

The Newsletter of THE AMERICAN INSTITUTE OF STRESS

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Sixth International Montreux Congress on Stress
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Dr. Joel Elkes, recipient of the Hans Selye Award at the Sixth International Montreux Congress on Stress, February 20, 1994, with Dr. Claude Rossel, Executive Vice President, Biononus Clinic, on his right, and Dr. Paul J. Rosch, President of The American Institute of Stress on his left.

Highlights from the **Sixth International Montreux Congress on Stress**

The Hans Selye Award

The term "stress" as it is commonly used, was essentially coined by the brilliant Canadian investigator, Hans Selye, about 50 years ago. Selye's bold and novel theories of "Stress", "The General Adaptation Syndrome", and "Diseases of Adaptation", revolutionized medical thinking. They quickly spread to all of the social sciences, and "stress" has now become part of vernacular speech. Selye's concept was so unique, that when his research had to be translated into other languages, no suitable word or phrase could be found to convey its meaning. Consequently, stress is one of the few words which remains extant in scientific publications in all European languages, as well as Russian, Japanese, Chinese, Arabic, etc.

(Continued on page 2)

ALSO INCLUDED IN THIS ISSUE

Joel Elkes, M.D., A Man For All Seasons.....	2
Synopsis of Program.....	3
Emotions, Behaviors, and Heart Attacks.....	4
Autonomic Responses to Stress and Sudden Death.....	5
Predicting Stress Related Heart Attacks.....	5
Stress and Your Hair.....	6
Psychological Influences On The Skin.....	6
Stress and Psoriasis.....	7
Stewart Wolf, M.D., 1994 Award for Outstanding Stress Research.....	7
Books Received for Review.....	7
Some Faculty Responses to the Sixth Congress.....	8

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

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(Continued from page 1)

Selye was quick to acknowledge that his achievements had been made possible, only because of the accomplishments of others. He claimed he could see ahead because he stood on the shoulders of giants who had preceded him. First and foremost in this regard was Claude Bernard, the celebrated 19th century French physician, often referred to as the "Father of Physiology". It was Bernard who developed the concept that the health of the organism depended upon maintaining the stability and equilibrium of what he called the "milieu intérieur" or internal environment, a process which Walter Cannon later described as homeostasis.

Claude Bernard was an inspiration to Selye not only because of his propaedeutic theories, but also the high scientific standards he established for conducting research. To acknowledge this debt, Hans Selye established the Claude Bernard Medal. This was a handsome medal that was awarded periodically to a distinguished investigator in the field of stress research, who exemplified Bernard's high standards and tradition of scrupulous honesty. In general, this honor was bestowed on senior investigators and clinicians whose accomplishments Selye felt had not been adequately appreciated or

acknowledged. They were invited to his Institute of Experimental Medicine and Surgery at the University of Montreal to deliver a Claude Bernard lecture dealing with their research, and to receive the award.

These International Montreux Congresses on Stress are devoted to the memory of Hans Selye. They are designed to perpetuate the tradition of providing tribute to those who have followed in his footsteps, as well as those of Walter Cannon and Claude Bernard, in maintaining their high standards. The highlight of these events is the Gala Opening Banquet, and the presentation of the Hans Selye Award to a distinguished researcher who has made important contributions to our understanding of stress. In addition to delivering the Hans Selye lecture, the honoree is asked to comment informally on personal reminiscences of Hans Selye, and to provide a philosophical perspective of past developments, and to identify promising new areas for future investigation. Past recipients have included outstanding senior investigators whose seminal contributions are only now just beginning to be fully appreciated. The Hans Selye Award proceedings also provide an important link to the past for younger scientists, which might otherwise not be available. The magnificent setting in which these events take place provides a unique ambiance for personal and professional interaction that is inspiring. It also furnishes other participants with a fresh perspective on their own endeavors, because of the interdisciplinary and eclectic, cutting edge presentations that characterize these Congresses.

JOEL ELKES, M.D. **A Man For All Seasons**

Few individuals are more deserving of the Hans Selye Award than Joel Elkes, who was recently honored by Fetzer Institute on the occasion of his eightieth birthday. His research interests in biophysics and pharmacology began while he was a medical student at the University of London, and he subsequently played a pivotal role in developing the Department of Pharmacology at the University

(Continued on page 3)

(Continued from page 2)

of Birmingham in England. His research into the chemical and electrical activity of the brain led him into the field of psychiatry, and in 1951, he founded the first Department of Experimental Psychiatry at the University of Birmingham. This was the first unit of its kind in the world, because it included research laboratories in neurochemistry, electrophysiology and behavior, while at the same time providing comprehensive clinical psychiatric services. One of the "Founding Fathers" of psychopharmacology, a new discipline that investigated the effect of drugs on mental function and their use in psychiatric and emotional disorders, he carried out the first blind control trial of thiorazine. In 1957, he helped create, and was the first Director, of the Clinical Neuropharmacology Research Center of The National Institutes of Health.

He has served as Henry Phipps Professor and Director of the Department of Psychiatry, and as Psychiatrist-in-Chief at Johns Hopkins, and is now Distinguished Service Professor Emeritus. During his twelve year tenure, he developed novel introductory courses in Behavioral Medicine, and laboratories in Behavioral Biology, which helped forge the links between molecular neurobiology and neurochemistry, with mind, behavior, and the social sciences. After "retiring" from Johns Hopkins, he accepted a post as Professor in Residence at McMaster University in Ontario, to continue his experiments in improving and humanizing medical education. This culminated in the creation of widely acclaimed programs entitled "Brain and Behavior" designed to increase our understanding of these relationships.

Ever since his student days, Joel had been intrigued with the influence of the arts on healing, including music, poetry, dance, and story telling. This seemed to be evident in every culture, and as a scientist, he wondered how these salubrious benefits were mediated, and how they could be utilized in clinical practice. To pursue this, he retired again in 1981, to establish a program in Attitudinal and Behavioral Medicine in the Department of Psychiatry at the University of Louisville, where he developed "The Arts in Medicine Program". Joel has again now "retired" to accept a newly created posi-

tion at Fetzter Institute, as Senior Scholar in Residence. Here, he will have the opportunity to pursue his interests in the stress reduction effects of music, the fine arts, and other subtle energies, in developing novel ways to educate the public and health care providers about health enhancement, and to further hone his widely acknowledged painting talents.

The recipient of many honors and awards, the new Neuroscience Research Laboratories of the Department of Neuropsychopharmacology, Joel preceded me as the first President of The American Institute of Stress in 1978. I am well aware, from numerous discussions, of the high esteem in which he was held by Hans Selye, who appointed him to the Board of his International Institute of Stress. Over the years, I have treasured Joel's warm friendship and wise counsel, and it was a special privilege and honor for me to have been able to present him with The Hans Selye Award.

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

SYNOPSIS OF PROGRAM

SUNDAY, 20 FEBRUARY 1994

- Welcoming Cocktail Party - Gala Banquet Reception
- Hans Selye Award Ceremony

MONDAY, 21 FEBRUARY 1994

- Psychosocial Concepts in Cardiovascular Physiology
- Stress and Skin

TUESDAY, 22 FEBRUARY 1994

- How the Brain and the Body Talk to the Heart
- Stress and Pain
- Post-Traumatic Stress Disorder

WEDNESDAY, 23 FEBRUARY 1994

- Occupational Stress
- Stress Management
- Preventing Occupational Stress (ILO Report)

THURSDAY, 24 FEBRUARY 1994

- Subtle Energies, Electromagnetic Fields and Stress
- Physiological Studies on Qi Gong
- The Stress Reduction Effects of Music
- Neuroelectric Therapy (NET) for Substance Abuse

The following articles are abstracted from some of the presentations given in sessions devoted to Stress and Cardiovascular Disease and Stress and Skin on 2/21.

Emotions, Behaviors, and Heart Attacks

The close interrelationships between anxiety and various cardiovascular signs and symptoms occupy a unique place in medical history, and have been recognized since antiquity. Emotions can trigger a gamut of disturbances in heart rhythms, including sudden death due to ventricular fibrillation. The stress of acute fear, anxiety, or despair that accompanies the "fight or flight" response is associated with an increase in blood pressure, heart rate, cholesterol, platelet stickiness, and other influences that quicken blood clotting, all of which could contribute to strokes and heart attacks. However, although there may be dramatic rises in blood pressure, there is no proof that such transient elevations lead to sustained hypertension, regardless of their magnitude or duration. It is less often appreciated that anxiety states may also have major causal relevance for functional mitral valve prolapse and congestive heart failure.

A variety of emotions can trigger ischemic events, and the history of medicine is replete with such accounts. Sir William Harvey, who was the first to demonstrate the function of the heart and how blood circulates in the body, noted in 1628 "every affection of the mind that is attended either with pain or pleasure, hope or fear, is the cause of an agitation whose influence extends to the heart." John Hunter, who during the 18th century elevated surgery from a mechanical trade to an experimental science, suffered from angina, and being a keen observer, complained "my life is in the hands of any rascal who chooses to annoy and tease me." This turned out to be prophetic, since an argument with a colleague did precipitate his death from a heart attack.

Sir William Osler, probably the most astute physician of this century, described the coronary-prone individual as a "keen and ambitious man, the indicator of whose engines are set at 'full speed ahead'", a succinct but simplified description of the

Type A behavior pattern. In the 1930's, the Menningers suggested that heart attack patients tended to exhibit strongly aggressive behaviors, and Flanders Dunbar characterized them as being authoritarian, with an intense drive to achieve unrealistic goals. Fierce ambition and compulsiveness to achieve power and prestige were emphasized by other commentators.

These are all contributors to a multidimensional construct that indicates how Type As view the world and themselves. It is the interaction of several personality attributes with the environment that results in the specific behaviors that Type As use as coping devices. Excessive competitiveness has seminal importance for most of these activities, and provides the potential for various hostility traits. The underlying basis may be a deep-seated anxiety that is associated more with insecurity than its usual sources. Many aspects of the Type A behavior pattern arise from attempts to suppress this concealed anxiety. The underlying bases of Type A coronary-prone behavior are covert and have been poorly explored in the literature, which has tended to emphasize more overt, but superficial aspects, such as hostility.

Adapted from "Psychosocial Concepts in Cardiovascular Epidemiology: Emotions and Behaviors"

Ray H. Rosenman, Director of Cardiovascular Research Health Sciences Program (Ret.)

SRI International, Menlo Park, California

The words of his mouth were smoother than butter, but war was in his heart: his words were softer than oil, yet were they drawn swords.

From all blindness of heart, from pride, vain glory, and hypocrisy; from envy, hatred, and malice, and all uncharitableness, Good Lord, deliver us.

As he thinketh in his heart, so is he.

The heart of a man changeth his countenance.

I know thy pride, and the naughtiness of thine heart.

The Holy Bible

Autonomic Responses To Stress and Sudden Death

In order to maintain homeostasis, acute "fight or flight" situations must be followed by and integrated with relatively prolonged restorative "build up" periods and processes needed to replenish vital energy stores. The response of the gastrointestinal tract in this regard is to increase secretory activity and motility to facilitate digestion and the absorption of essential nutrients. These vital restorative processes appear to be mediated largely by parasympathetic stimulatory activities of the autonomic nervous system, often referred to as the "anabolic nervous system". Other consequences include a lowering of heart rate or even marked bradycardia, and other physiologic changes which are the antithesis of those seen during "fight or flight" reactions resulting from increased sympathetic nervous system stimulation. Patients with duodenal ulcer and certain forms of irritable bowel syndrome, and other gastrointestinal disorders have been shown to exhibit increased parasympathetic, and particularly vagal activity,

Animal studies have revealed that high CNS elicited sympathetic and parasympathetic (dual) tone, can play an important role in precipitating sudden death due to cardiac arrhythmia. This may have important clinical implications. Elite, Swedish, male orienters are at increased risk for sudden death, with annual mortality rates up to 2000 times higher than matched controls. It is postulated that this may be due to the higher dual autonomic tone that occurs during orienting compared to other sports. Orienting takes place in a heavily forested area (up to 50 km.), where participants are equipped with a compass and map indicating the specific site of several stations. Each must be located as rapidly as possible, so that the contestant's card can be stamped, before immediately racing to find the next station. The object is to locate all the stations in the shortest possible time, which requires sudden physical stops, as well as "mental" braking. In orienters with asymptomatic myocardial pathology, the repetitive, and/or sustained high dual tone that results, could predispose to ventricular arrhythmias and

sudden death, either from ventricular fibrillation, or asystole. Further studies are required to confirm or negate this hypothesis.

Adapted from "Involvement of Cardiac and Gastrointestinal Functions in Neural Responses to Stressful Events" - Gerhard Dotevall, University of Goteborg, Goteborg, Sweden

Predicting Stress Related Heart Attacks

The Stress and Coping Inventory (SCI) is a multi-dimensional assessment of perceived stressors and coping resources. It gathers information from eight different areas of stress and coping, including information relative to developmental background, recent life change events, current physical and psychological symptoms, and psychological risk factors found to be associated with coronary heart disease. The coping measures include social support, life satisfaction, positive and negative responses to stress, and health promoting habits and behaviors. The questionnaires take approximately an hour to complete and are in an optical scan format. Responses can be immediately scanned and entered into a computer with proprietary software that calculates all scale and subscale scores. This generates a personal report for each participant, which can then be used for comparison purposes to evaluate the effect of any subsequent intervention.

Since many of the questionnaires used in the SCI have been funded by U.S. Government sources, they are now in the public domain. In addition, they have good documentation with respect to reliability and validity. However, to insure accuracy, reliability analyses were again performed to be certain that the computer based format devised for these instruments did not significantly alter their original properties. Psychometric testing was performed using the data from 823 subjects. Calculated reliabilities were found to be equal to or higher than originally published data. Ongoing validity studies continue

(Continued on page 6)

(Continued from page 5)

to show that both construct and concurrent validity are highly satisfactory. Predictive validity studies are in progress, and may prove to be of significant assistance in identifying coronary prone individuals, regardless of the presence or absence of standard risk factors.

Adapted from "Stress and Coping Inventory: A New Assessment and Intervention Instrument for Coronary Heart Disease" - Richard H. Rahe, Professor of Psychiatry, University of Nevada School of Medicine

Stress and Your Hair

"Trouble has brung these gray hairs and this premature balditude."

Mark Twain

The relationship between emotional stress and various aspects of hair growth and other characteristics have been recognized since antiquity, and are part of the folklore of most civilizations. Old wives' tales and even the Bible recount instances of individuals whose hair allegedly turned white instantly, or overnight, following some severe fright or stressful event. Stimulation of the arrector pili muscles during the "fight or flight" response, may cause the hair on the back of the neck to "stand up", as well as "gooseflesh". Chronic stress and worrying are also reputed to be responsible for premature graying of the hair, and/or baldness, as noted in the above quotation from Huckleberry Finn. While man may think of himself as the naked ape, hair has probably been on his mind as long as it has been on his body. Hair is considered in different cultures as a symbol of societal status, a marker for one's personal and social beliefs, or an indicator of various sexual attributes.

Each person has about 100,000 hairs on the head, and for each hair, numerous facts and myths can probably be found. The one truth that does hold up for the relationship between stress and hair is that the experience of hair loss is extremely stressful, regardless of gender and age. In a youth oriented, appearance conscious society, the perception of

losing one's hair can be a devastating event. However, the role of stress as a cause of alopecia or other types of baldness is not supported by scientific research, and is probably much less common than is popularly believed. Physical stress and trauma such as self inflicted hair pulling, twisting, and breaking can cause hair loss, particularly in severe emotional disorders, such as trichitillomania. However, without the intervention of hands, there is little proof that stress plays a significant role in initiating hair loss, or causing many of the other cosmetic changes commonly attributed to it.

Adapted from "Stress and Hair Loss: Myths and Truths" - Vera H. Price, Professor of Dermatology University of California, San Francisco

Psychological Influences On The Skin

The skin is the largest organ in the body, and stress can produce varied changes ranging from blushing and pallor, to hives and acne. Some studies have also demonstrated that emotions can influence immune system dermatologic responses, such as cell mediated tuberculin reactions. Hypnosis and guided imagery can also exert similar effects on these as well as inflammatory changes and even the disappearance of specified warts. As a consequence, various dermatologic disorders involving immune and inflammatory processes, have been successfully treated with psychological intervention techniques, including hypnosis, relaxation, guided imagery, and cognitive behavioral stress management approaches. However, relatively little is known about the mechanisms responsible for mediating the effects of such psychological intervention. The conclusions from a number of studies of the effects of hypnotic suggestion on cutaneous, immune and inflammatory responses, were reviewed. These included delayed hypersensitivity histamine and skin prick test induced flare reactions, ultraviolet radiation induced erythema, and skin blood flow, and illustrative case studies were presented. The possible psychoneurologic and

(Continued on page 7)

(Continued from page 6)

immune mechanisms that may explain these effects, were discussed.

Adapted from Effects of Psychological Intervention on Immune and Inflammatory Processes of the Skin
Robert Zachariae, Department of Clinical Psychology - University of Aarhus, Denmark

Stress and Psoriasis

There is abundant anecdotal evidence linking recurrences and exacerbations of psoriasis with emotional stress, and varied psychological factors. However, it has been difficult to demonstrate any direct connection between stress and the development or progression of psoriatic lesions. Recent research studies suggest that certain neuropeptides, particularly substance P (SP) and vasoactive intestinal peptide (VIP), may be involved in influencing the clinical status of psoriasis. To explore this further, psoriatic lesions were studied by immunohistochemistry techniques. SP receptors were detected by auto radiography in several skin samples from both patients with psoriasis and healthy controls. These were found to be significantly reduced in both the specimens selected from lesions and unaffected skin samples in the psoriatic group, when compared to unaffected individuals.

VIP levels were significantly increased on radio immunoassay in the actual psoriatic lesions, and measurements in the unaffected skin of psoriasis patients were the same and normal controls. Further studies revealed that VIP stimulated the proliferation of normal human keratinocytes in a dose dependent manner. In contrast, SP not only failed to induce keratinocyte growth, but also inhibited VIP induced proliferation. These findings support the hypothesis that substance P and vasointestinal active peptide may play an important role in the clinical expression of psoriasis, but the precise mechanisms involved remain to be delineated.

Adapted from "The Role of Substance P and Vasoactive Intestinal Peptide in Psoriasis"
Carlo Pincelli and Alberto Gianetti
Istituto di Clinica Dermatologica, Modena, Italy

STEWART WOLF, M.D. 1994 Award for Outstanding Stress Research



Another octogenarian received an Award at the Sixth Congress. Shown above is Dr. Stewart Wolf, the recipient of our Hans Selye Award in 1988, with Dr. Lennart Levi, last year's honoree on his right, and Dr. Paul J. Rosch on his left. Dr. Levi, Professor and Chair, Department of Stress Research, Karolinska Institute, presented the surprise diploma, the first awarded by the Institute, to Dr. Wolf for "Outstanding Stress Research".

Books Received for Review

Central Nervous System Peptide Mechanisms in Stress and Depression, Edited by S. Craig Risch, M.D.

Stress and Policing: Sources and Strategies, Jennifer M. Brown and Elizabeth A. Campbell

Stress, Coping, and Health: A Situation-Behavior Approach Theory, Methods, Applications, Meinrad Perrez & Michael Reicherts

Mind, Body, and Medicine: A History of the American Psychosomatic Society, Dorothy Levenson

Post-Traumatic Stress Disorder in Children, Edited by Spencer Eth, M.D., and Robert S. Pynoos, M.D., M.P.H.

The Psychobiology of Mind-Body Healing: New Concepts of Therapeutic Hypnosis, Revised Edition, Ernest Lawrence Rossi

Some Faculty Responses to the Sixth Congress

"I enjoyed enormously the meeting in Montreux, and it was fascinating to see various disciplines converging on the important subject of stress." T.H.M. Stewart, M.B., Ch.B., FRCPC, Professor of Medicine, Ottawa General Hospital

"First, I want to congratulate you on organizing the 1994 Sixth International Montreux Congress on Stress which was such a great success. It is rare that one has the opportunity to meet experts representing so many different aspects of stress and presenting their contributions." Vera H. Price, M.D., Professor of Clinical Dermatology, University of California, San Francisco

"As always, you did a masterful job planning and conducting the meeting in Montreux. I think everyone enjoyed it and most people learned something." Stewart Wolf, M.D., totts gap, Medical Research Laboratories, Inc.

It was a real pleasure to take part in, and contribute to, the Sixth International Congress on Stress, under your leadership. Both Inger and I found most of the papers extremely interesting and rewarding, and the setting, and your hospitality contributed to making the meeting a real success. Lennart Levi, M.D., Ph.D., Department of Stress Research, Karolinska Institute

"Once again, you outdid yourself on the recent Montreux meeting. Attendance was full and enthusiastic. The topics were well balanced and nicely presented. An all-out success!" Richard H. Rahe, M.D., Professor of Psychiatry, Nevada Stress Center

The comment that was continually heard among the participants was that the Montreux Congress is the only meeting in the world that brings together leaders in the field of medicine, physiology, psychiatry and psychology to present and explore seminal information on mind-body-environment interrelationships. Goerge S. Everly, Jr., Ph.D., Chairman of the Board and CEO, ICISF

"As always, Montreux was truly a wonderful intellectual challenge and uplifting to spirits jaded and worn in the routine of daily existence." W. Ross Adey, M.D., Associate Chief of Staff, Jerry L. Pettis Memorial Veterans Hospital

You are right; this was the best yet. A wonderful collection. C. Normal Shealy, M.D., Ph.D., The Shealy Institute

"The Sixth International Montreux Congress on Stress was, in my opinion, an outstanding success, the best yet! My feeling about the Congress was like experiencing a resonance of interactive personalities and ideas." Saul Liss, President, Medi Consultants, Inc.

Thank you for the opportunity to share your wonderful Congress. I have gained so much - personally and professionally. You and your associates have invented an extraordinary institution in this Congress. Don't change a thing. I hope I am worthy enough to present again. Charles Figley, Ph.D., Professor and Director of the Psychosocial Stress Research Program, Florida State University

"I am writing to congratulate you on another successful Montreux Stress Congress. There are a number of other meetings in this general area, but none that accomplishes what the annual Montreux conference does. The others tend to focus on single issues, while the latter is a broad based conference that includes many fields of interest and thus exposes both speakers and audience to subjects other than their own specific interests. This, of course stimulates a valuable interchange of ideas. Ray H. Rosenman, M.D., Dir. of Cardiovascular Research Health Sciences Program (Ret.), SRI International

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