



Dr Giresh Kanji

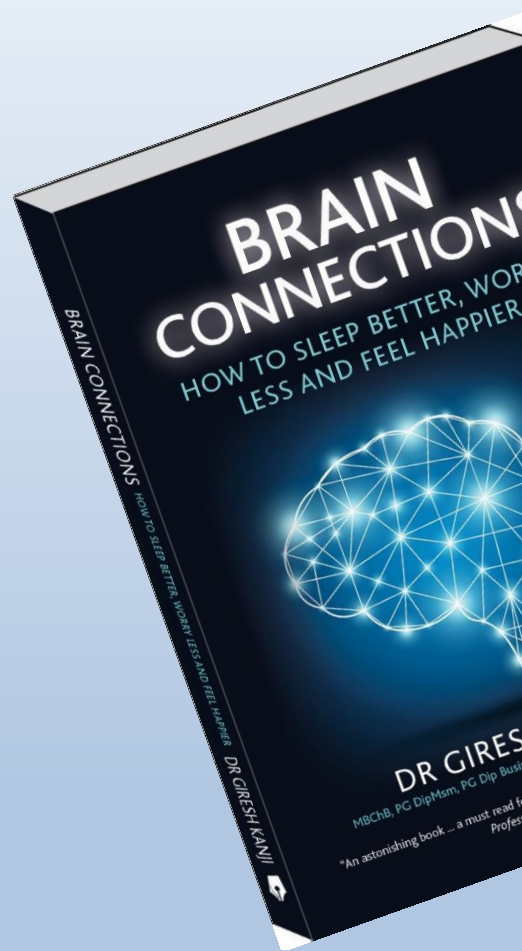
Musculoskeletal Pain Specialist
Auckland

Friday, August 09, 2019

(Plenary)

9:50 - 10:10 The Biologic Basis of Insomnia, Anxiety and Depression

The Biologic Basis for Insomnia Anxiety Depression



Dr Giresh Kanji
gireshkanji.com

1970

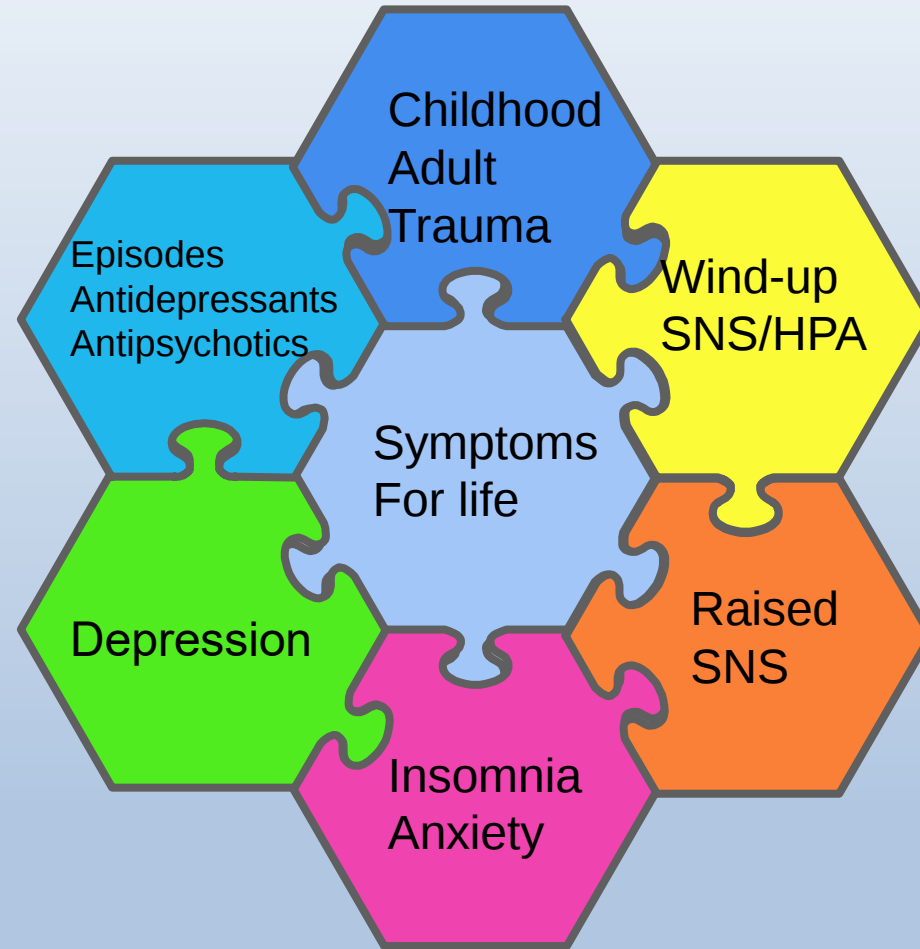




1971
Tasman St
Wellington



Jigsaw Pieces



Childhood trauma

- What is the relative Risk of depression and suicide
- 1 childhood trauma
- 4 childhood traumas



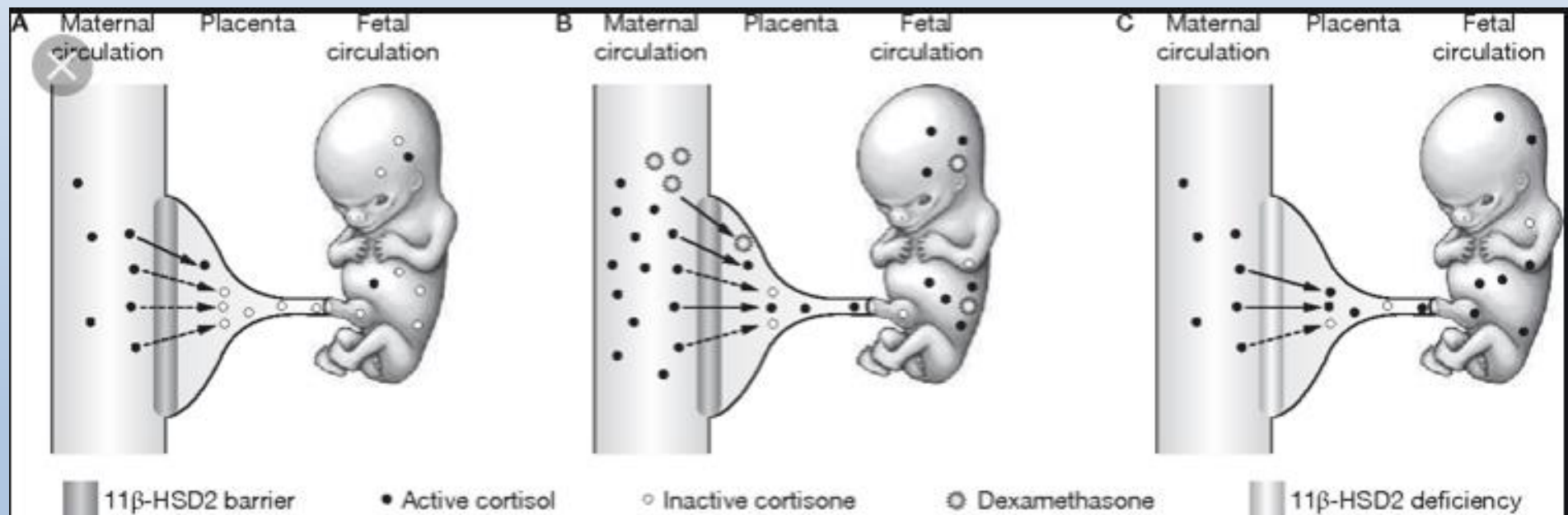
- Study >10 000 people
- Childhood trauma 50%
- 1 stress doubled risk depression and suicide
- 4 stressors
 - five times risk depression
 - 12 times risk of suicide

Research Article

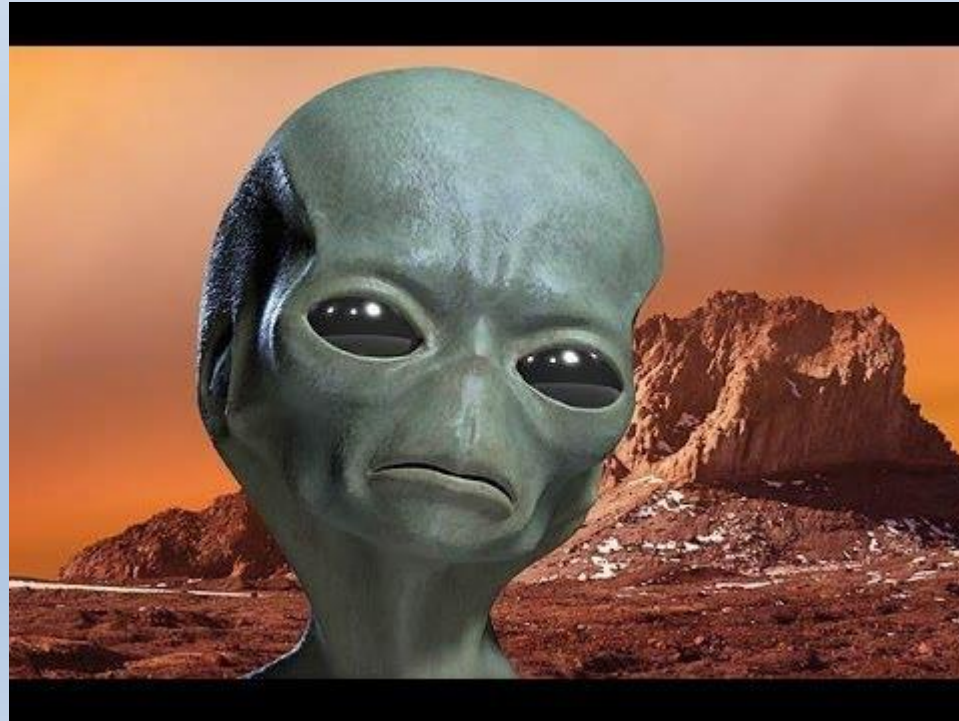
Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults

The Adverse Childhood Experiences (ACE) Study

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH



Are people with
depression
different?



Pituitary Size in Depression*

K. RANGA RAMA KRISHNAN, P. MURALI DORAISWAMY, SCOTT N. LURIE,
GARY S. FIGIEL, MUSTAFA M. HUSAIN, OREST B. BOYKO,
EVERETT H. ELLINWOOD, JR., AND CHARLES B. NEMEROFF

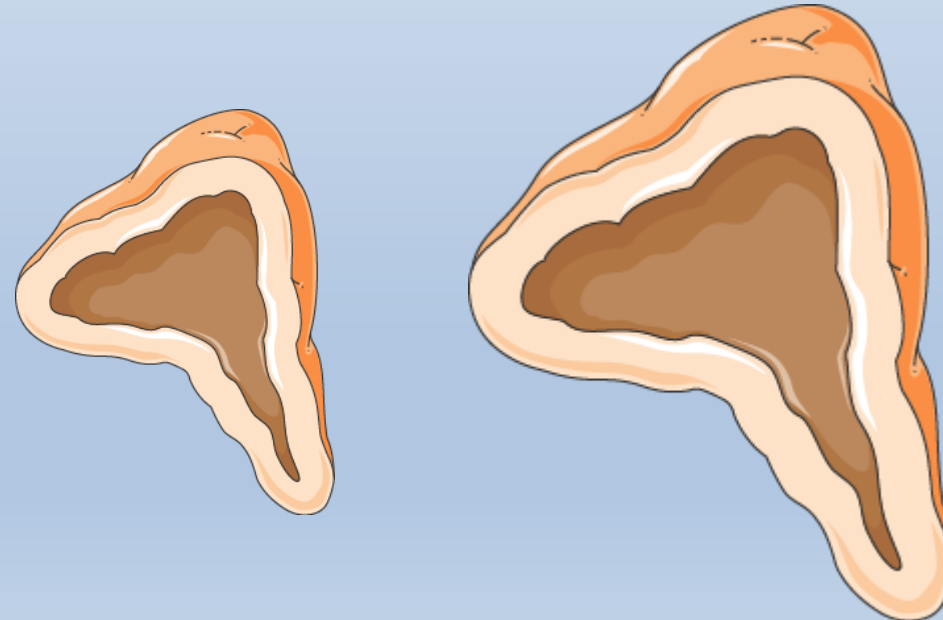
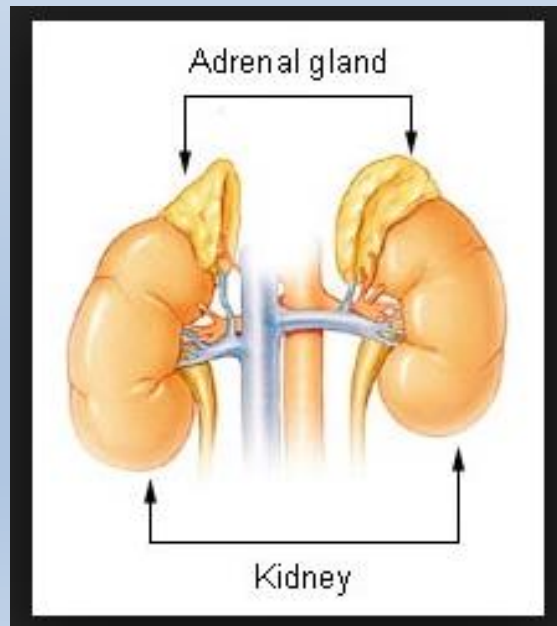
*Departments of Psychiatry (K.R.R.K., P.M.D., S.N.L., G.S.F., M.M.H., E.H.E., C.B.N.), Radiology (O.B.B.),
and Pharmacology (E.H.E., C.B.N.), Duke University Medical Center, Durham, North Carolina 27710*



Adrenal Gland Volume in Major Depression

Increase During the Depressive Episode and Decrease With Successful Treatment

Robert T. Rubin, MD, PhD; Jeffrey J. Phillips, MD; Todd F. Sadow, MD; James T. McCracken, MD



Sympathetic Nervous System



Journal of Psychosomatic Research 48 (2000) 493–500

Journal of
Psychosomatic
Research

Severe depression is associated with markedly reduced heart rate variability in patients with stable coronary heart disease

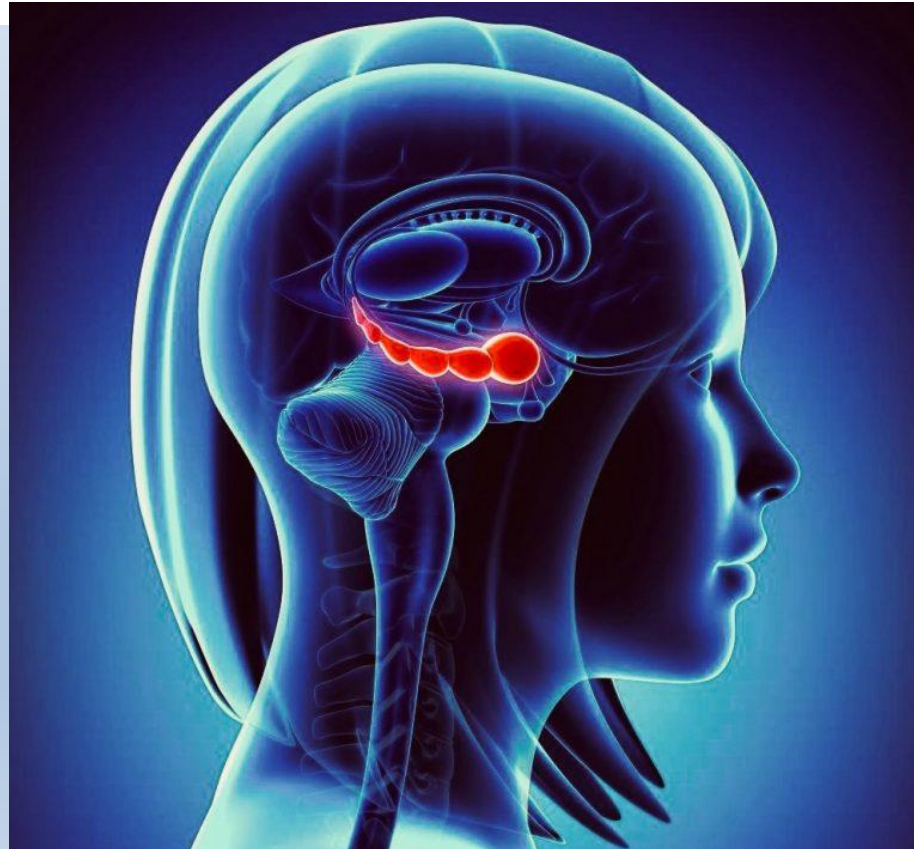
Autonomy of Autonomic Dysfunction in Major Depression

MANDY KOSCHKE, MICHAEL K. BOETTGER, MD, STEFFEN SCHULZ, SANDY BERGER, MD, JANNEKE TERHAAR, ANDREAS VOSS, PhD, VIKRAM K. YERAGANI, MD, AND KARL-JÜRGEN BÄR, MD

Brief Reports

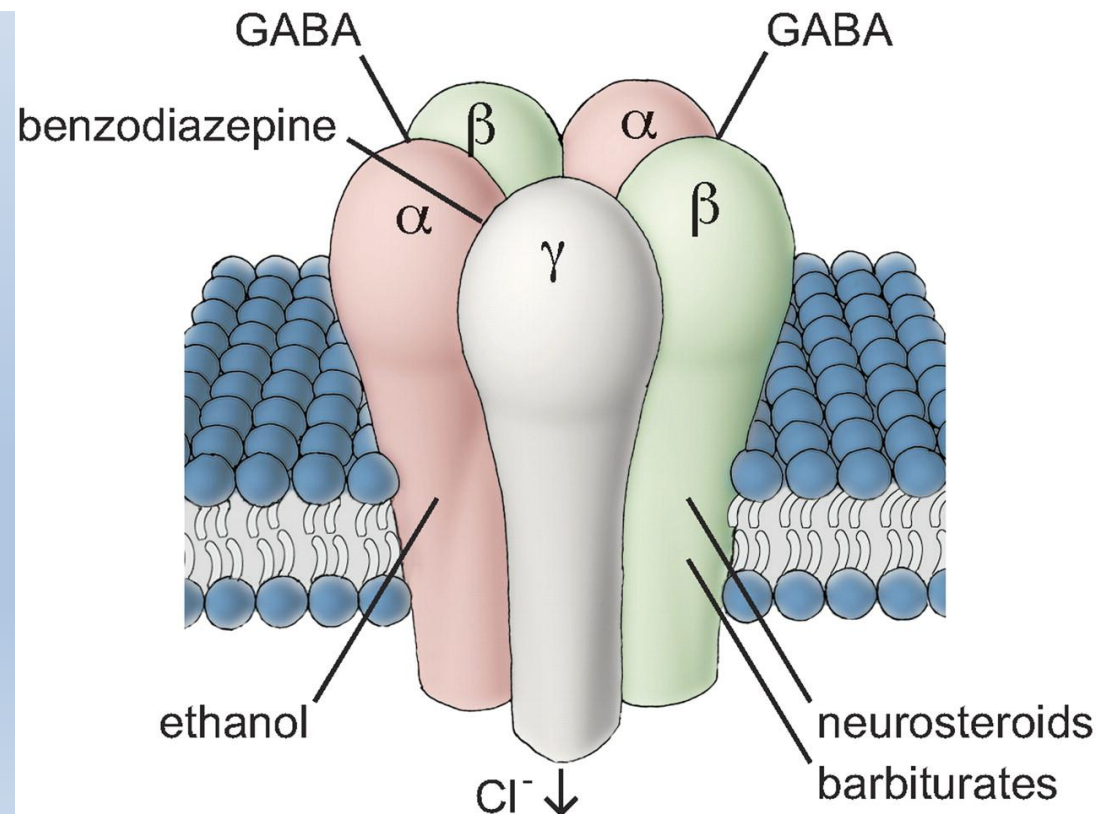
Hippocampal Volume Reduction in Major Depression

J. Douglas Bremner, M.D., Meena Narayan, M.D., Eric R. Anderson,
Lawrence H. Staib, Ph.D., Helen L. Miller, M.D., and Dennis S. Charney, M.D.



Reduced Cortical γ -Aminobutyric Acid Levels in Depressed Patients Determined by Proton Magnetic Resonance Spectroscopy

Gerard Sanacora, MD, PhD; Graeme F. Mason, PhD; Douglas L. Rothman, PhD;
Kevin L. Behar, PhD; Fahmeed Hyder, PhD; Ogden A. C. Petroff, MD; Robert M. Berman, MD;
Dennis S. Charney, MD; John H. Krystal, MD



Prognosis depression

- After 1 episode of major depression what is the average number of episodes experienced?

Prevalence, correlates, and course of minor depression and major depression in the national comorbidity survey

Ronald C. Kessler^{a,b,*}, Shanyang Zhao^b, Dan G. Blazer^c, Marvin Swartz^c

^a*Department of Health Care Policy, Harvard Medical School, 180 Longwood Avenue, Boston, MA 02114, USA*

^b*Institute for Social Research, University of Michigan, Ann Arbor, MI, USA*

^c*Department of Psychiatry, Duke University Medical Center, Durham, NC, USA*

- 12.7 (0.8)

Life Stress, the “Kindling” Hypothesis, and the Recurrence of Depression: Considerations From a Life Stress Perspective

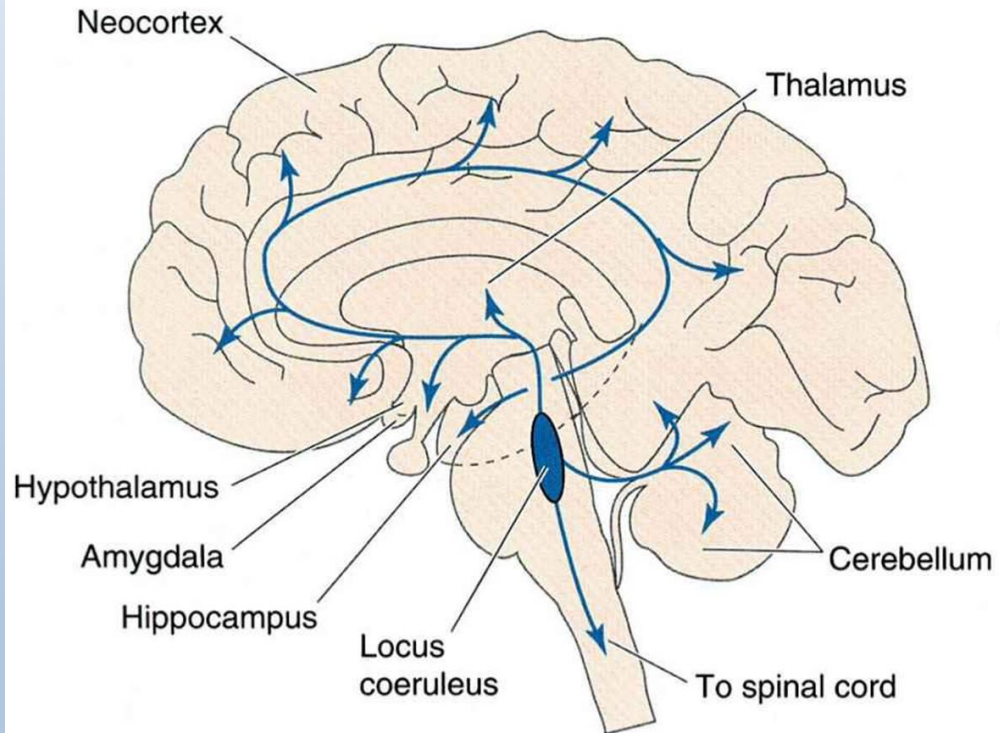
Scott M. Monroe
University of Oregon

Kate L. Harkness
Queen’s University

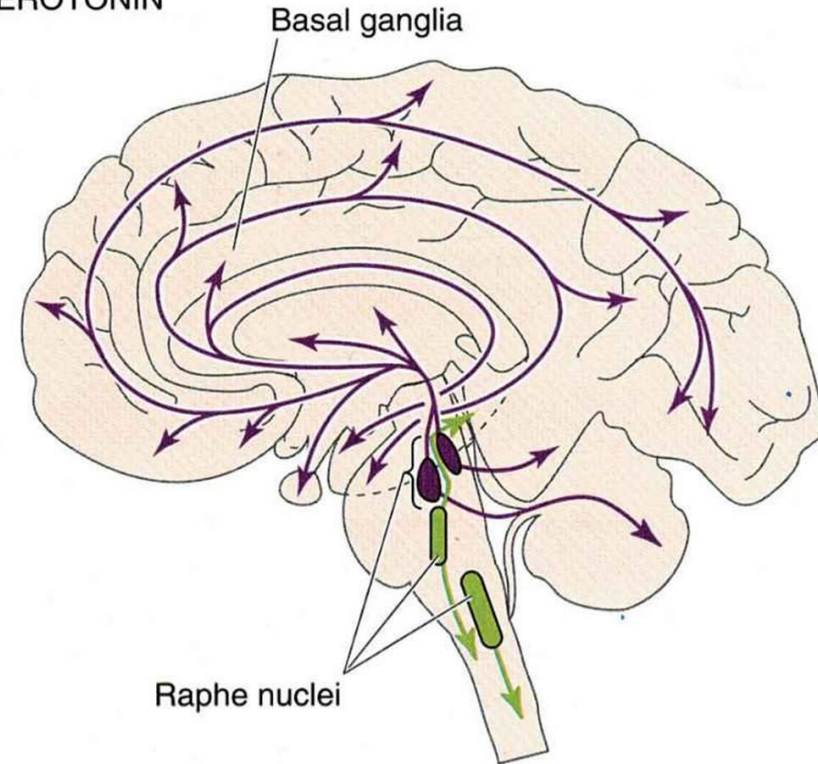
Widespread connections

Wind-up
SNS/HPA

A NOREPINEPHRINE



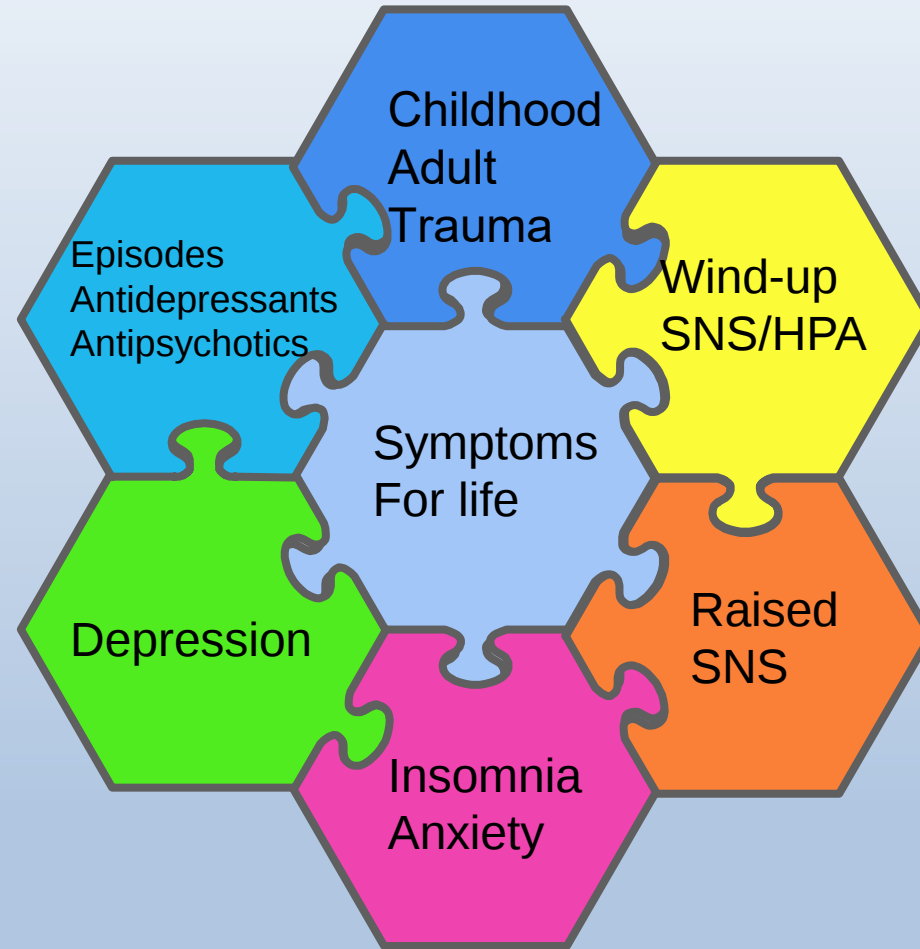
B SEROTONIN



Pain, insomnia, anxiety, depression



Jigsaw Pieces



Management

- Exercise (above 50% HRmax)
- Sauna
- Yoga
- Meditation/slowbreathing - 6/min
- Tai Chi



HRV after performing exercise

Effect of Endurance Exercise Training on Heart Rate Variability at Rest in Healthy Young and Older Men

Wayne C. Levy, MD, Manuel D. Cerqueira, MD, George D. Harp, PhD, Karl-Arne Johannessen, MD, Itamar B. Abrass, MD, Robert S. Schwartz, MD, and John R. Stratton, MD

Eight weeks of moderate-intensity exercise training increases heart rate variability in sedentary postmenopausal women

Radim Jurca, PhD, Timothy S. Church, MD, PhD, Gina M. Morss, MA, Alexander N. Jordan, MS, and Conrad P. Earnest, PhD Dallas, Tex

European Heart Journal (1999) **20**, 1638–1646

Article No. euhj.1999.1715, available online at <http://www.idealibrary.com> on IDEAL®

Aerobic group training improves exercise capacity and heart rate variability in elderly patients with a recent coronary event

A randomized controlled study

A. Ståhle*†, R. Nordlander†, L. Bergfeldt†

**Departments of Physical Therapy, and †Cardiology, Karolinska Hospital, Karolinska Institutet, Stockholm, Sweden*

The Effect of Tai Chi Chuan on the Autonomic Nervous Modulation in Older Persons

WAN-AN LU^{1,2} and CHENG-DENG KUO^{1,2}

¹*Institute of Traditional Medicine, National Yang-Ming University School of Medicine, Taipei, TAIWAN;* ²*Division of Chinese Medicine, Municipal Jen-Ai Hospital, Taipei, TAIWAN;* and ³*Laboratory of Biophysics, Department of Medical Research and Education, Taipei Veterans General Hospital, Taipei, TAIWAN*

Biomedical Research 29 (5) 245-250, 2008

Inward-attention meditation increases parasympathetic activity: a study based on heart rate variability

Journal of Cardiology (2011) 57, 100–106



available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jjcc



Original article

Improvement of autonomic nervous activity by Waon therapy in patients with chronic heart failure

So Kuwahata (MD, PhD)^a, Masaaki Miyata (MD, PhD, FJCC)^{a,*},

Running Versus Weight Lifting in the Treatment of Depression

Elizabeth J. Doyne, Deborah J. Ossip-Klein, Eric D. Bowman, Kent M. Osborn,
Ilona B. McDougall-Wilson, and Robert A. Neimeyer
University of Rochester

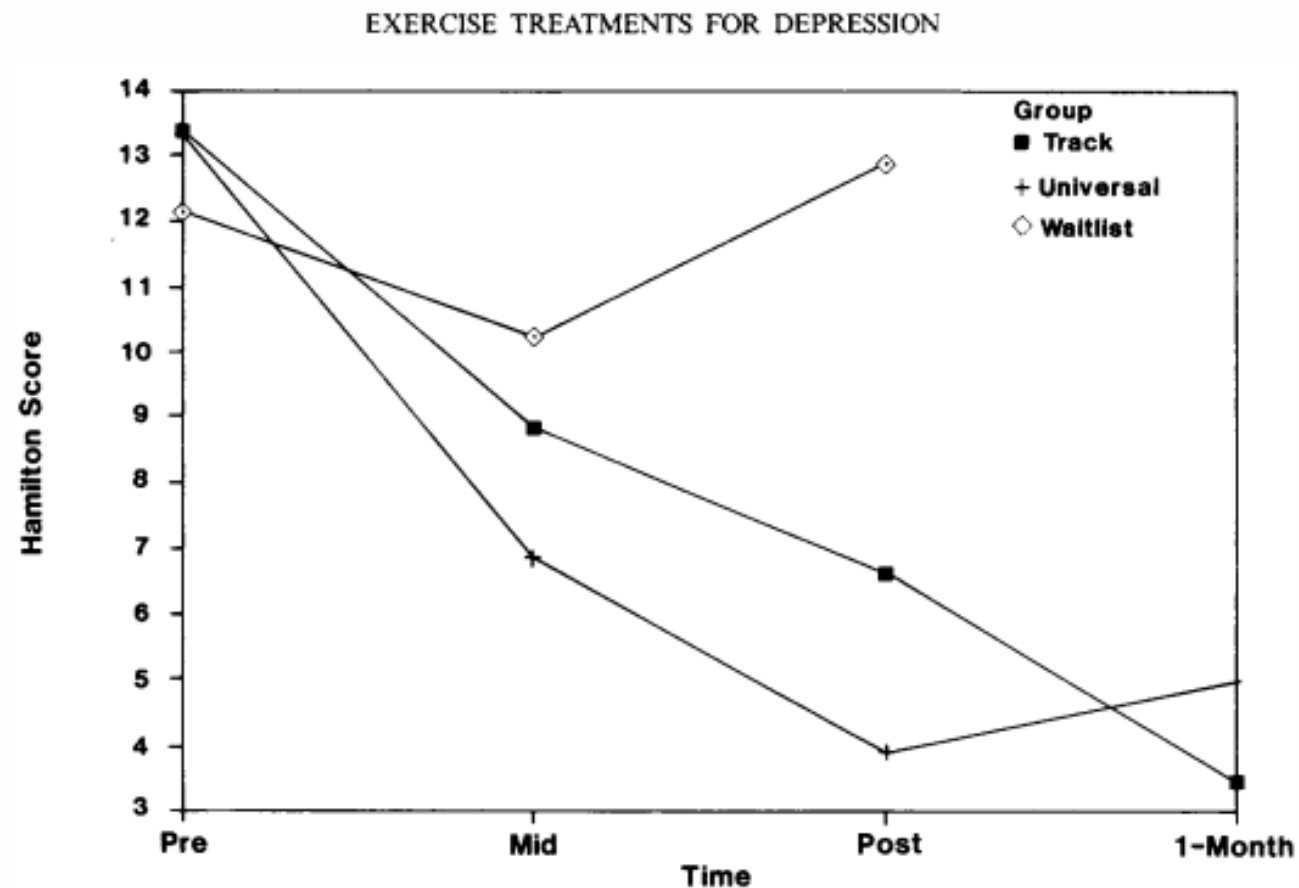


Figure 2. Hamilton Rating Scale for Depression Scores through 1-month follow-up.

Running Versus Weight Lifting in the Treatment of Depression

Elizabeth J. Doyne, Deborah J. Ossip-Klein, Eric D. Bowman, Kent M. Osborn,
Ilona B. McDougall-Wilson, and Robert A. Neimeyer
University of Rochester

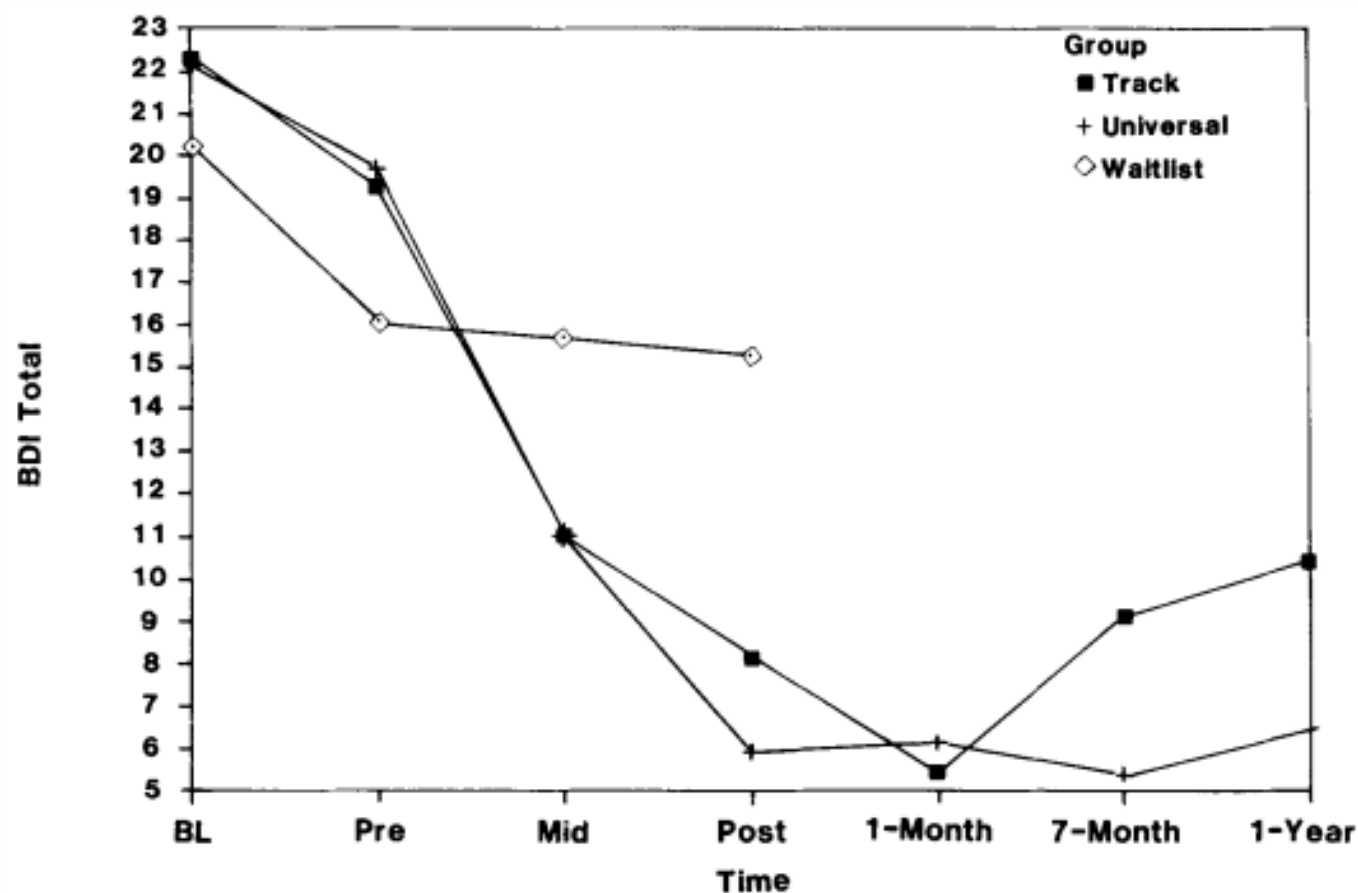


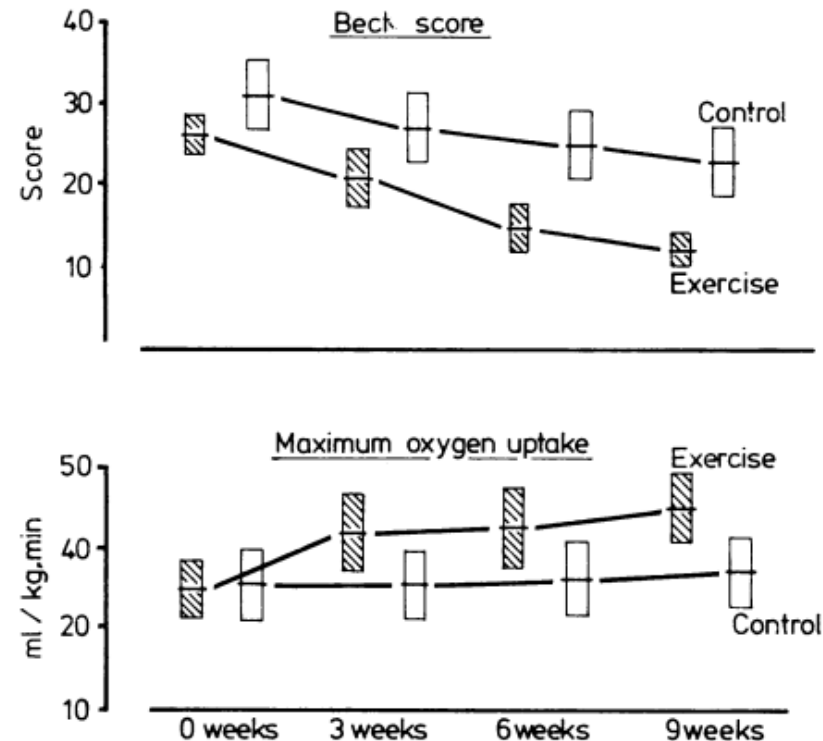
Figure 1. Beck Depression Inventory (BDI) scores through 1-year follow-up.

Effects of aerobic exercise on depression: a controlled study

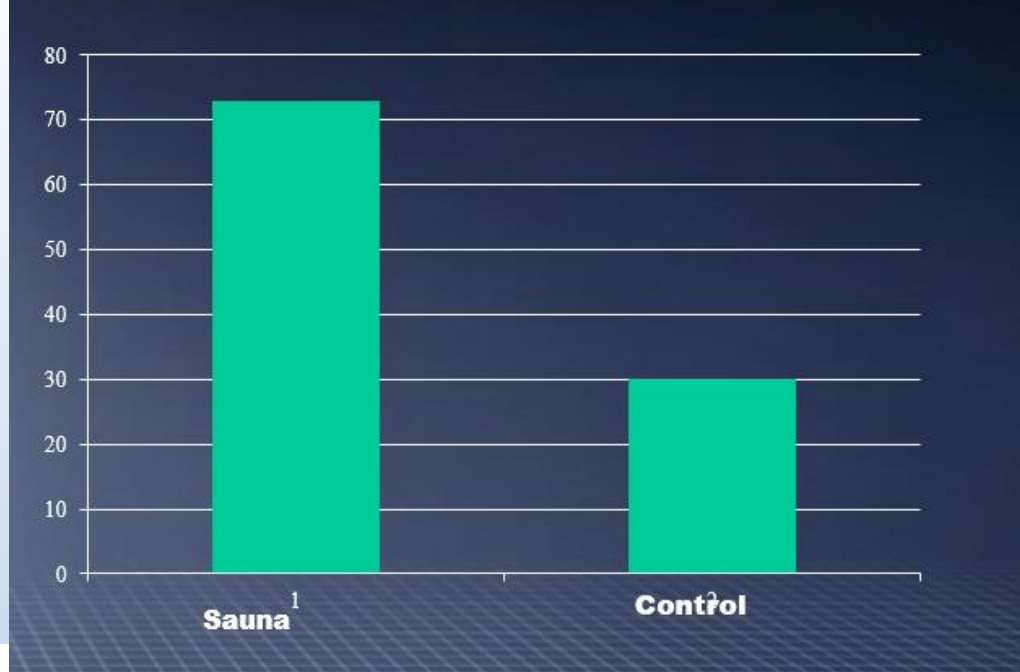
EGIL W MARTINSEN, MD, psychiatrist
A MEDHUS, MD, psychiatrist
L SANDVIK, MSC, statistician

BRITISH MEDICAL JOURNAL VOLUME 291 13 JULY 1985

Hospital Inpatients major depression



Mean Beck score and maximum oxygen uptake, with 95% confidence intervals.



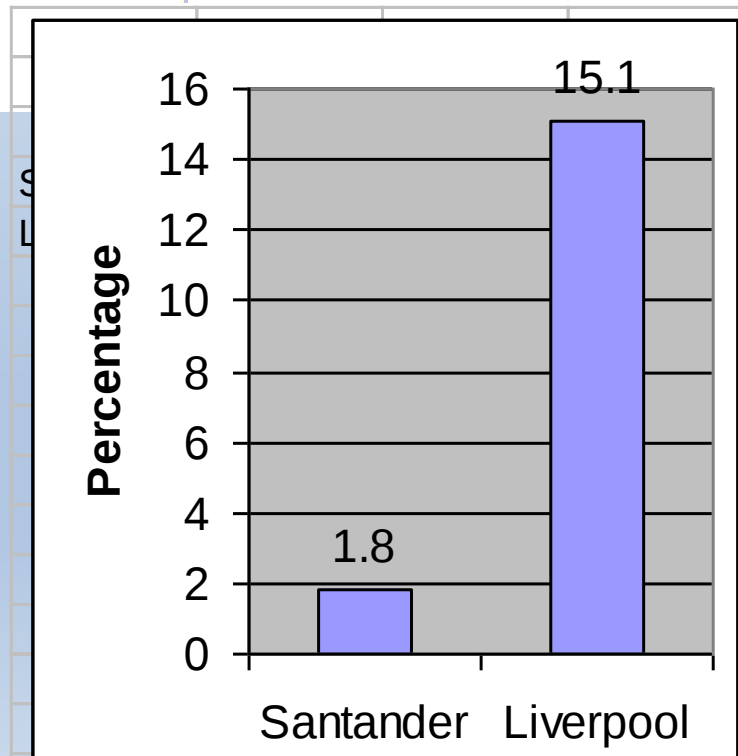
THE JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE
Volume 21, Number 2, 2015, pp. 103–109
© Mary Ann Liebert, Inc.
DOI: 10.1089/acm.2013.0466

Efficacy of Regular Sauna Bathing for Chronic Tension-Type Headache: A Randomized Controlled Study

Gireesh Kanji, PhD,¹ Mark Weatherall, FRACP,² Raja Peter, PhD,³
Gordon Purdie, BSc,⁴ and Rachel Page, PhD⁵

Depressive disorders in Europe: prevalence figures from the ODIN study

J. L. AYUSO-MATEOS, J. L. VÁZQUEZ-BARQUERO, C. DOWRICK,
V. LEHTINEN, O. S. DALGARD, P. CASEY, C. WILKINSON, L. LASA,
H. PAGE, G. DUNN, G. WILKINSON and the ODIN GROUP



RESEARCH LETTER

Effect of Tai Chi on depressive symptoms amongst Chinese older patients with depressive disorders: a randomized clinical trial

Kee-Lee Chou^{1*}, Peter W. H. Lee², Edwin C. S. Yu³, Duncan Macfarlane⁴, Yeung-Hung Cheng⁵, Sophia S. C. Chan⁶ and Iris Chi⁷

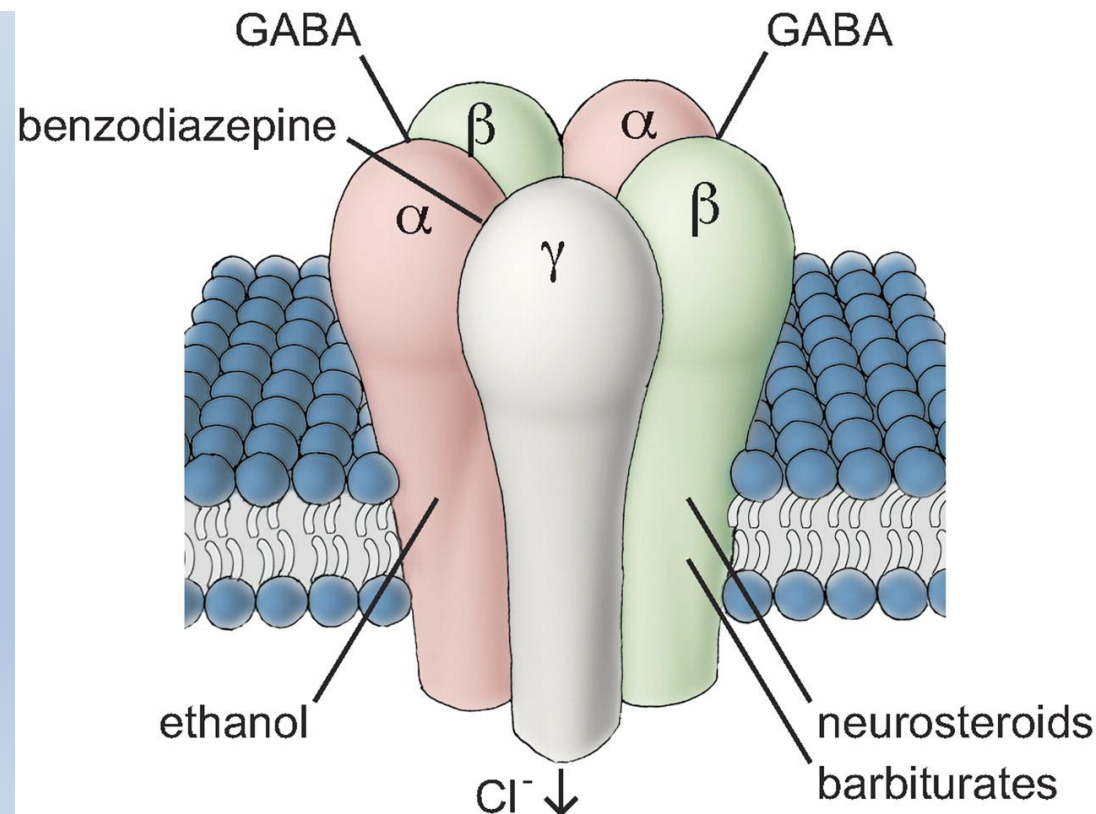
Ind. J. Clin. Psychol., (1993), **20** : 82—87

EFFECTIVENESS OF SHAVASANA ON DEPRESSION AMONG UNIVERSITY STUDENTS

S. S. Khumar¹, Paramjit Kaur² & Ms. Sarabjit Kaur³

Reduced Cortical γ -Aminobutyric Acid Levels in Depressed Patients Determined by Proton Magnetic Resonance Spectroscopy

Gerard Sanacora, MD, PhD; Graeme F. Mason, PhD; Douglas L. Rothman, PhD;
Kevin L. Behar, PhD; Fahmeed Hyder, PhD; Ogden A. C. Petroff, MD; Robert M. Berman, MD;
Dennis S. Charney, MD; John H. Krystal, MD



Meditation-Related Increases in GABA_B Modulated Cortical Inhibition

Crissa L. Guglietti^a, Zafiris J. Daskalakis^b, Natasha Radhu^b, Paul B. Fitzgerald^c, Paul Ritvo^{a,d,*}

^a York University

^b Centre for Addictive

^c Monash Alfred

^d Cancer Care Centre

Medical Hypotheses

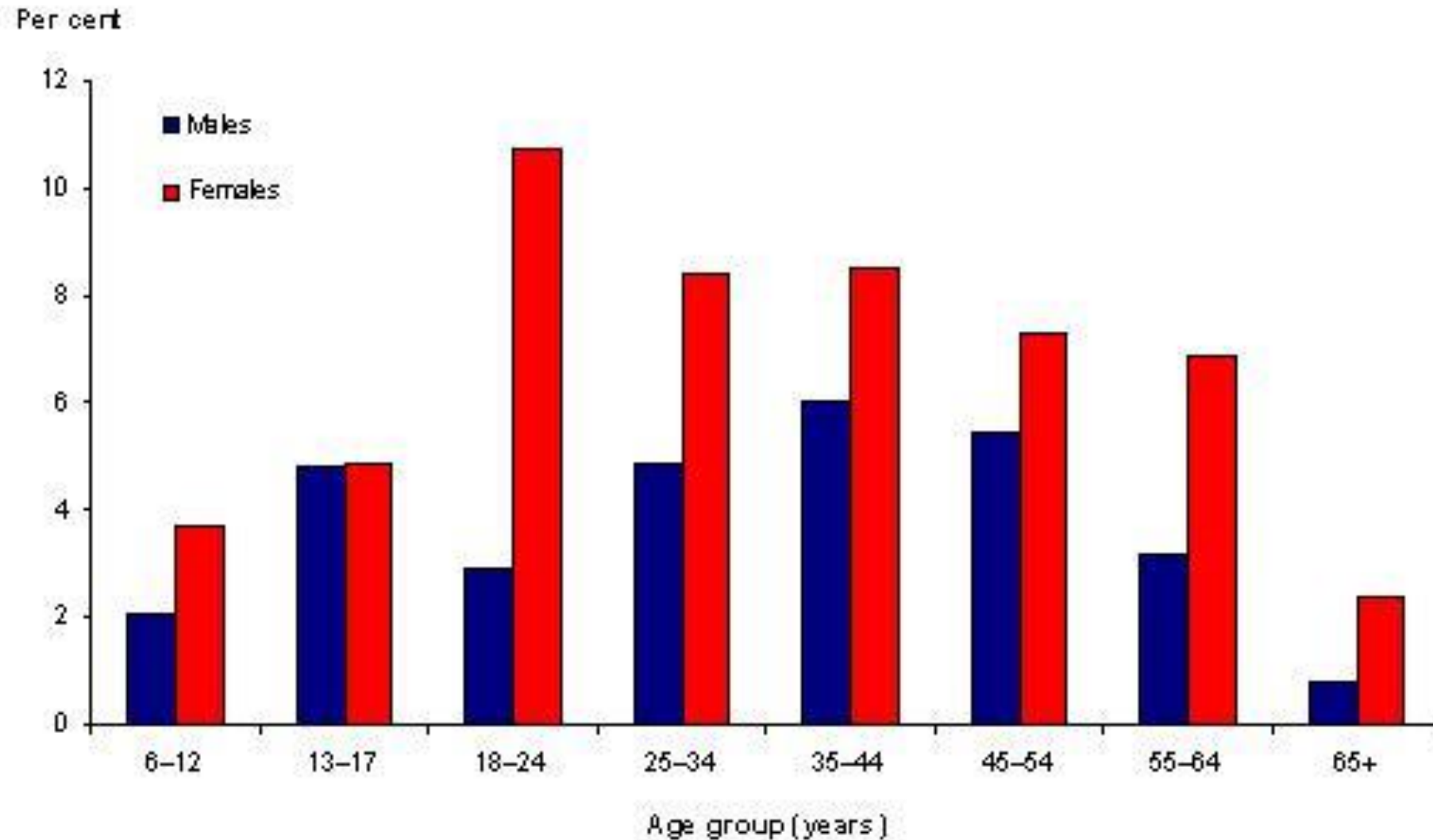
Medical Hypotheses (1995) 44, 287–291
© Pearson Professional Ltd 1995

Serum Hormonal Concentrations Following Transcendental Meditation – Potential Role of Gamma Aminobutyric Acid

A. N. ELIAS and A. F. WILSON

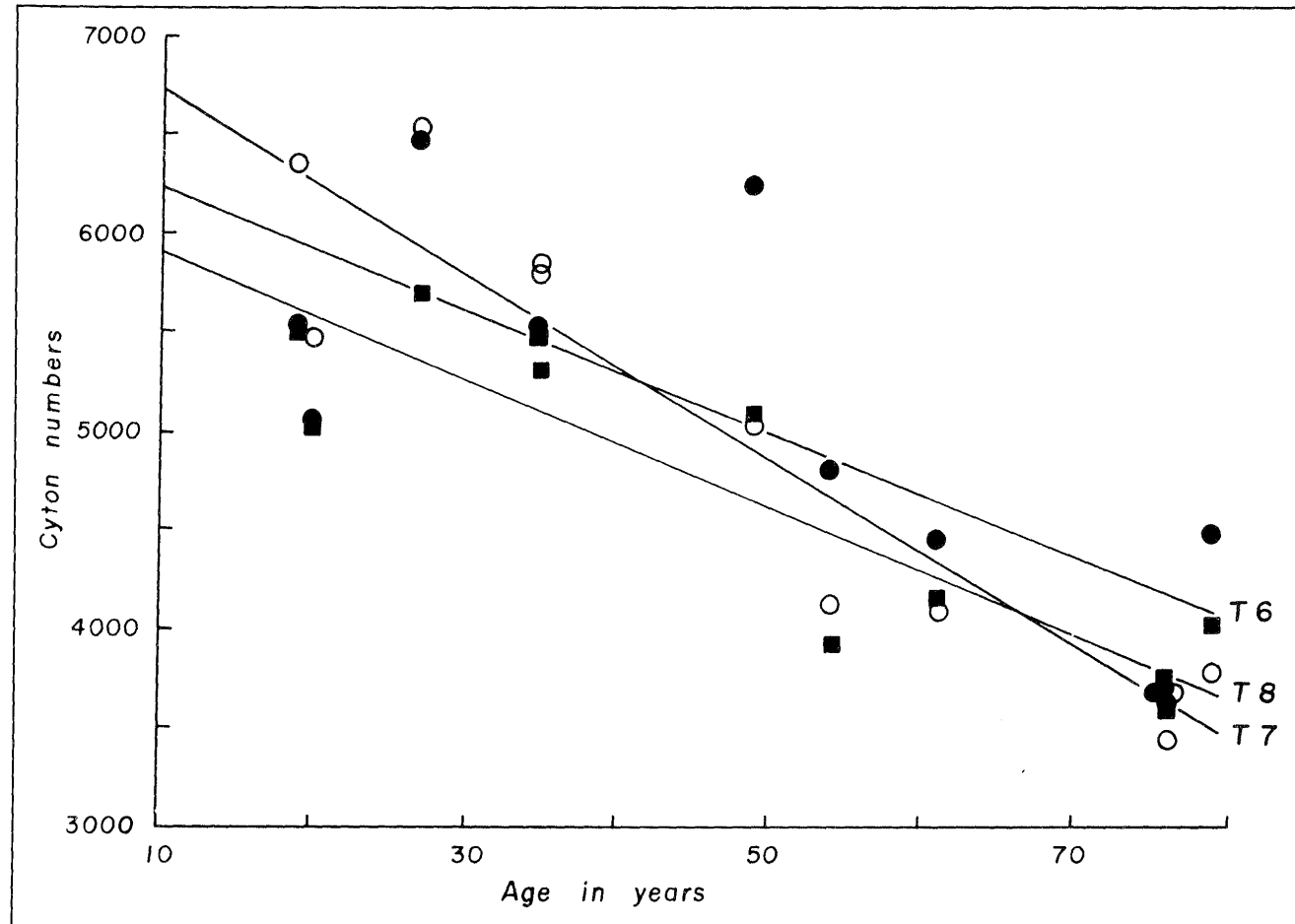
Department of Medicine, University of California, Irvine, Medical Center, 101 City Drive South, Orange, CA 92668, USA (Correspondence to: Alan N. Elias)

Depression prevalence



The SNS decline with age

Fig. 50-5. Progressive reduction of preganglionic sympathetic neuron numbers in the intermediolateral column. (*open circles* = T6; *closed circles* = T7; *open squares* = T8.)

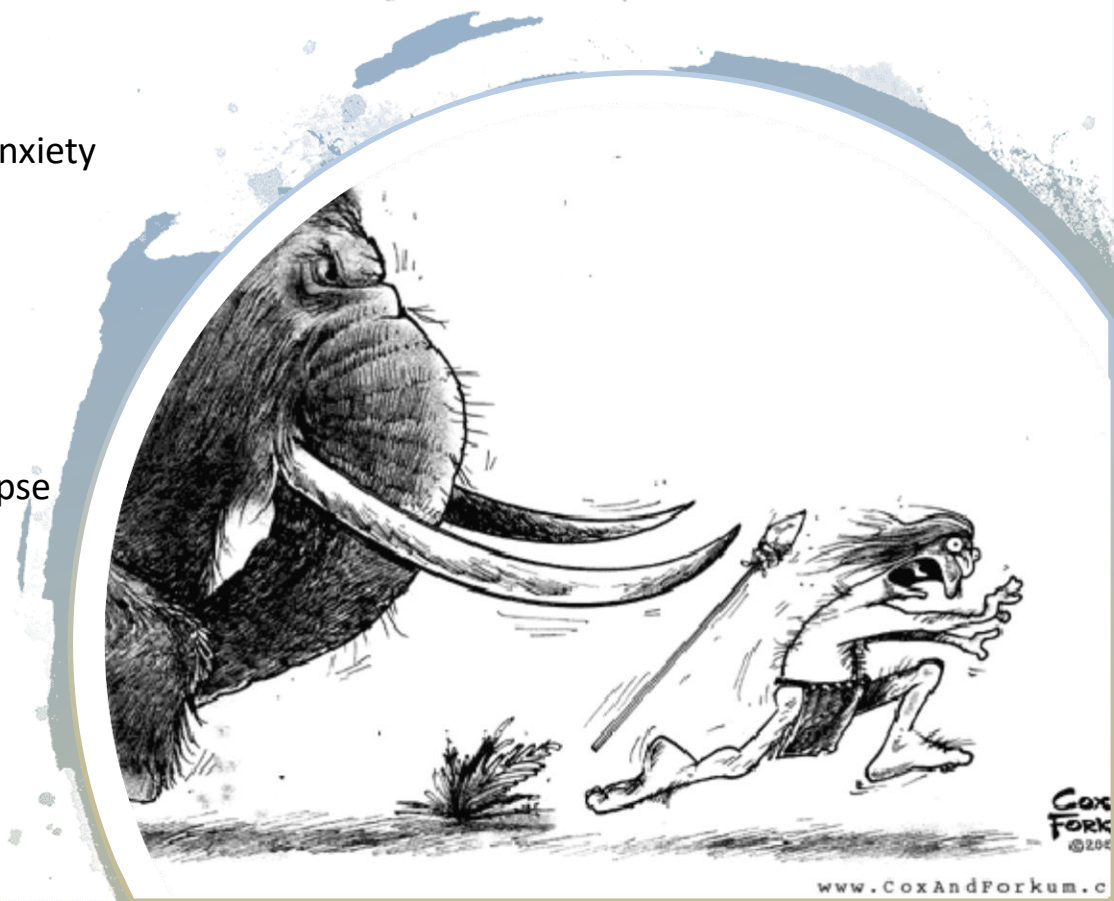


Jigsaw Pieces



What does this mean for Monday?

- Increased stress chemicals lead to insomnia anxiety depression
- Habits that reduce stress chemicals
- Exercise, Sauna, Yoga, Meditation, Tai Chi
- Will help and reduce recurrence.
- Pharmaceuticals for sleep, mood can help ‘
- but habits are likely to prevent long term relapse



Sensor/App

- Measures HRV, HR, RR.



THE UNIVERSITY OF
AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

enter keywords

OR

[Future undergraduates](#)

[Future postgraduates](#)

[Current students](#)

[International students](#)

[Parents and family](#)

[Staff](#)

[Alumni and friends](#)

[Business, employers and community](#)

[The media](#)

BOUT

[The University](#)

[Programmes and courses](#)

[Admission and enrolment](#)

[University home](#) » [University directory search](#)

Dr Partha Roop

PhD (UNSW Australia), M. Tech (IIT, Kharagpur) and BE (College of Engineering, Anna University)



Professor

In: [Department of Electrical, Computer and Software Engineering](#) » [Faculty of Engineering](#)