

1st
WORLD
CONGRESS ON HEALTHY AGEING
19 – 22 March, 2012
www.healthyageingcongress.org

Organised by:



Malaysian Healthy Ageing Society

Co-Sponsored:



World Health
Organization

YOGA THERAPY FOR CANCER – A RESEARCH UPDATE

Presented by

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**GREETINGS to all the delegates
of this 1st World congress on Healthy
Ageing 2012, March 19 – 22, 2012
Kaula Lumpur Convention Center,
KL, Malasia**

From

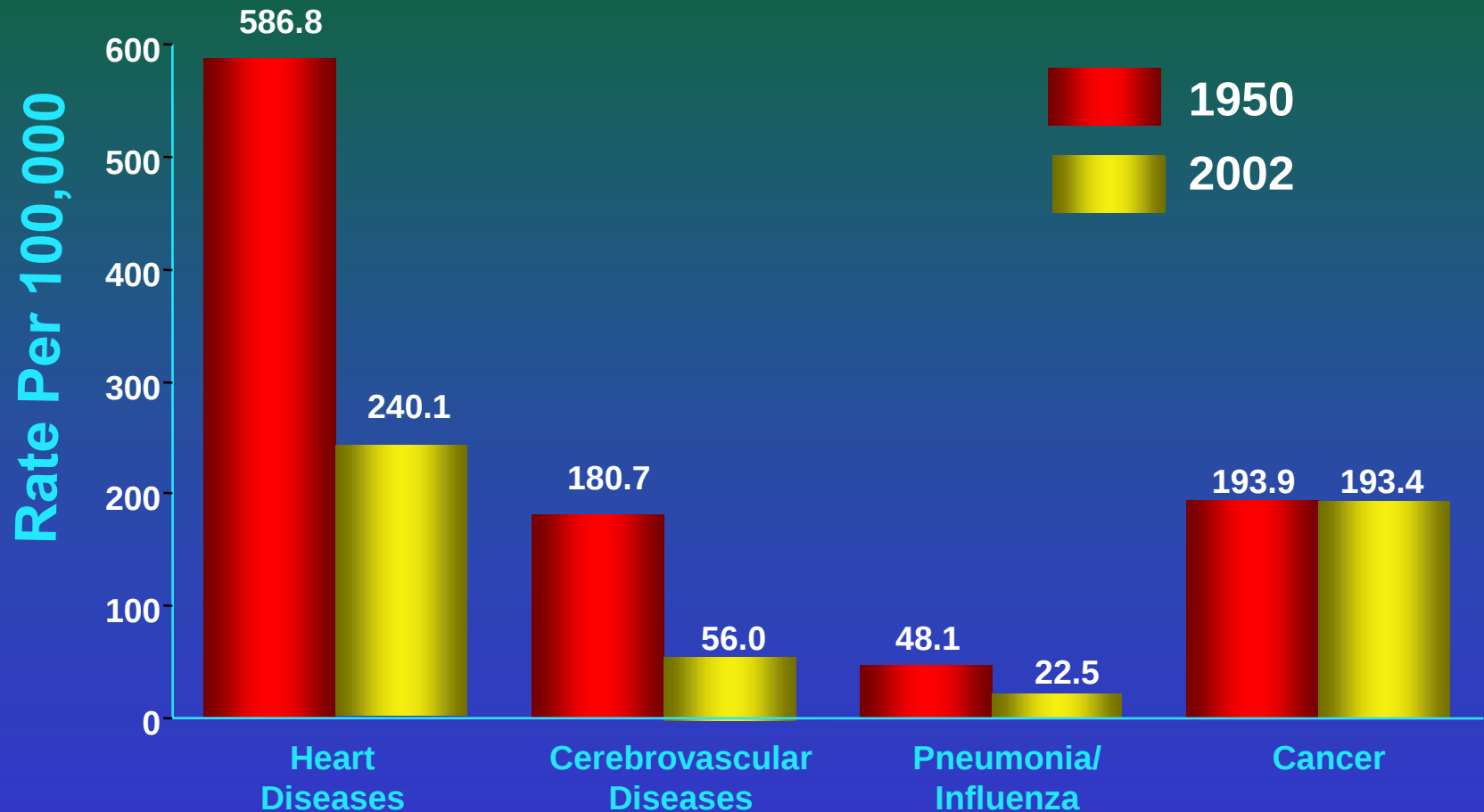
**S-VYASA Yoga University
recognised by Govt of India**

Cancer incidence

By Clifton Leaf March 22, 2004 (FORTUNE Magazine)

- **\$200 billion spent since 1970**
- **1.56 million papers**
- **150,855 experimental studies published on mice**
- **10.9 million new cases per year (1.5 million in USA)**
- **6.7 million people die every year due to cancer**
(563,700 in the USA)

Change in the US Death Rates* by Cause, 1950 & 2002



* Age-adjusted to 2000 US standard population.

Sources: 1950 Mortality Data - CDC/NCHS, NVSS, Mortality Revised.

2002 Mortality Data: US Mortality Public Use Data Tape, 2002, NCHS, Centers for Disease Control and Prevention, 2004

War on Cancer

“I will ask for an appropriation of an **extra \$100 million** to launch an extensive campaign to find a **cure for cancer**. Let us make a total national commitment to conquer this dread disease. America has long been the **wealthiest nation** in the world. Now it is time we became the **healthiest nation** in the world”.

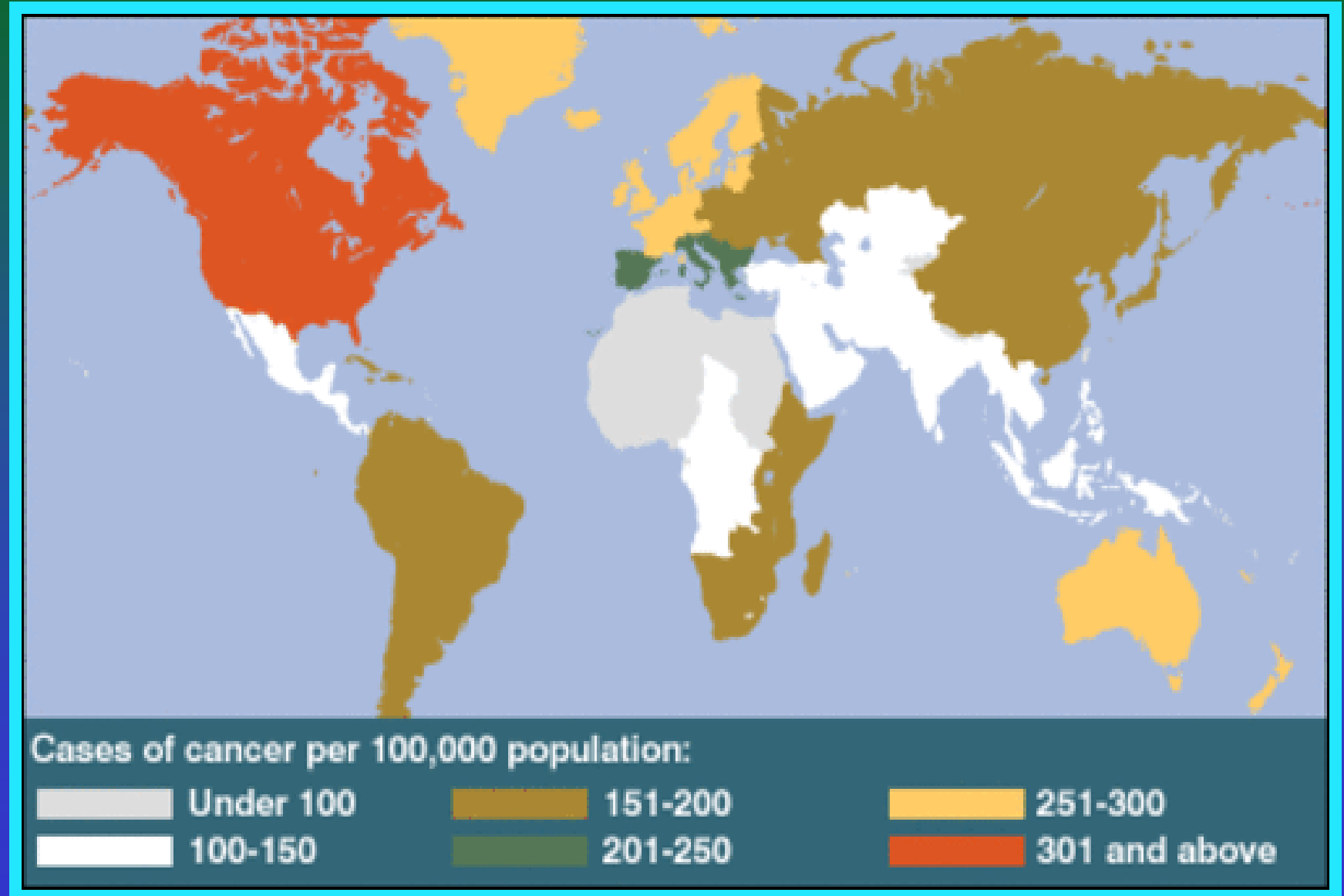
*--President Richard Nixon, 1971
State of the Union address*

"Why We're Losing the War on Cancer"?

(And How to Win It)"

2004 Fortune cover story

Cancer Incidence around the world



Colon cancer around the world

D.M. Parkin et al. / European Journal of Cancer 37 (2001) S4–S66

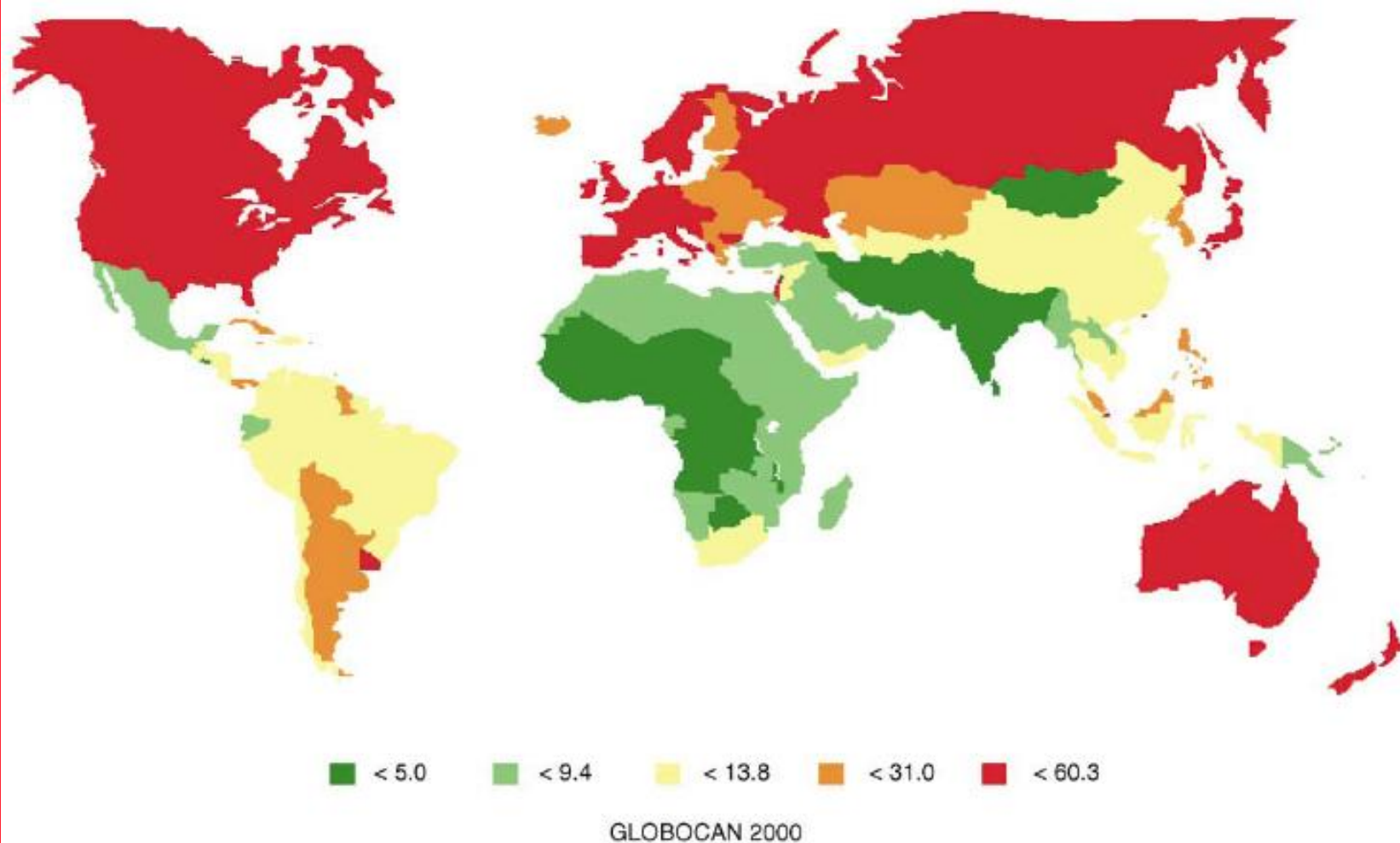
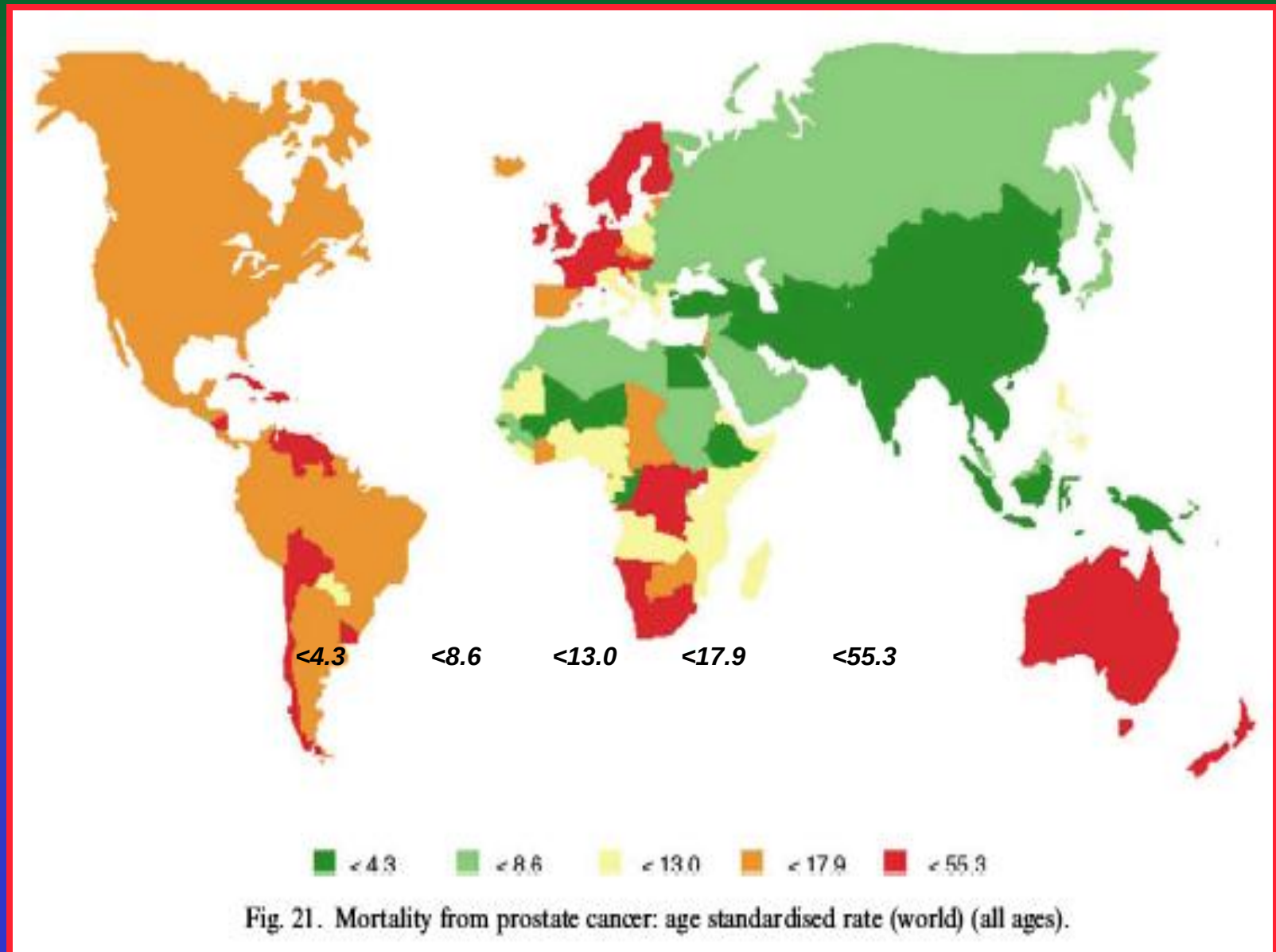


Fig. 16. Incidence of colon/rectum cancer: age-standardised rate (world)—male (all ages).

Mortality from prostate cancer



Incidence and mortality due to prostate cancer

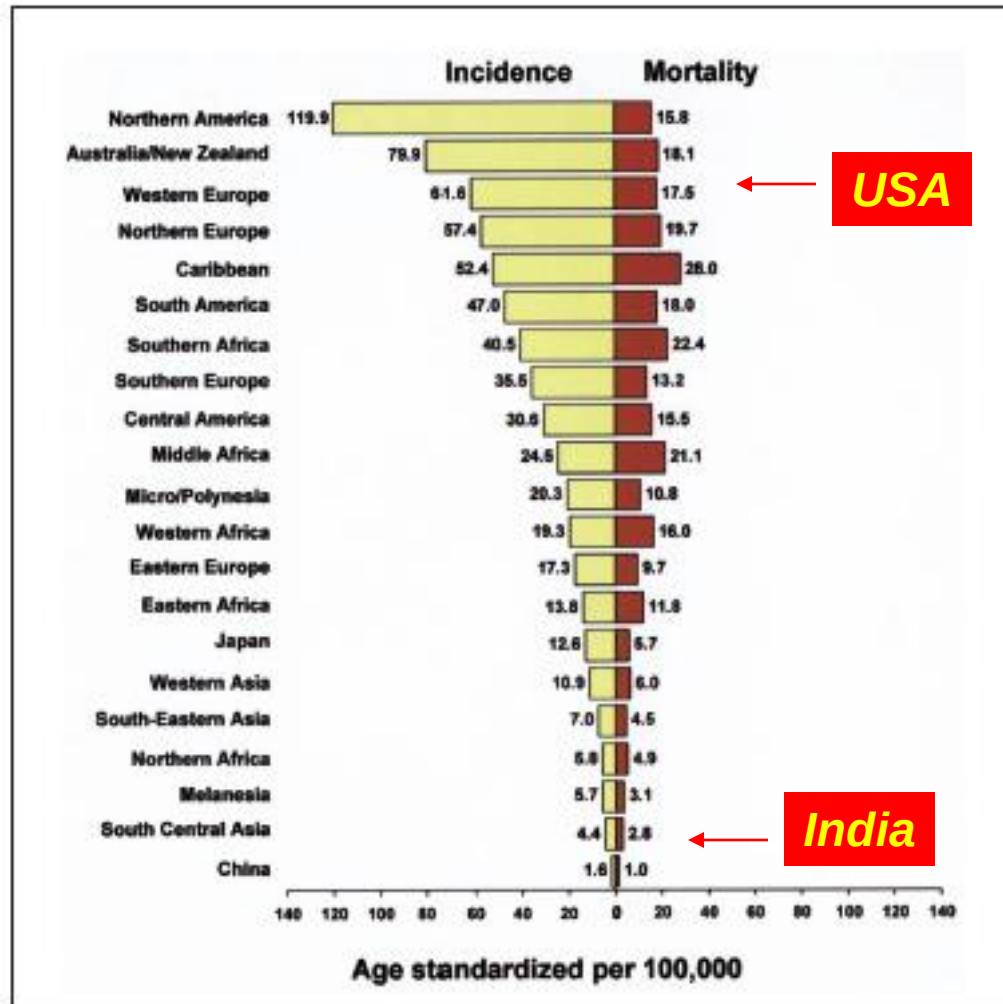
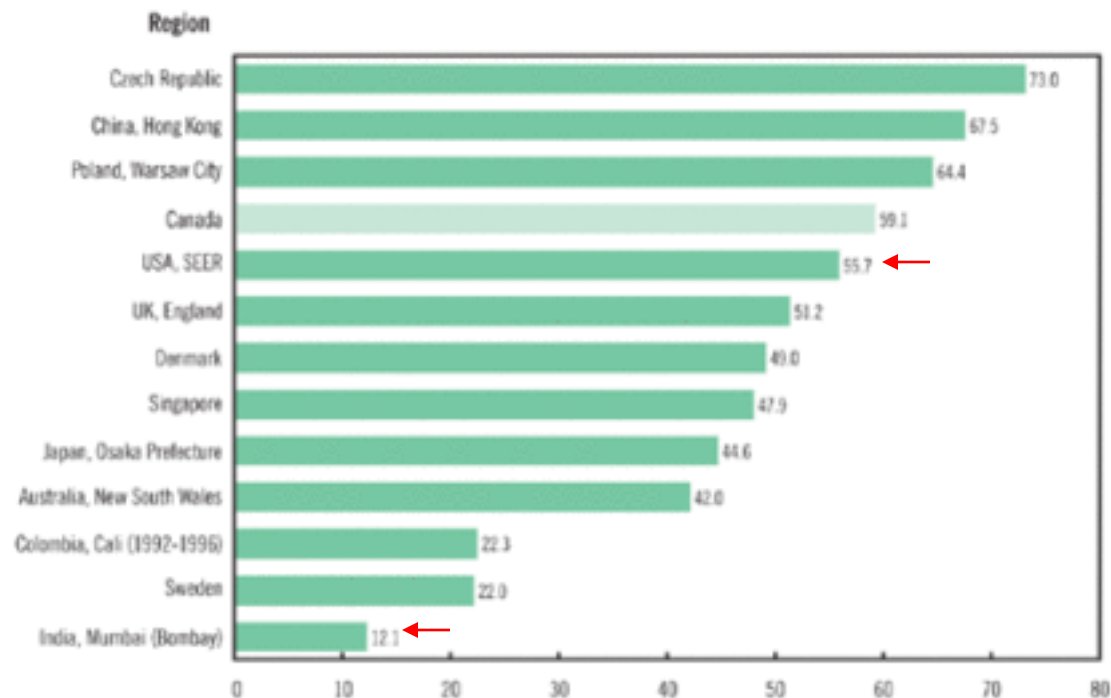


FIGURE 9 Age-standardized Incidence and Mortality Rates for Prostate Cancer. Data shown per 100,000.

Cancer incidence around the world

Figure 11.4

International Comparison of Age-Standardized Incidence Rates for Lung Cancer, Canada and Selected Registries, Males, 1993-1997



**“Hit at
the cause of
Cancer”**

?

FEBRUARY 23, 2004

BUSH'S
MILITARY RECORDS
IS DISNEY MOUSETRAPPED?

TIME

THE SECRET KILLER

- The surprising link between **INFLAMMATION** and **HEART ATTACKS, CANCER, ALZHEIMER'S** and other diseases
- What you can do to fight it

www.time.com AOL Keyword: TIME

TIME Feb. 23, 2004

By CHRISTINE GORMAN and ALICE PARK



The FIRES Within

Inflammation is the body's first defense against infection, but when it goes awry, it can lead to heart attacks, colon cancer, Alzheimer's and a host of other diseases

Illustration for TIME by Brian Stauffer

WHAT DOES A STUBBED TOE OR A splinter in a finger have to do with your risk of developing Alzheimer's disease, suffering a heart attack or succumbing to colon cancer? More than you might think. As scientists delve deeper into the fundamental causes of those and other illnesses, they are starting to see links to an age-old immunological defense mechanism called inflammation—the same biological process that turns the tissue around a splinter red and causes swelling in an injured toe. If they are right—and the evidence is starting to look pretty good—it could radically change doctors' concept of what makes us sick. It could also prove a bonanza to pharmaceutical companies looking for new ways to keep us well.

Most of the time, inflammation is a lifesaver that enables our bodies to fend off various disease-causing bacteria, viruses and parasites. (Yes, even in the industrialized world, we are constantly bombarded by pathogens.) The instant any of these potentially deadly microbes slips into the body, inflammation marshals a defensive attack that lays waste to both invader and any tissue it may have infected. Then just as quickly, the process subsides and healing begins.

Every once in a while, however,

the whole feverish production doesn't shut down on cue. Sometimes the problem is a genetic predisposition; other times something like smoking or high blood pressure keeps the process going. In any event, inflammation becomes chronic rather than transitory. When that occurs, the body turns on itself—like an ornery child who can't resist picking a scab—with aftereffects that seem to underlie a wide variety of diseases.

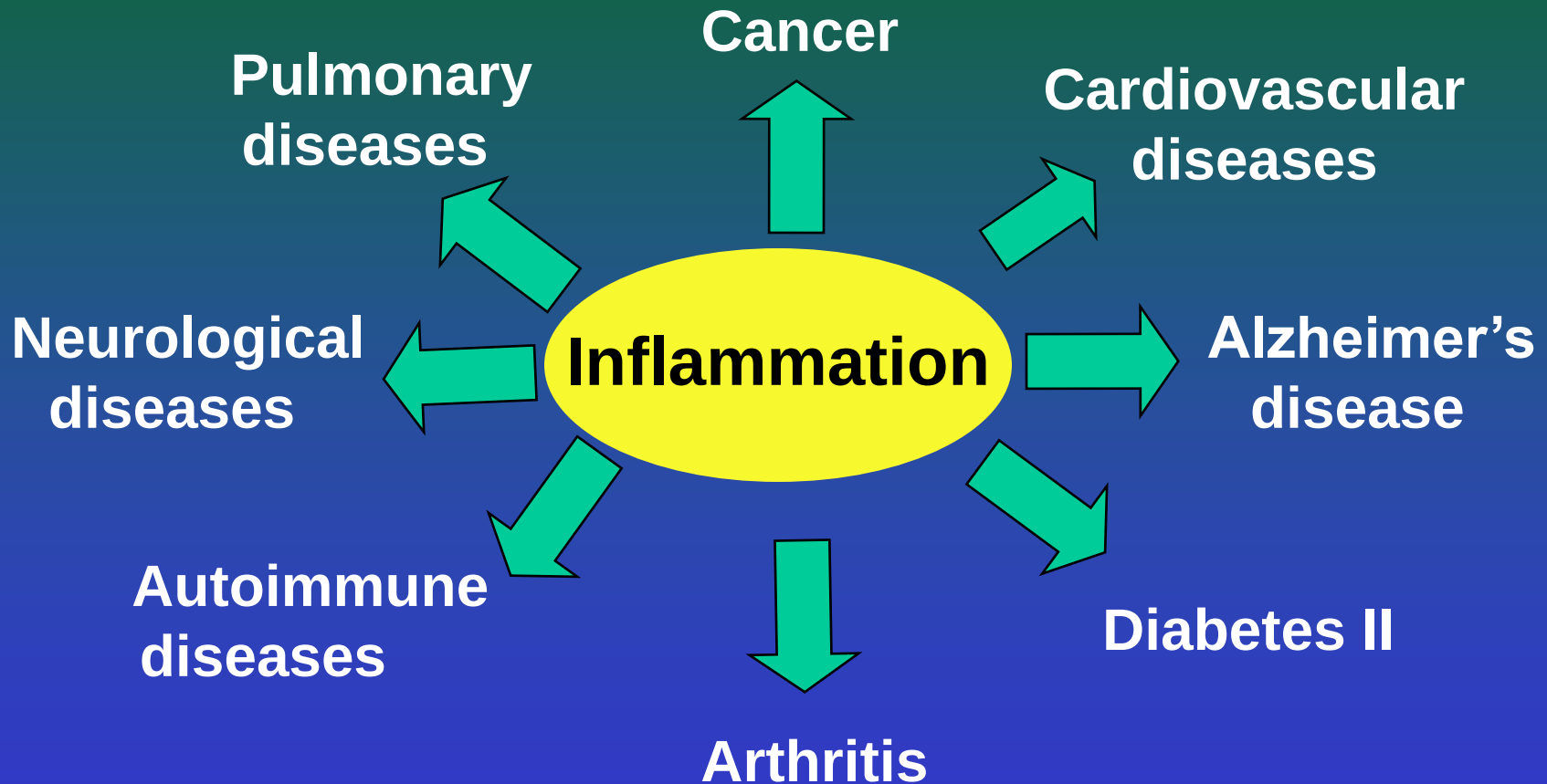
Suddenly, inflammation has become one of the hottest areas of medical research.

Inflammation as a risk factor for most cancers

Inducer	Inflammation	Cancers	% predisposed that progress to cancer
Tobacco smoke	Bronchitis	Lung Cancer	11-24
<i>Helicobacter pylori</i>	Gastritis	Gastric Cancer	1
- 3			
Human papilloma virus	Cervicitis	Cervical cancer	<1
Hepatitis B & C virus	Hepatitis	HCC	10
Bacteria, GBS	Cholecystitis	Gall bladder cancer	1 – 2%
Gram- uropathogens	Cystitis	Bladder cancer	<1
Tobacco, genetics	Pancreatitis	Pancreatic cancer	≤10%
GA, alcohol, tobacco	Esophagitis	Esophageal cancer	15
Asbestos fibers	Asbestosis	Mesothelioma	10–15
Epstein-Barr virus	Mononucleosis	Burkitt's lymphoma	<1
		Hodgkin's disease	
Gut pathogens	IBD	Colorectal cancer	1*
Ultraviolet light	Sunburn	Melanoma	≤9%
Infections, STD	PIA	Prostate cancer	?

GA, gastric acid; GBS, gall bladder stones; HCC, hepatocellular carcinoma; STD, sexually transmitted diseases; PIA, prostate inflammatory atrophy.

Inflammation plays a major ROLE in development of most diseases



What is Inflammation?

Cornelius Celsus,
a physician in first century Rome:

Heat (*calor*)

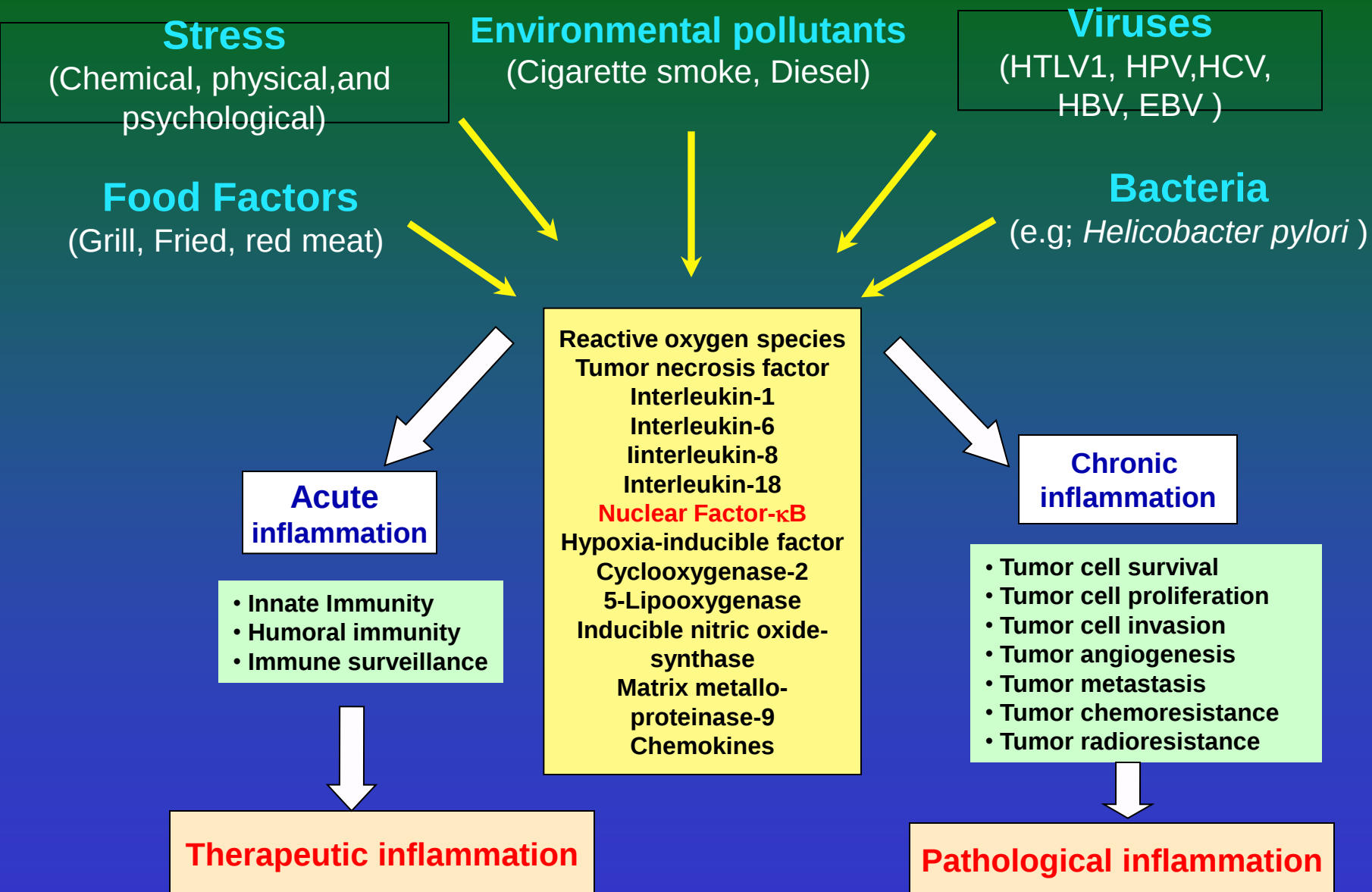
Pain (*dolor*)

Redness (*rubor*)

Swelling (*tumour*)

**What is
the root cause
for
Inflammation?**

Different faces of inflammation and its role in tumorigenesis



Life style plays a major role in cancer

The multiethnic cohort study: exploring genes, lifestyle and cancer risk.

Kolonel LN, Altshuler D, Henderson BE. Nat Rev Cancer. 2004 Jul;4(7):519-27.

Impact of race/ethnicity on molecular pathways in human cancer.

Wiencke JK. Nat Rev Cancer. 2004 Jan;4(1):79-84.

Migration patterns and breast cancer risk in Asian-American women.

Ziegler RG, etal. J Natl Cancer Inst. 1993 Nov 17;85(22):1819-27.

Studies of Japanese migrants. I. Mortality from cancer and other diseases among Japanese in the United States.

Haenszel W, Kurihara M. J Natl Cancer Inst. 1968 Jan;40(1):43-68.

MODERN LIFE STYLE

STRESS

SPEED AND GREED

STRESS AND CANCER ARE NOT MERELY PHYSICAL

They are Multi Dimensional

- **Mental Restlessness**
- **Emotional Upsurges**
- **Deep Rooted Psychological Conflicts....**

All at the base of stress

It has changed our life style

YOGA provides

not only the Knowledge

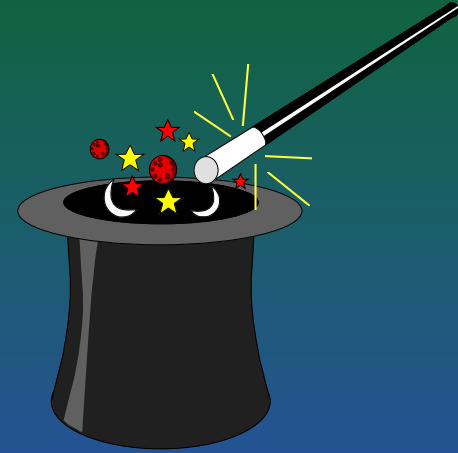
base

but also practices

to change our life styles

WHAT IS YOGA?

- ROPE TRICK?
- MAGIC ?
- SIDDHIS ?
- ACROBATICS OF BODY?
- BREATHING
- EXERCISES?



**PURE CONSCIOUSNESS
FREEDOM MOKSHA**

**BRAHMAN
ATMAN
DIVINITY
REALITY**

**YOGA IS A CONSCIOUS
PROCESS FOR
ACCELERATING THIS
GROWTH**

Sw VIVEKANANDA

DIVINE BEING

SUPER MAN

GREAT MAN

NORMAL MAN

ANIMAL MAN

YOGA

YUJYATE ANENA ITI YOGAH

WHAT IS YOGA?

- **YOGA IS A WAY OF LIFE**

IT IS THE

SCIENCE OF HOLISTIC

LIVING

Upanishads

contain

that knowledge base

10 MAJOR UPANISADS

❖ Iùa

❖ Kena

❖ Kaûha

❖ Munãaka

❖ Mánãükya
(Smallest)

❖ Itaräya

❖ Taittireya

❖ Praúna

❖ Chándogya

❖ Brçadáraiyaka
(Biggest)



**What is that
Knowledge Base ???
from
Upanishads ?**

**THERE IS AN UNCHANGING
DIMENSION OF OUR EXISTENCE**

AND

EMERGING OUT OF THIS IS

**AN EVER CHANGING DIMENSION
CREATION**

**THE UNCHANGING DIMENSION IS
CALLED**

REALITY, PURE CONSCIOUSNESS

KAIVALYA, NIRVANA

MOKSHA , BRAHMAN, ATMAN

Taittirèya Upanishad

We all have 5 major sheaths of existence.

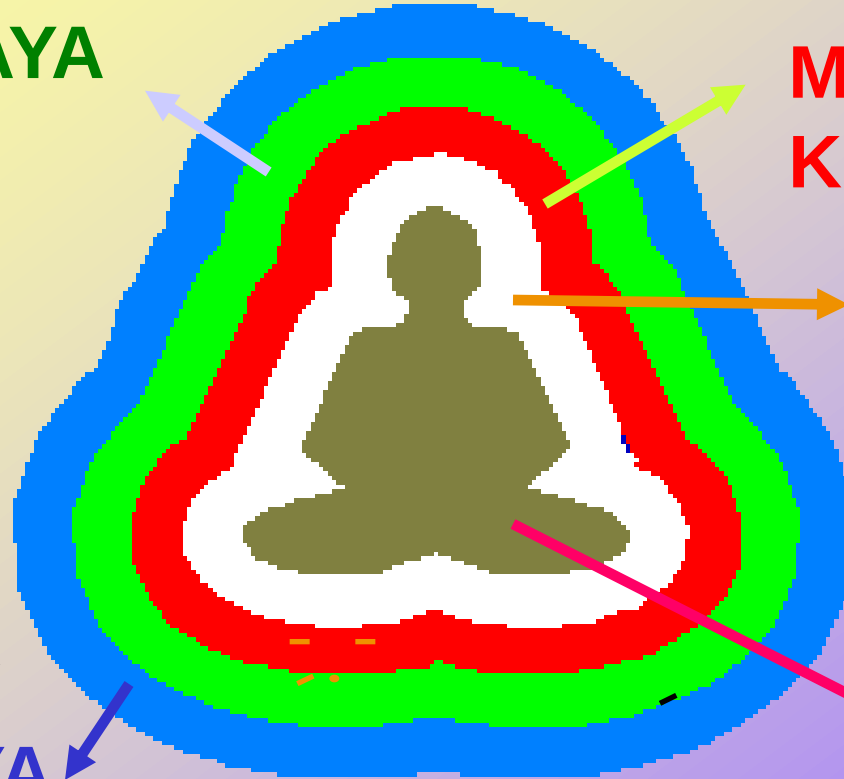
**VIJNANAMAYA
KOSA**

**MANOMAYA
KOSA**

**PRANAMAYA
KOSA**

**ANNAMAYA
KOSA**

**ANANDAMAYA
KOSA**



FIVE LAYERED EXISTENCE

OF HUMAN BEINGS

ANANDAMAYA KOSHA

TRANSCENDENCE

UNITY CONSCIOUSNESS

TOTAL BLISS

TOTAL KNOWLEDGE

TOTAL POWER

TOTAL FREEDOM

We are all brothers and sisters

Brothers and sisters of America

VIJNANAMAYA KOSHA

DIFFERENTIATIONS START

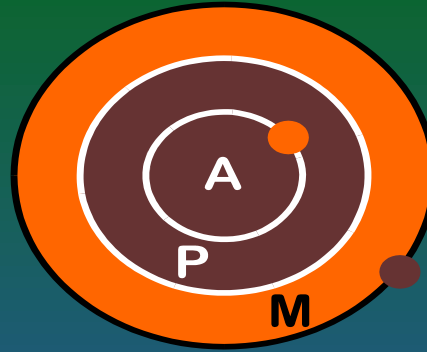
KNOWLEDGE IS COMPLETE

ALL ACTIONS ARE GOVERNED BY
THIS TOTAL KNOWLEDGE

NO STRESS OR TENSION

GREAT YOGA MASTERS Maharishi
Patanjali, Christ, Mohammad,
Shankaracharya, Sant Jnanadev,

MANOMAYA KOSHA



MENTAL RESTLESSNESS

Emergence of likes and dislikes...Emotions

Likes and Dislikes dominate the scene

Emergence of Duryodhana

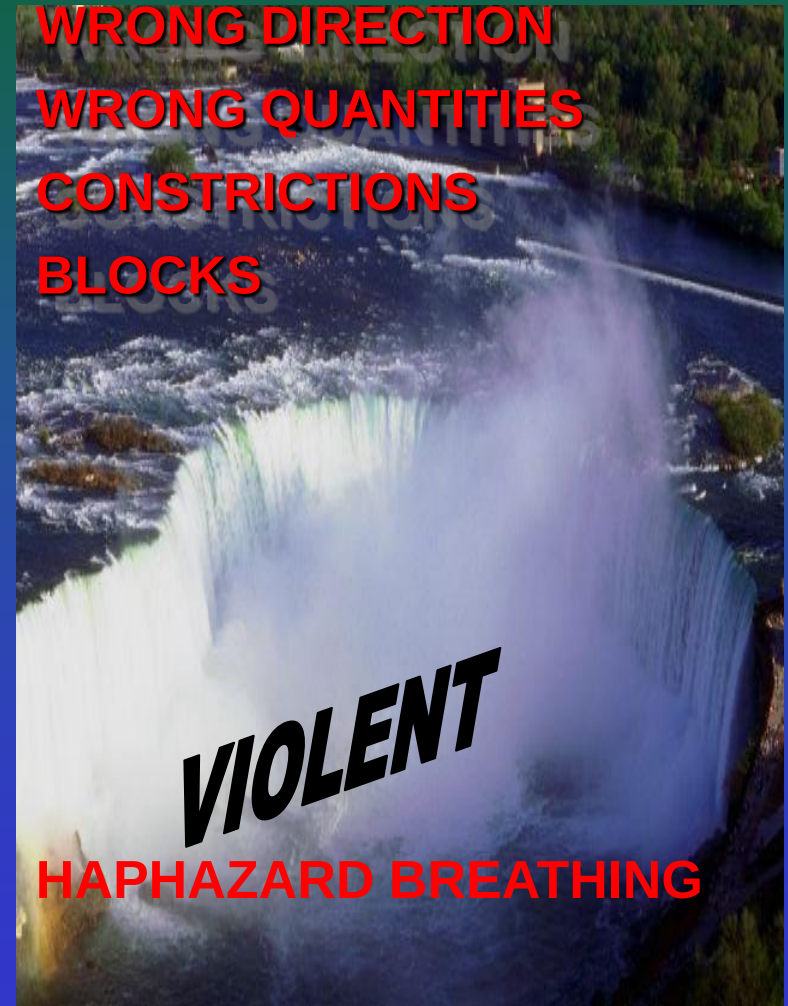


STARTING OF ADHI

The seed of Stress

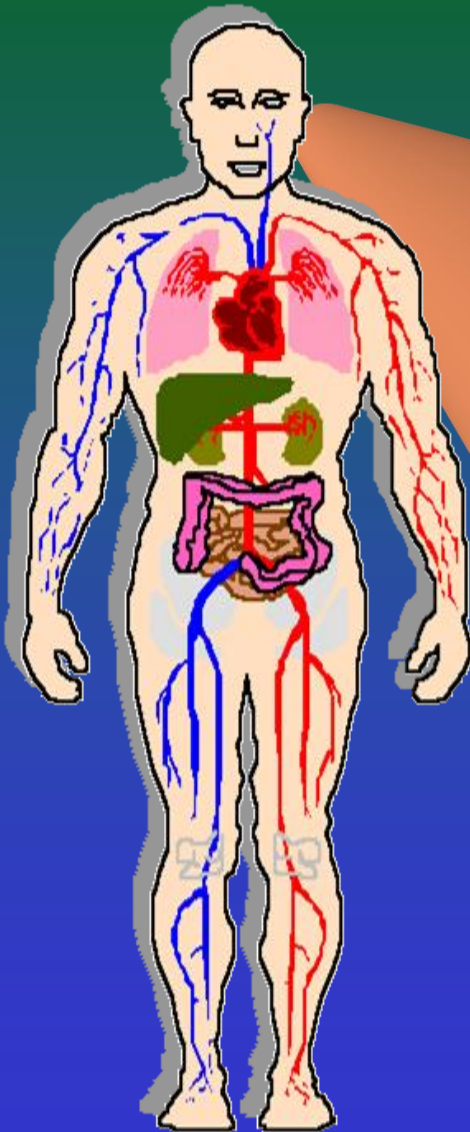
ÁDHI - THE SEED OF DISEASE

DISTURBED PRÁNA BALANCE



ÁDHIJA VYÁDHI

SETTLES DOWN IN
ANNAMAYA KOSA AS
ORGAN DAMAGE



WHICH ORGAN?
HEREDITY
WEAK ORGAN
INJURED ORGAN

IGNORANCE IN VIJNANAMAYA KOSA

```
graph TD; A[IGNORANCE IN VIJNANAMAYA KOSA] --> B[Imbalances in the mind  
MANOMAYA...ADHI]; B --> C[Breathing Imbalances  
PRANAMAYA]; C --> D[ANS and Endocrine Imbalances  
STRESS REACTION]; D --> E[DIS-EASE --VYADHI];
```

Imbalances in the mind

MANOMAYA...ADHI

Breathing Imbalances

PRANAMAYA

ANS and Endocrine Imbalances

STRESS REACTION

DIS-EASE --VYADHI

ALLOPATHIC SYSTEM

MEDICINE – CHEMOTHERAPY. RADIATION

SURGERIES

ALL WORK ESSENTIALLY AT THE

PHYSICAL LEVEL

BUT THE ROOT CAUSE

IS AT MANOMAYA KOSHA

HENCE NO SOLUTIONS

Complimentary systems

**Establishment of NICAM in
USA**

**Emphasis on Traditional
Systems in WHO**

AYUSH in India

CONTRIBUTIONS OF INDIA

AYUSH in India

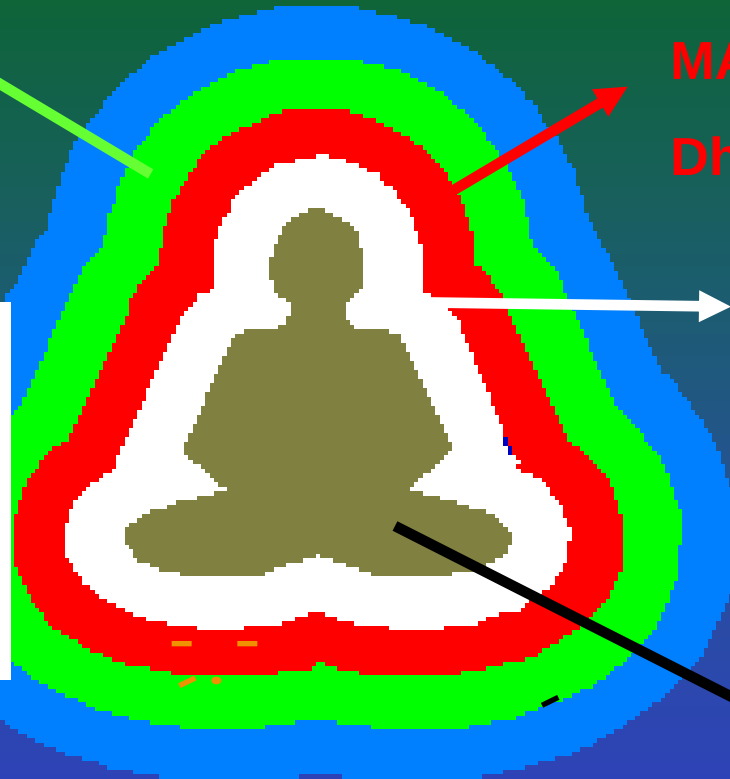
**Based on Science of
Holistic Living**

Holistic Living

**Right Knowledge based actions,
Controlled Mind, Will Power and
Emotions, Balanced ANS and
Balanced Diet, Value based life**

**VIJNANAMAYA
KOSA- Jnana
Yoga**

**ANANDAMAYA
KOSA
– KARMA YOGA**



MANOMAYA KOSA
Dhyana, Bhakti

PRANAMAYA KOSA
Kriyas, Prnayama

ANNAMAYA KOSA
**SN, Asanas,
Kriyas**

**INTEGRATED APPROACH
OF YOGA THERAPY**

26 YEARS
OF
YOGA THERAPY
RESEARCH on Cancer
AT VYASA..
A GLIMPSE

CANCER

TERMINAL CASES - 8

BREAST - 6

THROAT -1

BONE - 1

1986

PILOT STUDIES - 100

KIDWAI MEMORIAL

INSTITUTE OF

1987

ONCOLOGY

CONTROL STUDIES

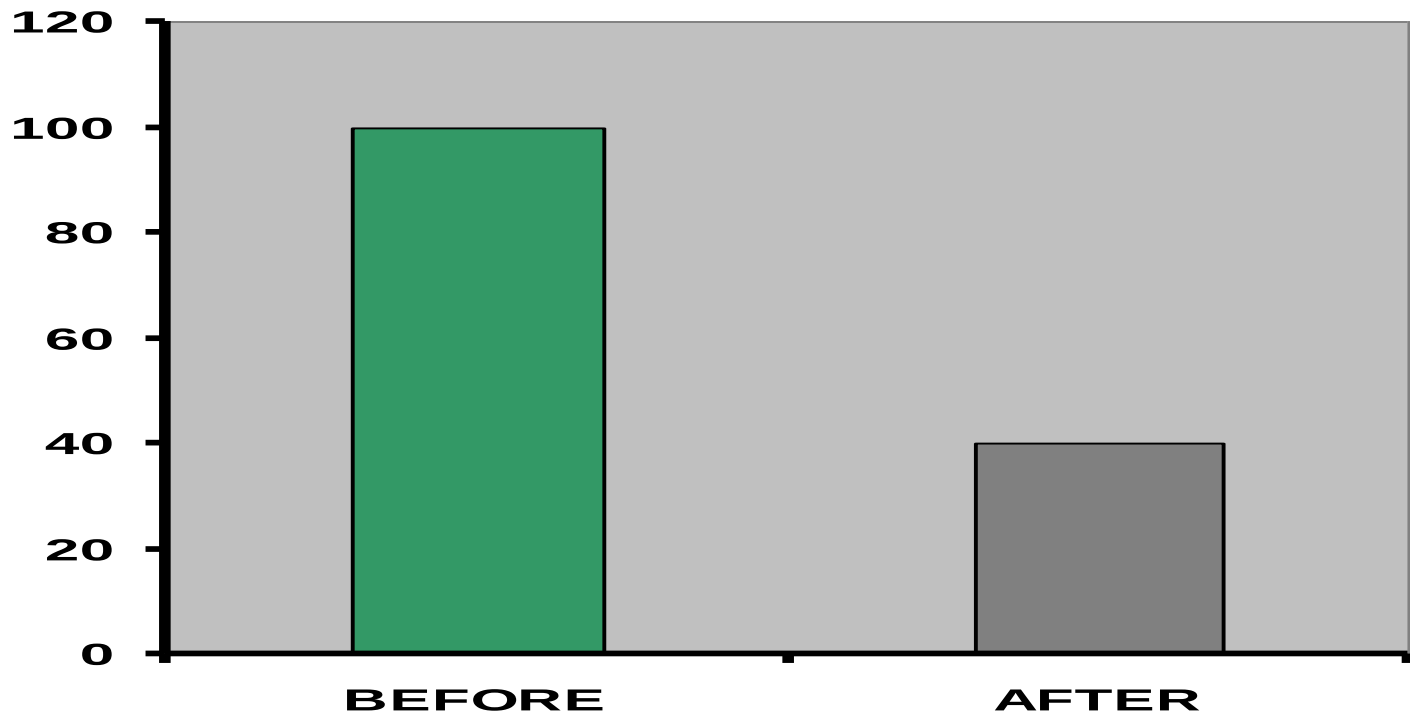
BREAST CANCER - 3 yrs

1990

SECONDARY EFFECTS & YOGA

1992

ON CANCER CERVIX



YOGA (2 TO 4 WEEKS)
SYMPTOMS - SCORE
OF
CANCER PATIENTS

CANCER

- IRT QRT DRT SMET
- PET
- MSRT, MIRT & MEMT
- VISAK IAAYT
- ANAMS

STRENGTHENING THE IMMUNE DEFENCE
- AIDS

RESIDENTIAL TREATMENT STUDIES

1994 - 96

N=28 3 TO 4 WEEKS

CONTROL STUDIES

1999 -2003

**EFFECT OF IAYT
ON BREAST CANCER
undergoing
RADIATION,
CHEMOTHERAPY
AND SURGERY**

IISc, Bangalore, Manipal Hospital

List of publications

1. Effects of an integrated yoga program on chemotherapy induced nausea and emesis in breast cancer patients (2007).

Raghavendra Rao M, Nagarathna Raghuram, Nagendra HR et al

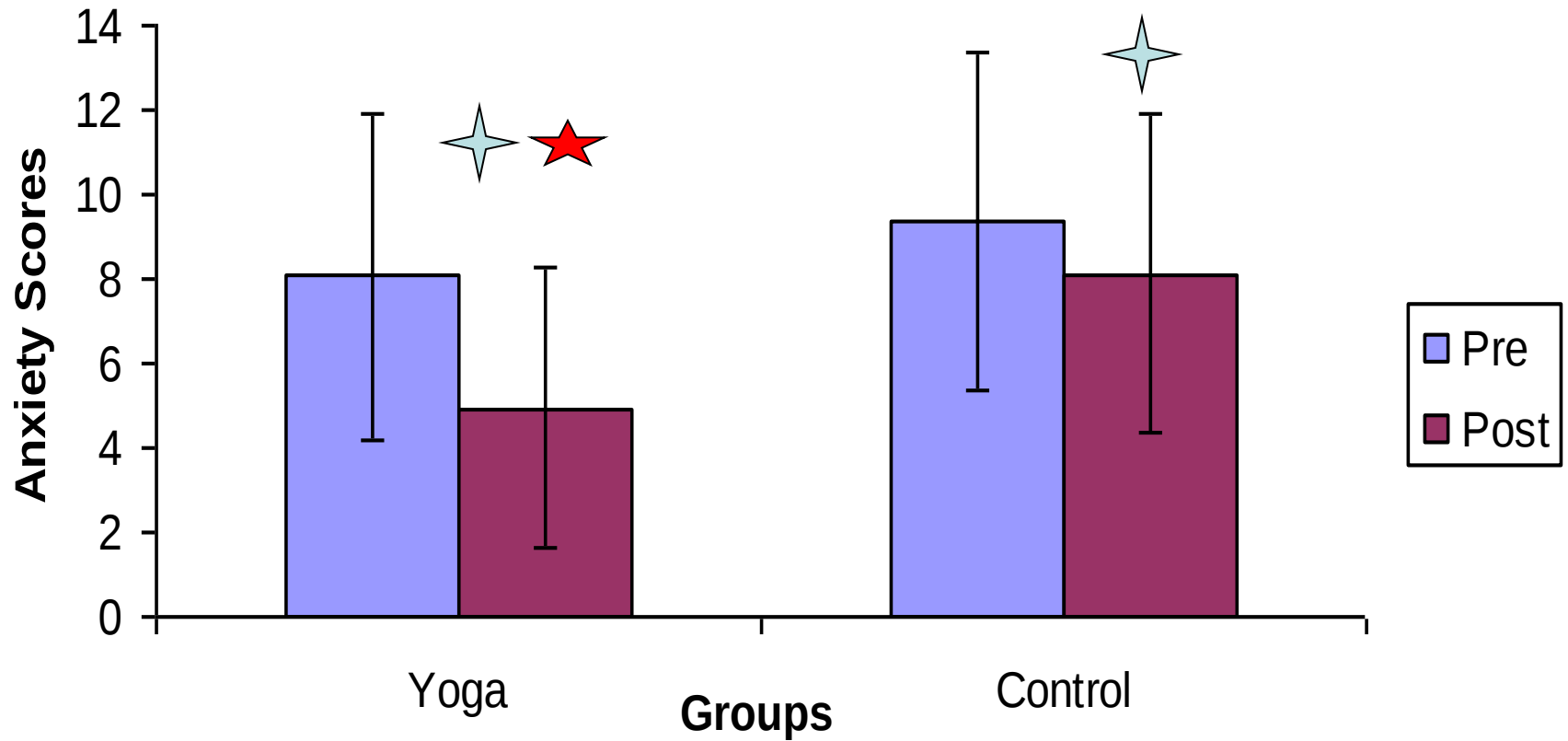
European Journal of Cancer Care, 16(6), 462-474

2. Influence of yoga program on post operative outcomes and wound healing in early operable breast cancer patients undergoing Radio Therapy (2002).

Raghavendra Rao M, Nagarathna Raghuram, Nagendra HR et al

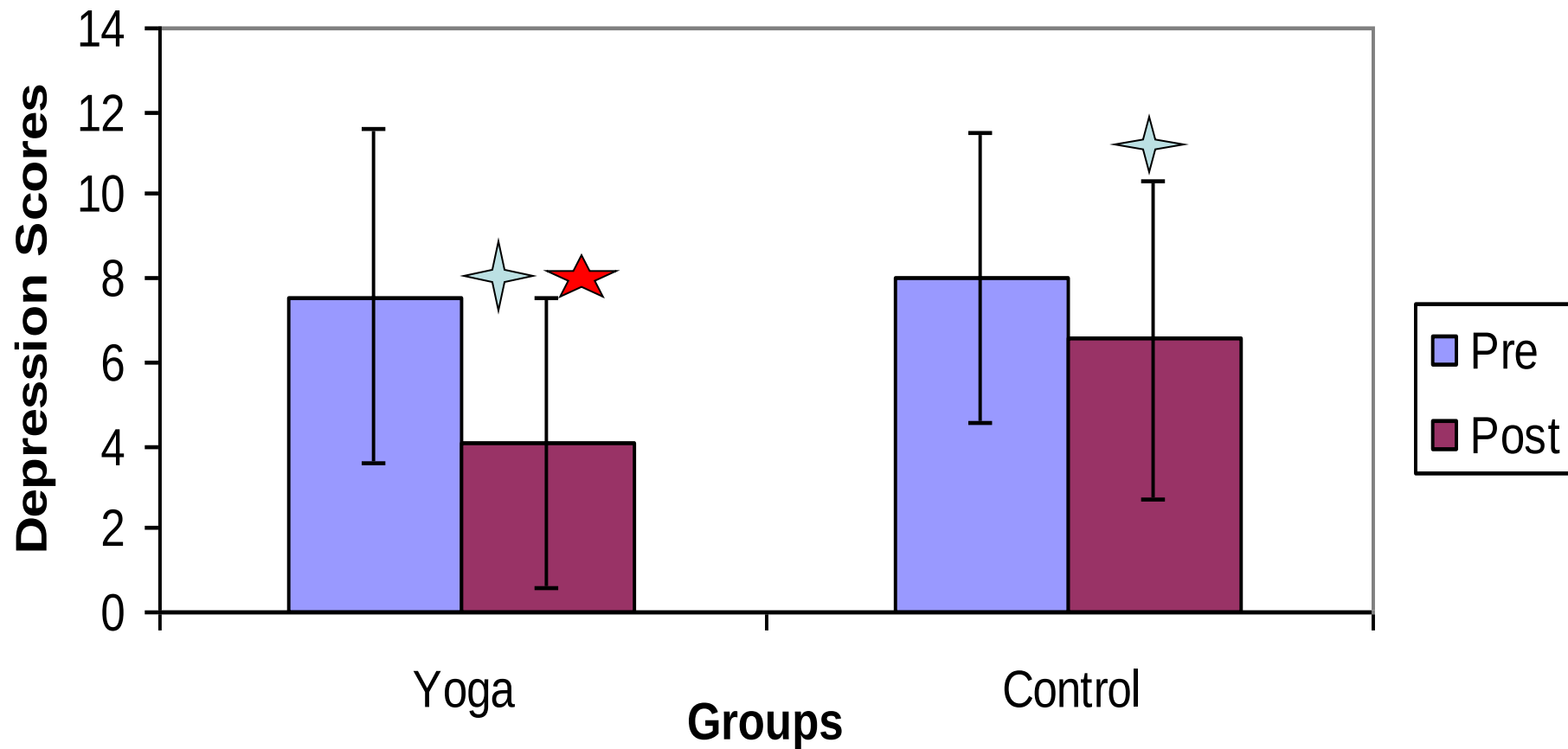
International Journal of Yoga. 1(1), 2-2

Hospital Anxiety scores following Radiation Therapy (RT) in yoga (n=42) and control (n=34) groups



★ $p < 0.05$, p values for Paired T Test, ★ $p < 0.05$, p values for ANCOVA between groups

HADS-Depression scores following Radiation Therapy in yoga (n=42) and control (n=34) groups

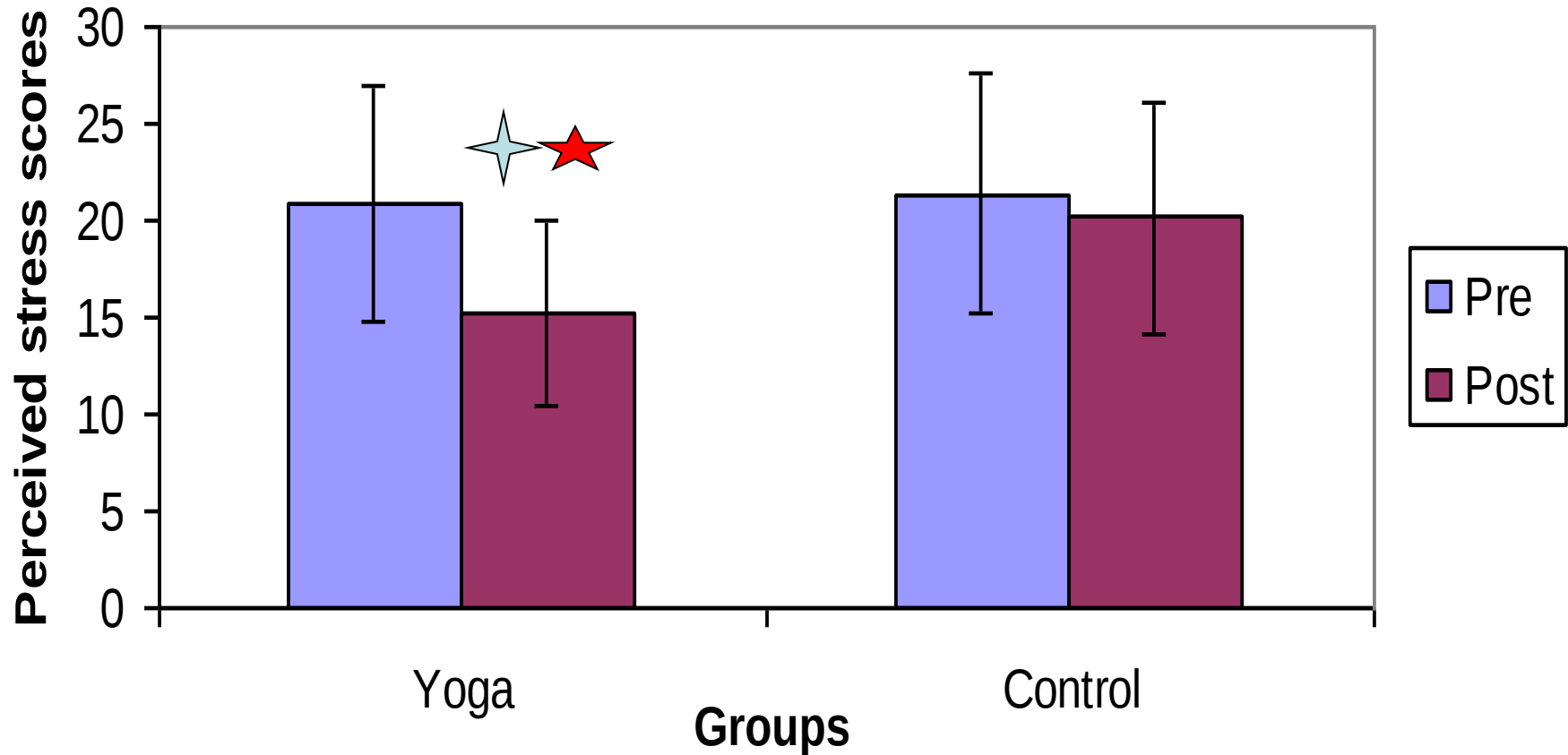


✦ p < 0.05, p values for Paired T Test, ★ p < 0.05, p values for ANCOVA

**3. Influence of yoga program on
mood states, distress, quality of life
and immune outcomes
in early stage breast cancer patients
undergoing surgery (2009).**

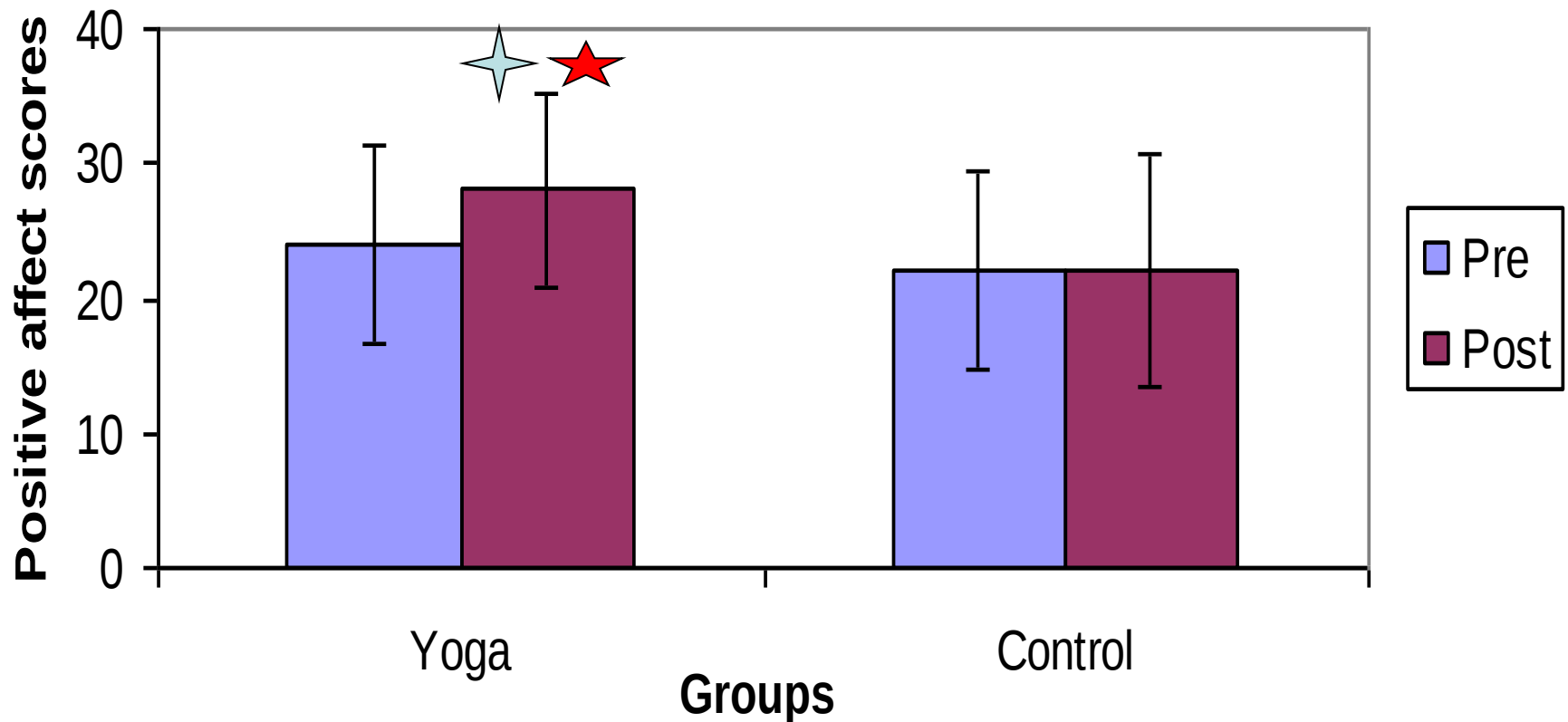
**Raghavendra Rao M, Nagarathna Raghuram, Nagendra HR,et a
International Journal of Yoga.1 (1), 6-6**

Perceived Stress scores following Radiation Therapy in yoga (n=42) and control (n=34) groups



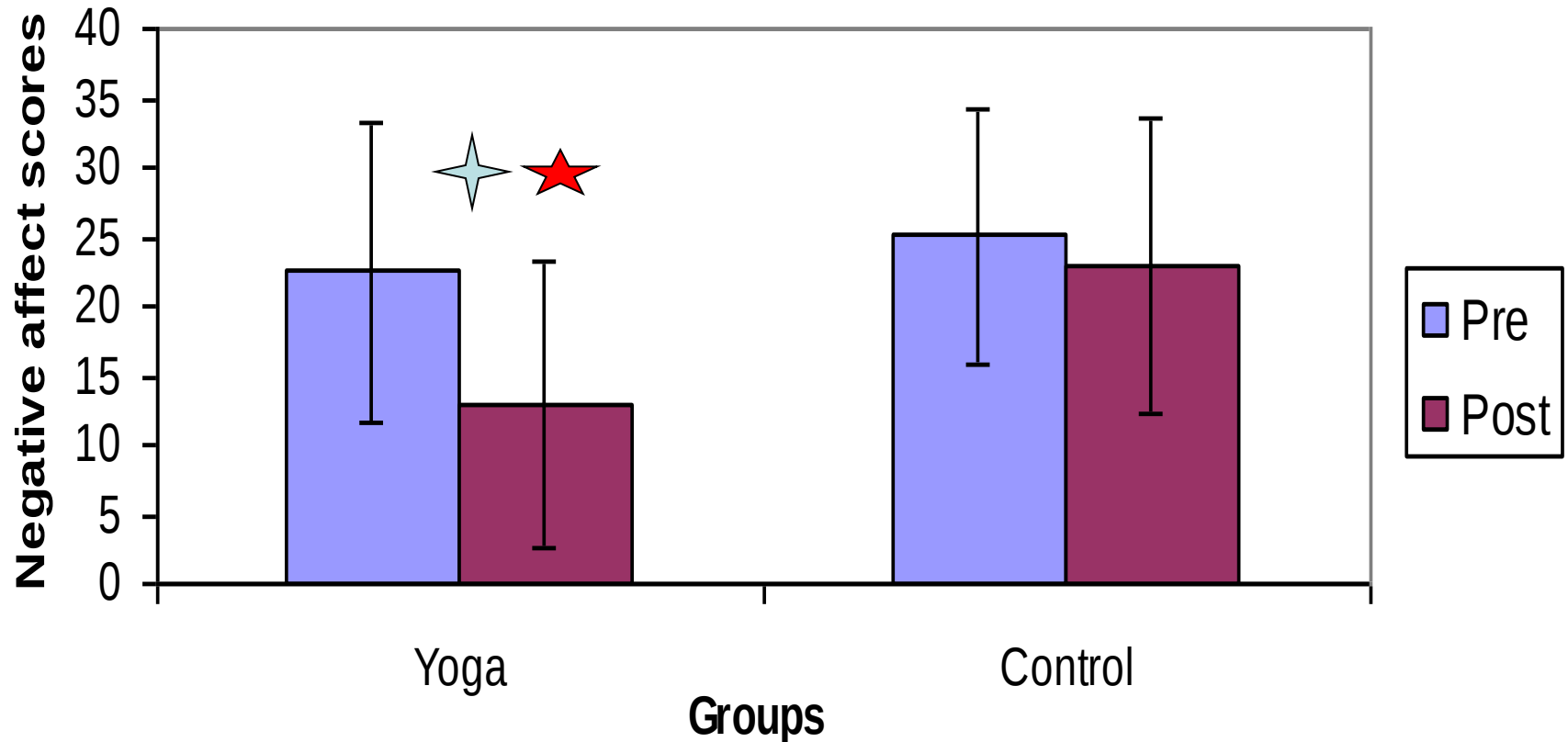
✧ $p < 0.05$, p values for Paired T Test, ★ $p < 0.05$, p values for ANCOVA

PANAS-Positive affect scores following Radiation Therapy in yoga (n=42) and control (n=34) groups



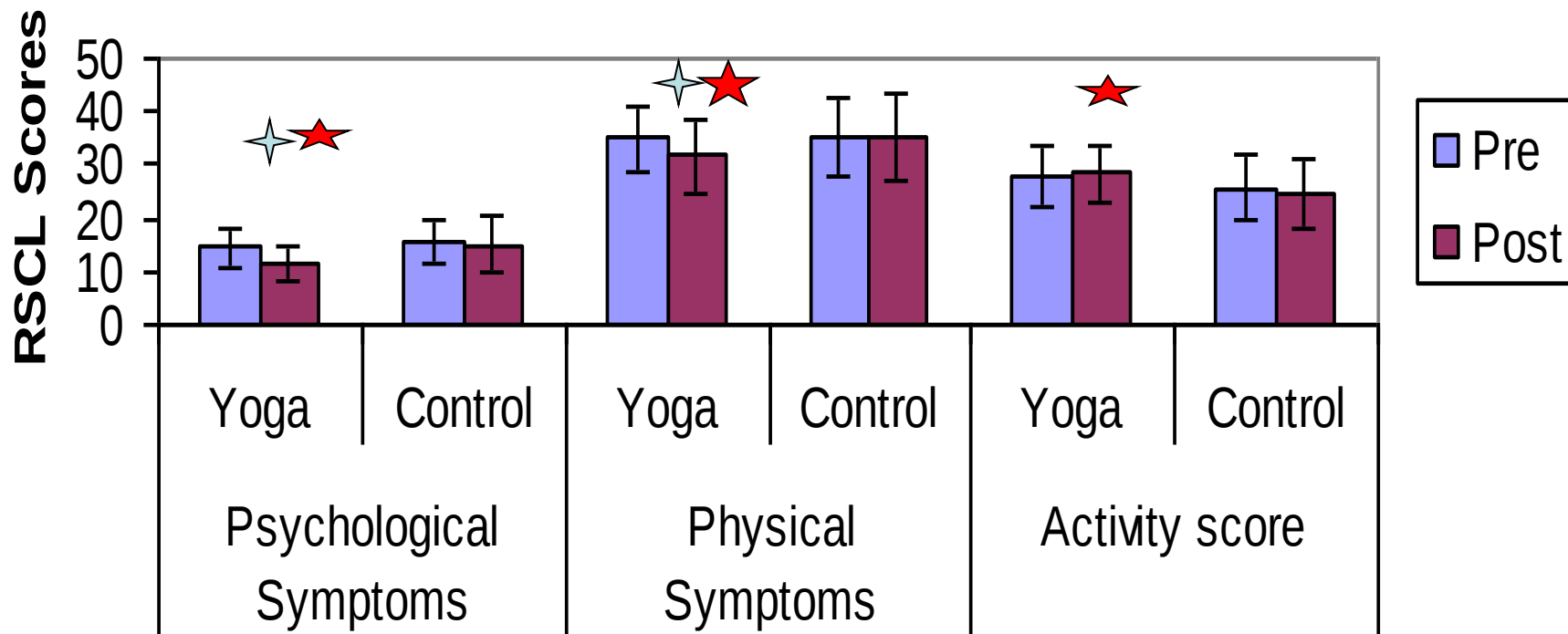
★ $p < 0.05$, p values for Paired T Test, ★ $p < 0.05$, p values for ANCOVA

PANAS- Negative affect scores following Radiation Therapy in yoga (n=42) and control (n=34) groups



★ $p < 0.05$, p values for Paired T Test, ★ $p < 0.05$, p values for ANCOVA

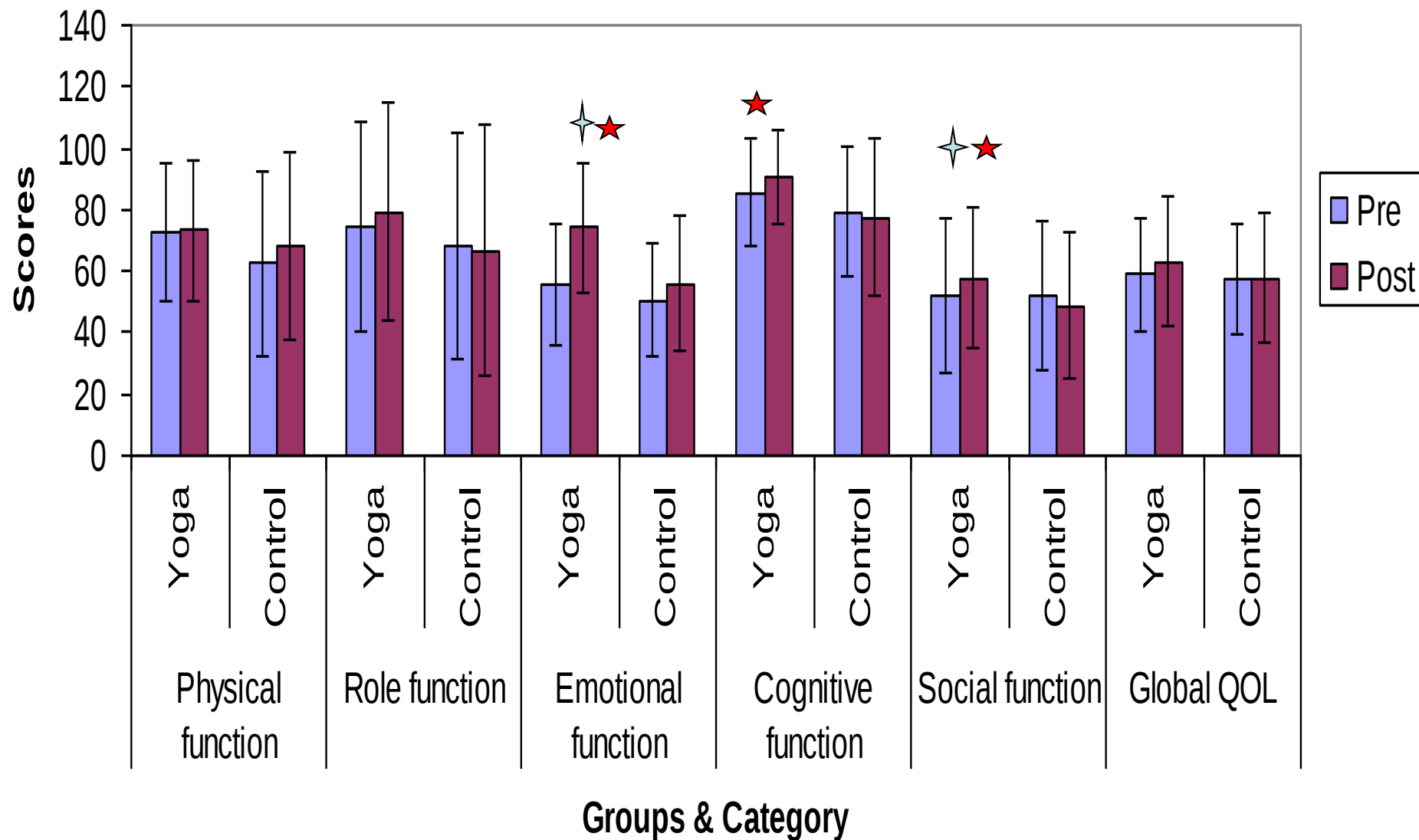
Rotterdam Symptom Checklist scores following Radiation Therapy in yoga (n=42) and control (n=34) groups



Groups & Symptoms on RSCL

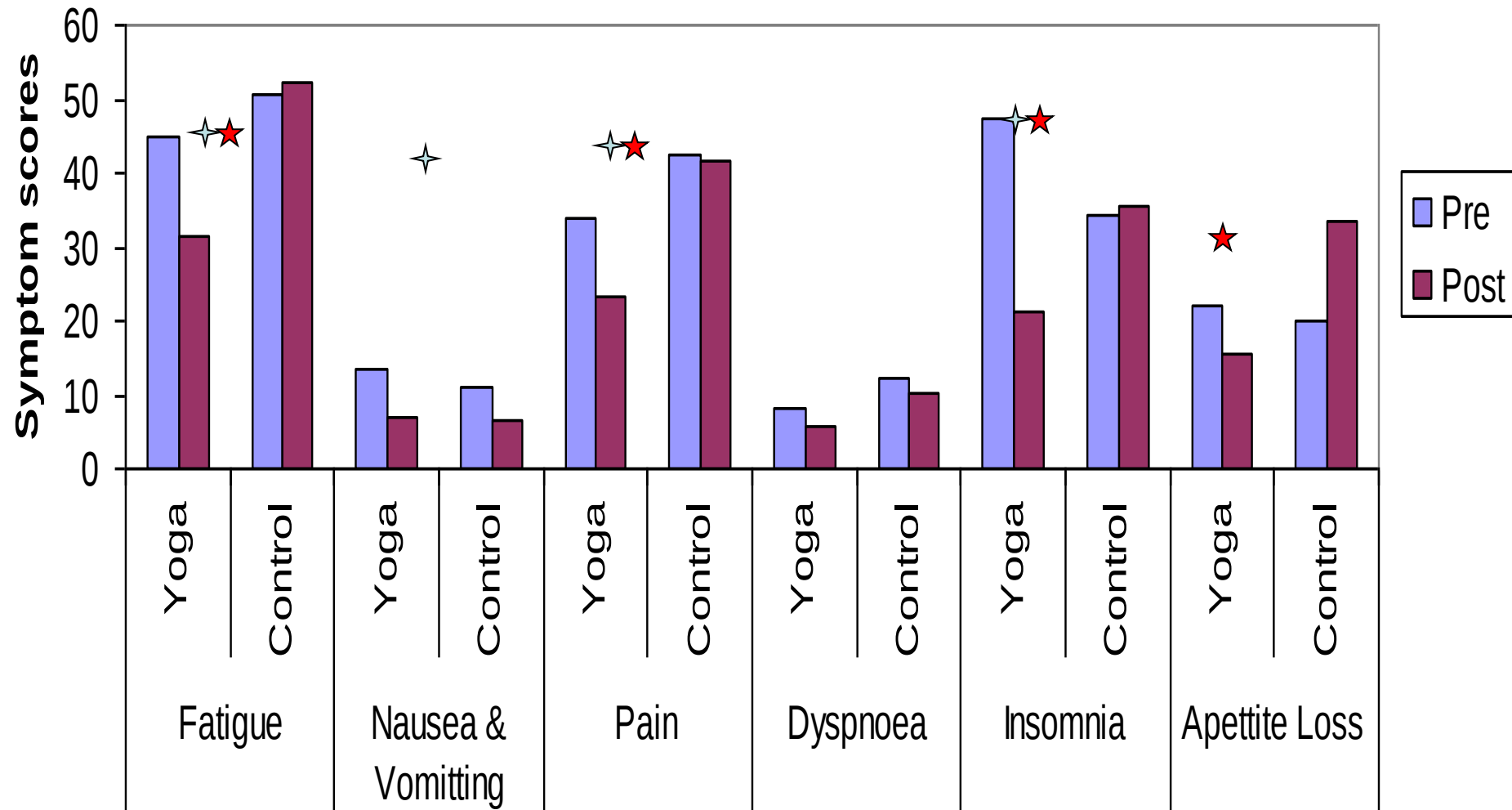
★ $p < 0.05$, p values for Paired T Test, ★ $p < 0.05$, p values for ANCOVA

EORTC-QOL Functional Scale & Global QOL



★ p < 0.05, p values for Paired T Test, ★ p < 0.05, p values for ANCOVA

EORTC QOL Symptom scale

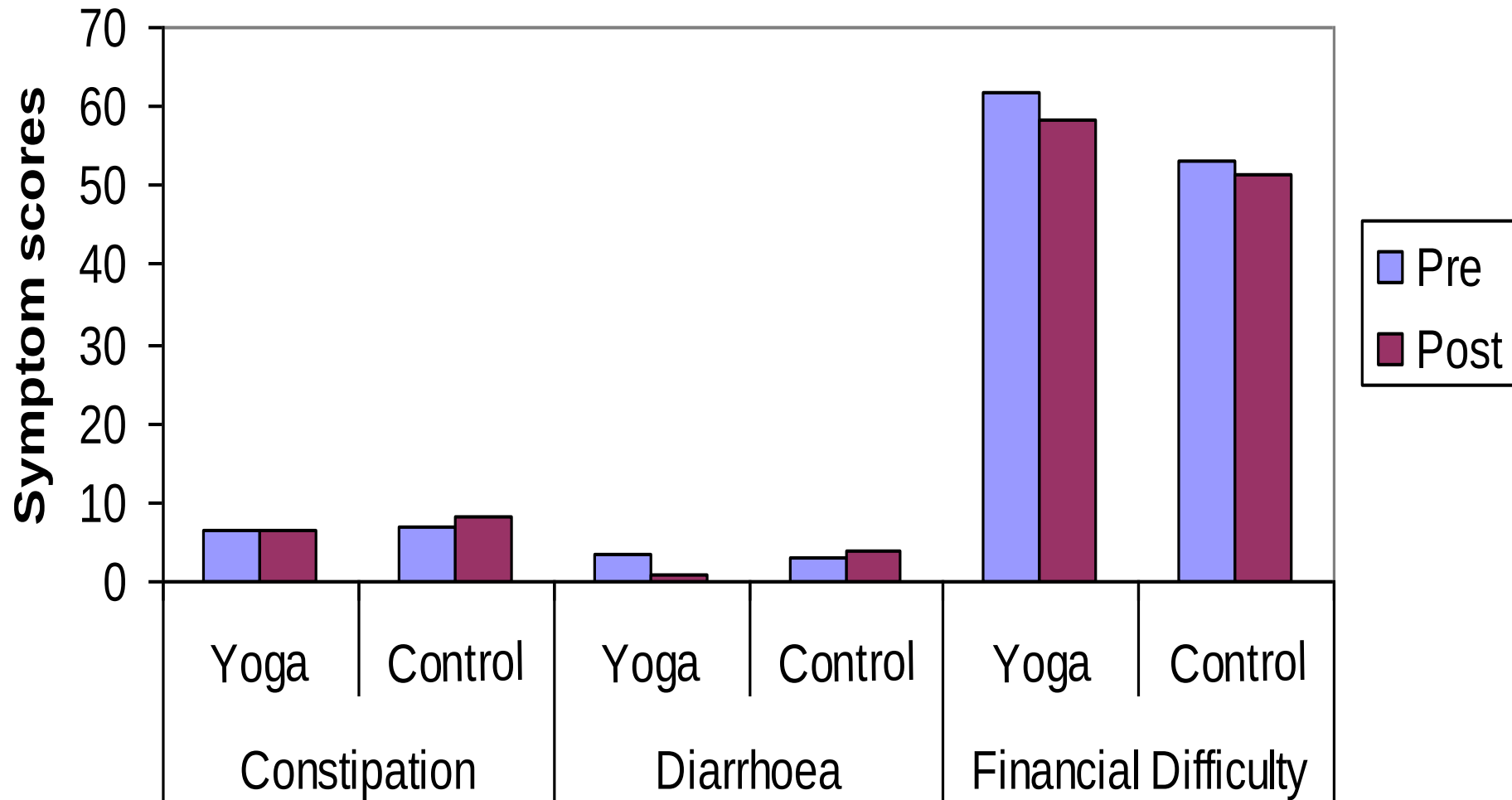


p < 0.05, p values for Paired T Test,



p < 0.05, p values for ANCOVA

EORTC-QOL Symptom Scale



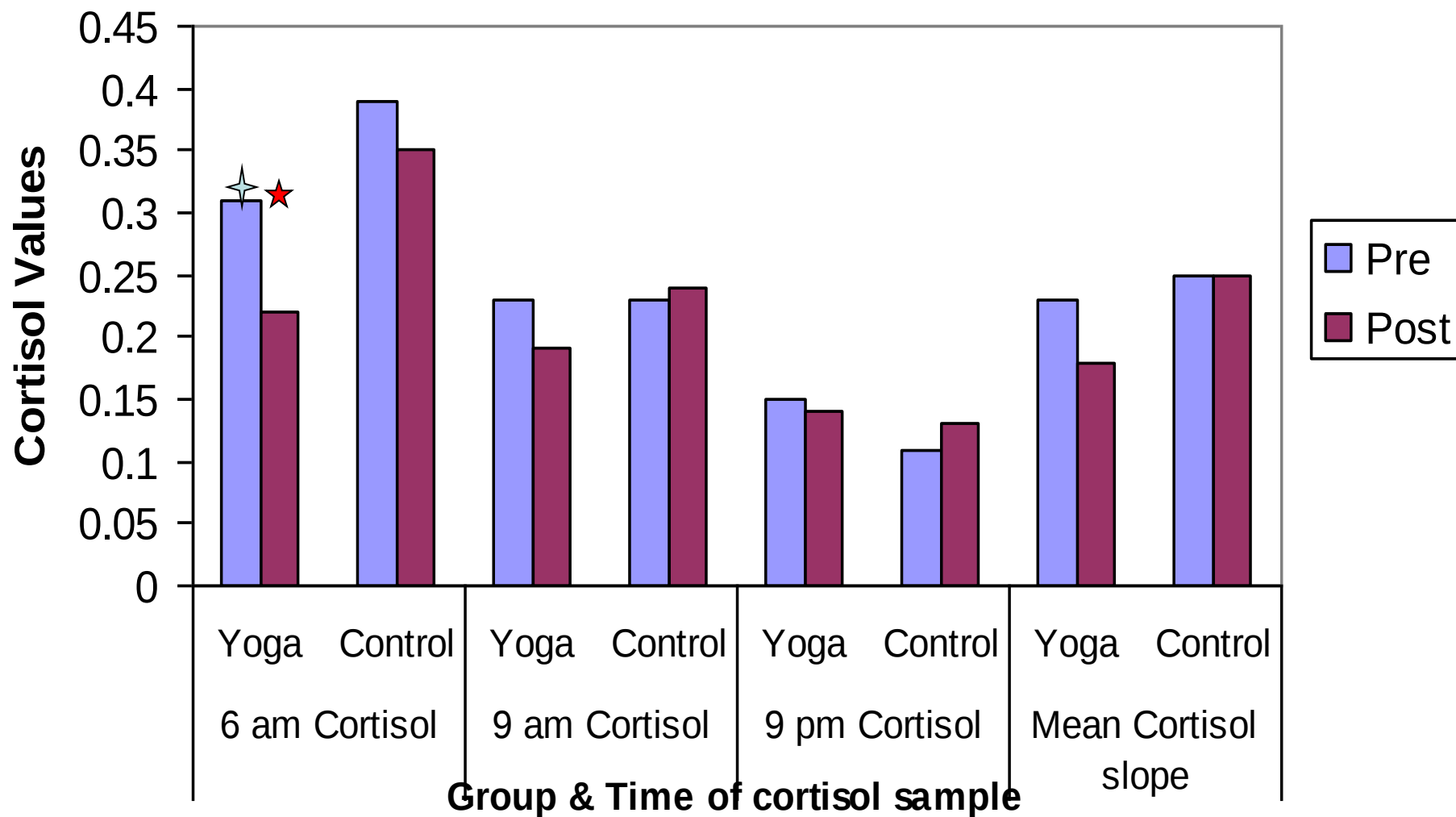
$p < 0.05$, p values for Paired T Test,



$p < 0.05$, p values for ANCOVA

**Influence of Yoga on diurnal
salivary cortisol levels,
affective states and quality of
life in breast cancer subjects
undergoing adjuvant
radiotherapy, a randomised
controlled trial (2009) ,
complimentary Therapies in
medicine
17, 274-280**

Cortisol Levels following Radiation Therapy in yoga (n=27) and control (n=33) groups



 $p < 0.05$, p values for Paired T Test,
  $p < 0.05$, p values for ANCOVA

**4. Effects of an integrated yoga program
in modulating psychological stress
and radiation induced genotoxic stress
in breast cancer patients
undergoing radiotherapy and surgery (2007).
Birendranath Banerjee, Vadiraj HS, Amritanshu Ram,
Raghavendra Rao, et al
Integrative Cancer Therapy 6(3),240-250**

Yoga as an adjunct to conventional cancer treatment in breast cancer

Nagarathna Raghuram, MD, FRCP

Raghavendra Rao. M, BNYS, PhD

H R Nagendra Ph D

**Swami Vivekananda Yoga Anusandhana Samsthana
(SVYASA), Bangalore**

CONVENTIONAL CANCER TREATMENT



SURGERY



RADIO THERAPY



CHEMOTHERAPY

Research Questions ??

- 1. Can Yoga intervention
 - reduce **psychological morbidity** (anxiety and depression),
 - improve the **quality of life**,
 - Reduce **treatment toxicity**,
 - & bring about favorable **immune modulation**
-in operable breast cancer patients undergoing conventional cancer treatment?

OBJECTIVES

- To evaluate the effects of a 24-week “Integrated yoga program” with “Supportive therapy” control intervention in operable breast cancer patients undergoing conventional treatment on:
 1. Conventional treatment related side effects and toxicity
 2. Psychological morbidity such as anxiety and depression using self reported scales
 3. Total Quality of life
 4. Post operative outcomes
 5. Immune responses

Study Methods

- **Subjects:**
- Operable Breast cancer patients in hospital based cancer registry .
- Enrolled January 1999 to March 2002
- Convenience Sampling.
- Screening visit- Diagnosis, informed consent and randomization into yoga or controls.

SELECTION CRITERIA

■ INCLUSION CRITERIA

- Operable Stage II & III Breast Cancers.
- Age-35-70 yrs
- Sex-female
- Ambulatory > 50% of time.

■ EXCLUSION CRITERIA

- Stage I & IV Cancers or Secondaries.
- Major psychiatric or neurological illness, cognitive impairment
- Uncontrolled Diabetes and Hypertension.
- Coexisting medical condition influencing survival and treatment.
- Autoimmune diseases
- Any corticosteroid or HRT
- No High school education
- Past History of any other cancers

Out Come Measures

- 1. **The state trait anxiety inventory** (STAI)
[Spielberger, Gorsuch & Lushene 1970]
- 2. **Beck's Depression inventory** (BDI)
[Beck, Ward, Mendelson, Mock & Erbauch 1961]
- 3. **Pain Visual analog scale** (PVAS) [Aitken 1969]
- 4. **Functional living index - Cancer** (FLIC)
[Schipper, Clinch, M C Murray and Levitt 1984]
- 5. **Modified symptom checklist** (Modified from MSAS and
SCL 90, Bhaskaran SA1998).
- 6. **Morrows Assessment of Nausea and Emesis** (MANE).
[Morrow GR;1992]

MEASURES Contd....

- **HEMATOLOGICAL-** Hb%, TC, DLC, ESR.
- **BIOCHEMICAL-** RFT,LFT.
- Justification: To evaluate treatment related toxicity (Systemic/ Organ)

IMMUNOLOGIC MEASURES-

Serum IgG, IgM, IgA Levels:

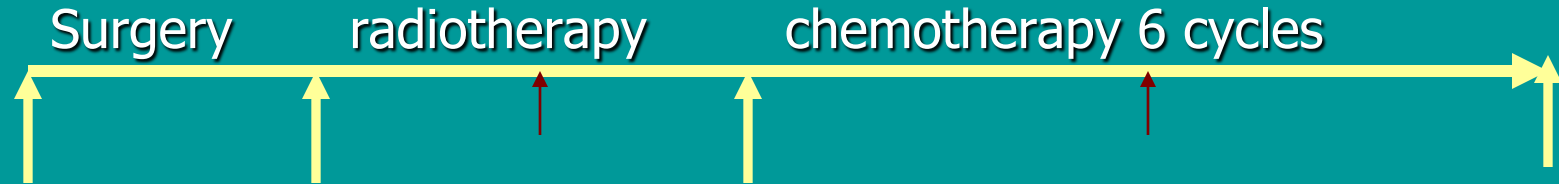
To evaluate Humoral immune response and IgA levels in particular is known to correspond to tumor load

- **T Cell Subsets:** CD 56+ Counts.(NKH1 Clone)
- To evaluate changes in cell trafficking/numbers which have potent antitumor effects
- **CYTOKINES:**
 - Plasma IL2, Soluble Interleukin 2 receptor Alpha – for T cell activation
 - Plasma Tumor Necrosis Factor Alpha- Proinflammatory cytokine

ORIGINAL STUDY DESIGN

Group A

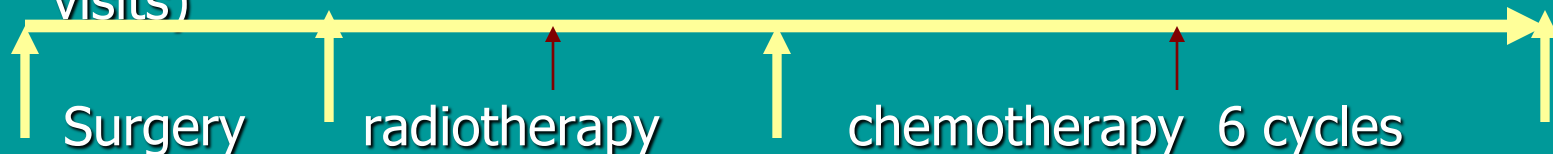
n=33 Intervention or Experimental group



- **yoga –1hr session daily**

Group B (Supportive therapy and education)

n= 36 controls. (20 minutes session during hospital visits)



Counseling

2-4 weeks

6 weeks

18 weeks

Trial Profile

174 patients screened

44 refused

32 not eligible

98 randomized

Yoga

Surgery

Supportive therapy

12 discontinued

17 discontinued

2 shifted to another hospital
2 other CAM therapies
3 lack of interest
5 time constraints

6 shifted to another hospital
3 other CAM therapies
3 lack of interest
4 time constraints
1 due to illness

Post Surgery 33
completed /analyzed

Post Surgery 36 completed
/analyzed

Post RT 32 completed /
analyzed/
1 did not receive RT

Post RT 35 completed /
analyzed
1 did not receive RT

Post CT 27 completed
/analyzed
5 did not receive CT

Post CT 34 completed
/analyzed
2 did not receive CT

(RT)

CT

Reasons

YOGA THERAPY INTERVENTION

Yoga is a Science of Calming down the mind and bring balance

- Breathing exercises.
- Yogic Relaxation techniques.
- Pranayama or Regulated Nostril Breathing (Nadi shuddi, Bramari, Sitkari)
- Cyclic Meditation. (Yoga postures alternating with relaxation techniques and chants)
Practices- Supervised during surgery / RT – 5 days a week for 6 weeks.
- During CT- Home practice and sup practice once in 10 days

Regularity- Regular (5-6 days/wk), Not so regular- (3-4 days/week often (1-2 days/wk, Not at all.



Yoga is flexibility
of
MIND.....not
of the body.



STATISTICAL ANALYSIS

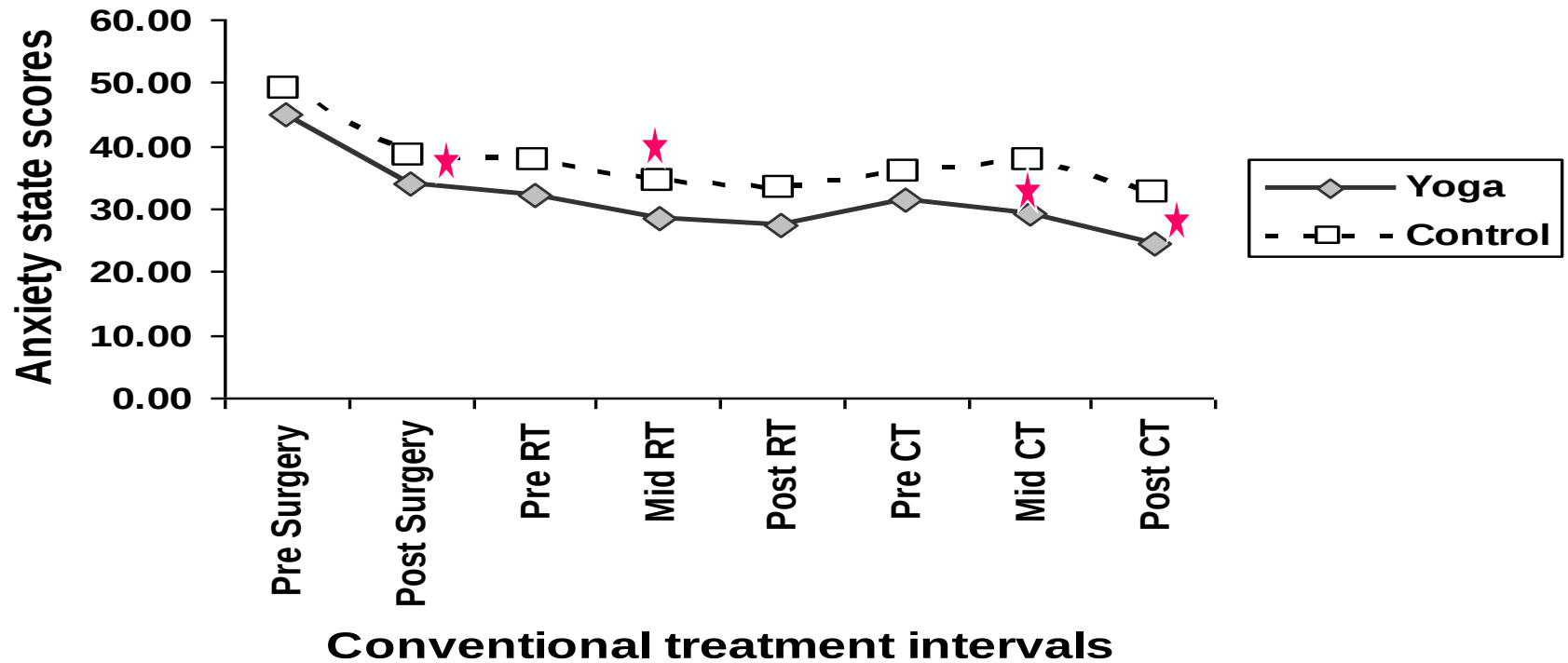
- **Statistical analysis** was done at 4 levels:
- **ANCOVA** to compare differences between groups at various time points.
- **T test for change scores** between groups pre to mid CT, mid to post CT etc.
- **Multiple Hierarchial regression analysis** to determine the predictor variables influencing the outcome measures.

RESULTS

Results

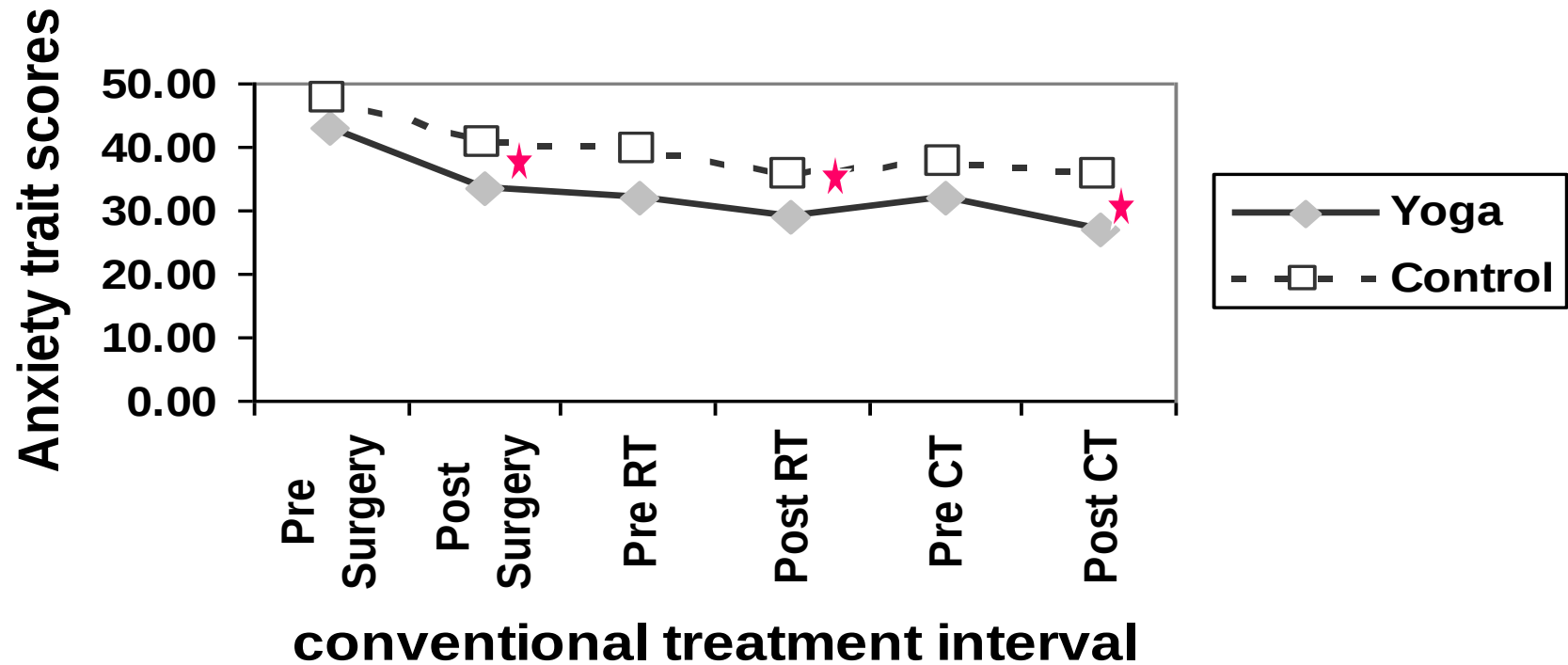
1. Psychological assessments: Measures of mood states, treatment related side effects, Quality of life and Toxicity
2. Treatment compliance and outcome measures.
3. Chemotherapy induced Nausea and Vomiting.
4. Post operative outcomes.
5. Immune measures.

Anxiety State Scores in yoga and control groups following conventional treatment



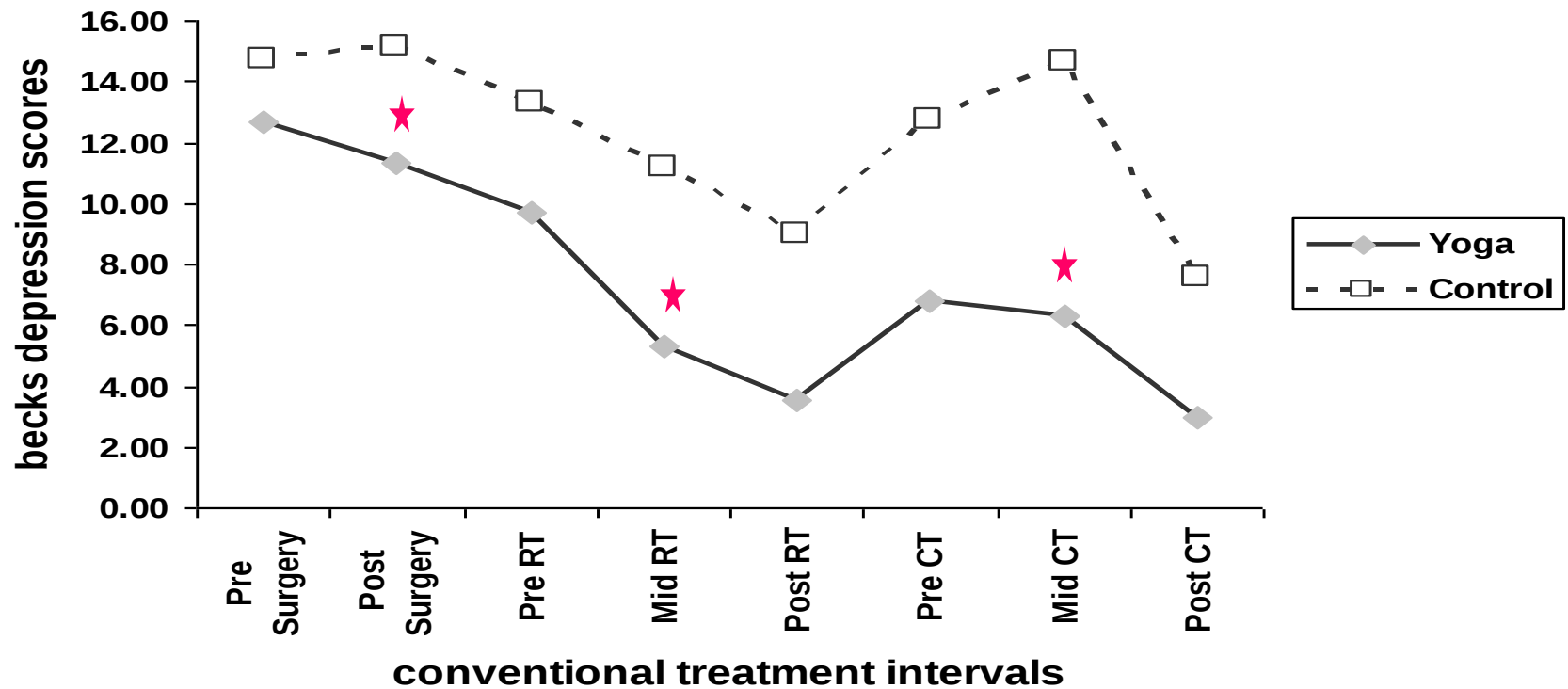
	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	45.09	33.88	32.09	28.41	27.53	31.61	29.43	24.39
Control	48.86	38.53	37.62	34.44	33.21	35.73	37.58	32.70

Anxiety Trait scores in yoga and control groups during conventional treatment



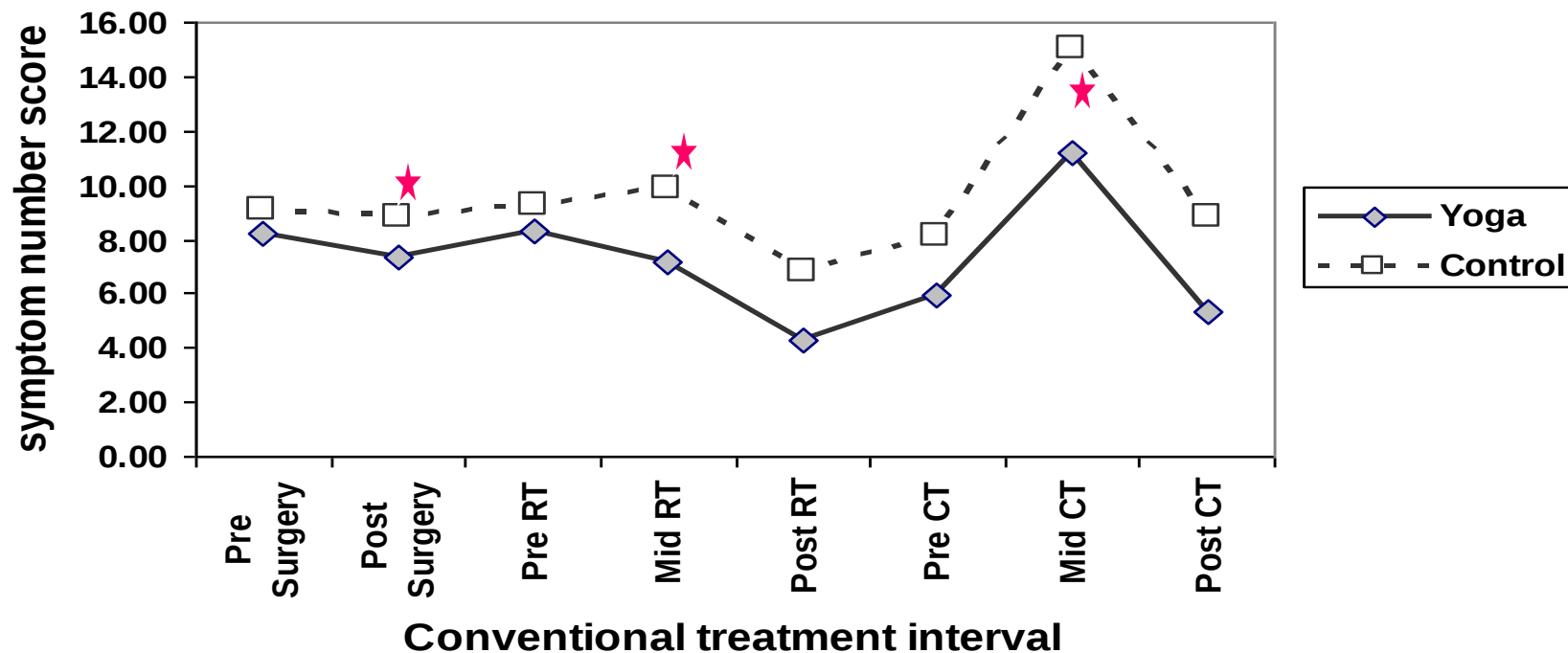
	Pre Surgery	Post Surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	42.82	33.36	32.22	28.81	31.82	27.18
Control	47.44	40.28	39.41	35.68	37.69	35.44

Becks depression inventory Scores in yoga and control groups during conventional treatment



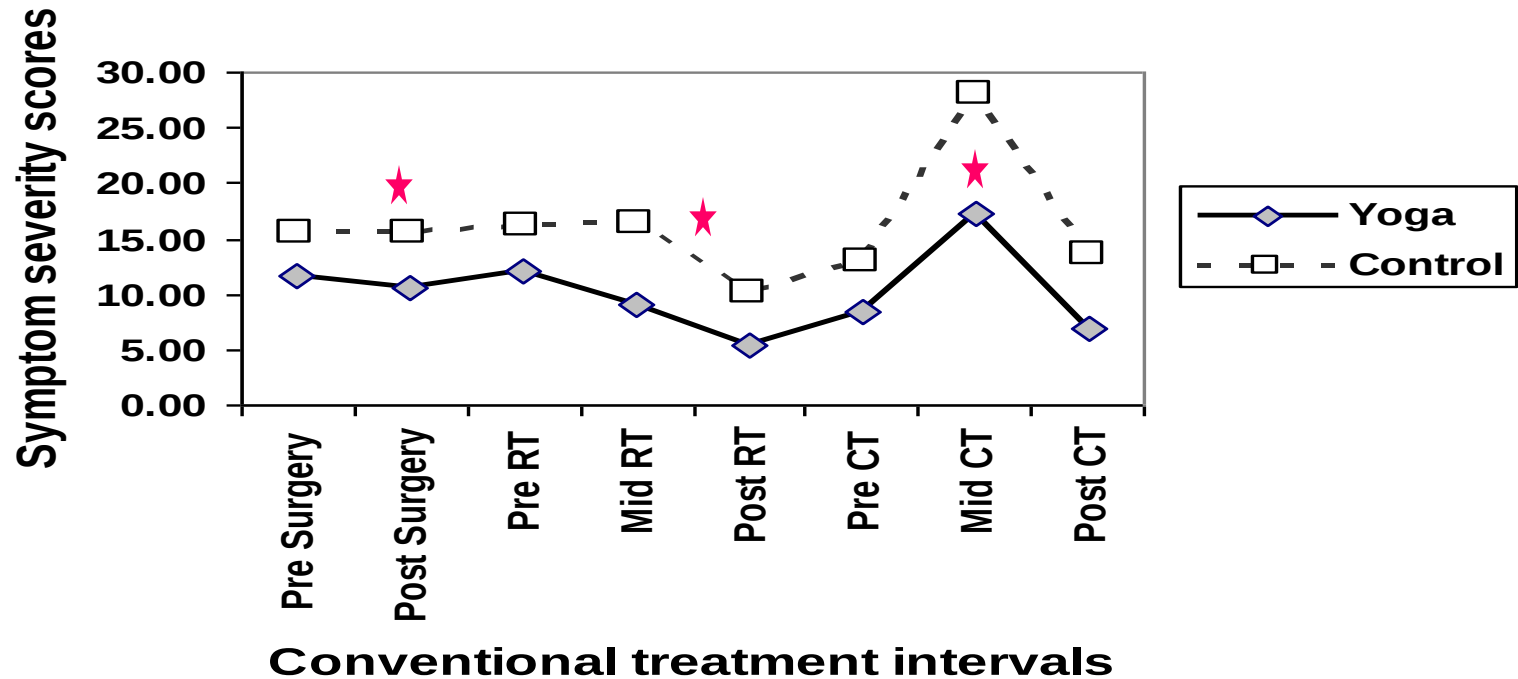
	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	12.67	11.30	9.71	5.32	3.52	6.82	6.29	3.00
Control	14.75	15.17	13.32	11.21	8.97	12.73	14.67	7.58

Symptom Number Scores in yoga and control groups during conventional treatment



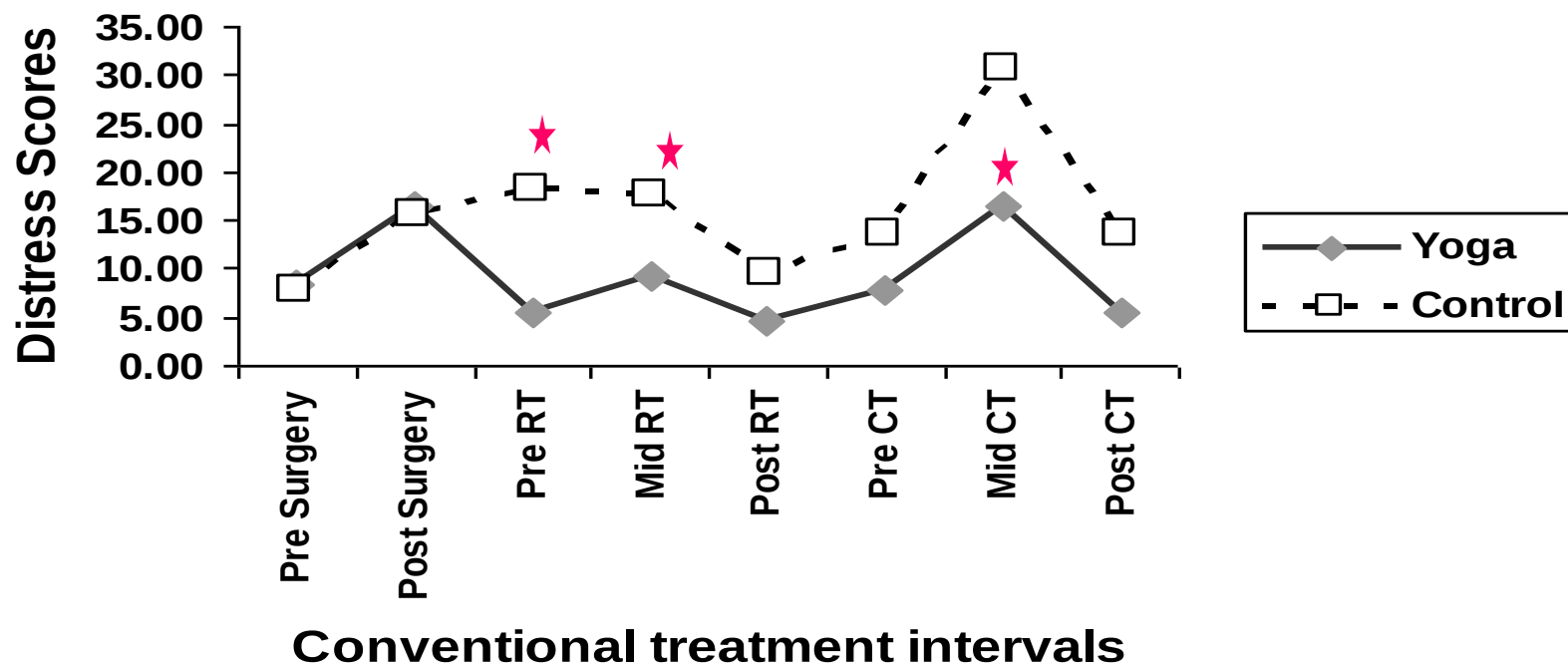
	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	8.21	7.33	8.28	7.13	4.31	5.93	11.21	5.36
Control	9.06	8.86	9.26	9.91	6.82	8.09	15.00	8.82

Symptom Severity Scores in yoga and control groups during conventional treatment



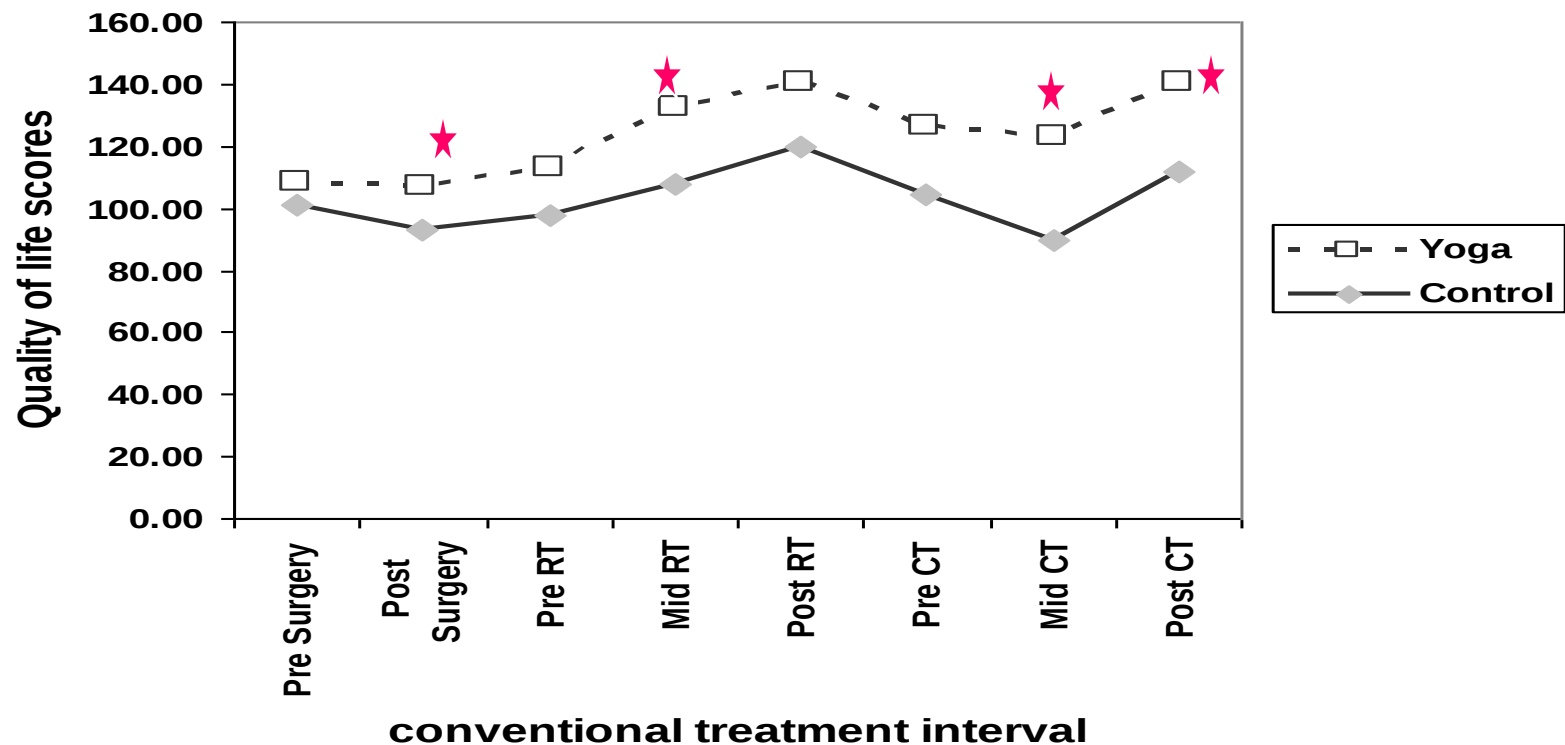
	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	11.73	10.64	12.03	8.97	5.34	8.32	17.36	6.93
Control	15.56	15.44	16.15	16.44	10.06	12.94	28.06	13.70

Treatment related distress scores in yoga and control groups during conventional treatment



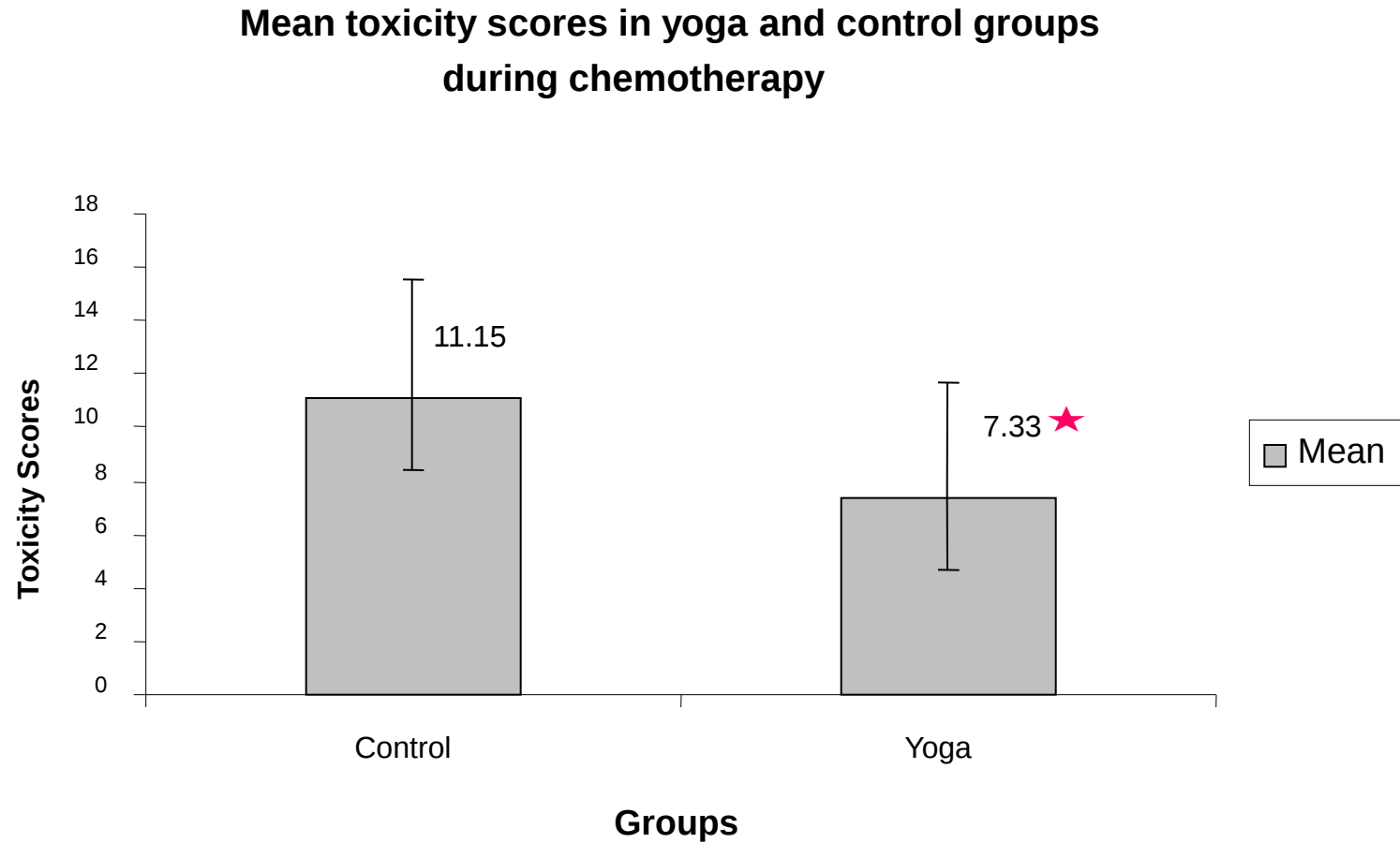
	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	8.48	16.54	5.45	9.34	4.59	7.86	16.57	5.61
Control	7.83	15.69	18.15	17.53	9.59	13.55	30.52	13.73

Quality of life scores in yoga and control groups during conventional treatment

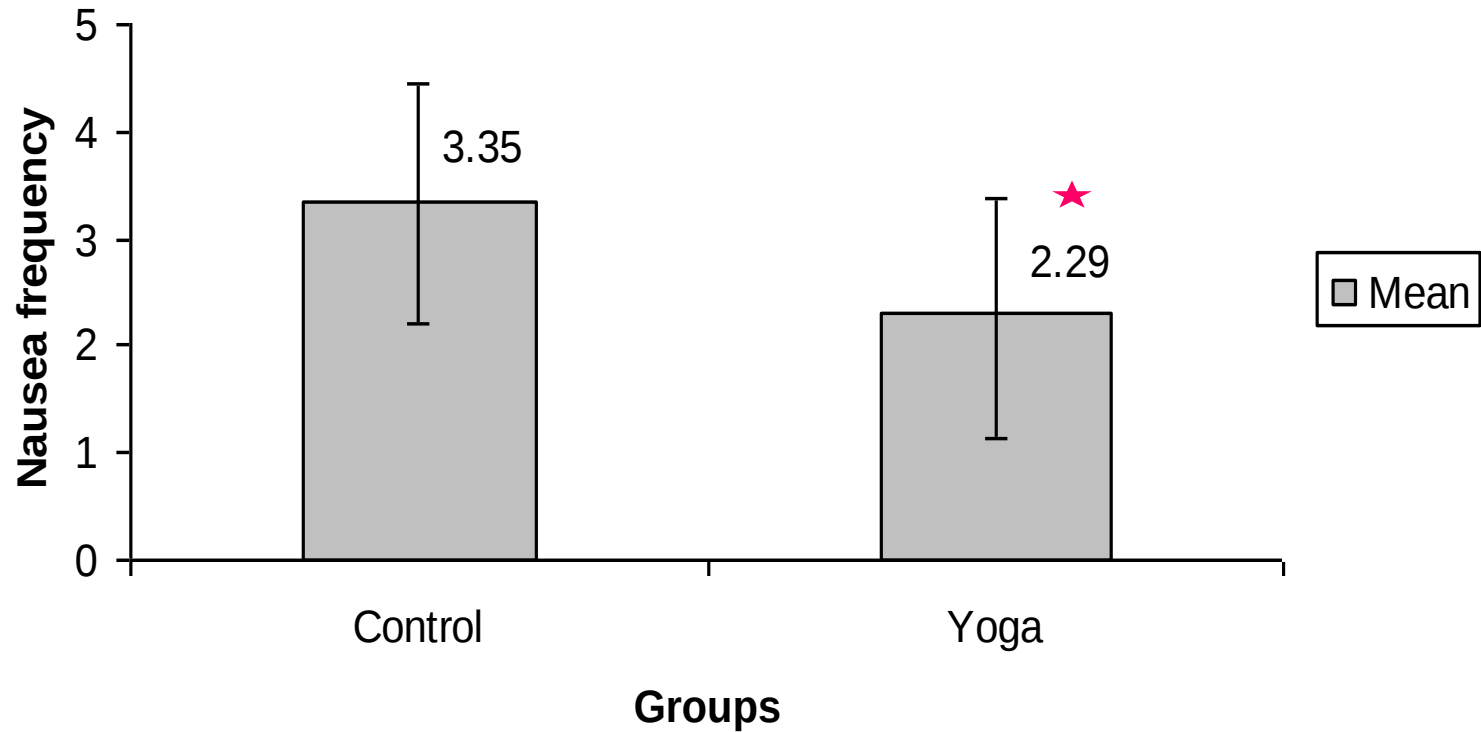


	Pre Surgery	Post Surgery	Pre RT	Mid RT	Post RT	Pre CT	Mid CT	Post CT
Yoga	108.24	106.94	113.13	132.59	140.84	126.61	123.18	140.57
Control	101.36	92.83	97.71	107.59	119.65	104.21	89.64	112.12

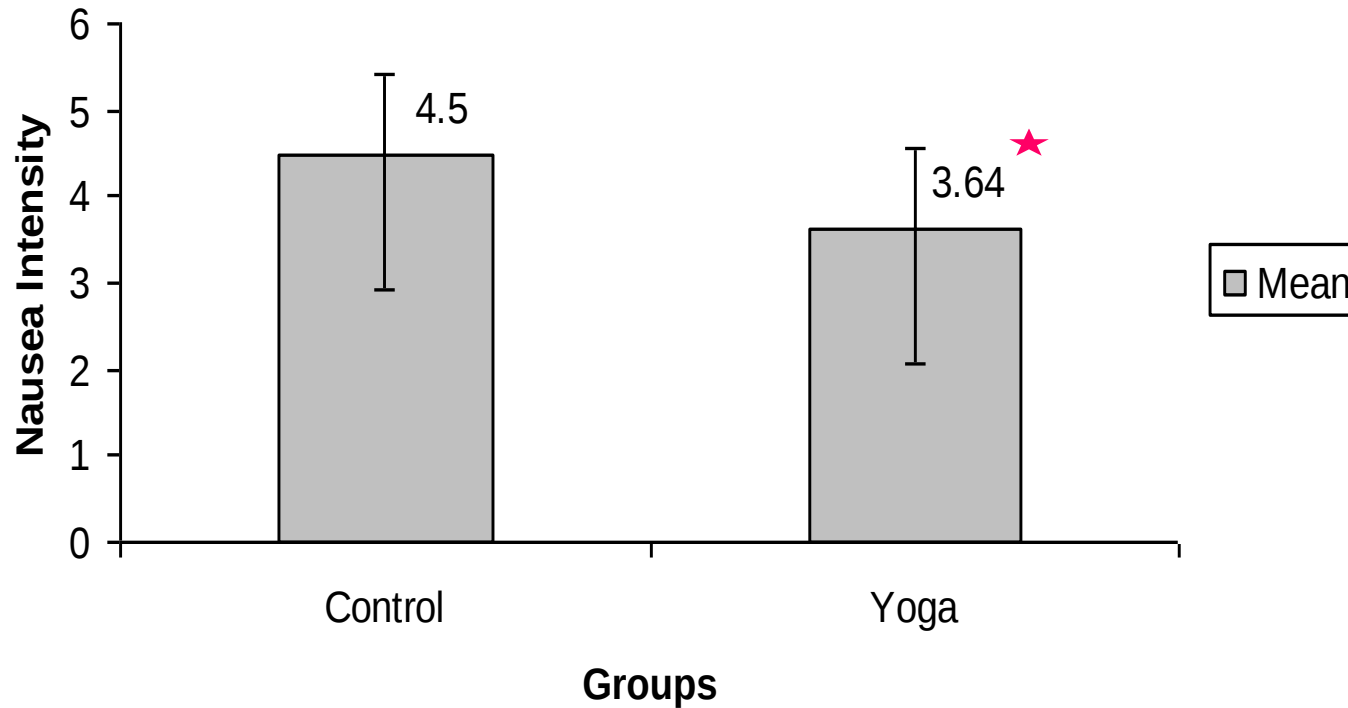
Mean Toxicity scores in yoga and control groups during chemotherapy



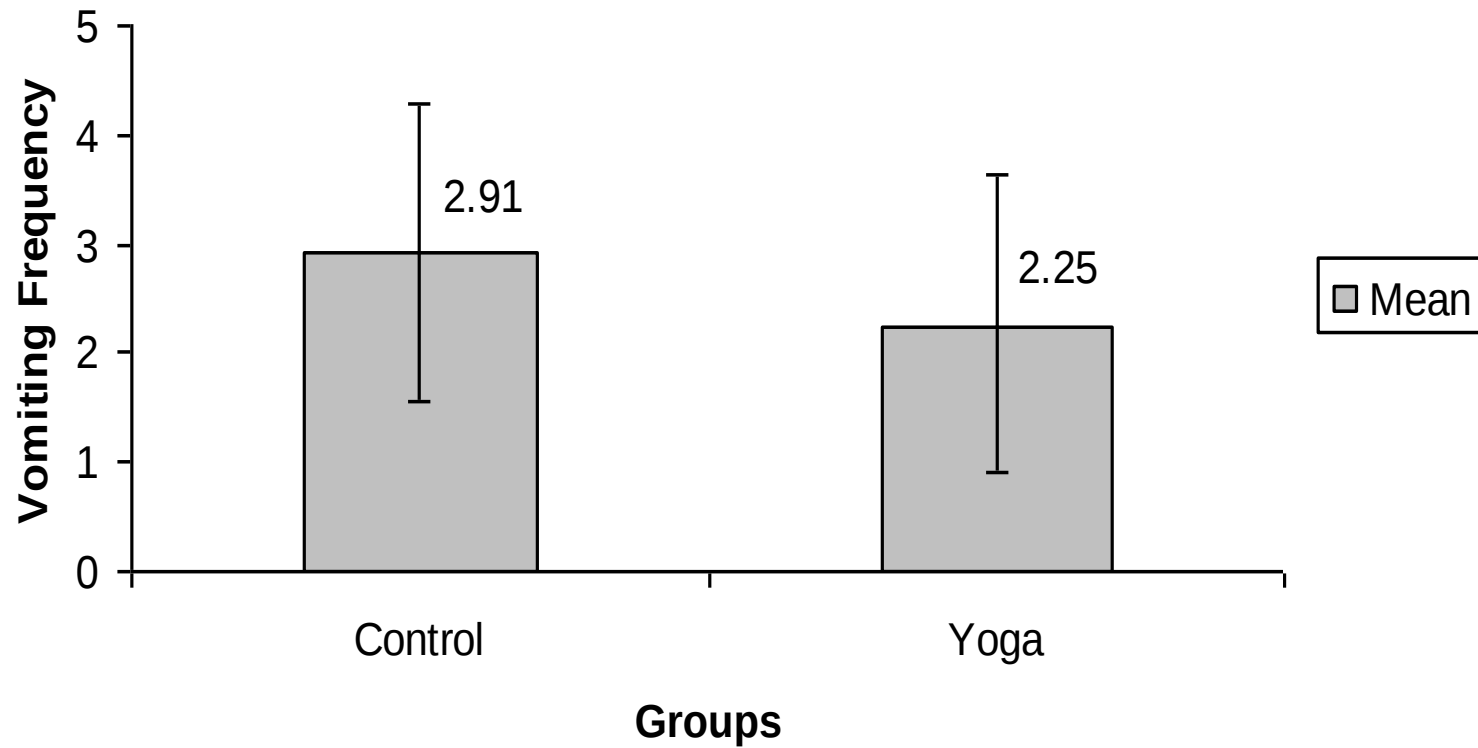
Comparison of nausea frequency score on MANE between yoga and control groups



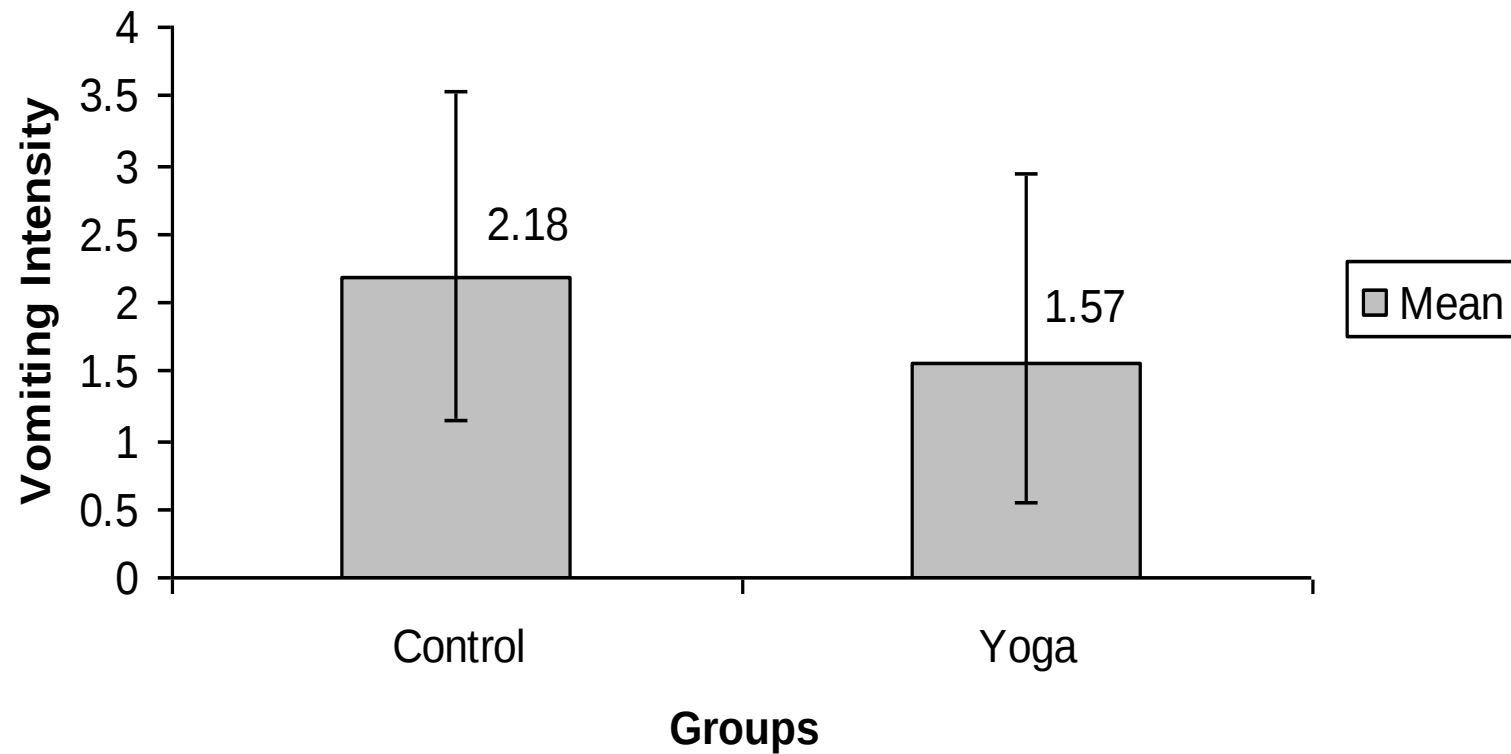
Mean Nausea Intensity Scores on MANE between yoga and control groups



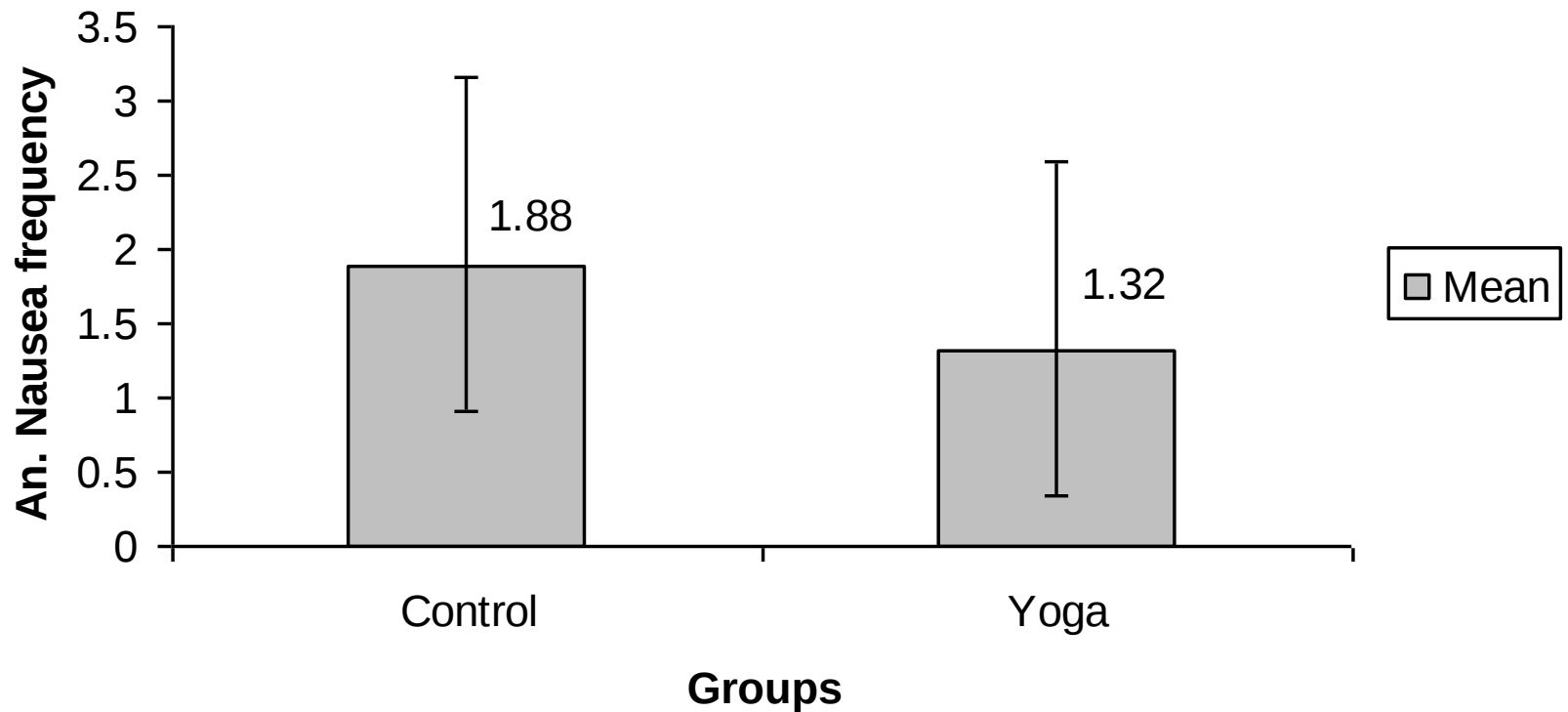
Mean Vomiting frequency scores on MANE between yoga and control groups



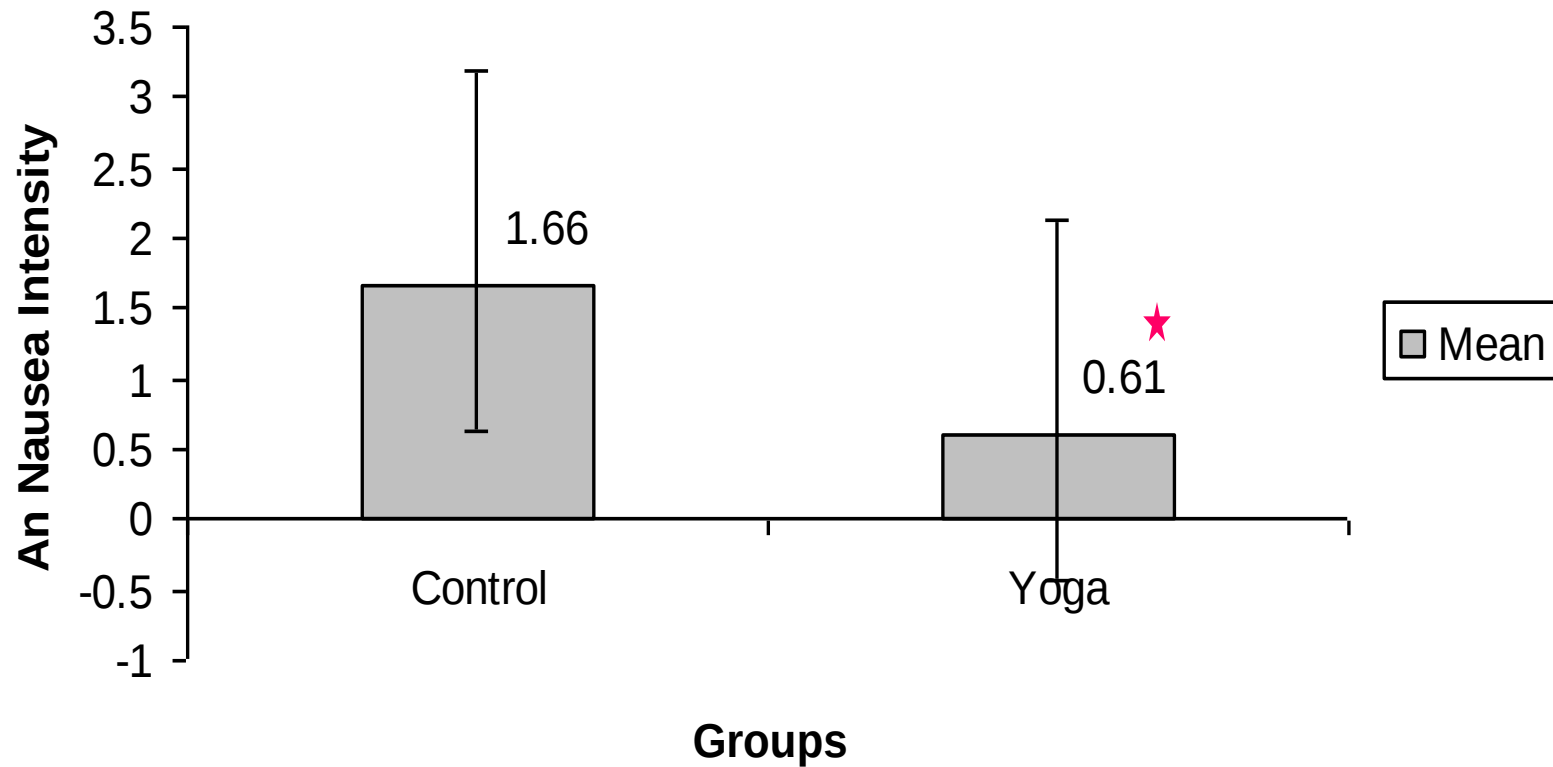
Mean Vomiting Intensity scores on MANE between yoga and control groups



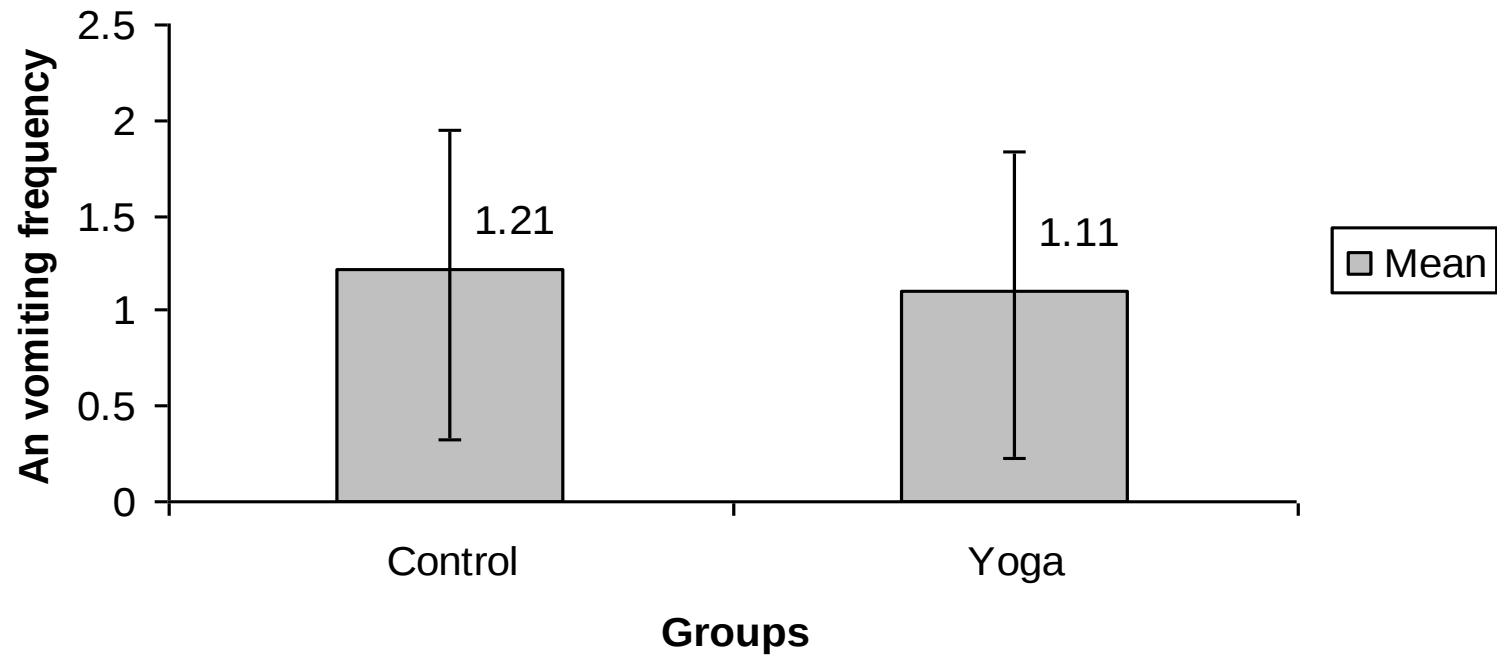
Mean Anticipatory nausea frequency scores on MANE between yoga and control groups



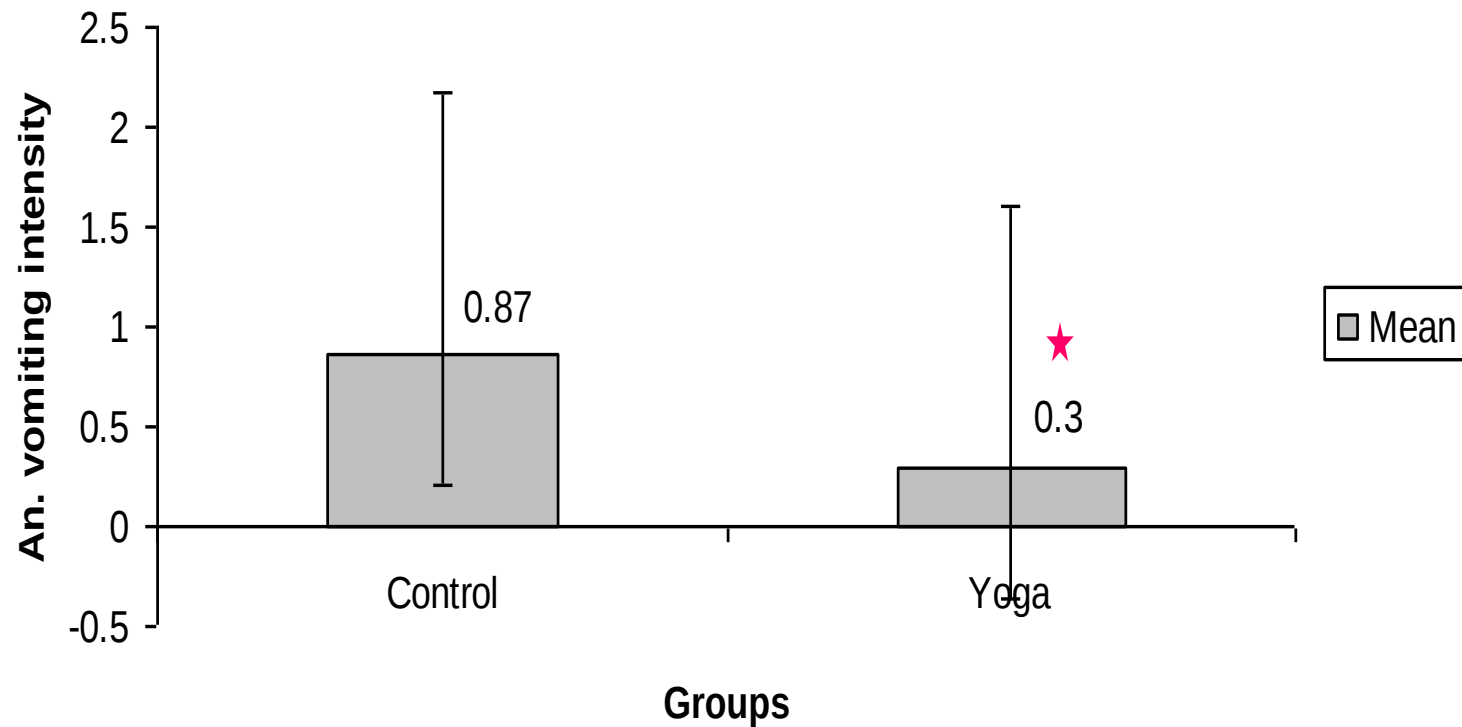
Mean Anticipatory nausea Intensity scores on MANE between yoga and control groups



Mean Anticipatory Vomiting frequency scores on MANE between yoga and control groups



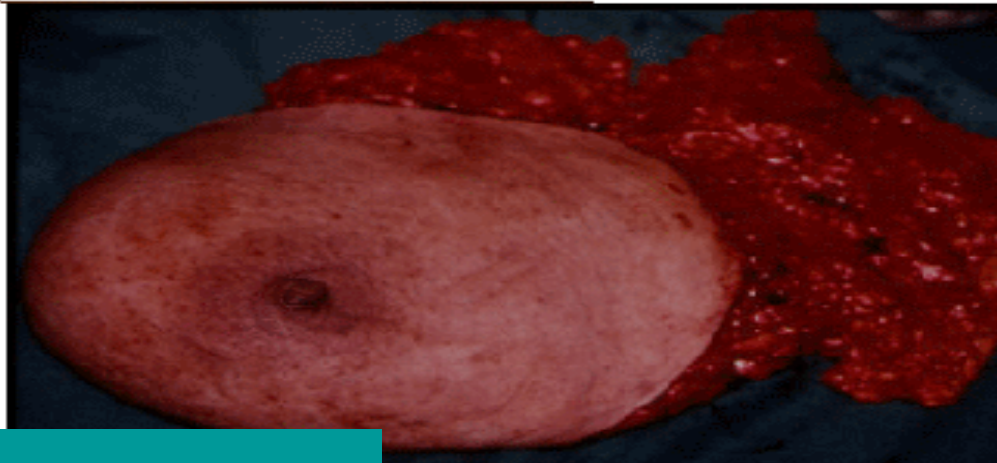
Mean Anticipatory Vomiting Intensity scores on MANE between yoga and control groups



POST OPERATIVE OUTCOMES



*Mastectomy with
axillary node
dissection*



DRAIN RETENTION

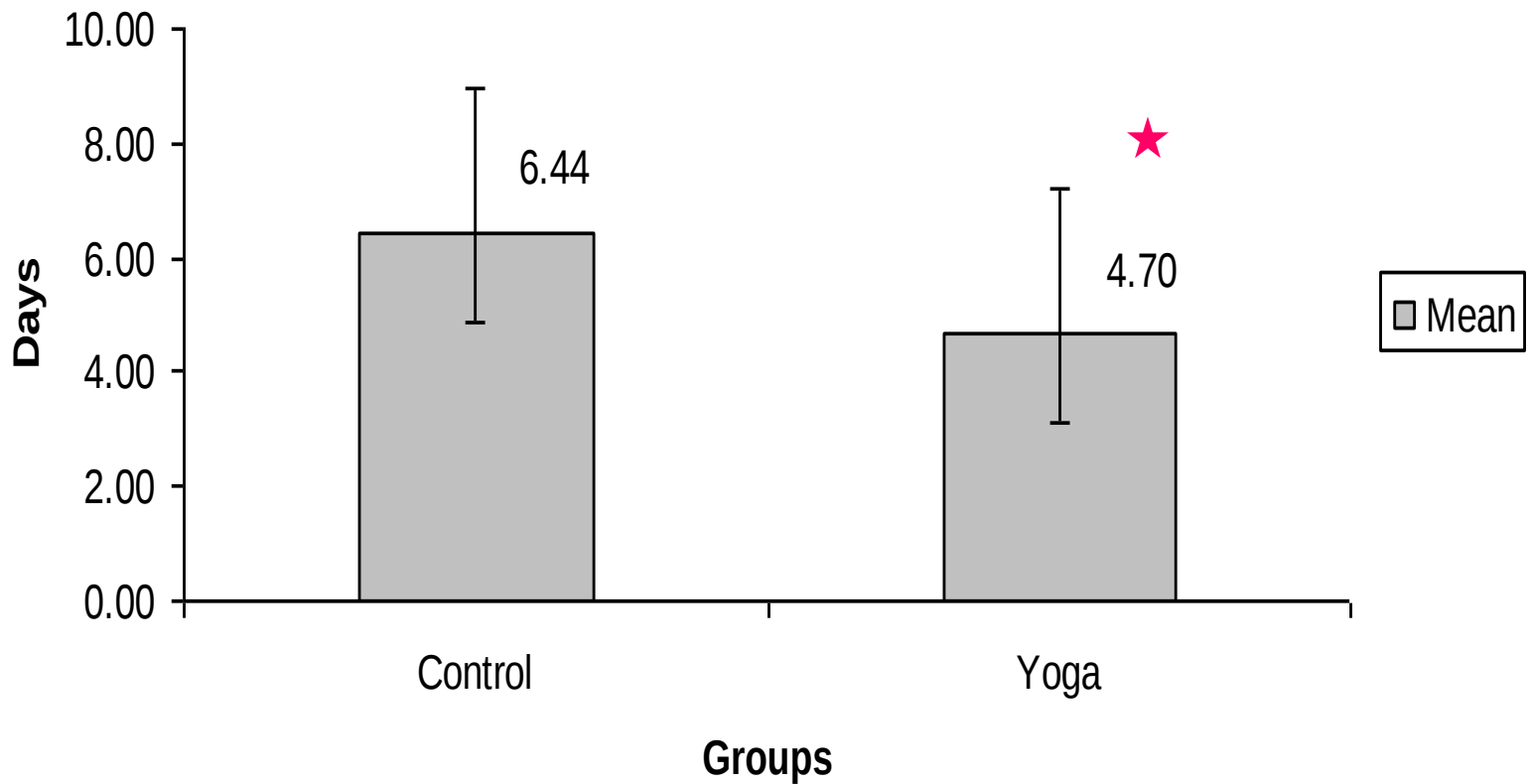
DURATION OF HOSPITAL STAY

INTERVAL FOR SUTURE REMOVAL

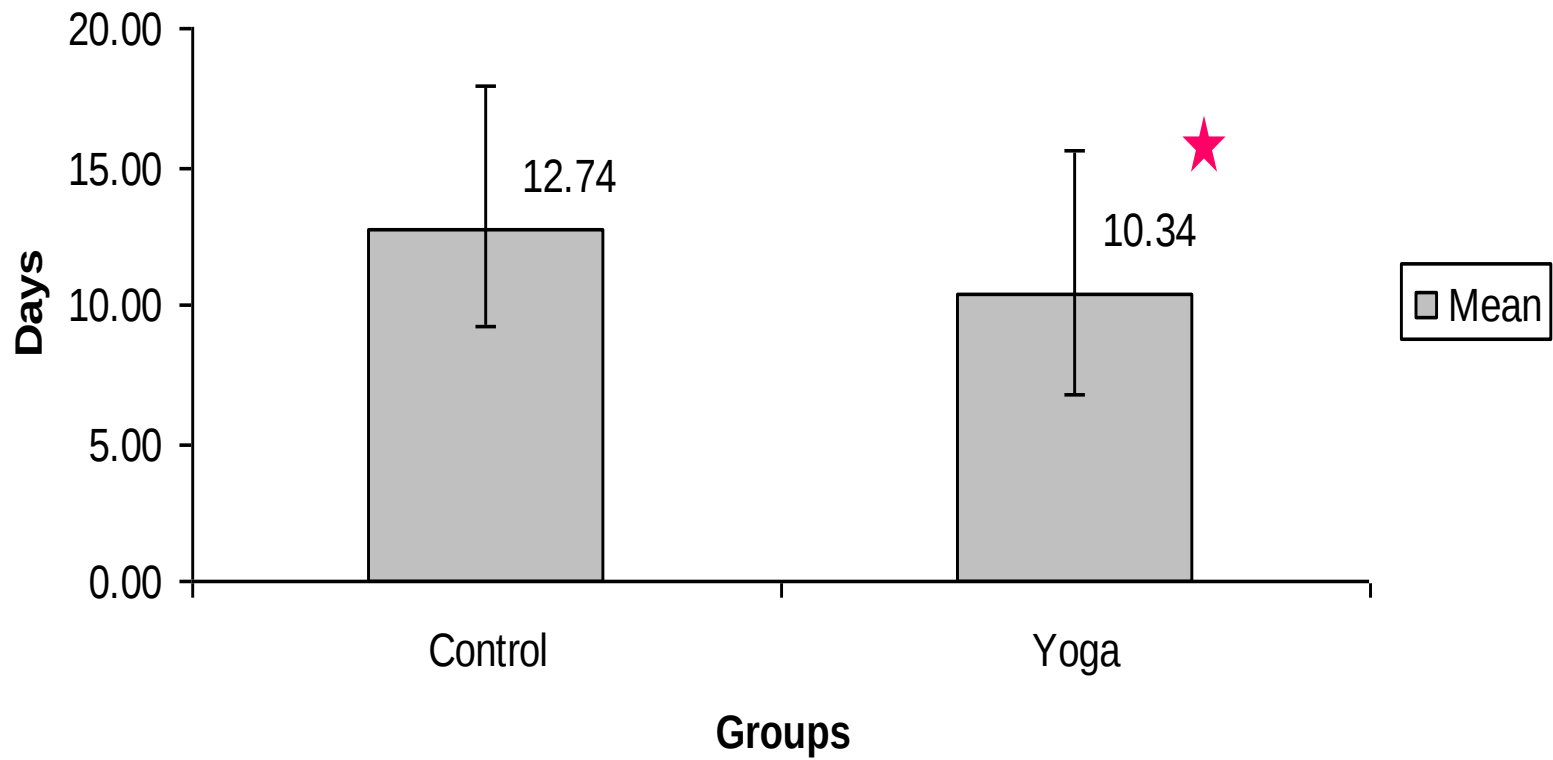
POST OPERATIVE COMPLICATIONS

POST OPERATIVE DURATION

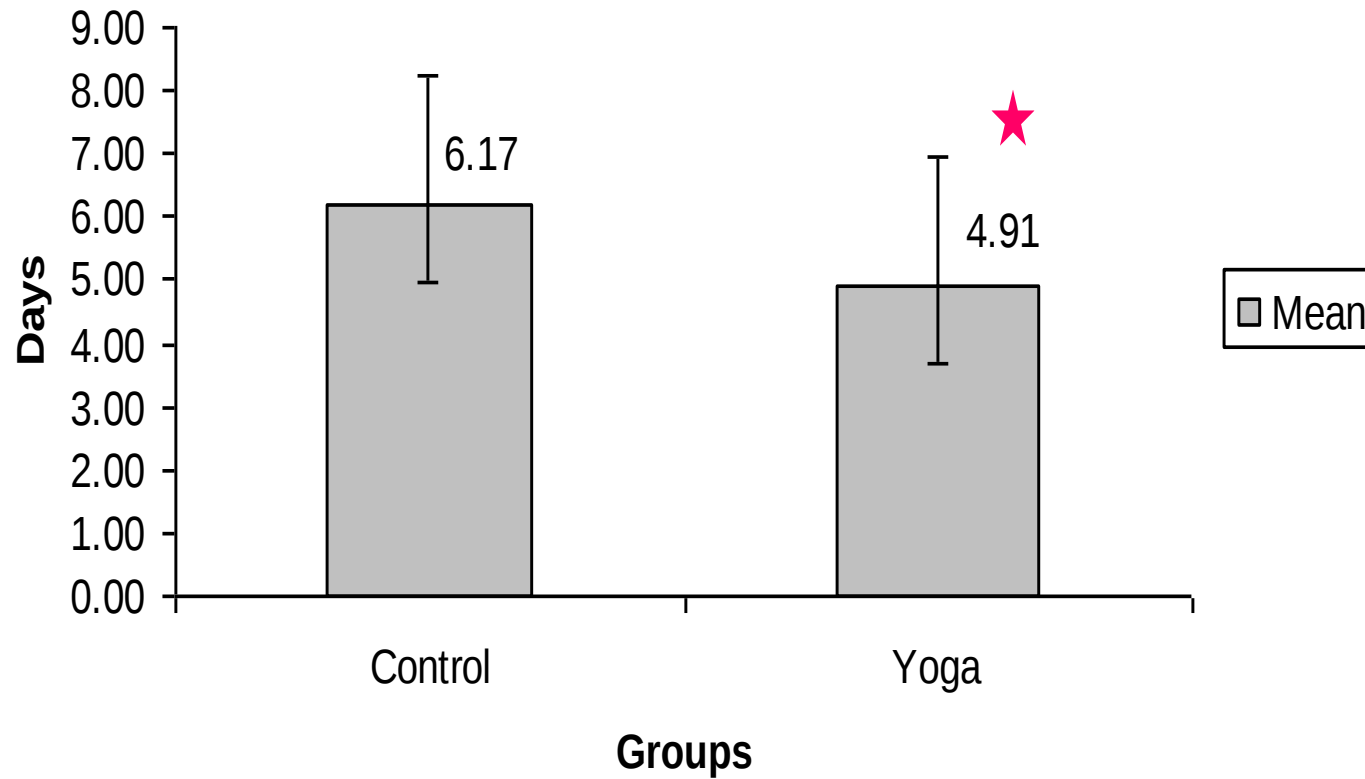
Mean number of days of drain retention in yoga and control groups



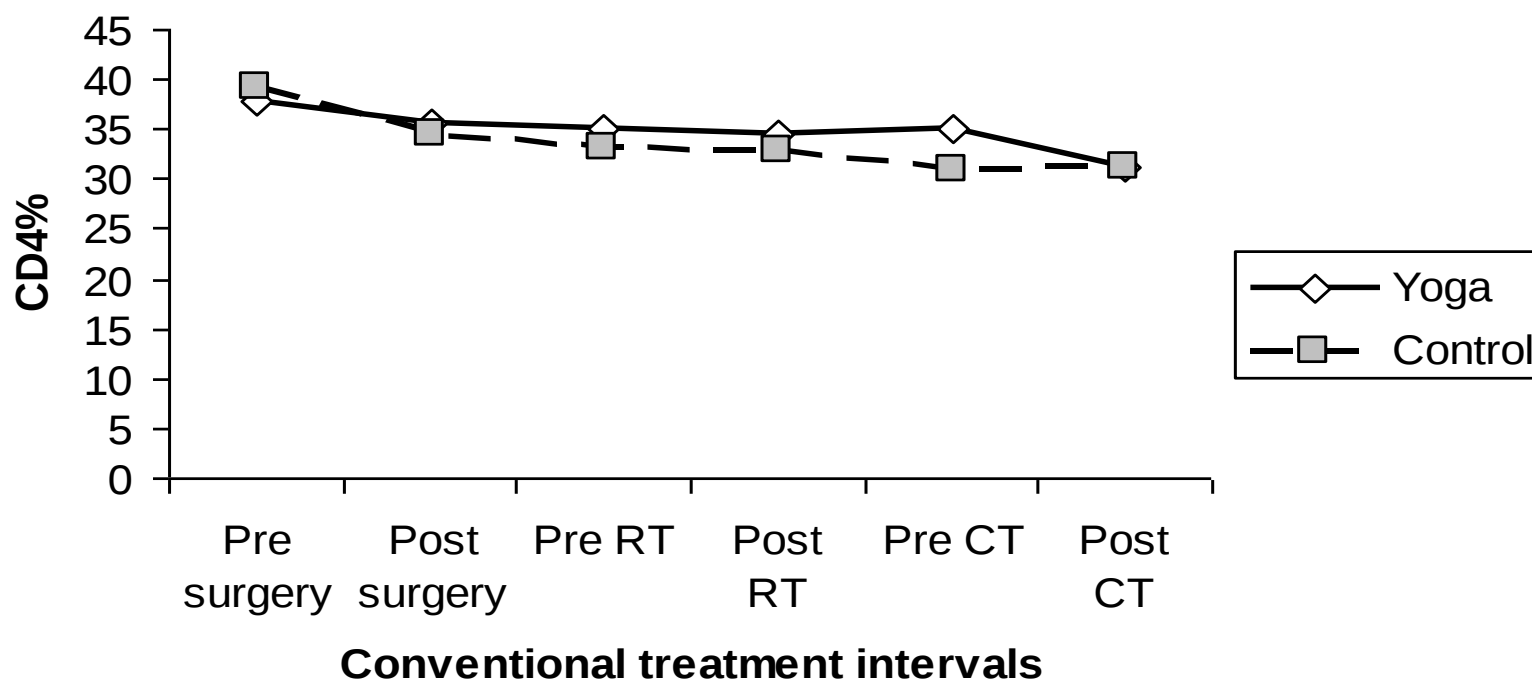
Average duration for suture removal in yoga and control groups



Average duration of hospital stay in yoga and control groups

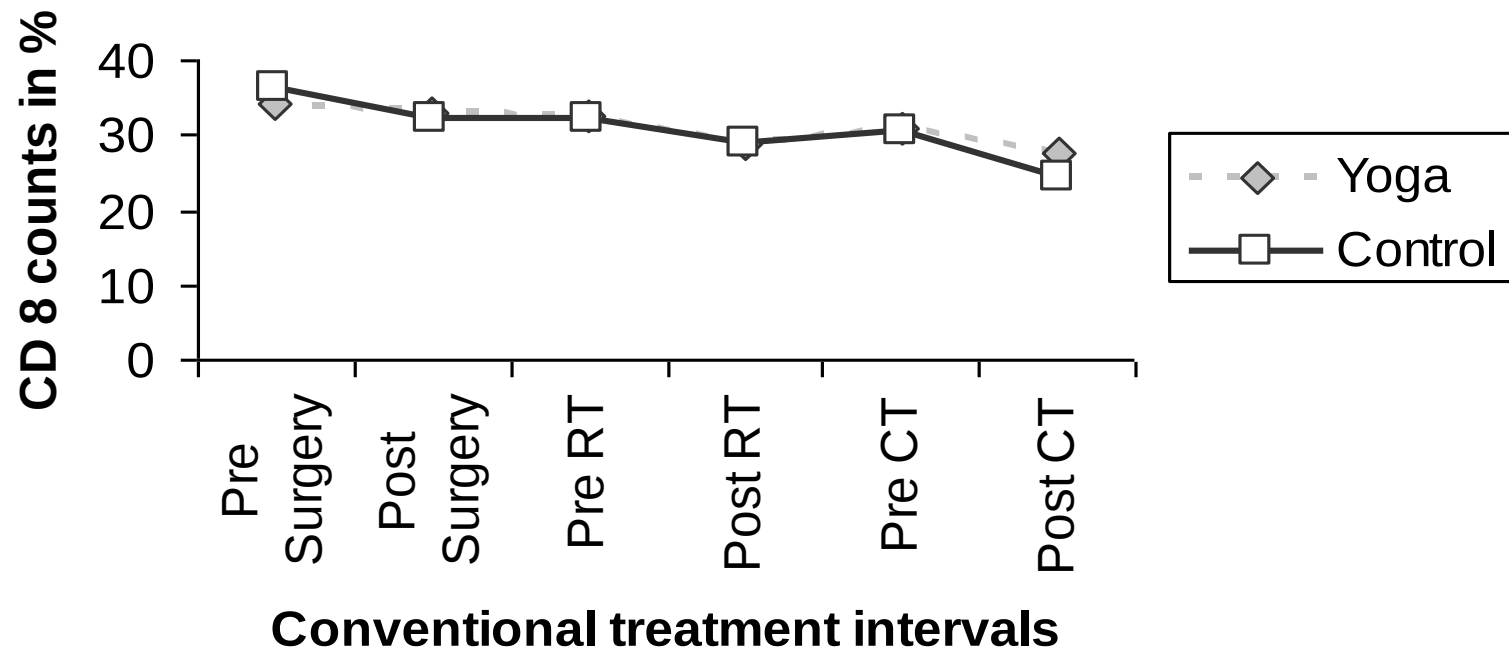


CD4% Counts in yoga and control groups following conventional treatments



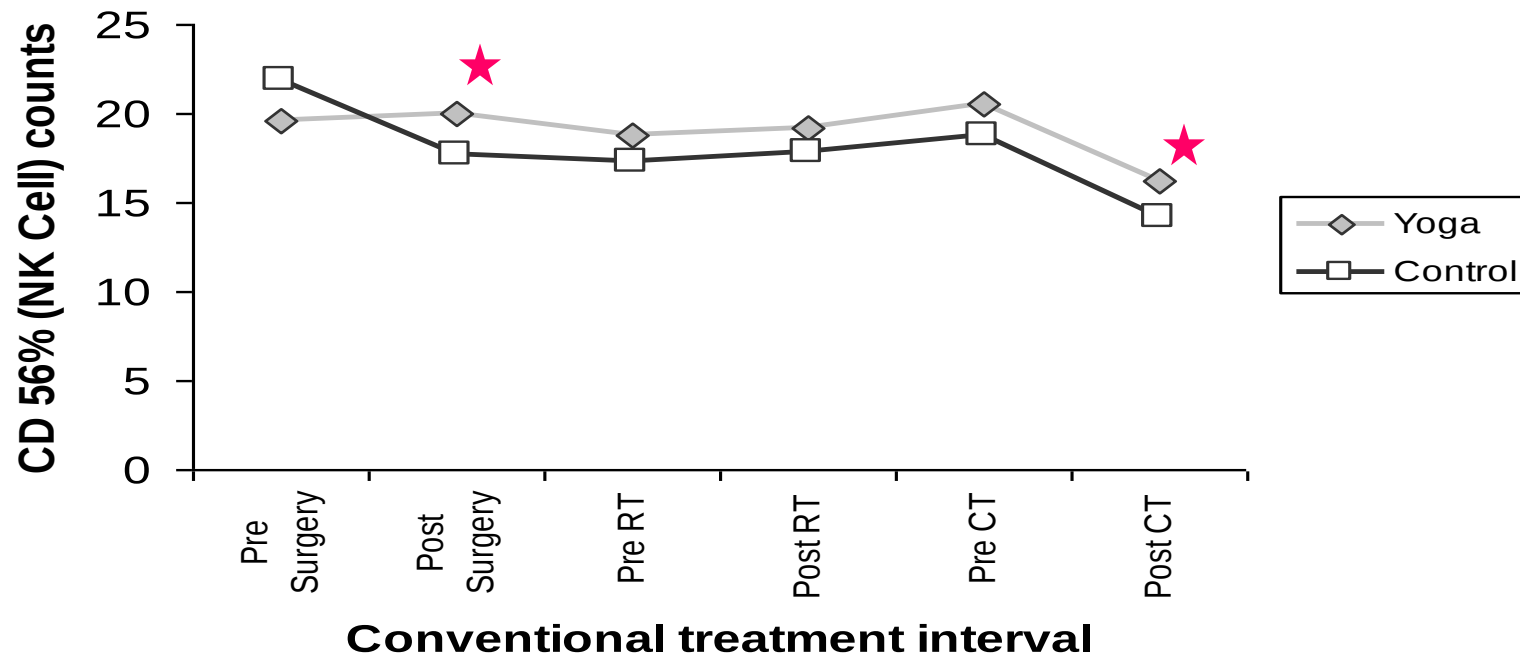
	Pre surgery	Post surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	37.78	35.66	35.17	34.53	34.93	31.15*
Control	39.17	34.42*	33.19	32.85	31.0	29.2*

CD 8 counts in% Yoga & Control groups following conventional treatments



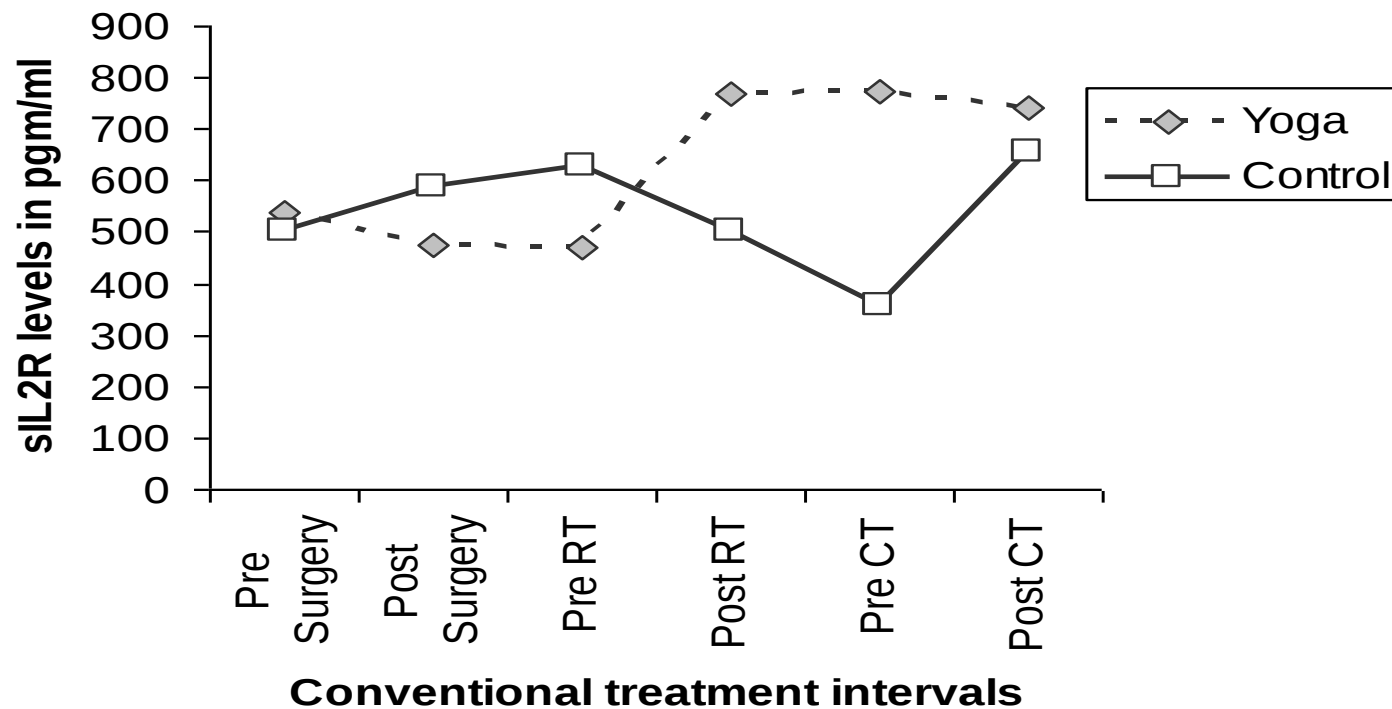
	Pre surgery	Post surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	34.32	33.10	32.39	28.82	30.93	27.63
Control	36.11	32.06	32.15	28.77	30.52	24.45

CD 56% counts in yoga & control groups during conventional treatments



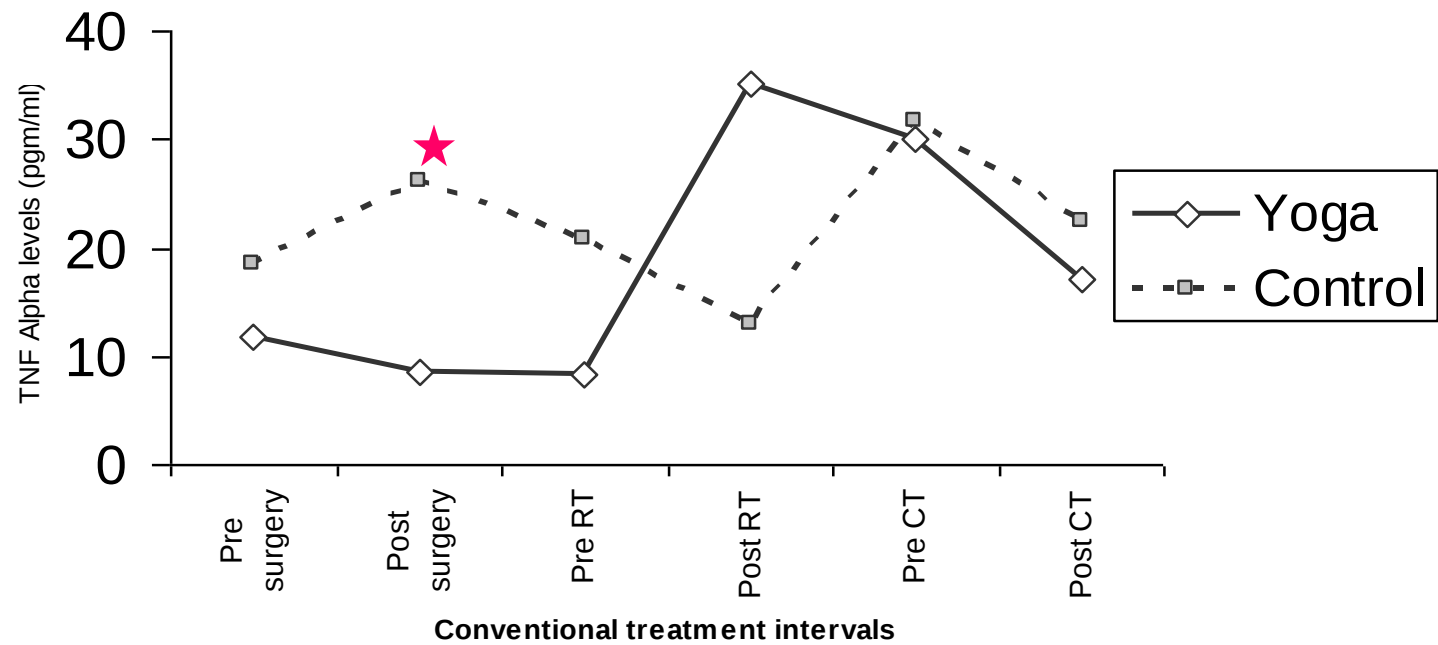
	Pre Surgery	Post Surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	19.65	19.94	18.82	19.25	20.52	16.15
Control	21.88	17.74	17.32	17.84	18.72	14.24

sIL2R levels in yoga & control groups during conventional treatment



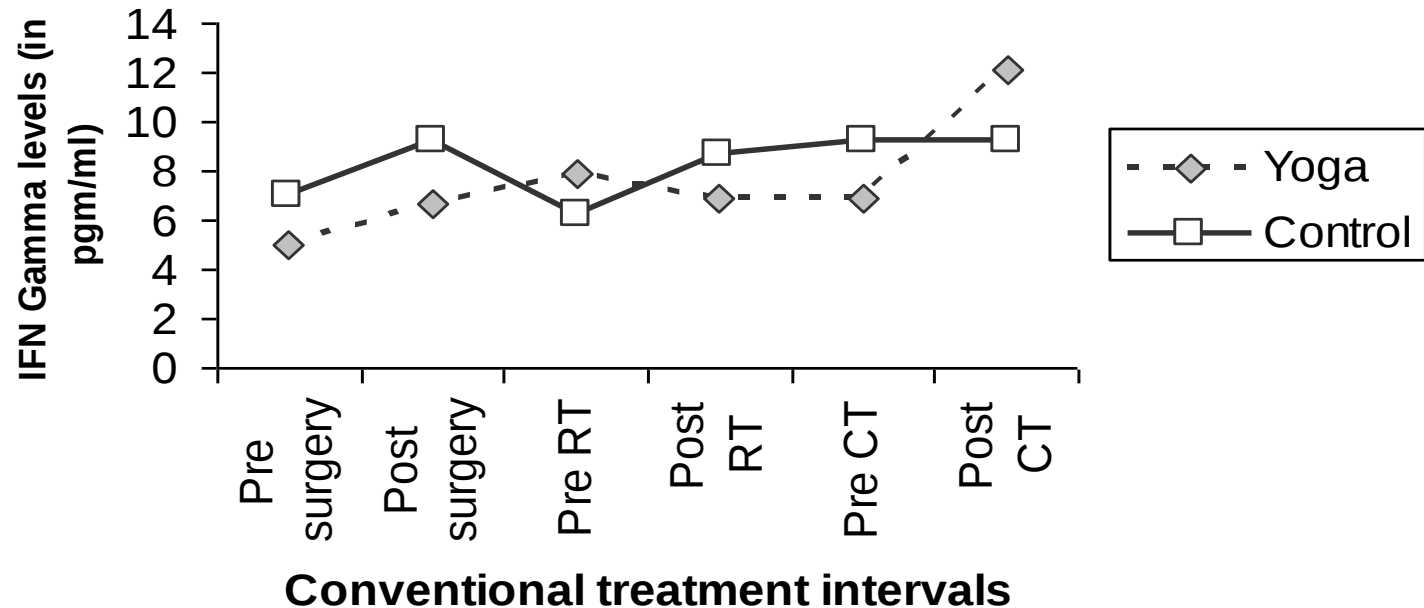
	Pre Surgery	Post Surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	538.44	473.33	471.36	769.77	771.9	743.81
Control	503.42	588.46	627.92	500.83	357.5	655.42

TNF Alfa levels in yoga and control groups following conventional treatment



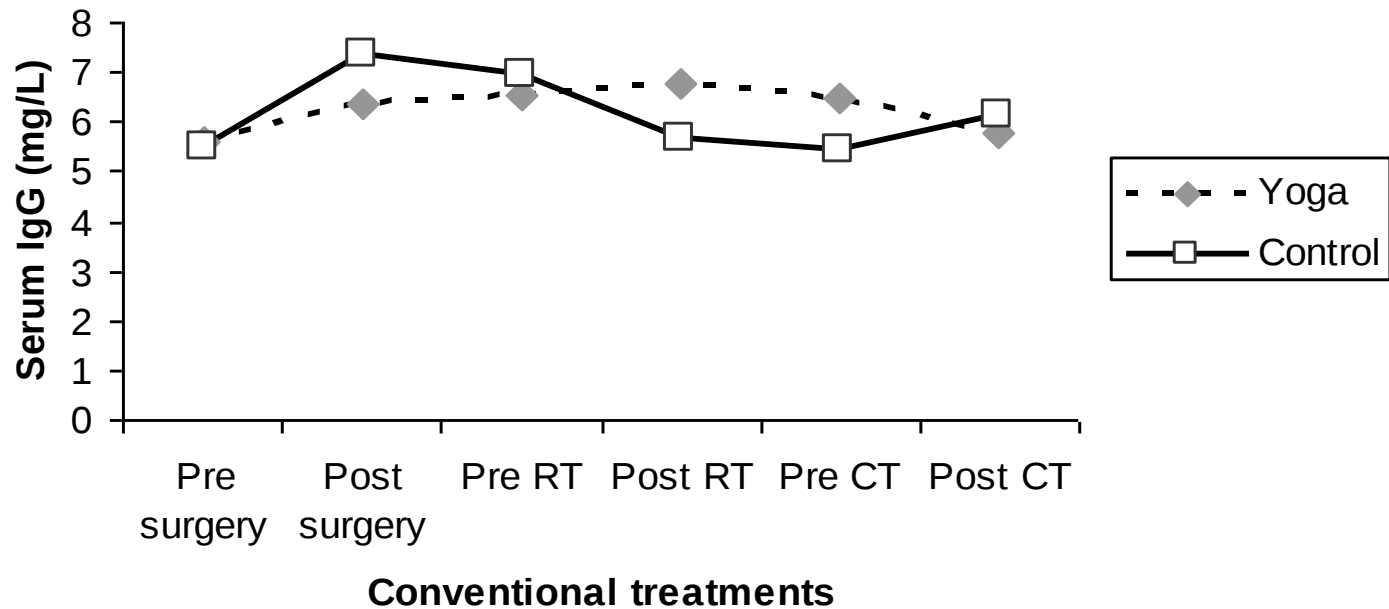
	Pre surgery	Post surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	11.74	8.45	8.26	35.19	30.15	17.22
Control	18.48	26.06	20.78	12.85	31.79	22.41

IFN Gamma levels in yoga and control groups following conventional treatment



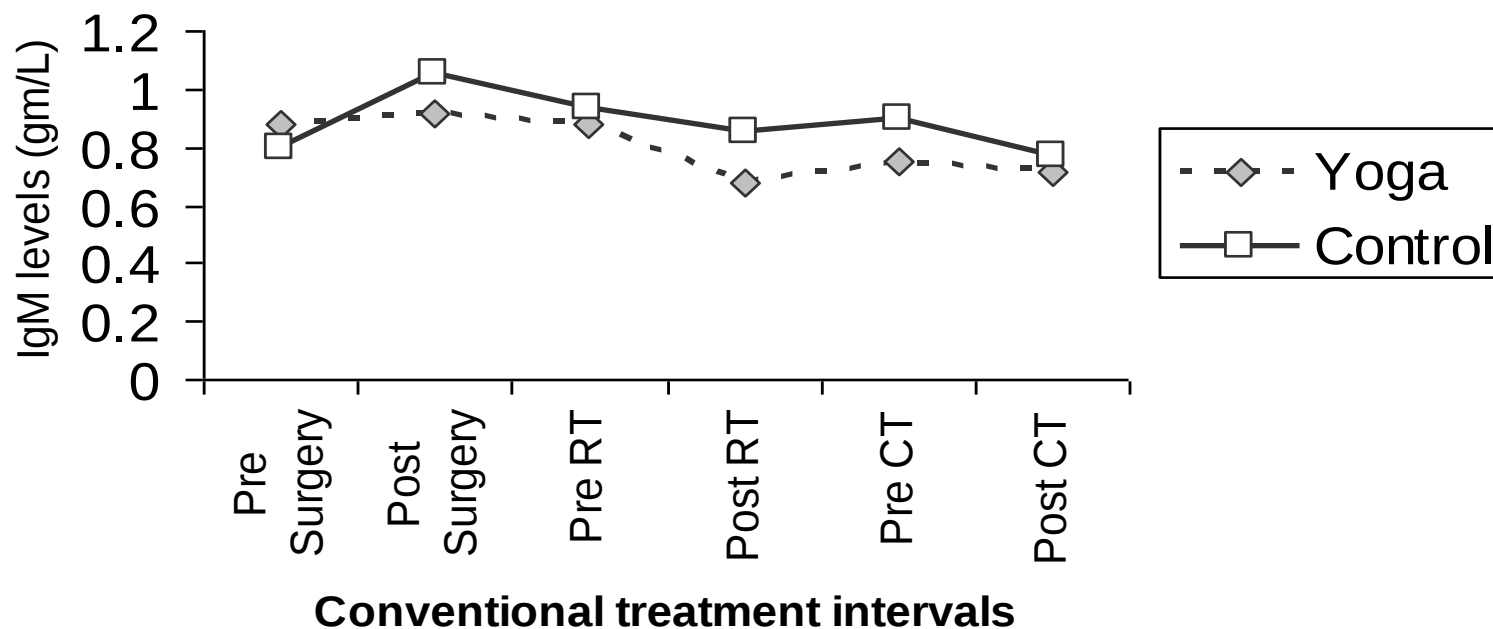
	Pre surgery	Post surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	4.97	6.71	7.93	6.93	6.89	12.11
Control	6.97	9.25	6.21	8.71	9.24	9.24

Serum IgG levels in yoga and control groups during conventional treatment



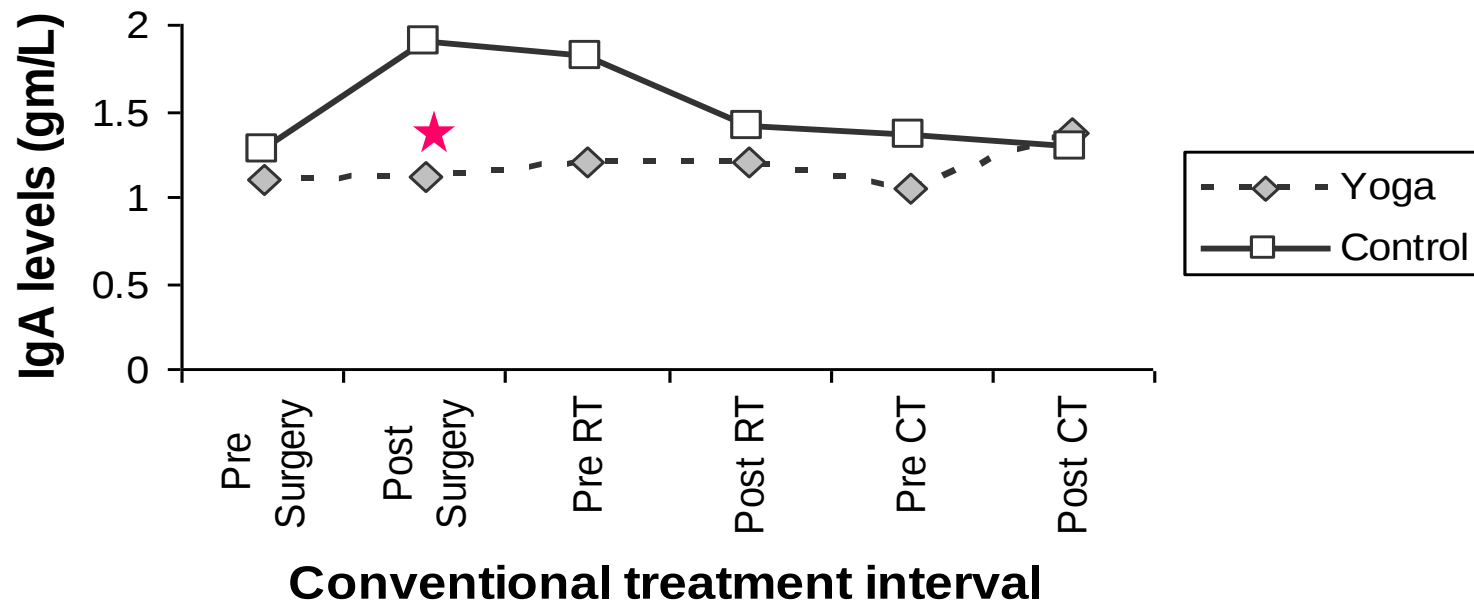
	Pre surgery	Post surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	5.62	6.34	6.52	6.77	6.46	5.77
Control	5.48	7.35	6.97	5.66	5.42	6.14

IgM levels in yoga & control groups during conventional treatments



	Pre Surgery	Post Surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	0.88	0.92	0.88	0.68	0.75	0.71
Control	0.8	1.05	0.93	0.85	0.9	0.77

IgA levels in yoga & control groups following conventional treatment



	Pre Surgery	Post Surgery	Pre RT	Post RT	Pre CT	Post CT
Yoga	1.1	1.12*	1.21	1.2	1.05	1.38
Control	1.27	1.9	1.82	1.4	1.35	1.29

Summary

- **During Surgery**
- Yoga intervention reduced affective states- anxiety and depression.
- Improved post operative outcomes- Decreased duration of hospital stay, enhanced wound healing (early suture removal and reduced proinflammatory cytokine TNF alpha)
- Improved Qol,
- Reduced Serum IgA levels, improved NK cell %.

Summary - During Radiotherapy

- Reduced affective states- anxiety and depression
- Improved quality of life
- Reduced treatment related symptoms, severity and distress

Summary –During Chemotherapy

- Improved Quality of life
- Reduced affective states- anxiety and depression
- Reduced treatment related symptoms, severity and distress and treatment toxicity.
- Reduced post chemotherapy nausea frequency and severity and anticipatory nausea and vomiting
- Reduced decrements in NK cell % following chemotherapy

Conclusion

- An integrated yoga program is useful in reducing psychological morbidity, treatment related symptoms, improving quality of life and immune cell counts during and following conventional cancer treatment.



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Dr B.S Ramesh , Rad Oncol. BIO.

Vinay. C & Edna Esther Kerketta, Msc ,(Micro), Lab Asst.

OUR COLLABORATIONS

UCSF - NIH grant on HIV and DM

Other Universities in USA

UCLA, USC and Harvard

Yoga and Cardiology

U of Houston, MDACC, Mayo Clinic, U of Miami

Yoga in Cancer - NIH

University of Tennessee

Yoga for Asthma

University of South Florida, Tampa

Yoga and Arthritis

TERMINAL CASES

**METASTATIC BREAST CANCER
YOGA AND NON YOGA
BANGALORE INSTITUTE OF ONCOLOGY**

**DNA REPAIR MECHANISM
STUDIES ON APPOPTOSIS**

**THUS THE
INTEGRATED
APPROACH OF YOGA
THERAPY HOLDS
GREAT PROMISE FOR
CANCER**

YOGA OFFERS

TOTAL REHABILITATION BY

THE INTEGRATED APPROACH OF YOGA THERAPY

BRONCHIAL ASTHMA, NASAL ALLERGY etc

- 200000 PATIENTS

DIABETES MELLITUS - 9000

HYPERTENSION & IHD - 7500

OPHTHALMIC DISORDERS - 1600

OBESITY, BACK PAIN, Arthritis, etc 35000

Cancer, HIV -- 375

CONCEPT OF HEALTH:

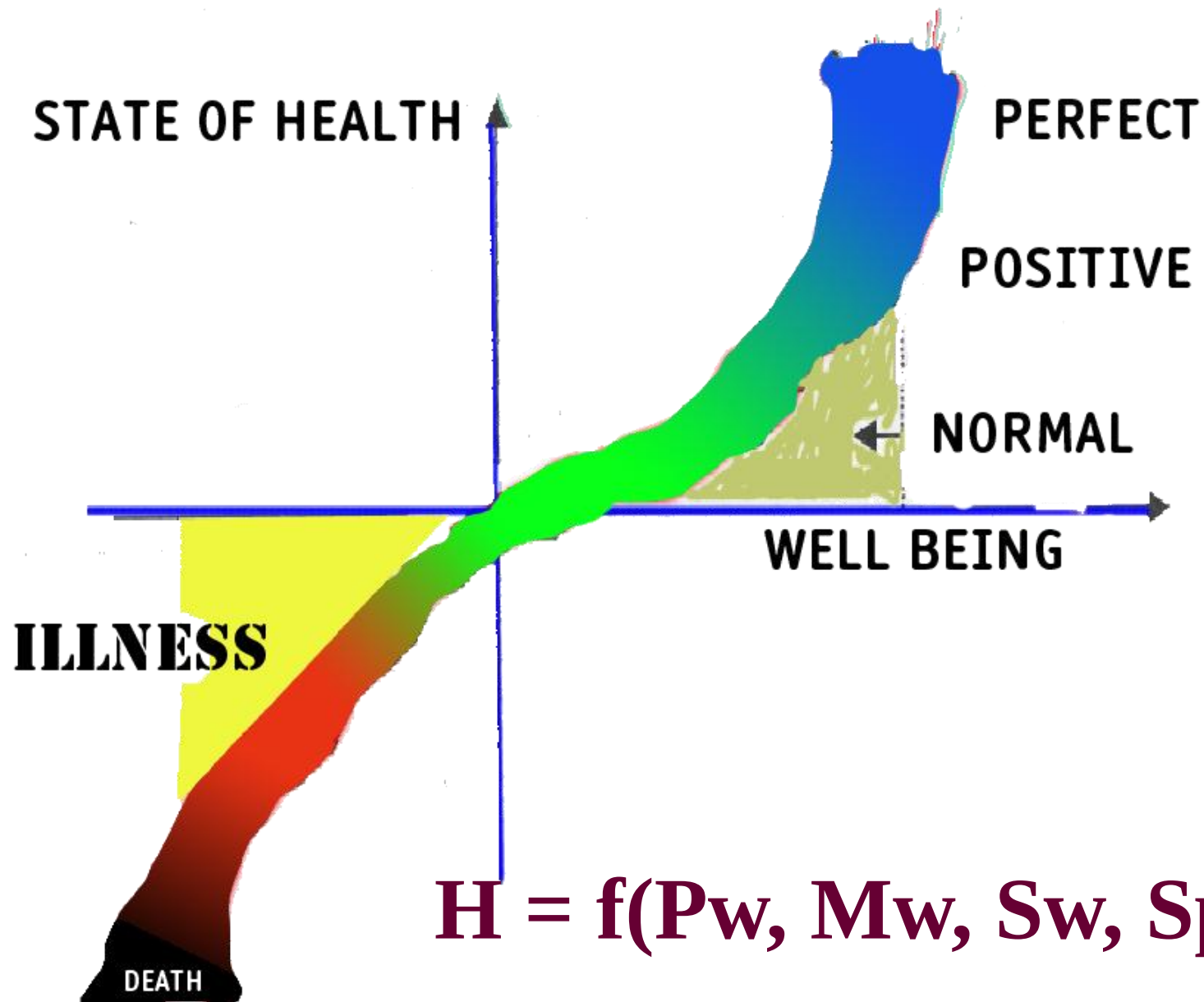
- WHAT IS HEALTH?

- Absence of Diseases ?

“HEALTH is a state of well being at physical, mental, social and spiritual levels and not mere absence of illness or infirmity “



WHO



$$H = f(P_w, M_w, S_w, S_p)$$

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COLLABORATIONS

John Hopkins Pain Clinic

**Yoga for pain Management
and many others in the offing**

Universities in Australia

Swinbern University and RMIT

Germany

**Stift Rottel Center of Rehabilitation,
Grishba**

Yoga and Trauma

Let us work together

to make

yoga a socially relevant science

to bring Health and harmony,

bliss & peace

on earth

By combining
The best of the EAST
(Yoga and Spiritual lore)
with
The best of the WEST
(Scientific Research)

**LET US SYNERGISE
THE EFFORTS FROM ALL OVER THE WORLD
AND WIN IN
OUR WAR AGAINST CANCER**

*We have conquered outer space
but not inner space,
we have split the atom
but not our prejudice.*





**THE TALLEST STATUE
OF
SWAMI
VIVEKANANDA
WELCOMES
ALL
TO
PRASHANTI KUTIRAM
AT ENTRY**

**WELCOME
TO**



PRASHANTI KUTIRAM

32 kms From Bangalore, India

The Head Quarters of

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