

Contents

I. A New Approach to Physical Rehabilitation and Self-Regulation

Overcoming Learned Nonuse: A New Behavioral Medicine Approach to Physical Medicine <i>Edward Taub and Jean E. Crago</i>	2
An Examination of the Various Modalities of Instruction for Cumulative Effect <i>Yukibito Miyazaki and Masabisa Kodama</i>	10
Effects of Bilateral Finger Rotation Exercise on Flexibility and the Efficiency of Intellectual Performance <i>Masahiro Kurita</i>	14
Single Case Study of Application of the Photic Feedback System to Depressive Neurosis <i>Hiroaki Kumano, Harumi Horie, Tomifusa Kuboki, Mitsuo Yasushi, Tomomi Fukui, Yuji Sakano, and Hiroyuki Suematsu</i>	20
Application of Photic Feedback Therapy of Jet-Lag Syndrome. I. <i>Tadasbi Kumano, Satoshi Saito, Hiroshi Sato, Mitsuo Yasushi, Masaru Chijiwa, Mariko Makino, Koji Tsuboi, and Suebaru Tsutsui</i>	25
Application of Photic Feedback Therapy of Jet-Lag Syndrome. II. <i>Mariko Makino, Koji Tsuboi, Suebaru Tsutsui, Tadasbi Kumano, Satoshi Saito, Hiroshi Sato, Mitsuo Yasushi, and Masaru Chijiwa</i>	31
Clinical Application of Photic Feedback Therapy <i>Kenshi Kawabara, Haruyoshi Yamamoto, Shoichi Ebana, Kaname Tsukui, Tadako Aonuma, Hiroaki Kumano, and Mitsuo Yasushi</i>	36

Application of Photic Feedback to a Patient with Irritable Bowel Syndrome <i>Harumi Horie, Hiroaki Kumano, Shinobu Nomura, Tomifusa Kuboki, Hiroyuki Suematsu, Mitsuo Yasushi, and Yuji Sakano</i>	40
A Biobehavioral Monitoring System for Space Travelers <i>Holger Ursin, Tone Bergan, and Gro Sandal</i>	46
Effects of the Ability to Control and the Sense of Controlling Heart Rate: Influence of Self-Efficacy and Active Patient Participation <i>Miyuki Onsen</i>	52
 II. Behavioral Self-Regulation in the East and West <hr/>	
Breath Relaxation – Stress Management in East and West <i>Jan van Dixboorn</i>	58
Breathing and Self-Control <i>Takenori Kikuchi</i>	67
Psychosomatic Comparative Study on Biofeedback and Zen Therapy: Theoretical Survey and Application <i>Munekazu Zamami and Suebaru Tsutsui</i>	74
Comparison of Relaxation Techniques in the East and the West: Chinese Traditional Relaxation Techniques and Biofeedback <i>Shaojian Chen and Chongkeng Chen</i>	79
Features of Biofeedback Therapy Among the Main Psychotherapeutic Methods Used in Psychosomatic Medicine in Japan <i>Norio Mishima, Yoichi Matsuoka, Chiharu Kubo, and Tetsuya Nakagawa</i>	83
Kan Mushi Syndrome <i>Eitaro Noguchi, Makiko Tani, and Fumio Yamada</i>	89
Analysis of Undulation on Repetitive Evoked Electromyography by Acupuncture Anesthesia <i>Yoshihiro Ueda, Ayabiko Nishigori, Tuyoshi Kashiba, Masanori Oshiro, and Yutaka Hori</i>	94

III. New Theoretical Biofeedback Models and Training

Plasticity of Neural Systems and Physiologic Prerequisites for Modeling Biofeedback Mechanisms <i>M. Shtark</i>	100
Dynamic Expert Systems and "Intellectual Biofeedback" in Cardiovascular Regulation <i>Vladimir Shusterman and Mark Shtark</i>	105
Information-Theoretical Approach to Biofeedback <i>Masao Saito</i>	111
Model of Learning Process for Biofeedback and Its Relation to the Neural Network <i>Chiaki Nishimura</i>	115
Electroencephalography and Chaos: Using Dimensional Estimation to Evaluate the Psychological State <i>William J. Ray</i>	120
Significance of Chaos in Biological Systems <i>Takeo Sumida, Takashi Tabara, and Hiroaki Iwanaga</i>	126
Physiological Effects of Music on the Living Body: Application of Music Therapy <i>Shinzo Kobayashi, Akira Morimoto, Mitsubiko Ito, Tomiei Iga, Manabu Yoshida, Nobuo Sato, and Katsuyuki Shirakura</i>	130
Study on the "Comfort" Felt While Listening to Music <i>Akira Morimoto, Katsuyuki Shirakura, Tomiei Iga, Nobuo Sato, Yasubiko Tsutsumi, Mitsubiko Ito, and Shinzo Kobayashi</i>	135
The Neuronal Mechanism Integrating the Audiovocal System in the Human Brain <i>Yoshiaki Kikuchi and Michiko Kita</i>	140
Psychophysiological Responses During Relaxation Imagery <i>Akibisa Hirota and Hisashi Hirai</i>	145
The Relationship Between Locus of Control and Self-Efficacy <i>Manabu Minegishi and Masabisa Kodama</i>	150
Portable Cassette-Type Skin Potential Measurement System <i>Yasufumi Shiibara, Masabisa Kodama, Masanori Miyamoto, Masami Nakajima, Naoki Obnishi, and Shigeru Takahashi</i>	155

Application of a Single Square Voltage Pulse Method for Biofeedback <i>Mami Kido</i>	161
Pilot Study: Biofeedback System for Self-Control of Students' Noise in Class <i>Takashi Uozumi, Iwao Saito, Hidehisa Konari, and Koichi Ono</i>	167
Method for Estimating Blood Pressure Instantaneously <i>Yuji Murahara, Katuyuki Sakamoto, Mamiko Fuji, and Hirosbi Kanai</i>	171
Eye Fixation-Related Potential as an Index of Visual Function <i>Akihiro Yagi</i>	177
Assessment of Comfort of Infants in Baby Carriages and Other Conveyances <i>Sachiyo Kataoka and Masao Saito</i>	182
Measurement of Facial EMGs During Laugh Suppression <i>Hiroyuki Konishi and Akihiro Yagi</i>	187
Forecasting Reaction Control Using Alpha Feedback <i>Mitsutoshi Akiba and Yoshifumi Miyamoto</i>	191
Effects of Odors on Fm θ Rhythm During Mental Tasks <i>Hideki Ohira and Ayako Unno</i>	197
Effect of Fm θ Biofeedback on Anxiety <i>Fumio Yamada and Masashi Yamazaki</i>	203
Developmental Study of Middle-Latency Auditory Evoked Potential Pb in Normal and Autistic Children <i>Masakazu Sugawara</i>	209
Effects of Frequency of Rest Periods on Skin Temperature Biofeedback Training <i>Mitsue Takahara</i>	213
Mathematical Models for Biofeedback <i>Masao Saito</i>	218
Neurofeedback Treatment of Attention Deficit Hyperactivity Disorder: Research and Clinical Implications <i>Joel F. Lubar</i>	222

Perspective on Behavioral Medicine and the Brain's Hierarchy of Homeostatic Controls <i>Neal E. Miller</i>	229
Hypertonic Fingers of a Pianist Successfully Treated with Biofeedback Therapy <i>Atsuo Sugimoto, Masako Nishimura, Itaru Takekoshi, Koji Tsuboi, Koichi Nakano, and Suebaru Tsutsui</i>	246

IV. Innovative Solutions to Developing Problems: Biofeedback Treatment of Incontinence

Computerized Biofeedback Toilet Training for Management of Fecal Incontinence in Children <i>Misao Sakaniwa, Mayumi Iwakawa, and Haruo Obkawa</i>	254
Behavioral Treatment for Urinary Incontinence in Women: Pelvic Floor Exercise <i>Junnosuke Fukui, Shigehiro Okamoto, Mikio Nagata, Fumihiko Nukui, Yuhji Shibata, and Hiroko Komatsu</i>	259
Ultrasonic Urination Sensor and Monitoring of Urine Volume in the Bladder <i>Hiroyuki Kodama, Ichiro Hieda, Yasuo Kuchinomachi, Hitoshi Takeichi, and Hiroji Matsumoto</i>	263
Search for a New Modality to Control Urinary Incontinence: Transcutaneous Electrical Stimulation and Transdermal Iontophoretic Drug Delivery <i>Tsutomu Sakurai and Novoru Yata</i>	268
Clinical Application of the Self-Regulation Program for Women with Stress Urinary Incontinence <i>Hiroko Komatsu, Misako Kojima, and Junnosuke Fukui</i>	272

V. Psychosomatic Disorders and Self-Regulation for Treatment

Psychological Factors in Temporomandibular Disorders: A Critical Overview <i>John D. Rugh</i>	278
--	-----

Relations Between Stress, Electromyography, Temporalis Region Tension-Type Headache <i>Shiro Sakai, Glenn T. Clark, and Robert L. Merrill</i>	286
Reexamination of Autogenic Feedback Training from the Viewpoint of Its Procedure <i>Masashi Sugie</i>	291
Recent Developments in Autogenic Training <i>Wolfgang Linden</i>	297
Perspectives of Autogenic Biofeedback Therapy in the Field of Psychosomatic Medicine <i>Koji Tsuboi</i>	302
Biofeedback Therapy Using MULTI Feedback for Patients with Psychosomatic Disorders <i>Shiro Shiwa, Takanobu Sasaki, Takashi Matsuda, and Isato Furumitsu</i>	308
Psychofeedback <i>Hidenori Ohnishi</i>	314
Attitudes Toward Maintaining the Physical Fitness of Hemiplegics <i>Touru Komuro, Kyousi Mase, Tomobiro Wada, Shigeyuki Imura, and Makoto Fujiwara</i>	319
Biofeedback and Multidisciplinary Treatments in Patients with Neuralgic Amyotrophy <i>I. Saito, N. Yashiro, Y. Saito, and S. Okuse</i>	323
Altered Autonomic Function in Schizophrenia: A Study Using Skin Potential Activity <i>Masanori Miyamoto, Yasufumi Shiibara, Shigeru Takahashi, Masami Nakajima, Naoki Ohnishi, and Masahisa Kodama</i>	328
Biofeedback Training in Obsessive-Compulsive Neurotic Patients and Phobic Patients <i>Takeshi Ikeda, Katsuyuki Shirakura, Takashi Hosaka, Toshibiko Tsuru, Jungo Yanagisawa, Issei Takamura, and Akiteru Hoshi</i>	333
Relaxation Training with a Biofeedback System: Effects on Physiological and Psychological Functions of Students <i>Kiyoshi Moriya</i>	338

Therapies of Psychosomatic Diseases, with Stress on Biofeedback <i>Hu Peiqun, Lu Xiaozuo, and Katsuyuki Shirakura</i>	342
Effects of Electromyographic Biofeedback and Relaxation Training for Treatment of Childhood Tic Syndrome <i>Yoshinari Kobayashi, Minoru Akagi, Kiyoshi Nishikawa, and Hisashi Hirai</i>	346
Case of Alopecia Areata Treated by Electromyographic Biofeedback <i>Jungo Yanagisawa, Katsuyuki Shirakura, Takashi Hosaka, Manabu Yoshida, Masabaru Asakawa, Toshibiko Tsuru, Yasubiko Tsutsumi, Issei Takamura, and Shinya Fukuda</i>	351
Behaviorist's View of Behavioral Medicine <i>Bernard T. Engel</i>	355
Behavioral Medicine and the Specific-effect Approach to Treatment Evaluation: The Case of Biofeedback <i>John J. Furedy</i>	362
Biobehavioral Self-Regulation from the Standpoint of Psychosomatic Medicine <i>Suebaru Tsutsui</i>	368
A Psychological Approach to Patients with Craniomandibular Disorders <i>Masanori Fujisawa</i>	375
Psychosomatic Characteristics of Patients with Craniomandibular Disorders <i>Yoh Matsuda, Masanori Fujisawa, Jun Miyoshi, Kenji Okino, Masae Takeda, Yuka Kawamura, and Kanji Ishibashi</i>	380

VI. Physiology and Regulation of Respiration

Self-Regulation of Respiration Using Interactive Music in a Closed Loop <i>Benjamin Gavish</i>	386
Significance of Self-Regulation of Respiration for Treatment of Psychosomatic Illness in Japan, Including the Oriental Approach <i>Shoichi Ebana, Toshio Matsuno, Masato Murakami, Haruyoshi Yamamoto, Kaname Tsukui, Kenshi Kawahara, Taisaku Katsura, and Takashi Horie</i>	391

Biofeedback and Ventilatory Muscle Training <i>Brian L. Tjep</i>	398
Respiration-independent Suppression of Baroreflex Sensitivity During a Mental Arithmetic Task <i>Gobichi Tanaka and Yukibiro Sawada</i>	407
Behavioral Therapy for Bronchial Asthma Using Biofeedback Training <i>Kenichi Yoshioka, Katsuyuki Shirakura, Katsuyuki Ikuta, Katsubiro Hiraki, Kenji Yamamoto, Tetsuya Iwasaki, Tetsuri Kondo, and Yutaka Hirokawa</i>	412
Clinical Application of Biofeedback: Bronchial Asthma <i>Katsubiro Hiraki, Katsuyuki Shirakura, Katsuyuki Ikuta, Kenji Yamamoto, Issei Takamura, Tetsuya Iwasaki, and Kenichi Yoshioka</i>	419
Effect of Patient Education on Asthmatic Morbidity <i>Hirokazu Katoh, Tetsuri Kondo, Yoshiaki Ono, Yutaka Hirokawa, Kazutaka Kamio, Yoshibiro Moue, Yasuyo Ohta, Katsuyuki Shirakura, and Tetsuya Iwasaki</i>	424
Analysis of Respiration Patterns During a Simulation Flight <i>Yoshinori Takeuchi and Zojiro Katoh</i>	428
Effect of Slowed Respiration on Cardiac Parasympathetic Tone in Response to Threat <i>Masabito Sakakibara and Junichiro Hayano</i>	434
Why We Nap <i>Tadao Hori and Mitsuo Hayashi</i>	440
When Does a Nap Benefit Performance? <i>Paul Naitoh</i>	445
Influence of Napping on Night Sleep: Cases of Aged Individuals and Shift Workers <i>Nobuyuki Okudaira</i>	450
Effect of Early Morning Nap on Performance and Self-evaluation <i>Mitsuo Hayashi, Naoko Kako, Kayo Hisamura, and Tadao Hori</i>	456
Overview of Chronic Fatigue Syndrome <i>Debra Buchwald</i>	462

Clinical Features of Healthy Individuals with Chronic Fatigue: Relation Between Chronic Fatigue and the Chronic Fatigue Syndrome <i>Akinori Masuda, Sbin-ichi Nozoe, Tetsurou Naruo, Yuuzi Soejima, Takami Matsuyama, and Hiromitsu Tanaka</i>	473
Psychophysiological Analysis of Sleep Onset <i>Yuri Takemoto and Yo Miyata</i>	479
Change of Physiological and Behavioral Indices for the Onset of Subjective Sleep Experience <i>Masashi Kojima and Katuo Yamazaki</i>	483
Doze Suppression During Automobile Driving Using Skin Potential <i>Chiaki Nishimura</i>	487

VIII. Herbal Medicine and Pharmaceuticals in Self-Regulation

Herbal Medicine and Self-Regulation <i>Zhufan Xie</i>	494
Clinical Studies on the Treatment of Irritable Bowel Syndrome by Kampo <i>Daisuke Sasaki and Tomoyuki Sutob</i>	500
Herbal Therapy in Elderly Patients with Chronic Headache: Experience with the Use of Choto-san <i>Toshibide Nadaoka, Satoshi Takeda, Shinobu Kawakatsu, and Shiro Totsuka</i>	504
Treatment of Lung Diseases by Traditional Japanese Kampo Medicines <i>Yukibiko Homma</i>	509
Biofeedback and Medicine Therapy of Insomnia <i>Lu Xiaozuo, Hu Peiqun, Zhang Jie, and Katsuyuki Shirakura</i>	515
Significance of Bioregulation for the Treatment of Psychosomatic Disease <i>Hiroko Nakajima, Koichi Nakano, Koji Tsuboi, and Sueharu Tsutsui</i>	521
Coordination and Integration of Pharmacotherapy and Self-Regulation in Psychosomatic Diseases: On the Control of Anxiety and EEG Alpha Activities <i>Katsuyuki Shirakura</i>	526

Relation of Drug Development and Biofeedback Research: A Friendly Rivalry and Concurrence
Iwao Saito 534

Effects of Naloxone on Pain Reaction Threshold in Spontaneously Hypertensive Rats
Toshibiko Sato and Tosbiteru Hatayama 540

IX. Stress, Reactivity, and Cardiovascular Diseases

Job Strain, Control Over Work Pace, and Cardiovascular Stress Responsivity
Andrew Steptoe, George Fieldman, and Olga Evans 548

Spectral Analysis of Heart Rate and Blood Pressure: Applicability of Maximum Entropy Method
Yukibiro Sawada 554

Brain-Heart Interactions in Psychophysiology: Role of Hostility in Cardiovascular Disease
Shin Fukudo, Motoyasu Muranaka, and Redford B. Williams 559

Role of Stress in Hypertension and Ischemic Heart Disease
Hirofumi Osada and Toshiko Iida 566

Abdominal Light Massage: A Concurrent Effect on Cardiovascular System in Chronic Pain Patients
Yasuko Saito, Iwao Saito, Kazuo Takaoka, Satoshi Okuse, and Nobuyoshi Yashiro 574

Long-Term Biofeedback-Assisted Relaxation: Assessment by the Mental Stress Test
Marianne Amir, Nizan Yaniv, and Esther Paran 577

Response of Female University Students to Stress
T. Ikuno, K. Kawakami, T. Nakamiya, H. Nagao, and Y. Kobayashi 583

Essential Hypertension: Blood Pressure Changes During Self-Monitoring
Tetsuaki Inamitsu and Tetsuya Nakagawa 589

Blood Pressure Biofeedback Treatment of Hypertension: Development of A Practical Blood Pressure Biofeedback System
Shinobu Nomura, Mutsuhiro Nakao, Tomifusa Kuboki, Hiroyuki Suematsu, Tatsuo Shimozawa, and Toshiro Fujita 593

Blood Pressure Biofeedback Treatment of Hypertension: II. Application of Blood Pressure Biofeedback System to the Treatment of Essential Hypertension
Mutsubiro Nakao, Shinobu Nomura, Tomifusa Kuboki, Hiroyuki Suematsu, Tatsuo Shimozawa, and Toshiro Fujita 598

Relations Between Heartbeat Perception and Heart Rate Control
Asako Yamamoto 604

Some Considerations on T Wave Amplitude as a Psychophysiologic Measure
Mieko Obsuga, Hiromi Terasbita, and Futomi Shimono 609

Application of Respiratory Sinus Arrhythmia for Self-Regulation
Efim I. Shulman and Estate M. Sokhadze 614

Transient State Analysis of Autonomic Nervous Functions in the Cardiovascular System
Hiroshi Yamada, Hiromichi Kuno, and Iwao Saito 619

EMG Biofeedback Training of the Frontal Muscle and Its Effect on Stress Response
Kenji Okino, Jun Miyoshi, Masanori Fujisawa, and Kanji Ishibashi 624

Conditioned Reflex Alpha Waves by Biofeedback for the Treatment of Stress Disorder
Kazumasa Shiga 629

Effects of Electroencephalographic α -Activity Enhancement by Biofeedback on Mental Stress-Induced Mineraluresis
Atsushi Hiraoka, Koichi Horikosbi, Yuichiro Miyazaki, Isao Miura, Futomi Shimono, and Mieko Obsuga 635

Stress-Moderating Effects of Personal Resources and Working Environment in Japanese Executives
Akira Tsuda, Masabiro Haraguchi, Yukako Ozeki, Nobuko Kurasaki, Shigeeko Tsuda, and Keiko Uezono 640

X. Image Training for Sports and Daily Life: Myth and Truth

Biofeedback and Imagery Assisted Self-Regulation Training in Sports: Research Evidence and Practical Application
Leonard D. Zaichkowsky 648

Athletes and Stress Management: Psychological Effects of Exercise <i>Koji Takenaka</i>	654
Effects of Imaging on Athletes and Patients <i>Hiroshi Yamanaka</i>	658
Image Training Using Skin Temperature Biofeedback in Sports <i>Mikio Tokunaga</i>	663
Factors Affecting Success in Image Training in Sports: Cleveland Clinic Experience <i>Michael G. Mckee</i>	667
Movement-related Cortical Potential During Skill Acquisition <i>Hiroaki Masaki and Katuo Yamazaki</i>	674
Motivation Operated by External Rewards: Effect on Psychological Responses During Exercise <i>Mari Fujiwara, Manabu Minegishi, Toshiyuki Nakamiya, and Masabisa Kodama</i>	679
Respiration Phase During Motor Skill Learning <i>Toshibiko Okamura and Katuo Yamazaki</i>	684
Estimation of Autonomic Nervous System Function During Rowing Exercise Imagery <i>Toshiyuki Nakamiya and Masabisa Kodama</i>	688
Effects of Image Training and Dohsa Training on Golf Putting Performance <i>Yoshitaka Konno</i>	694
EMG Biofeedback and Muscle Control During Exercise of the Whole Body <i>Hiroyuki Horino and Katuo Yamazaki</i>	699
Effects of an Acute Bout of Exercise on Physiologic Reactivity to Psychological Stress <i>Koji Takenaka and Leonard D. Zaichkowsky</i>	704
Effects of Relaxation Through the Dohsa Method <i>Hiroshi Yamanaka</i>	708
Spatial-Temporal CNV Waveform and Error Response on Discriminative Tasks <i>Haruo Sakuma and Ichiro Kita</i>	713

Effects of Music on Heart Rate and Ratings of Perceived Exertion During Aerobic Exercise <i>Ichiro Kita and Haruo Sakuma</i>	720
Keyword Index	725