

NEWSLETTER OF THE BOMBAY ORTHOPAEDIC SOCIETY

# CADENCE

NOVEMBER, 2024

10

Recent advances in  
arthroscopy and  
joint preservation:

**Is the latest really  
the greatest?**

18

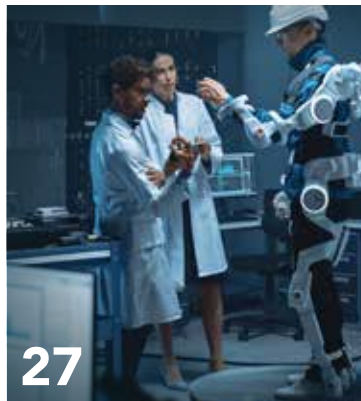
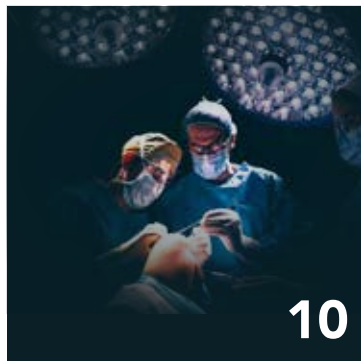
Foot & Ankle  
Orthopaedics

**PAST,  
PRESENT  
& FUTURE**



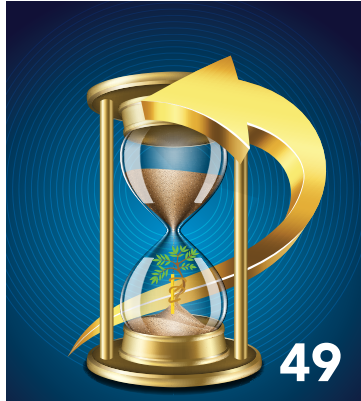
ISSUE 7 (VOL. 3)

T  
A  
B  
L  
E  
O  
F  
**CONTENTS**



Address from The President	04
Secretary's Address	05
Highlights from the Courses	07
Recent advances in arthroscopy & joint preservation: Dr. Sajeer Usman	10
Radiographic Parameters of adolescent & Young Adult: Dr. Avi Shah	13
Foot & Ankle Orthopaedics: Dr. Shyam Thakker	18
Complete osteolysis of 3 <sup>rd</sup> metacarpal without soft tissue involvement: Dr. Prashant Kamble	22
Creating a resilient Orthopaedic Training Ecosystem: Dr. Vaibhav Bagaria	27
Robots in the OR: A Brave new World for Surgeons or a Courtroom Drama waiting to happen?: Dr. Satvik Pai	31

T  
A  
B  
L  
E  
O  
F  
**CONTENTS**



Balancing Work & Passion: Dr. Ishani Chaudhari	<b>34</b>
First Brush with Yamraj & The Antidote: Dr. Sudhir Warriar	<b>37</b>
Total Solar Eclipse: Dr. Gautam Salunke	<b>42</b>
Imaging Corner - Case of the month: Dr. Malini Lawande	<b>44</b>
Lose Weight, Not Hope: Dr. Sidney Dsa	<b>45</b>
WIROC Invite & Update	<b>49</b>
Calendar of Events	<b>50</b>
BOS Protocols App/Become a member	<b>51</b>
Contribute to Cadence	<b>52</b>
BOS EC	<b>53</b>

Dear Colleagues,

I am pleased to announce the release of our newsletter after a significant hiatus. This reintroduction is an exciting step forward for our community, and I am optimistic about its potential.

As we approach our flagship annual event, the Western India Regional Orthopaedic Conference (WIROC), I know many of you are eagerly looking forward to it. This year, the conference will be held from December 20<sup>th</sup> to 22<sup>nd</sup>, 2024, at the JW Marriott Hotel in Sahar, Airport. If you have not yet registered, I encourage you to do so at your earliest convenience.

This event presents a wonderful opportunity to socialize, exchange ideas, and enhance our knowledge within the field while enjoying a vibrant atmosphere. I look forward to seeing you all there and engaging in fruitful discussions.

Warm regards,



## **DR. MOHAN DESAI**

Hon. President,  
Bombay Orthopaedic Society

**FROM THE DESK  
OF THE PRESIDENT**



## **Warm Greetings from the Office of the Secretary, Bombay Orthopaedic Society,**

It is with immense pride and humility that I accept the responsibility of keeping the mast of our society high, a society that has long been a beacon of orthopaedic excellence and innovation in training.

As we approach our 60th year of our commitment to orthopaedic academics, I am excited to announce the re-commencement of our newsletter, "**Cadence**," after a brief hiatus.

The year 2024 has been marked by a whirlwind of clinical activities, and the next six months promise even greater excitement. We began with a clinical meeting on the 7th of April, 2024, at TNMC & BYL Nair Hospital, chaired by **Dr. R. C. S. Khandelwal** and **Dr. Mohan Desai**. True to tradition, the Nair Hospital faculty presented a plethora of cases, including malunions, non-unions, challenging cases of cerebral palsy with crouch gait, infections, tuberculosis, and complex spinal issues. The highlight of the meeting was the enthusiastic participation of its distinguished faculty.

Our second clinical meeting, held at Jupiter Hospital, Thane, on the 2<sup>nd</sup> of June, 2024, showcased an entirely different spectrum of cases. In a corporate teaching environment, we explored complex joint reconstructions, bone loss management, traumatic paraparesis, and paediatric orthopaedics, among others. The meeting, convened by **Dr. Milind Patil**, was a Sunday morning session of 15-16 well-managed cases with valuable take-home messages.

The 4th of August saw our monsoon meeting at Sion Hospital, where the clinical discussions were as complex as the weather. **Dr. Arvind Goregaokar** led a very interactive session, where even our most senior colleagues encountered cases that required a cautious "primum non nocere" approach.

This year, **Dr. L. N. Vora Master Shares and Master Cares Series** is convened by our Vice President, **Dr. Samir Dalvie**, and promises to be thought-provoking for general orthopaedic surgeons. The first Master Series on **Musculoskeletal Tuberculosis**, co-convened by **Dr. Vikas Agashe** at P. D. Hinduja Hospital, was a resounding success. We were honoured by the presence of **Dr. Daksha Shah**, Chief Tuberculosis Officer, who provided insight into government initiatives to curb drug-resistant TB. The participation of experts from diverse orthopaedic subspecialties made the meeting both comprehensive and impactful.

The **Master Series on Lumbar Disc Disease** was held at Sir H. N. Hospital on the 7<sup>th</sup> of July, 2024, and convened by **Dr. Arjun Dhavale**. The case-based discussions and didactic lectures provided a ready reference for managing back pain and lumbar disc disease, resonating strongly with the attendees.

On September 1<sup>st</sup>, the **Master Series on Open Fracture Management** took place at R. N. Cooper Hospital, co-convened by **Dr. Harshad Argekar**. The discussions, involving both



plastic and orthopaedic surgeons, were lively and focused on soft tissue loss, bone regeneration, and antibiotic modalities. It was particularly beneficial for both senior surgeons and residents facing these challenges daily.

In addition to its flagship events, the BOS organized several affiliated and outreach programs that were well-attended and well-received. These programs included:

1. "MBOSCON, the Mira Bhayender Orthopaedic Conference on Upper Limb Trauma," held on June 9, 2024.
2. "Chondroid Neoplasms, from Confusion to Clarity", conducted by Dr. Ajay Puri and his team at Tata Memorial Hospital on June 30, 2024.
3. "Foot and Ankle Trauma," convened by Dr. Milind Surwade and conducted by the Mira Bhayender Orthopaedic Society at the BhaktiVedanta Hospital on August 11, 2024.

In keeping with the evolving needs of our members, we are making the recordings of these flagship events available on our **YouTube channel** for continued educational purposes. We encourage you to subscribe to stay updated.

While these events are eagerly anticipated, they must continue to evolve to remain relevant and engaging. I am pleased to acknowledge the support of **AOSYS** for our Clinical Meetings and **Torrent Pharma** for the Master Series. However, we have noticed a recent dip in participation and engagement.

Thus, I earnestly request all members to share their feedback, constructive criticism, and suggestions for improvement. You can reach out to me directly at **secretary@bombayorth.com**. Your input will help us refine these programs and continue to meet the high standards we have set together.

Warm Regards,



**DR. ASHISH PHADNIS**

Hon. Secretary,  
Bombay Orthopaedic Society



**FROM THE DESK  
OF SECRETARY**

## Highlights from the courses the last **6 Months**



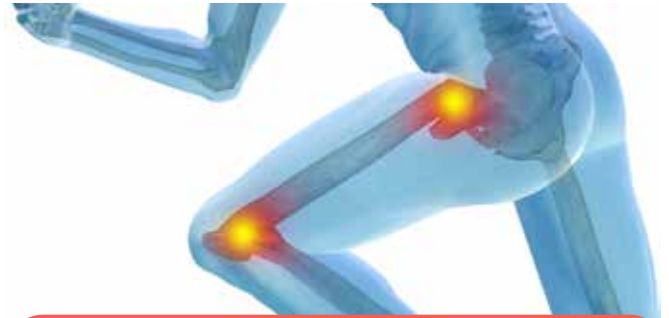
### Fellowship Course

**Date:** 21<sup>st</sup> July, 2024

**Total Delegates:** 33

**Conveners:** Dr. Nikhil Gokhale,  
Dr. Nandan Marathe, Dr. Ashish Phadnis

Highlights were, Academic Society, Country and sub specialty specific guidance on different fellowship and career opportunities, ways and academic pathways to apply were covered and imparted to the delegates. Dedicated sessions on getting published, tips on improving the cv and fellowship application, common mistakes and FAQs were answered in a panel-based discussion too.



### Basic Arthroscopy Course

**Dates:** 27<sup>th</sup> & 28<sup>th</sup> July, 2024

**Conveners:** Dr. Sandeep Biraris,  
Dr. Nilesh Vishwakarma, Dr. Rahul Kadam

**Total Delegates:** 26

**Highlights:** Dry scopy and cadaver workshops and surgeries along with an interactive didactic lectures and ample faculty delegate discussions



### Basic Spine Course

**Dates:** 17<sup>th</sup> & 18<sup>th</sup> August, 2024

**Conveners:** Dr. Sanjay Dhar, Dr. Agnivesh Tikoo,  
Dr. Rohan Gala

**Total Delegates:** 23

Basic lectures and hands-on cadaver dissection was the highlight for most of the participants.



### Basic Arthroplasty Course

**Dates:** 18<sup>th</sup> - 21<sup>st</sup> August, 2024

**Conveners:** Dr. Gaurav Kanade, Dr. Pramod Bhor  
and Dr. Ashish Phadnis

**Venue:** DY Patil Medical College, Apollo Hospital  
and Jupiter Hospital

**Total Delegates:** 42

Cadaver dissections for approaches and instrumentations of hip and knee arthroplasty, planning decision making cementing workshops, small group discussions and 6 Live surgeries of basic hip and knee arthroplasties.



## ADVANCED ARTHROPLASTY COURSE



## ADVANCED PAEDIATRIC ORTHOPAEDIC COURSE



## BASIC ARTHROPLASTY COURSE





## FELLOWSHIP COURSE



## HAND SURGERY COURSE





*Recent advances in*

# ARTHROSCOPY & JOINT preservation

*Is the latest really the greatest?*

Arthroscopic surgery and its application in joint preservation have gained popularity in recent years, with an increasing number of these procedures being performed. Technology has

also advanced, providing the latest equipment, implants and techniques for better outcomes. This article will explore these procedures and their relevance in current clinical practice.

## Better Instrumentation

The development of procedure-specific instrumentation, for example the flexible reamer system in ACL reconstruction allows the drilling of femoral sockets for grafting anterior cruciate ligament and is designed in a minimally invasive approach whereby the surgeon does not have to do significant intra-articular debridement in the creation of these sockets. This results in a minimally invasive approach and thereby a better outcome of surgery with preservation of intra-articular soft tissue which brings out better outcome.

A recent study concluded that flexible reamers:

- Negates the need for hyper-flexing the knee
- Minimal soft tissue debridement
- Avoid the creation of accessory portals for drilling femoral sockets in ACL reconstruction surgery

In addition, we have also seen the development of procedure-specific instrumentation, for example, an entire instrumentation set developed for procedures like torn distal biceps reattachment surgery, Ulnar collateral ligament reconstruction in the elbow, and triangular fibrocartilage complex repair surgery in the wrist which definitively makes the surgical steps and outcomes better.

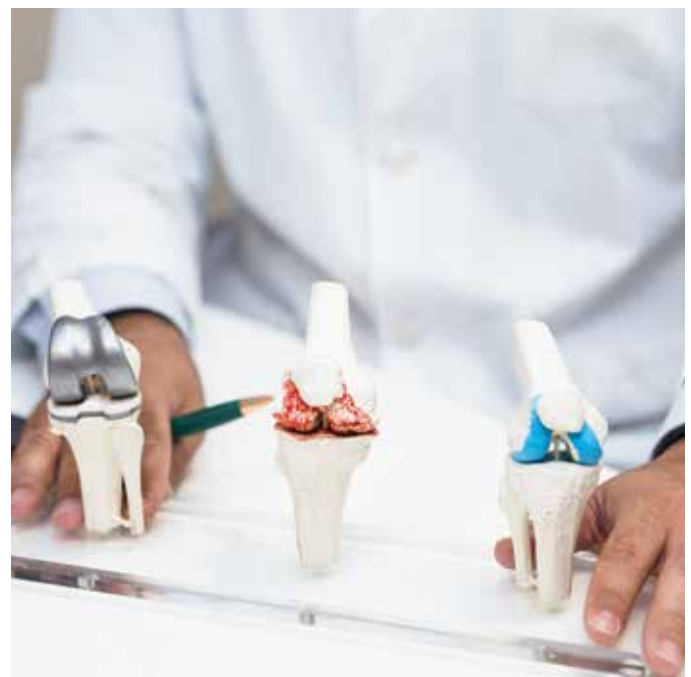
## Better Implants

A lot of research and development is ongoing in the race to develop better implants and we have seen several implants come and go but some have made a difference.

The flexible implants for repairing the meniscus allow bending the device to apply the implants in

areas where earlier the all-inside repair was not an option as in the repair of posterior horn small flap tears of lateral meniscus commonly associated with ACL injury or a perfect application in the inferior surface tears which needed an inferior curved implant earlier. So the single device with malleability allows flexibility in application in different scenarios.

At the same time, the development of anchors made of all suture material which bunch up to create a subchondral strut prevents the need for the application of larger-sized anchors or anchors made of metal, PEEK, or biomaterials that need a larger anchor footprint. However, pull-out strength and later subchondral cyst formations are concerns that surgeons need to think about in the application of these implants.



## Better Technology

The use of synthetic materials has hit the market in a big way with different methods of application being promoted. We started observing some reactions both intra and extra-articular in response to these synthetic tapes. The three types of presentation in the failure of intra-articular tapes we observed are



- The tape causes a bunched-up mechanical cyclops-like lesion anteriorly resulting in some vague discomfort, especially in full knee extension.
- Tape itself causes a reaction in which there is inflammation in and around the tapes in the tunnels as well.
- The tape causes stress shielding and gradually eroding the graft.



These are valid complications in our practice that are being compiled and analyzed. While these are being analysed we are seeing the resurgence of collagen patches with applicators and instrumentations with ease in application even in areas such as the subacromial space.

The long-term results of these patches need to be analyzed especially body response in vivo studies to apply these in our clinical practice.



## SYNOPSIS

The race to develop new techniques and technology is intense within the medical industry, especially in the field of surgery. Surgeons need to carefully consider and prioritize level 1 randomized controlled in vivo studies, as well as the clinical experience of senior large-volume surgeons when choosing which techniques and technologies to adopt into their practice. During a recent European arthroscopy meeting, Prof. Nick Van Dyk delivered a presentation with the opening question "Is the latest really the Greatest?" His conclusion emphasized the importance of surgeons reflecting on the potential impact of new technologies before incorporating them into patient care.



*Radiographic  
Parameters of*

# **ADOLESCENT & YOUNG ADULT**

**Hip Dysplasia**

*What to look  
out for on  
plain X-rays*

## **Introduction**

Our knowledge of the natural history of pre-arthritis hip conditions continues to evolve, with vast improvements in understanding the aetiology of premature hip failure occurring in

the past 20 years. There is now an established body of evidence that femoral-acetabular impingement (FAI) and hip dysplasia are the two main causes of early hip degeneration.<sup>1</sup>

Therefore, there has recently been a focus on preserving the hip joint in these patients before end-stage degeneration. Patients with frank hip dysplasia often require osseous realignment, with periacetabular osteotomy (PAO) being the current procedure of choice. However, patients with borderline hip dysplasia (BHD) present a challenging treatment decision. PAO is only performed by highly specialised hip preservation surgeons and is associated with potentially greater morbidity and a relatively high rate of complications (Figure 1). Although

there has been significant advancement in diagnostic imaging modalities the initial anteroposterior (AP) pelvic radiograph remains part of the gold standard for evaluation of hip pain.<sup>2</sup>

A comprehensive understanding of evaluating the AP pelvic radiograph can lead to earlier diagnosis, minimise unnecessary additional imaging, and guide the correct next steps in workup and management. This review aimed to detail various signs and measurements on AP pelvic radiographs to aid the diagnosis of Adolescent / Young Adult hip dysplasia.



Figure 1: 17-year-old female with severe hip dysplasia treated with Periacetabular osteotomy

## Lateral Center-Edge Angle

The LCEA (Figure 2) defines the superolateral acetabular coverage of the femoral head. The LCEA is an angle formed by lines originating at the centre of the femoral head, with one line extending superiorly and perpendicular to the transverse axis of the pelvis and the other line passing through to intersect the most superolateral point of the sclerotic weight-bearing zone of the acetabulum (Sourcil) as proposed by Ogata et al. An LCEA of  $<25^\circ$  is associated with inadequate femoral head coverage, whereas an LCEA of  $>40^\circ$  indicates over-coverage and pincer-type FAI.

the AP pelvic radiograph can lead to earlier diagnosis, minimise unnecessary additional imaging, and guide the correct next steps in workup & management. This review aimed to detail various signs and measurements on AP pelvic radiographs to aid the diagnosis of Adolescent / Young Adult hip dysplasia.



Figure 2: Lateral Center-Edge angle

A comprehensive understanding of evaluating

## Tönnis Angle

Also referred to as the Sourcil angle, is the most commonly used measurement for the classification of acetabular inclination. The angle is measured by drawing a horizontal line, parallel to the transverse pelvic axis, at the medial-most edge of the sclerotic Sourcil and then making a second line extending out from the medial edge to the lateral most aspect of the Sourcil. A normal Tönnis angle is between  $0^\circ$  and  $10^\circ$ . An angle of  $>10^\circ$  denotes structural instability and hip dysplasia, whereas an angle of  $<0^\circ$  places the hip at increased risk for pincer-type FAI.

## Sourcil Morphology

A normal Sourcil has a concave shape that mirrors and is congruent with the femoral head. The Sourcil may have a flattened and incongruous shape in Dysplasia, creating laterally directed shear forces within the hip joint.



Figure 3: Upsloping lateral Sourcil. Insert Normal (down-sloping) Sourcil for comparison.

## Roof Length

Klaue et al. characterised some dysplastic acetabulum as having a “short flat roof,” in that the acetabular weight-bearing zone is short, yet remains congruent with the femoral head with low volume of acetabulum. While many instances have an up-sloping roof with a Sourcil angle of  $>10^\circ$ , it may present with a normal Sourcil angle.

## Acetabular Version

The acetabular version is associated with hip pathology, with anteversion strongly correlated with developmental dysplasia and retroversion traditionally correlated with pincer-type FAI.

The acetabular Version indicates the relationship between the anterior and posterior walls.

The central or equatorial acetabular version refers to the transverse orientation of the acetabular opening in the AP direction in relation to the horizontal axis of the pelvis, measured at the centre of the femoral head. The normal version has been determined to lie within  $13^\circ$  to  $20^\circ$  anteriorly. Pelvic tilt significantly impacts the acetabular version on radiographic imaging. Increased (positive) pelvic tilt will reduce the acetabular version, and decreased (negative) pelvic tilt may falsely elevate acetabular anteversion.

## Shenton Line

Defined as an unbroken arch, formed by the top of the obturator foramen and the inner side of the femoral neck. The Shenton line is determined to be broken if the inferior femoral neck projection is cephalad to the superior arch of the obturator foramen. A break in the Shenton line is indicative of more severe forms of acetabular dysplasia with a superolateral hip centre, whereas a continuous line does not exclude an unstable hip.

## Iliofemoral Line

The Iliofemoral Line (IFL) is defined as the smooth line extending from the apex of the concavity of the lateral femoral neck through the inner cortical lip of the ilium on an AP pelvic radiograph.<sup>3</sup> Percent medialization of the iliofemoral line is defined as the horizontal distance of the exposed femoral head lateral to the IFL relative to the horizontal femoral head width at the centre of the femoral head. Values exceeding 22% are representative of frank acetabular dysplasia, whereas values between 15% and 22% are consistent with borderline dysplasia.<sup>3</sup>

## Femoral Head Extrusion Index

FHEI measures the percentage of the femoral head not covered by the acetabulum. This percentage is calculated by measuring the width of the femoral head that lies lateral to the lateral extent of the acetabulum (A), dividing it by the total horizontal width of the covered femoral head (B), and multiplying it by 100 ( $[A/B] \times 100$ ). A normal hip has an extrusion index of <25%. Similar to this measurement is "femoral head coverage", which represents the distance between the medial cortex of the femoral head and the lateral acetabular rim, divided by the diameter of the femoral head. In this calculation, a value of <75% is pathologic and indicates under-coverage or potential dysplasia.

## Cliff Sign

To assess the presence of the cliff sign, a perfect circle is created around the femoral head on an AP pelvic radiograph.<sup>4</sup> If the lateral femoral head does not fill the perfect circle, the cliff sign is considered present, indicating the micro-instability of the hip joint.<sup>4</sup>



Figure 4: Positive cliff sign

## FEAR Index

The femoral-epiphyseal acetabular roof (FEAR) index is measured by drawing a straight line along the central portion of the femoral head physal scar.<sup>5</sup> A second line is drawn from the most medial to lateral portions of the sclerosis of the Sourcil. A laterally directed angle indicates a positive result. A FEAR index of <50 represents a stable hip in patients with borderline dysplasia.



Figure 5: FEAR index





## SUMMARY

Despite the rapid growth and advancement within the field of hip preservation, the AP pelvic radiograph remains the first image that should be obtained for evaluating hip pain. As we continue to improve our understanding in this area, more information about the aetiology of symptoms can be gleaned from this image alone, making it an instrumental first stage in diagnosis.



## REFERENCES

1. Kraeutler MJ, Safran MR, Scillia AJ, Ayeni OR, Garabekyan T, Mei-Dan O. A contemporary look at the evaluation and treatment of adult borderline and frank hip dysplasia. *Am J Sports Med.* 2020;48(9):2314-23.
2. Welton KL, Jesse MK, Kraeutler MJ, Garabekyan T, Mei-Dan O. The anteroposterior pelvic radiograph: Acetabular and femoral measurements and relation to hip pathologies. *J Bone Joint Surg Am.*2018;100(1):76-85.
3. Kraeutler MJ, Ashwell ZR, Garabekyan T, et al. The iliofemoral line: A radiographic sign of acetabular dysplasia in the adult hip. *Am J Sports Med.* 2017;45(11):2493-500.
4. Packer JD, Cowan JB, Rebolledo BJ, et al. The cliff sign: A new radiographic sign of hip instability. *Orthop J Sports Med.* 2018;6(11):2325967118807176.
5. Wyatt M, Weidner J, Pflugger D, Beck M. The femoral-epiphyseal acetabular roof (FEAR) index: A new measurement associated with instability in borderline hip dysplasia? *Clin Orthop Relat Res.*2017;475(3):861-9.



# FOOT ANKLE Orthopaedics

**PAST,  
PRESENT  
& FUTURE**



It is noteworthy to acknowledge that the Foot and Ankle region historically received limited attention within the field of orthopaedics. During our residency program, the educational focus primarily emphasized trauma-related conditions, leaving a substantial knowledge gap in other areas of foot and ankle pathology. In contrast, in

the Western world, there is a distinct medical residency program known as Doctor of Osteopathy (D.O.) and Doctor of Podiatric Medicine (D.P.M.), which are recognized as podiatrists. This raises the question of whether foot and ankle surgery should be considered a subspecialty within the realm of orthopaedics.

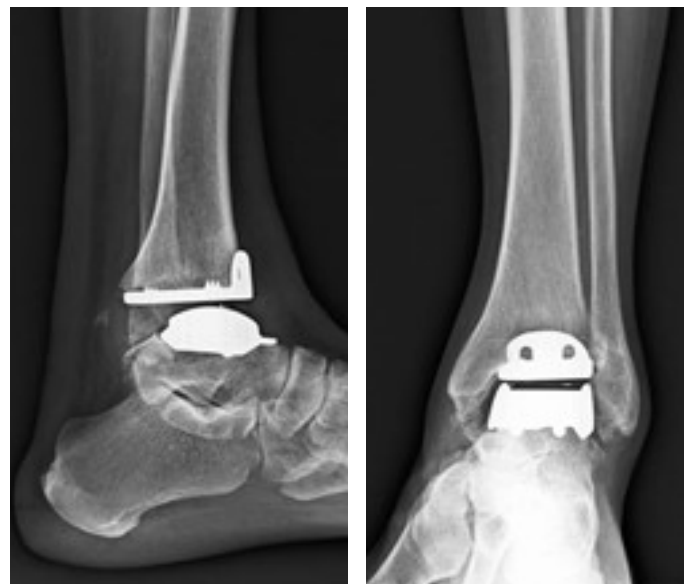
As orthopaedic surgeons, we excel in managing a wide range of fractures. However, our knowledge has limitations, and it is challenging to remain updated across all subspecialties simultaneously. While Arthroplasty, Arthroscopy, Spine, Paediatric, and Hand have been recognized as distinct specialties, it is time to acknowledge Foot & Ankle as a subspecialty as well.

Numerous conditions require specialized attention within Foot & Ankle, including Ankle arthritis, Flat foot, chronic instability, Charcot foot, and toe deformities.



## SUMMARY

Ankle arthritis is a prevalent issue, and ankle arthrodesis, or ankle fusion, was once the only definitive surgical treatment for primary osteoarthritis, inflammatory arthritis, or post-traumatic arthritis of the ankle joint. While ankle fusion effectively relieves pain and leads to high functional outcomes, it results in loss of motion at the tibiotalar joint and increased stress on adjacent joints, leading to arthritic changes over time. Therefore, the question arises whether there is an alternative option besides fusion.



Total Ankle Replacement (TAR) which is a commonly performed procedure outside India for more than 3 decades is now available in our country. The current TAR implant design available in the market is H3 TAR which is 3<sup>rd</sup> gen Hintermann, mobile bearing uncemented implant coated with titanium plasma and hydroxyapatite (HaP). The survival rate was 93% (95% confidence interval [CI], 91% to 95%) at 5 years, 86% (95% CI, 83% to 88%) at 10 years, and 82% (95% CI, 78% to 85%) at 15 years. TAR is indicated in all types of arthritis (Primary, post-traumatic and inflammatory). There are many areas of TAR that are still being researched and developed to improve outcomes.

## Chronic Ankle Instability

It is one of the commonest causes of ankle pain in the younger age groups. Frequent ankle sprains can lead to chronic injury to the lateral ligaments (ATFL & CFL), which further leads to instability. Sometimes, it is over diagnosed on MRI as a partial or a high-grade tear in the ATFL. However, clinical examination is the key to diagnose instability and decide surgical management.

Traditionally, open Brostrom - Gould procedure was the gold standard procedure for lateral ankle instability. Recently, the trend is gradually shifting towards minimally invasive techniques and Arthroscopic Brostrom has picked up the pace. ArthroBrostrom is one of the most rewarding surgeries for lateral ankle instability which gives excellent outcomes. If diagnosed early, future risk of arthritis can be prevented.



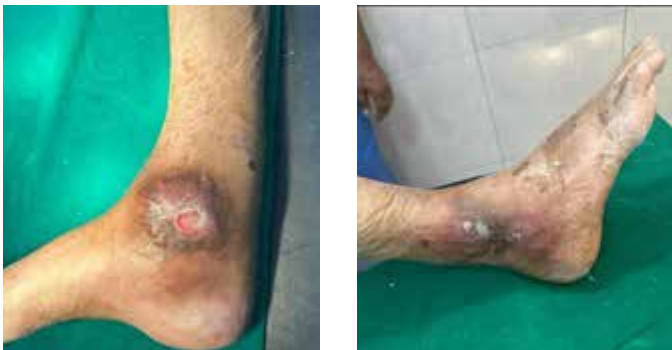
## Charcot Arthropathy

With the rising population of Diabetes, the number of Diabetic Charcot feet are also increasing. It all starts with a small ulcer and if not treated well can land up into full blown cellulitis ultimately leading to amputation. In the initial stages, Diabetic non healing ulcer is managed by general surgeons and many medical practitioners. It becomes difficult once the osteomyelitis sets in. Charcot foot management is one of the most challenging surgeries in Foot & Ankle. It needs a Multi-Disciplinary approach with a team of Physicians, Endocrinologists, Vascular surgeon, Dietician and Orthopaedic Surgeon.

Abnormal plantar pressure is the most important factor causing ulceration. Aim to treat a charcot foot is to achieve stable and plantigrade foot. Super construction is the key principle in Charcot foot reconstruction.

Quite often, an elderly diabetic patient presents as a bimalleolar or trimalleolar fracture of ankle after a trivial fall and is walking around with the fracture with some pain and absent sensation in the foot. As orthopaedic surgeons we can make a mistake in treating such injuries as a routine fracture as it seems quite obvious. But sometimes it can cause devastating complications. Be careful in treating such cases. Here is a small example:

68/M, diabetic, not well controlled DM, presented with an infected non healing ulcer.



## WOUND AT PRESENTATION



## INDEX SURGERY



## 1<sup>ST</sup> & 2<sup>ND</sup> STAGE SURGERY



## POST OP STATUS





Complete osteolysis of  
**3<sup>RD</sup> METACARPAL**  
WITHOUT SOFT  
TISSUE INVOLVEMENT

*Fracture of 4<sup>th</sup>  
metacarpal  
with thinning* &

*resorption of bone,  
with patchy osteolysis  
in capitate*



## Introduction

Vanishing bone disease is rare phenomenon of idiopathic origin that leads to extensive osteolysis of bone. Prognosis of disease is unpredictable and definitive guidelines for management still unknown. At cellular level disease is thought to occur because of increased proliferation of blood vessels and increased activity of osteoclast causing resorption of bone. We report case of vanishing bone disease affecting metacarpals in 22-year young male patient managed with non vascularized fibula graft with 3 years follow-up with no recurrence of disease.

## Case report

Patient is 22-year male right hand dominance presented in out-patient department with complaints of shortening & inability to extend middle finger of left hand. On examination there was extension lag at middle finger, poor grip strength, height of middle ray is reduced. Patient had history of trauma to left hand one-year back for which he was treated conservatively. On investigation blood parameters were normal, x-ray shows pathological fracture of third metacarpal with Osteolytic lesion involving base of second metacarpal & carpal bones (Fig-1). Serial x-ray revealed there was progressive concentric reduction of metacarpal shaft first involving third than fourth giving appearance of sucked candy (Fig-2). On MRI there was no soft tissue involvement. Biopsy suggested myxoid areas, proliferating vessels interposed with skeletal muscle fragments. Based on clinical-radiological and Histopathological Presentation We made a diagnosis of vanishing bone disease. Since there was increased proliferation of blood vessels we planned to reconstruct vanished metacarpal with non vascularized fibula. We used dorsal S-shaped incision starting metacarpal head to radio-carpal joints. Intra-operatively we found



there was thin shell of cartilage from third metacarpal head long with collateral & intercarpal ligament were intact. We fixed Fibula with transverse k-wires to adjacent metacarpal (Fig-3). Intra-operatively Osteolytic lesion involving carpal bones were cured and bone graft substitute was used to fill cavity and some graft was put along side of fibula. Post operatively hand and wrist immobilized with plaster slab in functional position. K-wires were removed at end of 8 weeks and gradual physiotherapy started to improve hand function. At the end of two-year graft completely incorporated and patient gained full functional recovery (Fig-4a, b). Vanishing bone disease affecting metacarpal are rare and can be treated with non vascularized fibula.



## Discussion

Vanishing bone disease is rare phenomenon of unknown origin that leads to extensive osteolysis of bone. Vanishing bone disease is otherwise known as Gorham's disease or idiopathic osteolysis of uncertain etiology. The first description of vanishing bone disease was given by Jackson in 1838 in humerus.<sup>1</sup> In 1955, Gorham and stout played a key role in publishing massive osteolysis in disease with hemangiomas.<sup>2</sup>

Vanishing bone disease is very rare with no age, gender or race predilection.<sup>3</sup>

There are several theories proposed for etiology of vanishing bone disease. At the cellular level disease is thought to occur because of increased osteoclastic activity along with proliferating endothelial lined lymphatic vessels.<sup>4</sup>

The clinical features can be gradual onset of pain, functional disability and deformity of affected part secondary to pathological fractures. There are few cases reported which suggest disease may occur without any symptom. Vanishing bone disease can affect one or multiple bones with having both spontaneously resolving behavior or progressively worsening nature. Few cases are reported in literature disease affecting upper extremities, maxillofacial region some involving pelvis, cervical spine.<sup>5</sup> The radiographic signs are Osteolytic lesion that mimics localized osteoporosis which often progress to concentric complete bone resorption producing sucked candy appearance. Some fatal complications like extensive lymphangiectasia in pleura or thoracic duct has been reported when disease affecting ribs and thoracic cage.<sup>6</sup> Diagnosis of vanishing bone disease should be made after excluding other mimicking condition like metabolic bone disease (osteolysis secondary to hyperparathyroidism), inflammatory arthritis, osteomyelitis.<sup>7</sup> Heffez et al<sup>8</sup> in 1983 come up

with some diagnostic criteria for Gorham-Stout syndrome. Treatment of vanishing bone disease is difficult as there is paucity of literature & no specific guidelines are recommended. Some case reports suggest use of bisphosphonate (Zoledronic acid infusion),<sup>9</sup> radiotherapy.<sup>10</sup> In our case we have given intravenous zoledronic acid infusion along with calcium with vitamin D Supplements Recently literature showed the use of interferons (alpha-2 beta) and anti PGDF monoclonal antibodies. Surgical resection of the lesion and reconstruction by bone graft or prosthesis can be done. Prognosis is unpredictable.

To conclude, etio-pathogenesis of vanishing bone disease not fully understood, further research is needed for treatment guidelines. Vanishing bone disease affecting the metacarpal is very rarely reported in the literature and can be treated with non-vascularized fibular graft along with medical line of management.





## References

1. Aizawa T, Sato T, et al. Gorham disease of the spine: a case report and treatment strategies for this enigmatic bone disease. *Tohoku J Exp Med* 2005; 205:187-196.
2. Gorham LW, Stout AP. Massive osteolysis (acute spontaneous absorption of bone, phantom bone, disappearing bone); its relation to hemangiomas. *J Bone Joint Surg Am*. 1955;37-A:985-1004.
3. Deveci M, Inan N, et al. Gorham-stout syndrome with chylothorax in a six-year-old boy. *Indian J Pediatr*. 2011; 78:737-39.
4. Möller G, Priemel et al. The Gorham-Stout syndrome (Gorham's massive osteolysis). A report of six cases with Histopathological findings. *J Bone Joint Surg Br*. 1999; 81:501-6
5. Kiran DN, Anupama A. Vanishing bone disease: A review. Vol. 69. *Journal of oral and maxillofacial surgery: official journal of the American Association of Oral and Maxillofacial Surgeons*; 2011. 199-203
6. Patel DV. Gorham's disease or massive osteolysis. *Clin Med Res*. 2005; 3:65-74.
7. Moller G, Priemel M., et al. The Gorham-Stout syndrome (Gorham's massive osteolysis). *J Bone Joint Surg* 1998; 2013:501-6.
8. Heffez L, Doku HC, Carter BL, Feeney JE. Perspectives on massive osteolysis. Report of a case and review of the literature. *Oral Surg Oral Med Oral Pathol*. 1983; 55:331-43.
9. Hammer F, Kenn W, et al. Gorham-stout disease-stabilization during bisphosphonate treatment. *J Bone Miner Res*. 2005; 20:350-353.
10. Dunbar SF, Rosenberg A, Mankin H, Rosenthal D, Suit HD. Gorham's massive osteolysis: the role of radiation therapy and a review of the literature. *Int. J Radiat Oncol Biol Phys* 1993; 26:491-497







DR. VAIBHAV BAGARIA

Follow Us On



*Creating a resilient*  
**ORTHOPAEDIC  
TRAINING  
ECOSYSTEM**

*in the age of*

**AI &  
Robotics**



The field of orthopedics is undergoing a profound transformation, spurred by technological advancements that were once the subject of science fiction. AI and robotics, which are making significant strides in diagnostic precision, surgical accuracy, and post-operative rehabilitation, are now central to the practice of orthopedic medicine. While these innovations

promise to enhance patient outcomes and streamline healthcare delivery, they pose unique challenges to the way orthopedic surgeons are trained. The question before us is how to develop a resilient training ecosystem that equips orthopedic professionals with the skills required to navigate a future where technology plays an increasingly dominant role.

## The Shifting Paradigm of Orthopedic Training

Traditional orthopedic training programs have long been grounded in a model that emphasizes hands-on surgical experience, mentorship, and gradual progression from simpler procedures to more complex ones. However, the rise of AI-powered diagnostics and robotic-assisted surgeries is altering the very fabric of orthopedic care. With AI capable of analyzing medical imaging with unprecedented accuracy, and robotics assisting in surgeries with millimeter precision, it is clear that the skill set of the modern orthopedic surgeon must expand beyond clinical and surgical expertise.



The integration of these technologies presents a dual challenge: first, there is a need to ensure that trainees develop a deep understanding of the fundamentals of orthopedic surgery; second, they must also be proficient in leveraging AI and robotics to augment their practice. This paradigm shift means orthopedic training programs must evolve to not only embrace these technologies but also address the accompanying challenges of accessibility, adaptability, and ethics.

## Key Challenges in the Modern Orthopedic Training Ecosystem

### Technological Competence and Adaptability

The rapid pace of AI and robotics development poses a significant challenge for orthopedic training programs. Today's trainees must not only master the traditional surgical techniques but also become proficient in using AI for diagnosis and preoperative planning, and in handling robotic systems during surgery. This demands a steep learning curve, particularly for residents and practicing surgeons accustomed to conventional methods. Moreover, the learning process involves staying updated on ever-evolving software and hardware, which can overwhelm trainees and instructors alike.

### Cost and Accessibility

Integrating AI and robotics into orthopedic practice has significant financial implications. Robotics-assisted surgery platforms, AI diagnostic tools, and associated training modules are costly, making them inaccessible to many training institutions, especially in resource-constrained settings. This exacerbates the disparity between training programs in developed and developing regions, potentially widening the global skills gap in orthopedic care. Smaller hospitals and rural institutions may struggle to afford the latest tools, leading to unequal training opportunities for orthopedic residents.





### Human-Centric Care in the Age of Machines

While AI and robotics can enhance efficiency and precision, they also raise concerns about the potential erosion of the human aspect of orthopedic care. The patient-doctor relationship, which is built on trust, communication, and empathy, may become strained as technology takes center stage. Orthopedic training programs must ensure that while future surgeons become adept at using AI and robotics, they do not lose sight of the critical soft skills needed to care for patients holistically.

### Ethical and Legal Implications

Using AI in decision-making and robotics in surgery introduces ethical and legal concerns. Who is responsible if an AI system misinterprets a diagnostic image, leading to an incorrect diagnosis? How do we address situations where a robot-assisted surgery encounters unforeseen complications? Training programs must ensure that surgeons are not only technically proficient but also equipped to handle the ethical and legal nuances that accompany the increasing use of technology in orthopedic care.

## Building a Resilient Orthopedic Training Ecosystem

To meet these challenges head-on, it is imperative that we reimagine the orthopedic training ecosystem, infusing it with flexibility, accessibility, and a forward-looking approach. Here are key strategies to foster resilience in orthopedic training:

### Curriculum Redesign for Hybrid Skills Development

The curriculum for orthopedic training must evolve to reflect the demands of modern practice. This involves integrating courses on AI, data analytics, and robotics into the existing framework. The inclusion of dedicated modules on the use of robotic surgical systems, AI-powered diagnostics, and automated rehabilitation tools will ensure that trainees are exposed to these technologies early in their careers. Training should emphasize not only how to use these tools but also how to interpret their outputs critically and apply them in clinical decision-making.

Simulation-based learning platforms, such as virtual reality (VR) and augmented reality (AR), can play a crucial role in this redesigned curriculum. These tools allow trainees to practice using AI and robotic systems in a risk-free environment, enabling them to develop confidence and proficiency before they perform procedures on live patients.

### Collaborative Training Models

The rapid pace of technological change requires continuous education for both residents and practicing orthopedic surgeons. A collaborative model that brings together hospitals, universities, tech companies, and professional societies can help create an environment of continuous learning. Workshops, webinars, and hands-on training programs hosted in partnership with technology companies developing AI and robotics can bridge the gap between theory and practice.

Mentorship remains critical in this model. While AI may assist in diagnosis or treatment planning, the value of an experienced mentor guiding a trainee through the nuances of patient care cannot be replaced. Orthopedic programs



should pair trainees with mentors who have embraced technology and can guide them in blending traditional and tech-driven methods effectively.

### **Making Technology Accessible**

For orthopedic training to be inclusive, access to AI and robotics must be democratized. Governments, private stakeholders, and institutions need to collaborate to reduce the cost of acquiring and maintaining these technologies in training centers. Creating open-source AI models or affordable versions of robotic surgery systems can be a step toward making technology accessible to a wider audience.

Training centers that cannot afford high-end robotic systems can still benefit from virtual simulations and AI-based tools for diagnostics. Incorporating low-cost alternatives and providing access to centralized training hubs with advanced systems can help level the playing field.

### **Strengthening the Human Element**

A resilient orthopedic training ecosystem should also prioritize the human aspects of medicine. Trainees must be encouraged to cultivate empathy, communication, and ethical decision-making alongside their technological prowess. Role-playing exercises, patient interaction modules, and ethics discussions should be embedded in the curriculum.

AI and robotics should be positioned as complementary tools in the hands of surgeons, not replacements for the surgeon's judgment, skill, and empathy. Training programs should emphasize the importance of maintaining a patient-centered approach, ensuring that technology enhances rather than diminishes the quality of care.

### **Ethical Training and Legal Preparedness**

The legal and ethical aspects of AI and robotics must be incorporated into orthopedic training. Programs should include discussions on accountability, patient safety, and the surgeon's role in supervising AI-driven processes. Surgeons must be taught to navigate the complexities of liability, informed consent, and ethical dilemmas that arise from the use of emerging technologies in patient care.

## **CONCLUSION**

Creating a resilient orthopedic training ecosystem in the age of AI and robotics demands a thoughtful balance between embracing technological advancements and preserving the humanistic core of medicine. By rethinking curricula, fostering collaboration, ensuring accessibility, and embedding ethical and human-centric values into training, we can equip the next generation of orthopedic surgeons with the skills and mindset they need to thrive in an increasingly technology-driven world. The future of orthopedics lies in the hands of those who can blend the best of both worlds human expertise and technological innovation to improve patient outcomes and reshape the field for the betterment of humanity!



**Robots in the OR:**  
**A BRAVE NEW**  
**WORLD FOR**  
**SURGEONS** *or a*  
**COURTROOM**  
**DRAMA**  
*waiting to happen?*

As robotic total knee replacements emerge as the latest advancement in our operating rooms, we, orthopaedic surgeons, stand at a critical juncture. While the potential of robots in the OR is undeniably exciting, promising unparalleled precision, accelerated recovery, and, ideally, enhanced patient satisfaction, it is imperative to address the Pandora's box of medicolegal

complexities associated with this technology. The allure of cutting-edge technology is undeniable, evoking the allure of Tony Stark in the operating room. However, it is crucial to acknowledge that robotic surgery is not without its challenges. Beneath the veneer of high-tech wizardry lie potential pitfalls that, if overlooked, could swiftly lead to courtroom confrontations.



## Training & Credentialing: A must for Robotic Surgery

Many surgeons may think that their years of experience are enough to operate a robotic surgical system. However, the reality is that robotic surgery requires specialized training and certification beyond traditional surgical skills. Mastering techniques like arthroplasty does not automatically translate to proficiency in robotic surgery.

The lack of standardized training programs in India poses a significant challenge. Surgeons often learn on the job, which can be risky in the event of complications. If proper credentials are not obtained or the hospital cannot verify a surgeon's qualifications, they could face legal consequences.

Robotic surgery was designed to minimize human error, but the surgeon's expertise remains crucial. There's no autopilot feature; surgeons must maintain control throughout the procedure. As such, proper training is essential.

Unfortunately, many surgeons find themselves in "credentialing limbo," where there's no standardized system or structured curriculum. This leaves them vulnerable if a patient chooses to file a lawsuit. It's akin to driving without a license - you may know how to operate a vehicle, but without proof of your qualifications, you're at a disadvantage.



So, while robotic surgery offers tremendous potential, surgeons must prioritize training and credentialing to ensure patient safety, protect themselves legally, and stay ahead in this rapidly evolving field.

## Next, there's Informed Consent

That little piece of paper that can either save you or sink you. You've probably seen it yourself: a patient's eyes light up when you mention robotic surgery. "A robot's going to operate on me? Cool!" they say. But here's the kicker: most patients think a robotic surgery simply means that the surgeon doesn't need to be in the room. They imagine some fully autonomous machine doing all the work. Newsflash – it doesn't work that way. We have to explain this upfront, or else we're in for a nasty surprise when they sue us later claiming they weren't told the robot might malfunction.

It's not just about informing patients that a robot is involved. We've also got to break down the pros and cons, the risks, and alternative options. Want to go the extra mile? Some experts say we should even be telling patients how much experience we've got with the robot.

When discussing robotic surgery with patients, obtaining their informed consent is crucial. Patients often have misconceptions, believing that a robot will autonomously perform the procedure without the surgeon's presence. This misunderstanding can lead to unpleasant surprises and potential lawsuits down the road if the patient experiences complications due to a malfunctioning robot.

It's imperative to provide patients with accurate information about robotic surgery, including the involvement of a surgeon, the potential benefits, risks, and alternative options. Going the extra mile by disclosing the surgeon's experience with



robotic surgery can help manage patient expectations and promote informed decision-making.

## Now, let's dive into the - legal liability

The blame game. When something goes wrong, who's responsible? The surgeon? The hospital? The robot's manufacturer? The answer is a complicated web of finger-pointing. The courts still see robots as tools, not the mastermind behind the surgery. That means if a surgery goes wrong, the surgeon is still on the hook. The robot might've miscalculated, but you're expected to be the safety net. So, if you think the robot's going to take the fall for you – think again.

In the context of legal accountability, the question of responsibility arises in surgical procedures involving robots when complications occur. Traditionally, courts view robots as mere tools, lacking the capacity for independent decision-making. As a result, the primary responsibility for the outcome of a surgery rests with the surgeon. Despite the possibility of errors or miscalculations by the robot, the surgeon remains legally liable for ensuring patient safety. It is crucial to understand that robots do not carry legal liability, contrary to some misconceptions.

It becomes more complex when we start thinking about the future. Robots are getting smarter. AI is becoming part of the equation, and soon, we might be talking about robots that can make decisions in the OR. But here's the rub – as robots gain autonomy, legal responsibility becomes murkier. What happens when a robot calls the shots, and something goes sideways? Will the courts see the robot as a colleague or just another device? We don't know yet, and that's a scary thought.



The truth is, we're venturing into uncharted territory. The mix of robotics, AI, and surgery is exciting, but it's also a medicolegal minefield. Sure, technology will improve, but will laws keep pace? Don't hold your breath. For now, we've got to keep one eye on the robot and the other on the legal ramifications. So, my fellow surgeons, as you prepare for your next robotic TKR, just remember: you're not just battling osteoarthritis – you're navigating a new world of robots, laws, and liability. Welcome to the future. Now, who's ready for a total knee with a side of legal paperwork?



DR. ISHANI CHAUDHARI

Follow Us On



Right from my school days, I've been a bit of an outstanding student - standing out of the class mostly, more interested in the dance and dramatics rehearsals happening on the stage rather than meticulously taking notes and being the student of the year.

Never imagined I'd be taking a moment to write

about something so seemingly unimportant during the process of being a doctor / surgeon. Something so frivolous that I stuck to, was never really supported for and was rather called out for doing because ...what is the use of doing this!

And yet it has been one of the best things I've done in life.

Nurturing a hobby!

It is almost like an unspoken rule - one is not appreciated or applauded enough during school, college or even later during PG / Post PG years for doing an activity that doesn't win you a prize at a competition or break a record or earn money through doing that activity.

Everyone is talking and discussing fellowship programs and hard skills for new resident doctors and post-PG fellows in orthopaedics - which is the best place to go, who is the best mentor, where does one get the most cutting / exposure / training etc. Ofcourse, these are helpful and useful conversations.

It is no secret that matching up to and following all the rules and rigors of residency / fellowship programs is appreciated if not celebrated and applauded with awards.

What I'd like to start is a conversation no one is having - developing a soft skill/ side of training. Having a hobby and cultivating it.

Personally, I've dabbled in quite a few of those since childhood - whether it was playing drums or sport or two - badminton and tennis at a competitive level to turning towards surfing for the pure joy of it.

I used to dance and perform on stage with other dance lovers in GS medical college and was seen exploring Mumbai on pedals and wheels with friends from GSMC and KEMH.

Frankly, I always fondly remember those days where I was engaging in an enjoyable activity along with colleagues and friends, rather than cramming as much as possible in classrooms and libraries all year round. But I dropped all hobbies as soon as I entered residency, thinking I was too old to now pursue something just for fun. At the end of my residency, my mentor nicely tried to tell me that I came across as too serious and too much about work. Frankly, this was something new and I didn't know how to process this feedback.

Fortunately, that way of living - all work and no play - did not last too long. I got introduced to a better way of looking and going about life and continued surgical training.

First of all, I noticed most of the experts and stalwarts in orthopaedics have a beautiful soft side to them where they're either something completely different - photography, painting, calligraphy, cycling, trekking, sports, dancing, reading etc.

As much as I draw a lot of inspiration from our senior colleagues' work ethics, their balanced outlook on life is something that I got to see and stuck it with me. And ever since I decided to get back to my hobbies - I picked the easiest one I could stick to , right from the comfort of my home - dancing.



Rather than taking away from being a decent doctor/ surgeon I noticed the simple act of pursuing a hobby outside of work, added to it.

We all speak about triangulation skills and training for arthroscopy. I trained online in dancing for the last 3.5 yrs and noticed that, that helped with my hand-eye coordination and using all four limbs in coordination. Coupled with consistent strength training, I noticed my reflexes in the OR get better over time.

The other wonderful aspect about cultivating a hobby - a chance to meet new people who like the same activity. This added a variety to my social circles, rather than constantly being in hospital environments and doctor colleagues. Interestingly, this helped me to converse better with my patients rather than just being a very boring, to-the-point doctor who asked them a string of questions and finished the consult in the drabest way possible. It feels nice to get feedback from patients and relatives that they do feel comfortable with me during consults and that aids in their satisfaction during treatment.



It also helped me relax and rejuvenate in the best possible ways after work too. Rather than feeling like I am mindlessly swept up in easily available channels of consumerism or entertainment, by engaging in a hobby, I felt more connected with all my cognitive faculties - thinking, decision making, problem solving more intuitively. And this could not have been dryly taught or learnt in a seminar but something that I discovered and experienced as I kept nurturing and returning to my hobby week after week, month after month, year after year.

I came across this word a few years ago and it stuck with me - Dilettante - someone who dabbles in arts/activities.

I do get asked for advice by younger colleagues and while I do try to help with orthopedic advice - I'd like to thank Cadence, the BOS newsletter, for helping me share something that I would like to recommend to all younger surgeons.

Not everything is meant to be for serious pursuits that you want to win or get the best at

Especially if your profession is demanding!

Sometimes it is good to dabble in things and good to nurture a hobby or two - for the joy of it!

Who knows?! You might end up being a better doctor/ surgeon and human thanks to that!



DR. SUDHIR WARRIER

Follow Us On



First Brush with  
**YAMRAJ**  
& THE  
ANTIDOTE

I was playing cards, teen patti, to be specific. I was losing. As I always have. We played with small, non-escalatable bets. We were interns at the government hospital in 1983. On a princely salary of Rs. 180 a month. When anyone ran out of 5p coins at the table that accommodated only 12 of a class of 213 students, he or she was made to beg! I was a hot favorite beggar. I would imitate different beggars that I had encountered

in my life...my all time great imitation was that of the blind beggar at the bus stop in Santacruz..yaa andhalyala baba, ya garibaala...

Cherry, a senior, blustered into the boys common room and patted me on my shoulder. I brushed him away thinking he was aiming for my seat. I had run out of coins and begging styles all at once! But he made me an offer I could not refuse.



He asked me if I wished to make a month's salary in just one week! Before my brain could wrap itself around the proposal, the cool air of a December morning was rushing past me and chilling my ears. I was riding pillion with Cherry to KEM hospital. The hospital across the bridge. Enemy territory. I signed on papers filled with marathi prose that I ill understood. Cherry smiled, shook hands and left me standing in the middle of the busy municipal hospital ward filled with very sick looking patients. He had introduced me as the "locum" houseman in haematology in Dr Anjaria's unit! I was an intern, remember? I was playing hooky from my posting at Kasara. The registrar was on his rounds. He looked like a stern taskmaster. He stopped at each bed, was appraised about the case, barked orders and pointed a finger at me and ordered me to administer treatments that sounded like science fiction to me. I came from a protected environment of slightly more practical solutions to vexing problems that were in vogue at Grant Medical College. Total dose Iron infusions, intrathecal methotrexate and some others I've long chosen to forget! In the adjacent unit were two hard working junior residents who saw my heart sink further with each bark from the mastiff. While Pankaj helped me on the rounds, Hemant actually volunteered to demonstrate one intrathecal injection. The medication was meant for patients with a particular cancer that required the drug to be delivered accurately within the delicate sheaths of the spinal cord! A long needle had to be guided between the funny shaped vertebrae from the back! Good Lord! Proud to report that I did manage many over the next 10 days.

The last patient I met that evening, before retiring to my solitary confinement cell in the residents hostel, was a happy smiling girl, twelve years of age. Thankfully, I only had to give her some pills. At my will, I added a comforting smile. Forty-five of the loneliest minutes of my life refused to tick by any sooner. I rued my

decision of dreaming to be a rich gambler at the tables of my parent institution. I wanted out! No mobile phones in those days. The silence was intolerable. An urgent knock woke me up from a fitful catnap. It was a call-over to the ward presented by an intoxicated ward boy who had quite clearly cheated when he filled in the date of birth on his job application! He should have retired when India became independent! To his credit, one single clear word escaped his lips "gasping" he said as he thrust a big muster onto which I scribbled a signature to acknowledge the call and noted the time. That word left me gasping. It meant there was a serious patient in my ward. I had to rush. The two hundred meters that separated me from the ward were covered in quick time, the brain racing faster than the feet. I was revising the steps of resuscitation and praying alternately. The prayers, I found, were more easily accessible than the real information I needed.



It was the little girl I saw last, earlier in the evening, who was slumped lifelessly on her bed. Three hastily drawn mobile curtains separated this spectacle from the rest of the ward. A little distance away, a matronly nurse, quite clearly a Malayalee, sat at the nursing station making



notes. My mind could not comprehend the inactivity that surrounded a gasping patient. A voice, hitherto unknown to me, shouted from within my throat..Sister!!!! The slow moving juggernaut laboured her way to the parted curtains. Please bring the emergency trolley, I shouted as I got onto the bed and began a very comical cardio-pulmonary resuscitation routine. The drunk joined us and stayed at the perimeter of the arena. A trolley appeared by magic. Vials of different sizes and colors dotted the table-top. I had to make choices now... No pulse. No respiration. No response to verbal commands. No reaction to painful stimuli. The patients' condition and mine were no different! I got the intravenous line going and pumped in a few drugs. I jabbed the heart with nikethamide. The last page of my mental recollection of my pharmacology textbook receded into a blur. I needed help. I sent the bemused drunk back to the quarters to summon the registrar. All I got, a lifetime later, was a brief scribble on the call-book "try routine resuscitative measures". Angry and at my wits end, with a sweaty, slippery and uncontrollably shaky hand, I added a footnote "routine measures failed, please call over".

The words I read in the call book when it came back a second time from the registrar's room are burned into my memory. It was my first brush with Yamaraj. Personally. It read "then issue DC". Decisive brevity. DC – Death Certificate! A patient, in the words of my new pal, the drunk, had just become a body! I could not stop shaking. I could not bring myself to get off that bed. She was not ready to go. She had a life before her. She was happily smiling a couple of hours ago. This is not happening. And no one cared! I just remembered that as I had numbly crossed the ward to approach the bed as I came in, I had noticed her parents and some other relatives sitting huddled in a corner, sobbing and consoling each other.

The nurse held my hand and led me to the desk. After seating me, she conjured up a cup of

steaming coffee and a short sermon in Malayalam about death in the haematology ward followed. Sudden death of seemingly healthy people is not unusual. She also educated me regarding medical jargon and how words literally meaning something were used to convey quite something else. Gasping, for instance, meant dead! No need to rush for those, she added for good measure! My immature and quite pathetic interview with the family as I walked out defeated in every way, must rank at the nadir of all my communication skills. Ever!

It was a busy night. On call for the Medicine department. And I wanted to be an orthopedic surgeon! After attending to a minor emergency, I was chatting with the staff, well past midnight. A soft creaking sound caught my attention. The ward was at the end of a long corridor, furthest away from the elevator bank. As the eerie cyclical squeaking came closer and closer, the nurse recognised it as the gurney belonging to our ward! It was in dire need of an overhaul and was easily differentiated from the others on the floor. Each gurney, it seems, had a distinct call-out! Presently, a young girl in great agony, frothing at the corners of her mouth was wheeled into our ward. The accompanying adults were berating her! A whiff of some strange odour hit me as she was wheeled across the table. The nurse looked up and said OP aana! (its OP). Organophosphorus poisoning! Such clear and accurate clinical acumen! There is no substitute for medical experience. No medical books ever describe the scene and the drama and yet, it plays out every day across the world! Jilted in love. The cheap and handy Tik-20 remedy for all problems! The art of gastric pumping and the use of enormous amounts of Atropine and other medications were lessons I imbibed while clearing the jilted lover of the residues of what she had imbibed earlier in the night.

By the end of the week, I began enjoying the chores. I even went to the library and read a few chapters of haematology. I knew that I would



never be a man of medicine, I would rather make all my errors in surgery! The glint of the scalpel outshone the dull gleam of pills! And one day it happened. I made an error.

A routine tooth extraction in a young boy from a poor family had led to a gush of unstoppable bleeding. The dentist could not ever imagine that so much blood was dammed up behind that rotting tooth. After a few referrals, a wise doctor diagnosed the condition. The poor boy had haemophilia. His body could not produce a factor that is so essential in the clotting cascade mechanism. This ailment is a genetic disorder that is transmitted in families. Women are usually carrier's and the men suffer from the disease. And How!

The lacking factor needs to be transfused and the blood must have enough of the factor to allow natural clotting to happen. There is a complex calculation to decide the dose and frequency of infusions. The factor is extracted from the blood of normal healthy donors. In those days, Haffkine institute, just behind KEM hospital, was the source. It's called Fresh Frozen Plasma or FFP. It came as a solid and required to be reconstituted using normal saline in some exacting proportion. I had to prepare seven bottles of this life saving drug. The family acquired each bottle after shelling out seven hundred and fifty rupees that they could ill-afford. A large amount of sterile saline has to be carefully withdrawn into a syringe and injected into the bottle of the frozen plasma. It is a painstaking and time-consuming effort after which the lump of frozen plasma has to be dissolved completely into a clear fluid before being infused into the intravenous line in the patient's forearm. A lot of my routine ward work was remaining. But this was urgent. As I laboured at it, a sympathetic student nurse who just finished her morning duties and had a little free time on her hands offered to help me. She seemed to me what Florence Nightingale must have looked like to those poor suffering soldiers



many years ago! I instructed her carefully and then got her to repeat the instructions to convince me that she had understood the task perfectly. I waited long enough to be sure that she followed my instructions unerringly and went away happily whistling under my breath as I attended to the more interesting work around the ward.

Twenty minutes later, as my angel was withdrawing fluid from a large container to fill the last bottle, I was perplexed. I was pretty sure that saline was in the large glass container on the right. The young volunteer was nonchalantly taking fluid from the container on the LEFT! In those days, the small desk in the wards in KEM hospital had two glass containers that could take approximately 4 to 5 litres of fluid. One was labelled Normal Saline and the other HEPARIN! It was going to be used on a patient whose system could not halt the bleeding. The FFP bottles now contained a little of the factor needed to clot the blood and a much larger amount of fluid that would keep the tap running! FFP was always in short supply. In short supply too, were funds for the family of the patient. I need not remind you that I was there to earn a fourth of the cost of one of the seven bottles that the family had shelled out for. As the blood drained from the uppermost parts of my body, I felt the matrix within the constituent bones of the knee turn to jelly. The bottles are distinctive.





They were gaily labelled with a yellow label with some hand-written numbers and alphabets. Nothing in the ward resembled that. Clearly, a criminal brain at work! Nothing I could easily find in my ward, could hoodwink the family and my seniors. Shocked at what I had unwittingly gotten myself into, my first instinct was to run away...disappear. But that would be until my shylock, Cherry, would rejoin his duties. I would be easily traced then! I had to face it. A million thoughts raced in my spinning head. Out of all that churning, emerged a mental image of my Dhanvantri with the urn of nectar! A simple man, ever smiling, soft words and always helpful. Dr. Dilip Karnad. He was the registrar of the other medical unit with whom we shared a ward. I kept the bottles safely away and rushed to his room. As I recounted the tragedy, I began sobbing inconsolably. He sat me down and went into a trance. He spoke nothing but his mind made a million calculations and after what seemed to be an eternity, he smiled and said "don't worry". I had a role model then. I wanted to be the one to be able to say these two simple words to anyone with seemingly insurmountable problems! He asked me simply to return to my ward and continue my work while he would follow and help me out with my bleeding, who, incidentally, was now on the critical list. His blood pressure was dropping as was his haemoglobin while the bleeding from a tooth extraction began gaining unimaginable proportions.

Dilip came to the ward, had a short conference with the matron and my (now not so)angel, after which he ambled over to me and said "come let's sort (not 'your') problem out". He had struggled with the problem and arrived at an amazing solution! He knew that heparin was completely neutralized and ineffective by protamine. He calculated the amount of protamine each bottle of FFP would require, to neutralise the amount of diluted heparin that was in the glass jars (!) for the purpose and instructed me to go ahead and inject that dose of protamine into the bottles.

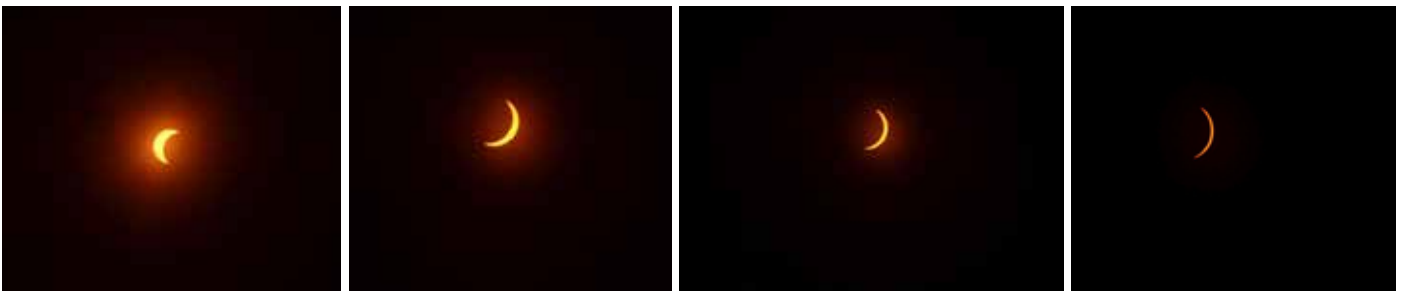
Now, the FFP was as good as new! A master-stroke. At his level. Don't forget, he was yet to receive his masters' degree. This was genius. Maybe not. Who cares now? Then, at that time and for me, it was godsend. The mastiff wouldn't bite me and my guilt wouldn't devour me!

The next morning ranks amongst the happiest mornings I did not wake up to. I had not slept a wink. I had made three trips to the ward at night. The cotton plug was dry. The boy's fingers were pink. Earlier they were pale from the amount of sustained pressure he had to apply to stem the flow of blood. It was a clear day. It was my last at KEM! I was the proud owner of a hundred and eighty freshly minted rupees. I had learned a hard lesson.

The antidote to greed was knowledge.  
I pledged to earn. Earn knowledge.



# TOTAL SOLAR ECLIPSE



A total solar eclipse is a rare astronomical event that occurs when the sun, moon, and earth align in a precise configuration, resulting in the moon completely obscuring the sun's light and casting its shadow upon the earth. Notably, a fortuitous coincidence arises from the relative sizes and distances of the moon and sun, allowing the smaller, nearer moon to precisely match the apparent size of the larger, farther sun in the sky.

This alignment gives rise to a multitude of unique and observable phenomena.

A total solar eclipse is a rare astronomical event that occurs when the sun, moon, and earth align in a precise configuration, resulting in the moon completely obscuring the sun's light and casting its shadow upon the earth. Notably, a fortuitous coincidence arises from the relative sizes and

distances of the moon and sun, allowing the smaller, nearer moon to precisely match the apparent size of the larger, farther sun in the sky. This alignment gives rise to a multitude of unique and observable phenomena.

In August 2017, during my chase of a solar eclipse in the USA, I formulated a plan to revisit the country for another celestial event scheduled for April 8, 2024. With the assistance of a colleague there, we meticulously crafted an itinerary to witness the eclipse at Dallas, Texas, which was reportedly the optimal location within the narrow path of totality. However, as fate would have it, our carefully laid plans nearly came undone on the final day. The promised clear sky was unexpectedly overcast with dark clouds rapidly approaching from the south. Time was of the essence, so we swiftly checked out of our accommodations and embarked on a frantic 60-mile drive north until the clouds finally parted. At a small town called Frisco, we located an open park, hastily set up our equipment, and aligned it with precision. We arrived just in time. Although sporadic clouds still lingered, we managed to witness and document this magnificent astronomical event. The things to see on ground were:

- Sudden dusk
- Twilight 360 degrees around
- Return of birds to nest
- Confused behaviour of animals
- Sudden drop in temperature, & winds

And in the sky

- Rapid onrushing darkness.
- Lights out...pitch darkness for around 4 minutes this time.
- Rise of solar flares from behind the black lunar disc.
- Baileys beads: intermittent spots of light traversing through the valleys on the moon.
- Diamond ring: the last or first sun's large rays before and after the period of complete darkness, seen as a unilateral diamond on a ring.
- Stars and planets in the daytime.



Its enough to drive one crazy.

The next such events are in Spain & Cairo in the next few years, and in India in Leh in 2034.



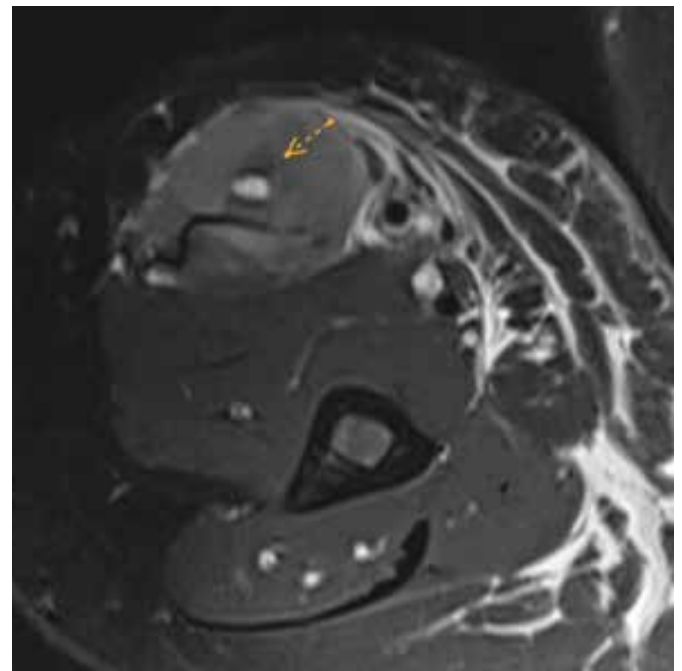
# IMAGING CORNER

## CASE OF THE MONTH



A 35 year old lady presented with pain and swelling in the distal arm since 2 weeks. MRI shows a small cystic lesion in the distal biceps muscle with diffuse moderate surrounding muscle edema. There is overlying moderate medial subcutaneous edema and fat stranding.

These findings are in keeping with intramuscular cysticercosis.



This is caused by pork tapeworm *Taenia solium*. The encysted form of the larvae may lodge in the brain, eyes, muscles and subcutaneous tissue. In the initial stage, the cyst is intact and the patient may or may not be symptomatic. Host response, death of the larva or leakage of fluid from the cysts incites surrounding inflammatory response and causes symptoms. MRI shows a small intramuscular cystic lesion with surrounding edema.



## LOSE WEIGHT, NOT HOPE: 7 MANTRAS FOR GETTING IN SHAPE IN 7 MONTHS



In today's fast-paced world, the pursuit of fitness can often seem overwhelming. We are bombarded with fad diets, quick fixes, and conflicting advice from countless sources, all promising immediate results. However, the truth is that sustainable weight loss is a journey, not a sprint. The goal isn't just to shed pounds but to adopt healthier habits that last a lifetime.

If you've been struggling to find a clear, effective path to achieving your fitness goals, this article is for you. In it, I will outline seven mantras that will guide you on your weight loss journey over the course of seven months. These Mantras I have learnt and practiced since the last seven years of my journey as a Fitness and nutrition Coach. These principles are simple, yet powerful, and when followed with dedication, will not only transform your body but also enhance your overall well-being.

Let's dive into the First 3 core mantras for lasting weight loss success.

### 1. Create a Calorie Deficit

At the heart of any weight loss journey is the fundamental concept of a "calorie deficit". Simply put, to lose weight, you must burn more calories than you consume. Your body burns calories throughout the day through basic metabolic functions, digestion, and physical activity. When you consume fewer calories than your body needs to maintain its current weight, it turns to stored fat for energy, leading to weight loss.

However, creating a calorie deficit doesn't mean drastically slashing your food intake or starving yourself. The key is to reduce your calories gradually, focusing on nutritious, whole foods while being mindful of portion sizes. Tracking your calories, either through an app or a food journal, can help you stay on top of your intake. Combine this with regular exercise, and you're on the right path.



Aim for a moderate calorie deficit-typically 300 to 450 calories per day-this can help you safely lose 1 to 1.5 pounds per week. The goal is steady, sustainable progress rather than rapid weight loss, which can lead to muscle loss and nutritional deficiencies.

## 2. Prioritize Protein Intake

While cutting calories is essential, you also need to focus on "what" you eat, and protein should be a priority. Protein plays a crucial role in preserving lean muscle mass while you're losing fat. More muscle means a higher metabolism, which allows you to burn more calories even at rest.

Consuming enough protein also helps reduce hunger and cravings, as it keeps you feeling fuller for longer. Foods rich in protein, such as lean meats, fish, eggs, tofu, legumes, and dairy products, should feature prominently in your diet.

Incorporating protein into every meal, especially breakfast, is an excellent strategy to maintain muscle and curb hunger. Aiming for about 1.2 to 1.7 grams of protein per kilogram of body weight per day can make a significant difference in your weight loss journey.

## 3. Incorporate Resistance Exercises

Weight loss should not just be about the number on the scale; it's also about improving your body composition. "Resistance exercises", such as weightlifting, bodyweight exercises, and resistance band workouts, are vital for building and maintaining muscle mass.

As you lose fat, the goal is to replace it with lean muscle. This not only makes you look toned but also improves your metabolism, helping you burn more calories even at rest. Incorporating resistance training 3-4 times a week will enhance fat loss and improve strength, endurance, and body composition.

Don't worry if you're new to resistance training. Start with bodyweight exercises like squats, lunges, push-ups, and planks, then gradually incorporate weights. Over time, you'll notice improvements in your strength, energy levels, and overall fitness.

Now To Boost Your Progress ,I will give you the Next 4 Mantras.

While calorie control, protein intake, and exercise are the foundation, other key lifestyle factors can "boost your progress" and enhance your results.

## 4. Optimize Your Recovery

Your body needs adequate rest to function optimally. Ensuring that you recover well from workouts and manage stress levels is essential for long-term success.

**a) Sleep:** Getting enough sleep is often overlooked but plays a crucial role in weight management. When you're sleep-deprived, your body produces more ghrelin (the hunger hormone) and less leptin (the satiety hormone), which can lead to overeating. Aim for 7-9 hours of quality sleep each night to allow your body to repair and recover from exercise.

**b) Meditation:** Stress can sabotage your weight loss efforts by triggering emotional eating or disrupting your sleep. Meditation and mindfulness practices can help reduce stress levels, improve mental clarity, and create a positive mindset. Just 10-15 minutes of meditation each day can bring significant benefits.

**c) Massages:** Regular massages can aid in recovery by reducing muscle soreness and promoting relaxation. They also enhance circulation and improve flexibility, allowing your body to heal faster from workouts.

**d) Educate Yourself:** Knowledge is power. The more you learn about nutrition, fitness, and health, the better equipped you'll be to make informed decisions. Stay curious and keep educating yourself about what your body needs to thrive.



## 5. Pay Attention to Wellness Essentials

Your overall wellness is crucial for weight loss, and certain lifestyle changes can make a big difference.

**a) Sunlight:** Spending time in natural sunlight boosts vitamin D levels, which is essential for bone health and a strong immune system. Vitamin D also plays a role in regulating mood and energy levels. Aim for 15-20 minutes of sunlight exposure daily.

**b) Hydration:** Water is critical for digestion, metabolism, and overall body function. Drinking enough water throughout the day helps with fat metabolism and reduces cravings. Aim for at least 8-10 glasses of water daily, more if you're physically active.

**c) Supplements:** While whole foods should be your primary source of nutrition, certain supplements, such as omega-3 fatty acids, vitamin D, and magnesium, can support your health and weight loss goals. Always consult a healthcare provider before starting any supplements.

**d) Blood Tests:** Regular check-ups and blood tests can help you stay informed about your health. Tracking markers like thyroid function, cholesterol, and blood sugar levels can help identify potential obstacles to weight loss and overall wellness.

## 6. Walk Regularly

In addition to your workouts, simply moving more throughout the day can accelerate your progress. Walking is one of the most underrated forms of exercise. It's low-impact, easy to do, and effective for burning calories and improving cardiovascular health.

Incorporating a daily walk of at least 30 minutes into your routine can help create a greater calorie deficit and contribute to fat loss. You can even break it up into smaller walks throughout the day take the stairs instead of the elevator, walk during lunch breaks, or park farther away when running errands. Every step counts!

Walking not only aids in weight loss but also reduces stress and improves mental clarity. The best part? It's free and accessible to everyone.

## 7. Cultivate Consistency and Patience

Last but certainly not least, the key to success lies in your mindset. Weight loss is a marathon, not a sprint, and the most critical factors are consistency, patience, and to Enjoy every ups.and downs of it.

**a) Consistency:** No matter how well you eat or how hard you work out, if you're not consistent, you won't see lasting results. Focus on building habits that are sustainable for the long term. Consistency with your calorie deficit, exercise, and self-care routines will yield results over time.

**b) Patience:** Weight loss is not linear. There will be weeks when the scale doesn't move, or you may experience setbacks. Understand that this is part of the process. Be patient with yourself and trust that your efforts will pay off in the long run.



### 8. Enjoy the Journey and Innovate

Finally, make sure you enjoy the process. Find workouts that you love, experiment with new healthy recipes, and celebrate small victories along the way. Keep things interesting by innovating-switch up your workouts, try new activities, or set mini-goals to keep yourself motivated. When you enjoy what you're doing, it becomes less of a chore and more of a lifestyle. You can also Rope in one of your friends and make him your accountability partner. Together you can achieve more and also stay consistent.



## CONCLUSION

Lose Weight, Not Hope !!!

The path to weight loss can sometimes feel overwhelming, but with the right approach and mindset, it is achievable. By focusing on creating a calorie deficit, prioritizing protein, incorporating resistance exercises, optimizing recovery, paying attention to wellness essentials, walking more, and most importantly, cultivating consistency, patience, and enjoyment, you will achieve lasting results.

Remember, this isn't just about losing weight-it's about gaining strength, confidence, and a healthier, more balanced life. Keep these seven mantras close to heart, and in seven months, you'll not only be in better shape but feel empowered, energized, and full of hope.





BOMBAY  
ORTHOPAEDIC  
SOCIETY

# WIROOC 2024

Pioneering progress, honouring legacy...

**DATES: 20<sup>TH</sup> - 22<sup>ND</sup> DECEMBER 2024**  
**VENUE: JW MARRIOTT MUMBAI SAHAR**



[www.wiroc.in](http://www.wiroc.in)



BOMBAY  
ORTHOPAEDIC  
SOCIETY

CALENDAR OF  
**EVENTS**  
2024-2025



PRESIDENTIAL THEME

**PIONEERING PROGRESS, HONOURING LEGACY...**

Continuing Medical Education for Excellence in Orthopaedics

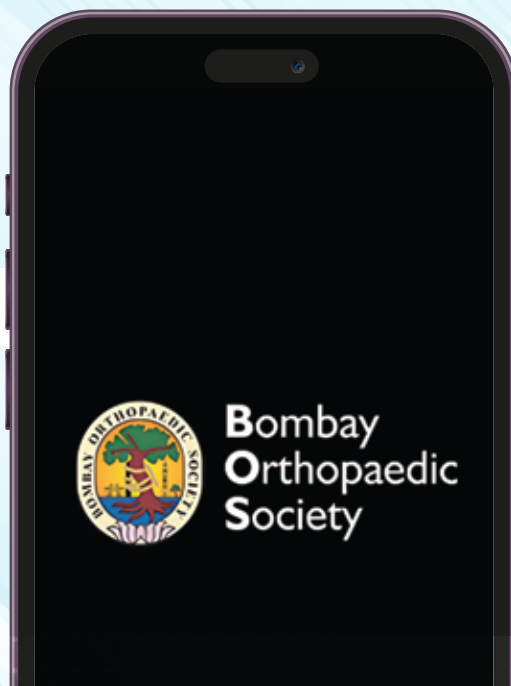
[www.bombayorth.in](http://www.bombayorth.in)

[CLICK HERE TO VIEW](#)



**BOMBAY  
ORTHOPAEDIC  
SOCIETY**

# **DOWNLOAD THE BOS ORTHOPAEDIC PROTOCOL CONSENT APP**



**Dr. Mohan Desai**  
Hon. President

**Dr. Ashish Phadnis**  
Hon. Secretary



**iPhone**



**Android**



Created by: **Dr. Harshad Argekar & Dr. C. J. Thakkar**



BOMBAY  
ORTHOPAEDIC  
SOCIETY

# YOUR VOICE. EXPERTISE. STORY



The Cadence Newsletter is evolving & we want *YOU* to be a part of this transformation.

Whether it's a breakthrough in clinical practice, a hidden talent in the arts, a reflection on life's lessons, or a burst of creative thought...

---

*Your contribution matters!!!*

---

## JOIN US

*Submit your contributions today & be a part of Cadence's new chapter!*

[secretary@bombayorth.com](mailto:secretary@bombayorth.com)

or

[secretarybos@gmail.com](mailto:secretarybos@gmail.com)

[www.bombayorth.in](http://www.bombayorth.in)

## BOS EXECUTIVE COUNCIL



**Dr. Mohan Desai**  
President



**Dr. Sanjay Dhar**  
Imm. Past President



**Dr. Gautam Zaveri**  
President Elect



**Dr. Samir Dalvie**  
Vice-President



**Dr. Ashish Phadnis**  
Hon. Secretary



**Dr. Satish Mutha**  
Hon. Treasurer



**Dr. Dhiraj Sonawane**  
Executive Council Member



**Dr. Anoop Dhamangaonkar**  
Executive Council Member



**Dr. Chasanal Rathod**  
Executive Council Member



**Dr. Parag Lad**  
Executive Council Member



**Dr. Sachin Kale**  
Executive Council Member



**Dr. Jayesh Baviskar**  
Executive Council Member

