Hyperbaric Oxygen Therapy Unit
Indraprastha Apollo Hospital, New Delhi

A decade of practice of hyperbaric Medicine
Dr PC Reddy is a great visionary and introduced many new treatment modalities in the country. He was impressed by the desire of Dr Tarun Sahni to introduce hyperbaric medicine in India and gave his sanction to set up a centre at the newly built hospital in New Delhi.

The FIRST private Hyperbaric Unit in India was therefore established in the year 2000 at the Apollo hospital New Delhi placing India on the hyperbaric map of the world under the guidance of Dr JK Sachdeva – the first medical director of the hospital.

The centre has seen an overall growth in areas of diving medicine, compressed air works, training, research and management of challenging clinical conditions.

This presentation gives a brief overview on the last 10 years activities
Apollo Hospitals is not just one of the country's premier healthcare providers but also plays a pioneering role in helping India become a centre-of-excellence in global healthcare.

In keeping with its image as the pioneer in providing latest medical treatments, the Indraprastha Apollo Hospital, Sarita Vihar, New Delhi established a hyperbaric chamber, which has been working since June 2000..

Also finds mention in Limca Book of Records!!
### Hyperbaric Medicine & its Application

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<tr>
<th>Occupational</th>
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<tbody>
<tr>
<td><strong>Diving Medicine</strong></td>
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<tr>
<td>- Diagnosis and treatment of conditions caused by marine hazards and how relationships of a diver’s fitness to dive affect a diver's safety.</td>
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<td>- Providing support and backup to recreational and professional diving &amp; related activities.</td>
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<td><strong>Compressed Air Works</strong></td>
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<td>- The chambers open at the bottom and contain air under pressure, used to carry out construction work.</td>
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<td>- Providing technical &amp; medical support to such operations</td>
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<td><strong>Hyperbaric Oxygen Therapy</strong></td>
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<tr>
<td>- The intermittent inhalation of 100% Oxygen under a pressure exceeding that of the atmosphere (1 Atmosphere is the normal room air pressure at sea level = 760 cm Hg)</td>
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<td>- Prime Area of focus</td>
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The intermittent inhalation of **100% Oxygen** under a pressure exceeding that of the atmosphere (1 Atmosphere is the normal room air pressure at sea level = 760 cm Hg)

*Committee on Hyperbaric Medicine (1976), Undersea & Hyperbaric Medical Society, USA*

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**Oxygen Intake**

**Oxygen Transportation**

**Oxygen Supply**

During normal breathing

During HBO Therapy

During HBO - the higher pressure forces Oxygen into plasma and the blood is now capable of carrying 10-20 times more oxygen to the tissues which is responsible for the beneficial effects of Hyperbaric Oxygen
• Our centre has grown steadily along sound evidence based and ethical guidelines

• The experience gained along with colleagues in the fields of plastic & general surgery, oncologists (medical, surgical and radiation), neurologists, neurosurgeons, ENT has now established the role of hyperbaric oxygen in tertiary care medical practice.

• The number of patients has been progressively growing confirming its professional and financial acceptability and viability.

• The number of publications, national and international presentations is an equally important part of the departmental activities
Referral sources

- **Benefits of Hyperbaric**
  - Heals Faster
  - Reduces Hospital Stay
  - Reduced Medical Expenses

- **Wounds**
  - Compromised skin grafts and flaps
  - Non-Healing
  - Traumatic
  - Infections
  - Burns

- **Primary Treatment**
  - Air or Gas embolism
  - Decompression sickness
  - Carbon monoxide poisoning and smoke inhalation

- **Oncology**
  - Radiation tissue damage
  - Osteoradionecrosis
  - Radiosensitiser
  - Prophylactically in irradiated tissues

- **Others**
  - Acute sensorineural hearing loss
  - Intracranial abscess
  - Bells palsy
  - Neurorehabilitation (CP, head injury, stroke etc.)

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**HBOT**
Pure O2 treatment for paraplegic patients

Healing Power Of HBOT

In recent years, hyperbaric oxygen therapy (HBOT) has been used to treat various medical conditions, including those associated with paraplegia. The therapy involves breathing pure oxygen under pressure to increase the amount of oxygen in the body, which can help to improve blood flow and nerve function.

How it works?

During HBOT, the patient is placed in a chamber where the pressure is increased to simulate the pressure at a shallow depth underwater. This allows for the oxygen to be more easily absorbed into the bloodstream, resulting in improved oxygenation of tissues.

Benefits of HBOT for paraplegia

The benefits of HBOT for paraplegia include improved wound healing, reduced pain, and improved muscle strength. The therapy has been shown to improve mobility and quality of life for many individuals with paraplegia.

“Hyperbaric oxygen treatment has proven effective in a number of different medical and surgical conditions, either as a primary or supplementary treatment,” said Dr. Smith, a noted orthopedic surgeon specializing in spinal cord injuries.

“By increasing the oxygen supply to the tissues, HBOT can promote healing and reduce pain,” he added. “It is a highly effective treatment for individuals with spinal cord injuries, providing significant benefits in terms of improved mobility and quality of life.”

Apart from paraplegic patients, HBOT has also been show to be beneficial for individuals with other neurological conditions, such as traumatic brain injury and stroke.

The Apollo Hospital in Delhi is one of the few centers in India that offers HBOT for paraplegic patients. The hospital has a team of experienced physicians and therapists who are dedicated to providing the best possible care to their patients.

“We are committed to providing the highest quality care to our patients,” said Dr. Patel, the head of the hospital’s neurology department. “Hyperbaric oxygen therapy is just one of the many treatments we offer to help improve the lives of individuals with paraplegia.”

For more information on HBOT and its benefits for paraplegic patients, please visit the Apollo Hospital’s website or contact them directly.
Presentations : India and overseas

Management of Problem Wounds with Hyperbaric Oxygen Therapy:
Experience in Tertiary Care Hospital

Hyperbaric Oxygen Therapy in Critical Limb Ischemia

AHDMA- 5th Annual Meeting

Challenges in the Practice of Hyperbaric Medicine, India:
Review of a Decade of Experience
# National/International Publications

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<tr>
<td>Use of Hyperbaric Oxygen Therapy in Traumatic Brain Injury: Retrospective analysis of data of 20 patients treated at a tertiary care centre.</td>
<td>2010</td>
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<td>Hyperbaric Oxygen Therapy - evidence based role in Diabetic Foot</td>
<td>2006</td>
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<tr>
<td>Hyperbaric Oxygen Therapy- Research Indications &amp; Emerging role in Neurological Illnesses</td>
<td>2005</td>
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<td>Role of Hyperbaric Oxygen Therapy in Oncology and Radiation induced tissue damage</td>
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<td>Recent Advances in Hyperbaric Oxygen Therapy</td>
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<td>Prevalence Of Gall Stone Disease And Its Relation To Hypercholesterolemia, Hypertension And Diabetes In Affluent North Indians: Population Based Study</td>
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<td>Hyperbaric Oxygen Therapy : Current Trends and Applications</td>
<td>2003</td>
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<td>Status of Hyperbaric Oxygen Therapy in Neurological illnesses-Review of International and Indian Experience</td>
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<td>Hyperbaric Oxygen Therapy - A modern therapeutic tool in quality patient care: Review Article</td>
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<td>Challenges in creating an indigenous Hyperbaric oxygen unit in a fee for service tertiary care hospital in northern India</td>
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<td>1996</td>
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<td>Renal Transplantation</td>
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<td>Hyperbaric oxygen therapy in Crush Syndrome</td>
<td>1994</td>
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<td>Gas Poisoning with Freon</td>
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<td>Antimicrosomal and antithyroglobulin antibodies in thyroid disorders</td>
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<td>Electrocardiographic Diagnosis- WPW Syndrome</td>
<td>1994</td>
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<td>Localized obstructive pulmonary emphysema during diving training</td>
<td>1994</td>
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<td>Hyperbaric Oxygen Therapy in Hospital Practice</td>
<td>1993</td>
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<td>Hyperbaric oxygen Therapy in acute cerebral edema</td>
<td>1993</td>
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<td>High altitude divers from 7000 to 14200 feet in the Himalayas</td>
<td>1991</td>
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<td>Localized obstructive pulmonary emphysema during diving training (Abstract)</td>
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Occupational Health

Diving Illnesses

Medical Exam and treatment of Commercial divers

Dr. Tarun Sahni: Recognized by ONGC for examination and treatment of offshore divers is a IMCA approved Level 1 & II A dive physician have examined more than 300 divers in the year 2010.

Compressed Air Works

Dr. Tarun Sahni and his team at The Hyperbaric Medicine Department, Indraprastha Apollo Hospital, New Delhi, trained doctors of the Delhi Metro project (underground local train) in 2002 on “Medical Aspects of hyperbaric tunneling operations & Caissons.”
Growth of our unit: At a glance

- For the past 10 years this center has enjoyed monopoly in this field and to retain an edge over its future competitors, it is important for us to continuously introduce new initiatives to retain the edge and attract additional segments.
- Like research, occupational courses and international presentations and interactions are being carried out regularly.
- Growth in non clinical areas from 20 to 40% by year 2011 has lead to international recognition for our unit and hospital.
Number of patients and the capacity utilization increasing showing the acceptability and viability of the treatment

Our centre became the first hyperbaric centre in India to be involved in Multicentric, international trial (HOLLT), conducted by Monash University (Australia).

Many research papers and publications have come out of the department during these years.

Our centre became a part of the diving medical training courses to be conducted in 2011 by KBAT associates, Singapore.
Hyperbaric Therapy - Issues

Inviting Referrals
- Patient referrals (external as well as internal) are not defined.
- *Referrals are delayed in many cases.*

Tariffs
- Cost is perceived as high.
- “Hyperbaric reduces over all patient cost”

Marketing
- The Hyperbaric Consultant is the only one who understands Hyperbaric Oxygen and will have to lead the marketing initiative

Our issues
- Inviting referrals
- Tariffs
- Marketing
Peek into the Future

**Patient Care**
- Database of the patients treated in department
- To maintain the international standards of treatment.

**Academic**
- Publication of case studies and articles
- More international conferences

**Research**
- Hyperbaric Educational & Research Services for research initiatives with national/international partners.
- Clinical and non clinical research projects

**Occupational health**
- Diving courses
- Fellowship in hyperbaric medicine
- Oxygen provider course
- Primary Trauma Care
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