

The Newsletter of THE AMERICAN INSTITUTE OF STRESS

Number 2

1990

Avoiding the Stress of Running

Running and regular jogging are pleasurable activities for many individuals who also believe that these activities help to reduce stress. On the other hand, running can prove stressful for many, and possibly dangerous for highly competitive Type A's who constantly strive to improve self-imposed time and distance goals. Apparently even seasoned runners may become disenchanted from time to time, judging from the pained faces of many runners. A recent article suggests the following useful tips to reduce the stress of running:

- keep a diary of your runs as a source of motivation.
- establish a minimum mileage requirement. Most runners run 2 or 3 miles every day.
- know your pace so you can compute distance while running on unfamiliar routes.
- race as little as possible, and when you do, don't make personal records a priority.
- adhere to routines but keep them flexible.
- do some cross training for variety.
- don't attempt a long run unless you have been running for at least two years.
- try to run at an easy pace, to facilitate recovery.
- when suffering from minor aches or colds, limit your activities but don't feel that you must give up running entirely.

ALSO INCLUDED IN THIS ISSUE

The How's and When's of Biofeedback Therapy	2
Can Reducing Type A Stress Benefit Men?	3
More on the Effects of Petting	3
Can Good Stress Make You Sick?	3
Changes in the Evolution of the Type A Concept	4
Wartime Stress and Coronary Heart Disease	4
Stress Reduction Courses for Medical Students	4
The Stress of Bereavement — Are Widows Different From Widowers?	5
Is Type A the Same As Coronary Prone Behavior?	6
Job Stress and Heart Attacks	6
Stress, Type A Behavior, and Cardiovascular Reactivity	7
Biological Clocks, Heart Attacks, And Sudden Death	7

- focus your energies on the joy of running not on each run itself.

One might add to this that there appear to be additional benefits when one engages in running activities with another individual on a social and non-competitive basis.

Stress and Ulcers — What Is the Link?

A variety of conflicting reports have appeared concerning the relationship between emotional stress and the development of peptic ulcer. Hemorrhagic erosions in the stomach are one of the hallmarks of laboratory animals exposed to acute stress, and it is commonly perceived that stressful, tense executives, pressured with time and financial deadlines are prime ulcer candidates. However, studies have failed to demonstrate any clear relationship between the number of stressful events experienced such as divorce, or death of a loved one and increased ulcer incidence. Researchers now suggest that it is not how much stress you are under, but how you perceive your difficulties that determines the likelihood of developing an ulcer. A study of ulcer patients revealed no increase in stressful events in the preceding year when compared to healthy controls, but it was apparent that these individuals viewed such events in a much more negative fashion. It was also suggested that people under stress may have a greater tendency to smoke, drink, consume more aspirin and caffeine and have increased acid secretion, all of which further irritates the stomach. The ulcer patients demonstrated more cigarette smoking, and intake of alcohol (continued on page 2)

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**

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Stress and Ulcers— What Is the Link?

(continued from page 1)

and coffee, and there were higher blood levels of serum pepsinogen, an enzyme that increases in the blood when the stomach produces large amounts of acid. Psychological tests also showed a greater tendency to anger and hostility in the ulcer patients and a decreased ability to cope with the stress. However, the most significant finding was the clear connection between anger, hostility, and the stomach's ability to create acid rather than increased smoking, drinking, or aspirin consumption.

"Jones' Law: the man who smiles when things go wrong has thought of someone he can blame it on."
 — quoted in *Murphy's Law*

The How's and When's Of Biofeedback Therapy

Biofeedback is often touted as an effective treatment for some stress-related disorders. Its success is difficult to evaluate since it is more of a technique than a profession and can be misapplied by those with inadequate training and experience. The three most common techniques involve learning to control muscle tension, skin temperature, or sweating. In EMG or electromyographic biofeedback, an electrode detects the signals produced by microelectric signals between nerve endings and muscle fibers that cause the latter to contract. EMG feedback

detects the degree of contraction in a muscle group and translates it into a tone or visual signal. The lower the tone or reading, the greater the degree of relaxation. By learning how to lower the tone, volume or frequency, painful contraction of spasm in muscle groups can be simultaneously reduced. This procedure can be quite effective in tension headaches which come from contraction of the muscles in the forehead, jaw, and scalp. It may also be of value in low back pain due to muscle spasm or muscle injuries sustained as a result of sports or accident trauma.

Temperature biofeedback utilizes a heat-sensitive probe placed on the hand or foot which reflects skin temperature. Since temperatures in extremities are largely determined by the degree of blood flow through small vessels, learning how to raise the temperature in these areas produces a much greater flow of blood at these sites. This method of biofeedback can be extremely helpful for treating migraine headaches, which are due to constriction of vessels in the brain and particularly Raynaud's Disease which is caused by marked spasm of the vasculature in the hands when exposed to cold temperatures. Electrodermal biofeedback, commonly known as GSR (galvanic skin response), utilizes a probe that responds to the presence of sweat. The chemical composition of perspiration makes it a good conductor of electricity so that the greater the amount of sweat, the stronger the signal. Individuals tend to perspire more when they are experiencing stress and by being able to appreciate this, it is possible to utilize relaxation techniques that lower the state of arousal. This modality may be useful in some patients with anxiety, panic disorder and chronic pain.

Combinations of these approaches have been utilized successfully in patients suffering from hypertension, peptic ulcer, abnormal heart rhythm, epilepsy, Tourette's Syndrome, and even Parkinson's Disease. More sophisticated approaches such as that developed by Lynch and co-workers are effective in treating hypertension by providing direct feedback of blood pressure measurements. This utilizes a computerized program that allows patients to see their blood pressure displayed sequentially on a video screen at one minute intervals. EEG biofeedback can teach patients to achieve more peaceful and meditative states by monitoring brain wave patterns.

In general, it takes about 12 to 20 biofeedback sessions lasting an hour for patients to develop relaxation skills. In between sessions, they practice what they have learned without biofeedback instrumentation to reinforce the effects.

(continued on page 3)

The How's and When's Of Biofeedback Therapy

(continued from page 2)

Since anyone can claim to be a biofeedback therapist, local biofeedback or psychological associations should be contacted to verify credentials. A list of qualified therapists can also be obtained from the Association for Applied Psychophysiology and Biofeedback, 10200 W. 44th Ave., #304, Wheatridge, CO 80033.

"The process of science is strewn, like an ancient desert trail, with the bleached skeletons of discarded theories which once seemed to possess eternal life."

— Arthur Koestler

Can Reducing Type A Stress Benefit Healthy Men?

There appears to be little doubt that Type A coronary prone behavior is a significant risk factor for coronary heart disease. Much more controversial is the issue of whether or not reducing Type A behavior provides any significant protection from future coronary events. One study reported that Type A heart attack patients seemed less likely to have a recurrence than Type B's. It was suggested that this might be due to a greater sense of denial or perhaps a change in behavior occasioned by the heart attack itself. Type A behavior may possibly be associated with other non cardiac disorders or problems and the question arose as to whether reducing Type A stress could provide benefits for healthy men who would be less motivated to make behavioral changes than those with heart problems. A recent report reviewed the effects of a Type A behavior/stress reduction program in senior Army officers attending the U.S. War College. The entire course takes about 10 months and for the past six years, a voluntary program consisting of 13 sessions, lasting 90 minutes each over seven months has been offered on a voluntary basis. Twenty-two of the 117 senior officers who attended the 1987-1988 session were compared with a control group who did not receive the behavioral modification/stress reduction program. All of the class were given a series of stress assessment questionnaires, videotape structured interview as well as a battery of psychological and behavioral tests. At the beginning of the program, the 20 officers in the Stress Reduction group scored significantly higher in

"depression, somatic symptoms, hostility, self-perceived stress, anxiety, and Type A behavior." They ate more and were more resistant to exercise than the control group. Follow-up testing eight months later revealed "remarkable changes" in those officers who had completed the Type A behavior/stress reduction program and all of their elevated psychological and behavioral test scores fell to the levels reported by the controls. It was also evident that they were now eating less and exercising more frequently. The control test subjects remained unchanged over this same period of time. It would be interesting to determine whether follow-up studies demonstrate that such benefits persist over a long period of time and whether they provide any protection against future heart attacks.

"Millions long for immortality who do not know what to do with themselves on a rainy Sunday afternoon."

— Susan Ertz

More on the Effects of Petting

Prior issues of the Newsletter have reported on the health benefits of petting — both to the petter and those petted. A mother's touch has been found to have a significant health benefit for infants and "touch therapy" can produce surprising improvement in some patients, even when presumably comatose. Now researchers have found that petting can also affect plant growth and development. It has long been observed that some individuals seem to have a "green thumb" while others claim that talking to their plants or providing a cheerful atmosphere and pleasant music improves growth. A molecular biologist has discovered a set of genes in a plant which actually causes them to change their growth patterns in response to human touch as well as other stimuli including wind and rain. Perhaps similar genes can be identified in humans that will further confirm the anecdotal reports of the health effects of touch.

"Critics are like eunuchs in a harem. They know how it's done, they've seen it done every day, but they are unable to do it themselves."

— Brendan Behan

Can Good Stress Make You Sick?

It may have something to do with how you feel about yourself, according to recent research. In the original Holmes-Rahe Scale which links life change events with subsequent illness, positive changes, such as getting a promotion or some outstanding personal achievement, are more likely to contribute to future illness than many negative experiences. However, others believe that if bad stress can make you sick then good stress should have the opposite effect. In one recent study, 261 girls between grades 7 through 11 were asked to list which "major life events" from a list had occurred to them over the previous 12 months. This included both good and bad events such as breaking up with a boyfriend, getting a new one, losing or adding a family member, etc. The researchers also measured the students' self-esteem and then followed them for four months to record the amount of illness since completion of the survey with the number of positive stressful experiences. Those students who were rated as having the lowest self-esteem also reported more illnesses associated with more positive events. In contrast, students with high self-esteem reported fewer illnesses in association with more positive events experienced in the previous year.

"An expert is a man who has made all mistakes in a very narrow field."

— Neils Bohr

Changes in the Evolution of The Type A Concept

A distinguished panel of scientists convened by the National Heart, Lung, and Blood Institute in 1978 concluded that Type A behavior was associated with an increased risk of clinically apparent coronary heart disease in employed middle-aged U.S. males. The risk was greater than that imposed by age, smoking, or elevated blood pressure, and was as powerful a predictor of coronary heart disease as any of these standard risk factors. Since then, various reports have failed to confirm this relationship, possibly because of differences in the subpopulation measured, changes in the study design or work environment, different end points, or greater public awareness and earlier medical intervention for Type A's. Particular criticisms have been leveled at the use of pen and pencil questionnaires rather than the personal interview for assessment, studying patients in settings where Type A behavior would be masked (post coronary bypass surgery, before angiography in the hospital, etc.). In addition, it is not clear whether Type A behavior always remains stable over time, and many of the

negative studies covered the period between 1970-1983, a time when rates of coronary heart disease were declining rapidly throughout the U.S. With respect to other vascular complications, although the Framingham study showed no association in Type A men for stroke, Type A women, age 45 to 64 without evidence of cardiovascular disease proved five times more likely to develop cerebral vascular accidents over the next ten years as compared to their Type B counterparts. Two-thirds of the reports using the structured interview also show a positive association between Type A behavior and the extent of coronary atherosclerosis determined by coronary angiography. Other studies using angina as an end point rather than a myocardial infarction, have shown a definite correlation between Type A and chest pain independent of evidence for underlying atherosclerosis. One explanation may be that physicians might view chest complaints in their Type A patients more seriously because of the recognition of its significance as a risk factor and because such patients may be more aggressive in reporting symptoms.

If Type A behavior contributes to the atherosclerotic process, then one might expect it to be more prevalent in patients with peripheral vascular disease. In one such study, patients with both symptomatic peripheral vascular disease and coronary heart disease demonstrated much more Type A behavioral traits, but those patients without evidence of coronary problems showed no increase in Type A behavior. Finally, it is not clear whether some specific component of Type A such as hostility, ability to express anger, competitiveness, time urgency, etc. might have more predictive value for future coronary events than global Type A behavior as originally described. In addition, it is likely that other influences, not considered in most studies, such as social support, marital discord, family relationships, work environment, etc. also play a significant role in determining outcomes. Future studies clearly need to take all of these important influences into account for meaningful results to be obtained.

"Modesty is becoming to the great. What is difficult is to be modest when one is nobody."

— Jules Renard

Wartime Stress and Coronary Heart Disease

Demonstrating a relationship between stress and cardiovascular disease is often difficult because of problems associated with measuring stress in an objective and scientific fashion. The same stressful incidence often affects each of us differently, (continued on page 5)

Wartime Stress and Coronary Heart Disease

(continued from page 4)

although some stresses are more likely to produce fairly consistent reactions. Wartime trauma would appear to fall in this category and researchers used this to evaluate some 127 patients undergoing tests for suspected heart disease. All were involved in the 14-year-long Lebanese civil conflict, and were questioned about major traumatic events such as the killing or kidnaping of a family member as well as lesser chronic stress such as being short of water or food or having to frequently cross the "green lines" which divide Christian and Moslem Beirut. They found that patients who had reported up to four major wartime traumatic events were eleven times more likely to have objective evidence of coronary artery disease than those with comparatively minor experiences. A positive correlation was also demonstrated with greater exposure to lesser but more chronic stresses, leading to the conclusion that "the more exposure to war events, the more risk of coronary heart disease."

"Experience is the name everyone gives to their mistakes."

— Oscar Wilde

Stress Reduction Courses For Medical Students

At least 100 physicians commit suicide every year, and despite improved education, drug addiction is higher in doctors than the general population. At least one organization (The Society for Professional Well-Being) has been established to help physicians deal with such stress-related problems and a number of courses and seminars addressing various aspects of the problem are increasingly being offered to assist physicians and other health professionals. However, the Chairman of the Department of Psychiatry at one Medical School believes that the answer to the problem is for medical schools to begin teaching young physicians how to "stay mentally healthy and socially well rounded," right along with Human Anatomy and Biochemistry. Physician stress may have its origins in medical school with its fierce competition, lack of time for family and social activities or adequate "escape valves." The problem may be particularly severe for married students whose spouses often feel progressively rejected and isolated. This usually progresses through three emotional stages: anger and confrontation; surrender and resignation; and finally, complete detachment. Such problems frequently increase when physicians enter practice, and studies

of physicians' marriages reveal that many doctors are "no longer capable of close, intimate relationships outside the office." Most stress-reduction programs focus on teaching physicians and their families to develop improved communication skills, and to learn how to identify the early warning signs of impending difficulties. Things are likely to worsen. Last year's Gallup Poll revealed that almost 40% of doctors interviewed said they "definitely or probably would not enter medical school if they had a career choice to make again."

"If you can talk brilliantly about a problem, it can create the consoling illusion that it has been mastered."

— Stanley Kubrick

The Stress of Bereavement — Are Widows Different From Widowers?

Attempts to rate stress usually place loss of a spouse at the top of the list, in terms of adverse health effects. It has commonly been observed that following loss of a mate, the survivor often dies within a year, frequently from cancer or cardiovascular disease. Widowed individuals die at rates three to twelve times higher than their married controls from all the leading causes of death. In general, men seem to be affected more than women and some studies have confirmed a significant decline in their immune system's ability to resist infection and cancer. One factor appears to be whether death has been an unexpected event as opposed to some chronic illness. A recent study of 113 widowers and 383 widows taken from a national sample of more than 5,000 families reveals that men whose wives die suddenly are at much greater risk than those whose mates died after a chronic illness. In contrast, women whose husbands die after a long illness, appear to face a greater risk than those whose mates died suddenly.

It has been suggested that men whose wives die suddenly are not prepared for the loss of their caregivers while those whose wives were chronically ill may have learned to adapt to their impending loss and can cope better with the change. Although this latter group is still 13% more likely to die than controls whose wives are still alive, the mortality rate for sudden widowers soars to 52%. Abruptly widowed women were only 1% more likely to die than married counterparts. However, those whose husbands died after a chronic illness were 49% more likely to die in the follow-up period. It seems possible that the burden of caregiving in addition to loss of financial support might contribute to this latter group's greater risk.

Is Type A the Same As Coronary Prone Behavior?

The original formulation of the Type A Concept by Rosenman and Friedman more than three decades ago emphasized such behavioral traits as a driving desire to achieve multiple and often poorly defined goals because of an intense need for recognition, a rather constant sense of time urgency, aggressive competitiveness, and evidence of accelerated physical and mental activities. Because many Type A's tend to deny or lack any recognition of their behavioral traits, the accuracy of pen and pencil questionnaire assessments seemed dubious and Rosenman subsequently developed the structured personal interview. This approach utilizes questions which are asked in a provocative or accusatory manner designed to evoke telltale psychomotor and speech responses, and have proven to be a more accurate way of identifying and rating Type A behavior.

About two decades ago, evidence began to accumulate suggesting that some of the attributes included in the original Type A construct were not particularly coronary-prone tendencies, and, paradoxically, that job involvement might actually confer protective benefits. More recently, attention has been directed to the role of hostility as the core component of Type A coronary-prone behavior. Proponents of this view point out that several large studies have failed to show a significant correlation between global Type A behavior and coronary heart disease, and that the "potential for hostility" as derived from the structured interview, had the most predictive power. Ratings for "potential for hostility" are derived from three sources: "content of hostility," "intensity of hostility," and "hostile style." "Content of hostility" relates to reports of frequent episodes of anger, "intensity of hostility" is based on descriptions of intense experiences of negative emotions and the use of profanity, and "hostile style" is determined by argumentative, challenging, rude, and antagonistic responses to the interviewer. The total scores for these three arbitrarily designed components is expressed in terms of a five point scale indicating total "potential for hostility." In the large MRFIT study, it is claimed that only this measurement showed any significant positive association with coronary heart disease.

Most measurements of hostility are derived from questionnaires and ratings obtained by such techniques are also claimed to demonstrate superior association with coronary heart disease. However, a major problem in this area is one of semantics and it is not clear whether these really are measurements of hostility as opposed to such things such as neuroticism, irritation, resentment, annoyance, antagonism, rage, cycicism, or manipulative behaviors. The most publicized technique utilizes the Cook-Medley subscale of the MMPI to measure hostility, but it really

coronary heart disease. Some suggest that it is not hostility, but rather anger and its expression that is of primary importance. Alternatively, it has been claimed that measurements of a scale designed to measure Agreeableness/Antagonism provides the most important information, especially if self report ratings are supplemented by spouse and peer evaluations. Clearly, this is an area in which there are many more questions than answers, and the current flurry of conflictive competitive reports has generated more heat than light. It does seem evident that a distinction needs to be made between global Type A behavior and coronary-prone Type A behavior, but the latter has yet to be clearly characterized much less accurately measured.

"We don't call it sin today, we call it self-expression."
— Baroness Stocks

Job Stress and Heart Attacks

There is growing evidence that stressful work conditions are associated with an increased incidence in heart attacks. Police personnel and air traffic controllers are purportedly at greater risk because of their job duties. In some cities, any police officer who has a heart attack is assumed to have a work-related disability, even if it occurs on vacation, while gambling in Las Vegas. On the other hand, many authorities feel that there is no such thing as a "stressful occupation," pointing out that some individuals thrive on the excitement of life in the fast lane. Stress is different for each of us, and most job stress problems arise because of some incompatibility between the individual's personality or goals and the requirements of the job. The most recent studies suggest that occupations in which there is a great deal of responsibility but little authority or opportunity to express one's emotions are apt to be associated with higher rates of heart attacks. Complaint department personnel, sales clerks, and waitresses are good examples. Such individuals are often under a great deal of psychological stress because they have to deal with angry customers about matters over which they have no control, nor do they have an opportunity to freely express their true emotions during these frequent daily encounters. Many of these jobs are filled predominantly by females and it is believed that this may be a major factor in the increased incidence of heart attacks reported in certain classes of working women. In one recent study of over 5,000 individuals, occupations were rated for stress based on the degree of psychological demand and lack of control. Those who were in the top 10% for job stress had four to five times as many heart attacks as those in the lowest 10%.

Stress, Type A Behavior, and Cardiovascular Reactivity

Stress and Type A behavior are often linked synonymously, possibly because Type A's often demonstrate hyperreactive cardiovascular responses to stressful stimuli. It has been proposed by some that this is the pathway through which Type A behavior promotes the development of coronary heart disease. However, this requires the assumption that psychosocial challenges in the laboratory reflect or mimic responses to the stress of daily life. Part of the problem with much of the research in this area is the methodology used to rate Type A behavior. As one might suspect, the structured interview assessment demonstrates the strongest relationship between cardiovascular hyperactivity and plasma norepinephrine responses. Other studies also report increased responses in Type A's with respect to plasma levels of cortisol and testosterone. While some research does show an agreement between stress-induced laboratory hyperactivity and similar responses during the stress of everyday life (workplace or examination pressures). Other studies have failed to confirm this. In addition, there is little proof that such hyperactivity causes sustained hypertension or coronary heart disease. A major methodologic problem is the type of stressful stimulus utilized since reactivity may differ depending upon whether the situation is anger inducing or simply requires increased coping activity of another nature. In addition, both the intensity of the response and its duration need to be taken into consideration, as well as other risk factors including family history, age, and sex. The Type A stress-hyperactivity-heart attack paradigm is attractive, but remains to be proven.

"The average Ph.D. thesis is but the transference of bones from one graveyard to another."

— J. Frank Dobie

Biological Clocks, Heart Attacks, and Sudden Death

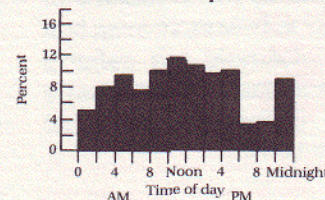
A number of body processes appear to have a natural rhythm. The menstrual cycle occurs on a somewhat monthly cycle, but most activities seem to demonstrate a diurnal or daily pattern and are referred to as circadian rhythms from the Latin 'circa' — around and 'dies' — day. The sleep-wake cycle falls into this category, but differs for each of us. The process of awakening appears to be

triggered by a sudden increase in adrenal hormones, which usually occurs from 5-7 A.M. Heart attacks, sudden death, and strokes also appear to occur more frequently at certain times of the day in conjunction with a circadian rhythm. In one recent study, 137 heart attack patients awoke at their usual hour (average 6:30 AM on the day of the incident) and almost half of these had their initial symptoms within the first four hours of awakening. Another large study of 985 patients showed an increase in heart attack episodes between the hours of 6 AM and 12 noon and a European study of 1,200 patients showed a dramatic increase in heart attacks between 6 AM and 9 AM. It has been suggested that these findings are best explained by the sudden surge of stress-related hormones which are known to cause cardiac damage, disturbances in heart rhythm, and increased platelet stickiness which can lead to clot formation. If this were so, one might suspect that drugs such as beta blockers which blunt the effects of these adrenal hormones might offer some protection. One report of 1,700 patients appears to confirm this, since those individuals receiving beta blockers did not show the expected morning peak in the incidence of heart attacks. In another group receiving calcium channel antagonists for cardiac problems, however, no such protection was seen.

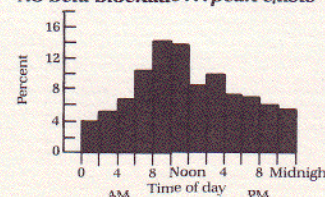
Various studies of sudden death in thousands of patients show a similar peak between 7 AM and 11 AM. Cerebral vascular accidents or strokes are popularly linked with states of intense anger or marked emotional excitement, but this does not correlate with their higher occurrence during sleep or early morning activities. In hospitalized patients whose strokes worsened after hospitalization for impending stroke signs, such complications also were greater from 7-11 AM.

Effects of therapy on AM peaks

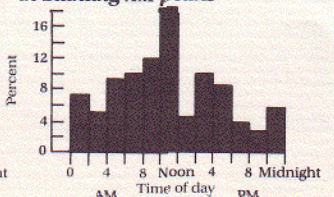
On beta blockade ... peak blunted



No beta blockade ... peak exists



Calcium blockade ... not effective in blunting AM peaks



Book Reviews • Meetings and Items of Interest

Book Review

The Trusting Heart: Great News About Type A Behavior, Williams, R., Random House, New York, 1989, \$17.95.

Type A has taken a lot of flack in recent years. A variety of reports have failed to confirm its association with coronary heart disease, although many of these suffer from poor design, measurement techniques, and interpretive errors. A major criticism is that global Type A behavior, as originally described, is different from coronary prone behavior, and that certain traits are superior predictors of subsequent coronary events. Dr. Williams makes a strong case for hostility as this toxic core component, skillfully reviewing pertinent literature to support his view and delineating the pathophysiologic mechanisms involved. The problem is that hostility, like Type A behavior, is best appreciated and measured as an observed trait, rather than one to be rated by self assessment on a questionnaire. The author relies on the Cook-Medley subscale of the MMPI, an item grouping selected thirty-five years ago to differentiate teachers who had poor, as opposed to good rapport with students. Many believe that it actually measures a mixed bag of behaviors, including neuroticism, animosity, cynicism, vindictiveness, etc., rather than hostility per se. In addition, this scale really correlates best with all cause mortality rather than being specific for deaths due to coronary heart disease. Few would argue the need to sharpen our focus on which aspects of Type A may be the most important for predicting coronary events, and this volume is of great heuristic merit in that regard. However, at present it provides more questions than answers.

Meetings and Items of Interest

Feb. 23-24, Healing: The Leading Edge, Naples, FL. Integrative Medicine Institute, P.O. Box 1544, Naples, FL 33939.

Feb. 25-Mar 2, 1990, American Journal of Health Promotion. Plenary sessions and workshops including psychoneuroimmunology, workplace health promotion, stress management, etc. Cancun, Mexico. American Journal of Health Promotion, 746 Purdy St., Birmingham, MI 48009 (313) 258-3754.

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

March 21-24, A Summit Meeting on Corporate Stress, Breckenridge, CO. Biobehavioral Institute of Boston, 1101 Beacon St., Brookline, MA 02146. (Registration fee \$450 before Feb. 1.) Mail to: Summit Meeting, P.O. Box 4329, Breckenridge, CO.

March 22-23, Fourth International Conference on REST (Restricted Environment Sensory Training), Washington, D.C. International Rest Investigators Society (IRIS). Contact Thomas Fine, MA Medical College of Ohio, Behavioral Medicine Clinic, P.O. Box 10008, Toledo, OH 45699.

March 22-24, The American Psychosomatic Society Annual Meeting, Boston, MA. American Psychosomatic Society, 6720 Old McLean Village Drive, McLean, VA 22101 (703) 556-9222.

March 22-25, The Society for Adolescent Medicine. Annual Meeting. Atlanta, GA (Eating disorders, depression, teenage stress and suicide), The Society for Adolescent Medicine, Suite 101, 10727 White Oak Ave., Granada Hills, CA 91344 (818) 368-5996.

March 23-28, Association for Applied Psychophysiology and Biofeedback. Annual Meeting. Washington, D.C. (Stress and anxiety, aging, psychoneuroimmunology, psychophysiological instrumentation, etc.) Asso-Medicine, Box 523, Mansfield Center, CT 06250 (203) 456-6000. 303) 422-8436.

March 26-April 1, American Holistic Medical Association and Foundation - 13th Annual Conference, Seattle AHMA/F. 2002 Eastlake Ave. E., Seattle, WA 98102 (206) 322-6482.

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

April 18-21, Nature, Nurture and Behavioral Medicine. Chicago, IL. 11th Annual Meeting. The Society of Behavioral Medicine, 103 South Adams St., P.O. Box 1277, Rockville, MD 20850 (301) 251-2970.

April 19-22, The Society for Professional Well-Being; Third Annual Conference, Philadelphia. Dr. Sharp, Box 129, Milford Square, PA 18935.

April 19-22, The Society for Professional Well-Being; Third Annual Conference, Philadelphia, PA. The Society for Professional Well-Being, 5102 Chapel Hill Blvd., Durham, NC 27707 (919) 489-9167.

April 20-22, The Positive Power of Humor and Creativity, Saratoga Springs, NY. The Humor Project, Saratoga Institute, 110 Spring St., Saratoga Springs, NY 12866 (518) 587-8771.

May 3-5, The National Institute for the Clinical Application of Behavioral Medicine (Stress and cardiovascular disease, the immune system, etc.) Contact The National Institute for the Clinical Application of Behavioral Medicine, Box 523, Mansfield Center, CT 06250, (203) 456-6000.

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