SCIENTIFIC ASPECTS OF YOGA

A Presentation By

Dr. Ishwar V. Basavaraddi
Director
Morarji Desai National Institute of Yoga
New Delhi
Traditional Information about Yoga

Yoga: An experiential phenomena-Advantages.

How Yoga Works?

Yogic Methods For Management Of Psychosomatic Disorders.

Holistic Effect of Yoga Practices - A Summarized View.

Research Review on Scientific aspects of Yoga Practices.
TRADITIONAL INFORMATION
TRADITIONAL INFORMATION

- **Yoga** is the product of the perennial wisdom of India.

- **Origin of Yoga** - at least three thousand years before Christ.

- Yoga is basically developed as a Moksha Shastra which helps to overcome all kinds of suffering.

- In India, it is a way of healthy living.

- Yoga is an ancient art based on an extremely subtle science that of body, psyche, and spirit.
Yoga is Harmony

- Harmony is a Precious Treasure of Human Life
- There is no progress without Harmony.

Harmony in all Walks of Life

2. Emotions and Intelligence.
3. Self and Society.
4. Purpose of Life and Method of Living etc.

YOGA IS AN ART AND SCIENCE OF HEALTHY LIVING
Yoga means – Joining, Yoke, Absorption.

Lord Shiva is the Founder – Indian mythology.

Yoga is as old as civilization. References found in the excavation of Indus Valley.

Yoga has been referred in the Vedas Moksha (liberation) is the ultimate goal of Yoga – Upanishads.

Arya Ashtanga Yoga of Buddhism & Saptanga Yoga of Jainism.
Epics – Ramayana & Mahabharatha.

Bhagavadgita – Quintessence of Yoga

Shad-Darshanas

Maharshi Patanjali (200 B.C.)– Yoga Sutras – Ashtanga Yoga

Acharyatrayas: Shankara, Madhwa, Ramanuja Tantra/ Puranic Age (500-1500 C.E.).

Natha Cult – Extraordinary psycho-techniques.

Hatha Yoga school – More popular
TODAY YOGA IS VERY POPULAR BECAUSE OF ITS EFFICACY IN THE MANAGEMENT OF PSYCHOSOMATIC DISORDERS

YOGA WORKS
BUT HOW?
SHARIRA AND KOSHA

- Sthoola Sharira (Gross Body)
  - *Annamaya Kosha* (Physical sheath)

- Sookshma Sharira (Subtle Body)
  - *Pranamaya Kosha* (Vital sheath)
  - *Manomaya Kosha* (Mental sheath)
  - *Vijnanamaya kosha* (Intellectual sheath)

- Karana Sharir (Causal Body)
  - *Anandamaya Kosha* (Blissful sheath)
SEVEN CHAKRAS, PRANA AND NADI
CHAKRAS

NERVE CENTERS
ENCOCRINE GLANDS

Sahasrar
Brain
Pineal gland

Ajna
Hypothalamus, brain
stem, pituitary gland

Vishudhi
Medulla oblongata
cervical ganglions
thyroid gland

Anahata
Thoracic ganglions

Manipur
Solar plexus
Adrenal gland
Endocrine pancreas

Swadhishtan
Mesenteric ganglions
Sexual glands

Muladhara
Pelvic plexus
HOW YOGA WORKS?

Annamaya Kosha (Physical Sheath)
- Affected by Physical Problems due to wrong postural habits, sedentary lifestyle.
- Rectified by Yogasanas

Pranamaya Kosha (Vital Sheath)
- Affected by wrong breathing pattern.
- Rectified by Pranayama

Manomaya Kosha (Mental Sheath)
- Affected by Mental Afflictions & Occupational mental stressors.
- Rectified by Yama, Niyama, Dharana and Dhyana

Vijnanamaya kosha (Intellectual Sheath)
- Affected by work load and Overstress.
- Rectified by Pranava Japa and Dhyana

Anandamaya Kosha (Blissful Sheath)
- Affected by Psychosomatic Ailments
- Rectified by Abhyasa and Vairagya leading to Samapatti state and later Samadhi.
**REFERENCES FROM DIFFERENT YOGA TEXTS**

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<tr>
<th>Hatha Yogic Approach</th>
<th>Patanjali’s Approach</th>
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</thead>
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<tr>
<td>(Practices focusing on Nadi-shodhana, Chakras, Kanda and awakening of Kundalini)</td>
<td>(More practical and Holistic Approach)</td>
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<tr>
<td>- Yogic Shatkarma</td>
<td>- Ashtanga Yoga</td>
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<tr>
<td>- Asana</td>
<td>- Kriya Yoga</td>
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<tr>
<td>- Pranayama</td>
<td>- Citta Prasadana</td>
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<tr>
<td>- Mudras</td>
<td>- Pratipaksha Bhavanam</td>
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<tr>
<td>- Bandhas</td>
<td>- Heyam Dukham</td>
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<tr>
<td>- Dhyana</td>
<td>- Anagatam and focusing on right actions (Ashukla-Akrishna Karma)</td>
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</tbody>
</table>
FOUR BASIC PRINCIPLES OF THERAPY FOR A COMMON MAN

- Breathing Rectification
- Schedule Rectification
- Diet Rectification
- Yoga Practices (Kriya/ Asana/ Pranayama/ Mudras/ Bandha)

IDEAL STRATEGY FOR MANAGEMENT OF ALL THE PROBLEMS OF JUDGES

- Life style Modification
- Yoga
- Workplace Modifications and Ergonomics serve to reduce strenuous neck positions during work and leisure.
YOGA WORKS BUT HOW?

Kriyas → Asanas, Pranayama and Dhyana

→ Balance Endocrinal and Nervous control

→ Increases Mind and Body Control

→ Calm, Relax, Refresh

→ Health, Happiness and Harmony
WHAT WE NEED TO BE HEALTHY?

- INGESTION
- DIGESTION
- ASSIMILATION
- CIRCULATION
- ELIMINATION
CONCEPT OF DIET IN YOGA

- Quality
- Quantity
- State of Mind
SHATKARMAS - CLEANSING PRACTICES

Neti

Kunjali

Nauli

Trataka

Kapalabhati

Jala Neti

Sutra Neti

Neti
YOGASANAS COMMONLY ADVICED FOR DIGESTIVE DISORDERS AND MUSCULOSKELETAL PROBLEMS

- Bhujangasana
- Salabhasana
- Dhanurasana
- Makarasana
<table>
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<tr>
<th>ASANAS FOR RESPIRATORY DISORDERS</th>
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<tr>
<td><strong>Ushtrasana</strong></td>
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<tr>
<td><img src="image1.png" alt="Ushtrasana" /></td>
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<tr>
<td><strong>Gomukhasana</strong></td>
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<td><img src="image2.png" alt="Gomukhasana" /></td>
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<tr>
<td><strong>Bhujangasana</strong></td>
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<td><img src="image3.png" alt="Bhujangasana" /></td>
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<tr>
<td><strong>Matsyasana</strong></td>
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<td><img src="image4.png" alt="Matsyasana" /></td>
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YOGASANAS COMMONLY ADVICED FOR DIABETES

Vakrasana

Ardha Matsyendrasana

Paschmottanasana
YOGASANAS COMMONLY ADVISED FOR C.SPONDYLOSIS

UTTHANA-MADOOKASANA

GOMUKHASANA (Cow Pose)
RELAXATIVE POSTURES

SHAVASANA
(Dead Pose)

MAKARASANA
(Crocodile Pose)
PRANAYAMA COMMONLY ADVISED IN ALL DISORDERS

Nadishodhana Pranayama

Ujjayi Pranayama
YOGASANAS COMMONLY ADVISED FOR MEDITATION

Padmasana with Bhrumadhya Drishti

Padmasana with Dhyan Mudra
YOGA THERAPY – WHY?

- Improves the overall functioning of the Organs.
- Improves Circulation of Blood in the body.
- Acts as an efficient stress buster.
- Brings about a better neuro-muscular coordination.
- Strengthens the immunity.
- Decreases overall workload to the organs.
- Provides psychological well-being.
- Enhances the endurance to face abnormal situations.
DESIGNING YOGA THERAPY

- Shaucha (Cleanliness)
- Mitahar (Balanced Diet)
- Proper Breathing
- Yoga Practice
- Achar (Right Conduct)
- Vichara (Right Thought)
- Vyavahara (Behaviour)

- PHYSIQUE (SAMA DOSHA, AGNI, DHATU, MALA)
- BIOENERGY (PRANA)
- PSYCHE (PRASSANA MANAH)
- SPIRIT (PRASSANA ATMA)
- EMOTIONS (PRASSANA INDRIYA)

HEALTH
RESEARCH REVIEW ON SCIENTIFIC ASPECTS OF YOGA PRACTICES.
<table>
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<tr>
<th>Glucose &amp; Sodium decreases.</th>
<th>Hemoglobin increases.</th>
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<tr>
<td>Total cholesterol &amp; Triglycerides decreases.</td>
<td>Lymphocyte count increases.</td>
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<tr>
<td>HDL cholesterol increases.</td>
<td>Total white blood cell count decreases.</td>
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<tr>
<td>LDL &amp; VLDL cholesterol decreases.</td>
<td>Thyroxin increases.</td>
</tr>
<tr>
<td>Catecholamines decreases.</td>
<td>Vitamin-C increases.</td>
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<tr>
<td>Hematocrit increases.</td>
<td>Total serum protein increases.</td>
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### Psychological Effects

- Somatic & kinesthetic awareness increase.
- Mood improves and subjective well-being increases.
- Self-acceptance and self-actualization increase.
- Social adjustment increases.
- Anxiety and depression decrease.
- Hostility decreases.
**Physiological Effects**

- Stable ANS with a tendency towards PNS dominance.
- Pulse rate & Respiratory rate decreases.
- Blood pressure decreases.
- Galvanic Skin Response (GSR) increases.
- EEG - alpha waves increase.
- EMG activity decreases.

- Cardiovascular efficiency increases.
- Musculoskeletal flexibility & joint range of motion increase.
- Gastrointestinal & Endocrine function normalizes.
- Immunity increases.
- Pain decreases.
- Endurance increases.
- Energy level increases.
Several Research Studies on Bronchial asthma – Long term follow up studies – 5 years (VK Yogas).

Research studies on Stress related disorders – VK Yogas.

High altitude sickness and exposure to extreme cold and heat situations – DIPAS.

Coronary Artery Disease, IBS and Cancer – AIIMS.

Psychiatric & Neurological Disorders – Schizophrenia, Depression, Epilepsy etc. – NIMHANS.

COLLABORATING INSTITUTES

Morarji Desai National Institute of Yoga, Ashok Road, New Delhi
and
Escort Heart Institute and Research Center, Okhla Road, New Delhi
**FINDINGS**

- **Significant positive difference found in computer hassles** between the participants of experimental group and control group.

- **Significant positive difference found in the general stress level** between the participants of experimental group and control group.

- **Significant positive difference found in the occupational strain** related parameters like psychological strain, vocational strain and physical strain between the participants of experimental group and control group.

- Significant positive difference found in the parameters related to occupational role like role overload, role insufficiency and role ambiguity between the participants of experimental and control group.

- **Significant positive difference found in Neck, shoulder, Back and Wrist Pain** between the participants of Experimental group and control group.

- **Significant improvement found in self care** among the participants of Experimental group.
SOME FUNDAMENTAL STUDIES ON PRANAYAMA

- Vinekar, S. L. 1966

- Pratap, V. 1972

- Mestan J. and Bhole, M.V. 1979
  - Cardiac Out-put in normal, deep and ujja pranayamic breathing - a preliminary study. Yoga Mimamsa, Vol. XIX: 4; 11-17; 1979

The earliest studies on Pranayama were done by Swami Kuvalayanandaji in 1924 at Lonavla, India.

- Swami Kuvalayananda and Karambelkar, P. V. 1956-1957.
  - Studies in internal and external pressure changes in deep breathing. Y. M. Vol. VI : 3; 196-202; 1956.
RESEARCH FINDINGS ON PRANAYAMA

- The Oxygen intake is reduced to less than one fourth in Pranayamic Breathing compared to Normal Breathing.

- The diffusion gradient of various gases is not much affected during the phase of Kumbhaka.

- The free acid radical content in the blood reduces because of reduced oxidation process.

- Better neuro-endocrinal coordination is established.

- Studies on Nostril Dominance has confirmed the effect of regulated breathing on specific areas of the brain.

- Reduction in secretions of Stress hormones and decrease in Basal Metabolic Rate.
SOME RESEARCH FINDINGS ON MEDITATION

- Meditation and Mindfulness calms Amygdala, an area of the brain associated with the fear response that is a factor in anxiety and stress disorders.  
  (Paul Ekman, Univ Of California, San Francisco Medical centre)

- Meditation helps in balancing neurotransmitters. E.g Increase in Serotonin (Mood Elevating Neurotransmitter).  
  (Dr Solomon, John Hopkins Medical School)

- A study on brain scan of Buddhists practicing meditation regularly indicated an heightened activity in left pre-frontal lobe of the brain - an area associated with positive emotions, self control and calm temperament.
Leading Yoga Institutes

- Yoga Universities
- Eminent Yoga Institutions
- National Institutions of Yoga
- Yoga Departments in the Universities
- Yoga Centers
MORARJI DESAI NATIONAL INSTITUTE OF YOGA

(An Autonomous Organization Registered Under the Department of AYUSH, Ministry of Health & Family Welfare, Govt. of India),
68, Ashoka Road, Near Gole Dak Khana, New Delhi-110001.