be more appropriate and effective if directed to an audience different from the one likely to be attracted to this title. The stress-related effects of chronic disease have vast medical, psychosocial and fiscal implications and deserve a more eclectic and appropriate treatment than this volume provides.

Meetings and Items of Interest

Sept. 24, Healthy Pleasures, Boston, MA (M.I.T.) Institute for the Study of Human Knowledge. Contact Margaret Caudill, M.D., ISHK/Boston. Box 1062, Cambridge, MA 02238.

Oct. 2-4, Neuropeptides and Immunopeptides, New York, NY. New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021. (212) 838-0230.

Oct. 11-15, American Academy of Child and Adolescent Psychology, New York, NY. (202) 966-7300.

Oct. 23-25, The Ecology of Work: Improving Productivity and the Quality of Work Life. Toronto, Ontario. Contact Tom Chase, R.R. #2, Box 44a, Northwood, NH 03261.

Oct. 26-29, Academy of Psychosomatic Medicine, Las Vegas, NE. Academy of Psychosomatic Medicine, 5824 N. Magnolia, Chicago, IL 60660. (312) 784-2025.

Oct. 27-30, Fifth Annual Meeting of the Society for Traumatic Stress Studies "Learning from Victim/Survivors: Insights for Prevention, Intervention, and Care," San Francisco, CA. The Society for Traumatic Stress Studies, P.O. Box 1564, Lancaster, PA 17603.

Nov. 2-4, Cardiac Wellness and Rehabilitation, St. Thomas, VI. Medical Education Resources, (800) 421-3756.

Nov. 2-4, Neuroimmunology VI: The State of the Art, Chicago, IL. University of Chicago School of Medicine. (312) 702-1056.

Nov. 2-5, 1989 23rd Annual Convention of the Association for Advancement of Behavior Therapy, Washington, DC. (212) 279-7970.

Nov. 4-5, Teaching Humanistic Medicine: An Exploration of Goals, Techniques and Experiences, New York, NY, NYU Post Graduate School. (212) 340-5295.

Nov. 5-19, Topics in Psychopharmacology and Biological Psychiatry Moscow, Samarkand, Tashkent, Leningrad, USSR. Professional Seminar Consultants, Inc. (800) 365-5357.

Nov. 9-11, Addiction Medicine: State of the Art California Society for the Treatment of Alcoholism and Drug Addiction, San Diego, CA. (415) 428-9091.

Nov. 17-20, 26th Annual Psychiatric Institute on Group Behavior and Group Leadership, Peachtree City, GA, Emory University School of Medicine. (404) 727-5695.

Nov. 19-21, Second Annual International Montreux Congress on Stress, Montreux, Switzerland. American Institute of Stress (914) 963-1200.

Dec. 3-7, International Round Table on Silent Myocardial Ischemia. For detailed information contact the Congress Secretariat, Tel Aviv; contact Kenes Ltd., P.O. Box 50006, Tel Aviv 61500.

Dec. 7-9, Cardiac Wellness and Rehabilitation, Acapulco, Mexico. Medical Education Resources (see above for details—same as August 4.)

Dec. 10-30, Wellness and Its Relationship to Health Promotion, Protection and Disease Prevention (Cruise: Rio De Janeiro to Buenos Aires, Argentina). Seminars and Symposia Inc. (212) 517-7520.

Feb. 25-Mar 2, 1990, American Journal of Health Promotion, Cancun, Mexico. (313) 258-3754.

Mar. 29-Apr. 1, 1990, American Society of Contemporary Medicine and Surgery (Stress and Hypertension), Phoenix, Arizona.

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