



Become the Next  
Junior Scientist

# YOUNG RESEARCHERS CONCLAVE 2025



An Inter-School Young Researchers Paper Presentation Conference

📅 7th February 2025

⌚ 01.30 PM till 04.00 PM

📍 VIT University, Chennai

SHOW YOUR EXPRESSION



Last date for Expression of Interest: 10th January 2025  
Last Date for Paper/Poster Submission: 24th January 2025

## PATRONS:

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**Dr. C Nirmala, M.D.S.,**  
Founder, Junior Researchers' Learning  
Adventure (JRLA)  
Chennai



Note : Certificate with Title "**Young Researcher**" will be awarded to all presenters

For more events and details on Robotica-25 visit [www.robotica.org.in](http://www.robotica.org.in)

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## YOUNG RESEARCHERS CONCLAVE 2025

**Date:** February 7, 2025

**Time:** 01:30 PM – 04:00 PM

**Venue:** VIT University, Chennai

### Event Description:

The *Young Researchers Conclave 2025* is an Inter-School Young Researchers Poster / Paper Presentation. Conference organized by Otomatiks in association with POLO Research for students. This is a platform for young minds to showcase their innovative ideas and research skills.

### Key Dates:

1. Expression of Interest Submission Deadline: **January 10, 2025**
2. Final Paper/Poster Submission Deadline: **January 24, 2025**

### Eligibility:

- Open to students from **Grade 7 and above.**

### Topics to Present:

Students can present research or review projects in any of the following topics:

- Science and Technology
- Mathematics and Innovations
- Robotics and AI
- Environmental Sustainability
- Healthcare and Life Sciences
- Social Sciences and Humanities
- Space Exploration

### Event Structure:

#### 1. Express Your Interest:

- Scan the QR code on the poster or use this google form link:  
<https://forms.gle/rQze8o2rifXaf4HU9>
- Complete the "Expression of Interest" form along with a brief abstract of the proposed poster / paper (max 250 words) by 10th January 2025.

#### 2. Drafting Your e-Poster:

- Choose a topic (It can be original research or a review of other research articles).
- Refer Annexure-I for Sample E-Poster
- Design an engaging, easy-to-read e-poster that highlights key research/review points.
- Include images to enhance visualization with a resolution of at least 200 dpi.
- File size – to be limited to 5 MB or less.
- Orientation: To be created in landscape layout (16:9).
- Font: Use a font size of 12 points or larger, and a font type “Times New Roman”.

### **3. Drafting Your Paper:**

- The Research paper should be concise and include: (Refer Annexure-II)
  - i. Title and Abstract
  - ii. Introduction of the topic
  - iii. Methods/Research Process
  - iv. Results and Findings
  - v. Conclusion and Future Scope
  - vi. References

### **4. Submission Process:**

- Submit your final e-poster or paper by 24th January 2025.
- Email submissions to : [thepoloresearch@gmail.com](mailto:thepoloresearch@gmail.com)
- Selection will be based on the clarity of the research, creativity and the conclusion. Selected list will be shared on Feb 1<sup>st</sup>, 2025
- Selected posters & papers will be presented by the students at the conclave on 7<sup>th</sup> Feb 2025.

### **5. Final Presentation:**

- Arrive at VIT University, Chennai campus by 12:00 pm for registration.
- Presentation will be to the audience with a panel of judges during the session starting from 1:30 pm.
- Each presentation will be 2-3 minutes long, followed by a short Q&A session.
- The selected students must be accompanied by official representatives from the school (Principal, Academic Coordinator or Subject Teacher)
- Up to 3 non-participants/presenters can accompany the final presenter

### **Why Participate?**

- Certificates of Recognition will be awarded to all presenters with the title "Young Researcher."
- Gain invaluable experience in public speaking and research presentation.

### **For any Questions and Clarifications :**

Website: [www.robotica.org.in](http://www.robotica.org.in)

Please contact by

Email: ([thepoloresearch@gmail.com](mailto:thepoloresearch@gmail.com)) or by

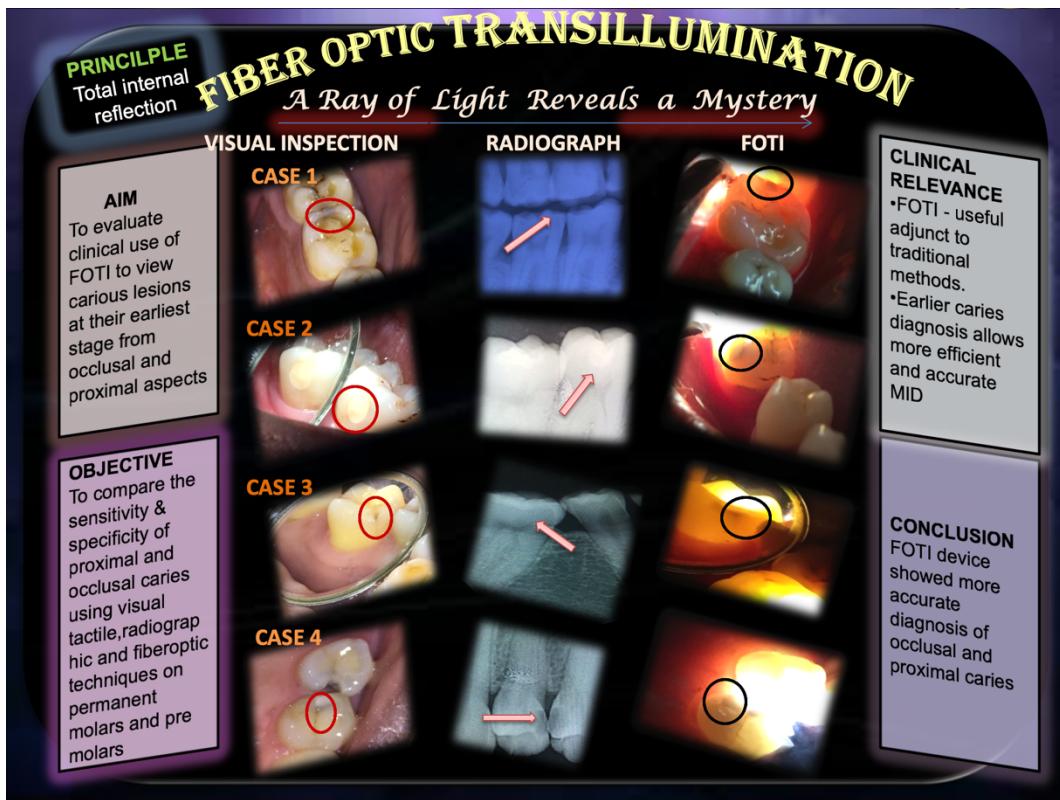
Phone: **Dr. Nirmala** – 9884036752 (between 5-7 pm)



## ANNEXURE-I

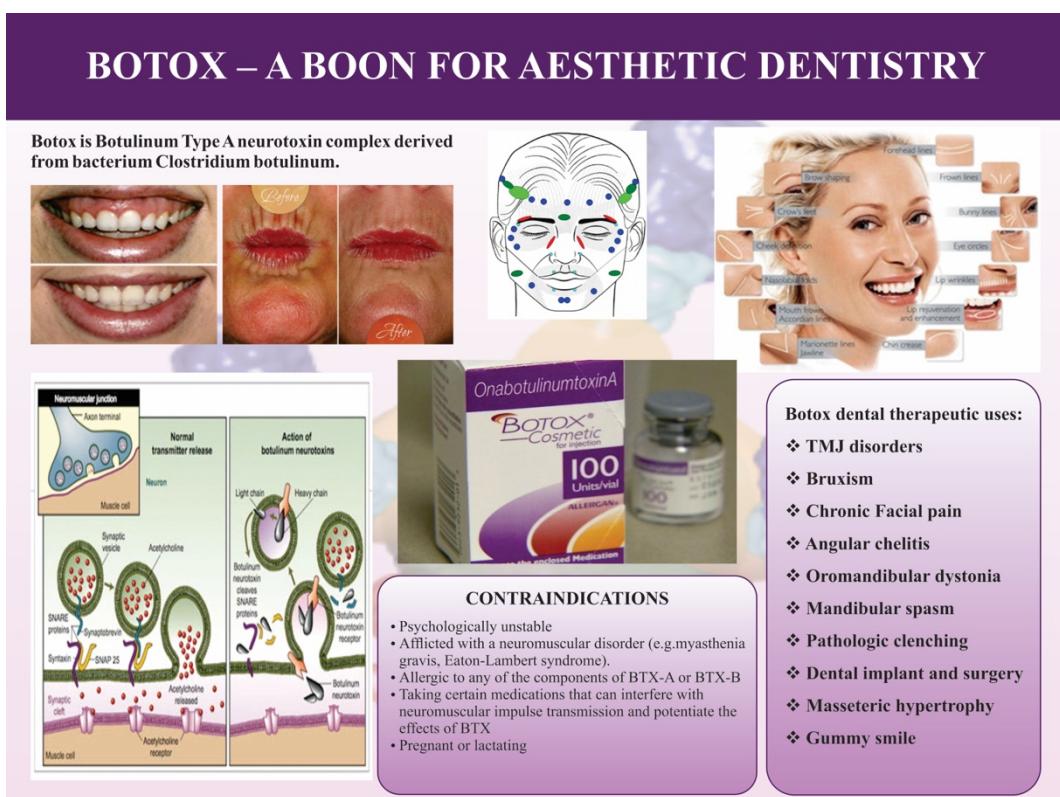
### Annexure 1.1: For an Original Research Poster: (See attached Sample)

Include: Title, Aim, Introduction, Methodology, Results and Conclusion. (A combination of text and Images can be used as necessary).



### Annexure 1.2: For a Review Poster (on existing research): (See attached Sample)

Include: Title, Introduction, Review and Conclusion.



## ANNEXURE-II

### Annexure 2.1: For an Original Research Paper: (See attached Sample)

Include: Title & Abstract, Introduction of the Topic, Methods/Research Process, Results & Findings, Conclusion & Future Scope, References



#### What makes toxic in lipstick

**Parabens:** Most cosmetic products include harmful preservatives like parabens and BHA or BHT. They easily penetrate the skin and are linked to breast cancer and endocrine disruption.

#### Parabens toxicity:

Parabens (alkyl esters of p-hydroxybenzoic acid) are cheap, effective, and stable preservatives widely used in the food and cosmetic industries.

They inhibit the growth of microbes in the products by rupturing the membrane (outer covering) of the microbial cells. These are widely available in several forms such as **methylparaben**, propylparaben, ethylparaben, butylparaben, and benzylparaben.

Recommended level:  
concentrations up to 0.8% (**mixtures of parabens**) or up to 0.4% (single paraben).

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#### INTRODUCTION:

Metal content in lipstick has been an international health concern. This is because lipstick is the basic daily product that is included in face makeup application, in addition to face powder, foundations, eye shadows, and blush.

Lipsticks are believed to contain heavy metals such as lead, nickel, aluminum, arsenic, cadmium, antimony, and chromium.

Moreover, heavy metals can be released by the metallic devices used during the manufacturing of products.

Lipstick consumers are exposed to heavy metals only in small amounts, but they expose themselves for a prolonged period of wearing time, which make it significant in developing chronic health risk.

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#### Analysis of Heavy Metals in Lipstick by the Various PhysicoChemical and Instrumental Methods

Sr.No	Sample Name	Lead in mg/kg	Cadmium in mg/kg	Nickel in mg/kg
1	Miss Gold-17	2.5	1.40	0.24
2	Bosior-30	2.00	2.10	0.014
3	Miss Gold-11	7.00	3.05	1.55
4	Lipstick-31	0.85	0.27	3.42
5	Maybelline	10.2	4.00	1.00
6	Corolla-33	0.10	ND	5.35
7	Cover Girl-22	3.30	2.10	0.035
8	Concealence-118	3.95	1.00	0.83
9	Persian-308	1.00	0.25	0.56
10	Cinnam-Pink magic tip	0.40	0.43	5.94
11	Neckline	3.55	1.65	7.86
12	Lipbom-33	1.10	0.50	0.46
13	Yarls Lipstick	9.60	2.70	2.03
14	Passion	0.60	0.35	0.957
15	Sister Lips	20.15	3.09	0.30
16	Kiss Beauty	21.45	0.69	2.26
17	Blur Heaven Purple	21.80	0.30	1.23
18	TiaNuo	3.20	0.95	3.4

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#### Conclusion:

#### Effect on tooth

Lead will replace calcium in enamel and become incorporated into the enamel of developing teeth resulting in a thin, defective enamel –enamel hypoplasia such teeth are susceptible to dental caries

Such exposure can affect enamel formation leading to caries production, delayed dental enamel formation, worsened dental fluorosis, and periodontal bone loss.

Children tend to absorb more lead into their bodies than adults because of a higher rate of metabolism as well as a physical tendency to inhale lead from polluted air

FDA quoted 10 ppm of lead is the considerable level should be in lipstick



PAGE 2



PAGE 4

#### Exposure leads to:

The application of lipstick on the lips might cause exposure to a minuscule amount of the lipsticks through ingestion when the consumers eat and drink.

#### Identification of heavy metal in lipstick:

Inductively Coupled Plasma-Mass Spectrometry  
 Atomic absorption spectrophotometer  
 laser-induced breakdown spectroscopy

Canada found that 81% of the samples of lipstick that it tested for lead had levels ranging from 0.079 to 0.84 ppm, and that one lipstick contained 6.3 ppm

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#### Result of the article

**Lead:** Lead was the most commonly detected heavy metal in many brands. Lead content was determined in 18 tested lipstick samples; the highest Pb content was 21.80mg/kg in Blue Heaven Purple. This large variation in the concentration of lead may be attributed to the quality of the raw materials used in the production of the lipsticks. The FDA has established 20 mg/kg as the maximum amount of lead allowed in color additives used to make cosmetics for external use, produced using good manufacturing practices. However, there exists no legislation for regulating the level of toxic metals in lipsticks in the US, Europe, Asia or Brazil. Recently, the level of lead in a number of different lipsticks was determined by the US FDA, the highest lead content found was 3.06  $\mu\text{g g}^{-1}$ , and the lowest lead content was 0.09  $\mu\text{g g}^{-1}$ .

Metals accumulate in the body over time, and the repetitive application of metal-containing product may lead to significant and dangerous levels of exposure.

The effects of toxic lead exposure are well known and include damage to the kidneys and to the central nervous system, memory loss, and other symptoms. The toxicity of lead at high concentrations of exposure is well documented but a major concern in recent times is the possibility that continual exposure to even relatively low levels of these toxic metals in cosmetic products may pose potential health risks [16]. The possibility of skin allergy and contact dermatitis may increase due to the presence of heavy metals in cosmetics.

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#### Conclusion:

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Children tend to absorb more lead into their bodies than adults because of a higher rate of metabolism as well as a physical tendency to inhale lead from polluted air

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## Annexure 2.2: For a Review Paper (on existing research): (See attached Sample)

Include: Title & Abstract, Introduction of the Topic, Review of literature, Conclusion & Future Scope, References



### Exploring The Role of Ligamentous Structures in Temporomandibular Joints: A Review

PAGE 1

#### AIM & OBJECTIVE

##### Aim

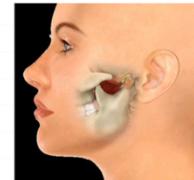
To explore the role of TMJ ligaments in joint stability and temporomandibular disorders (TMD), including the anatomy, function, diagnostic methods

##### Objectives

1. To examine the importance of TMJ ligaments in joint stability and function.
2. To understand how ligament dysfunction or degeneration contributes to TMD (Temporomandibular disorders).
3. To identify gaps in current knowledge and areas for future study on TMJ ligament health

#### INTRODUCTION

- The Temporomandibular Joints(TMJ) are the connections between the Temporal bones of the skull and mandible.
- Ligaments, tendons, muscles support the joint and responsible for the jaw mobility.
- TMJ is prone to Temporomandibular disorders.
- As the TMJ has complicated anatomy and function, there is a need to thoroughly explore the TMJ structures to enhance the understanding of TMD(Temporomandibular Joint Disorder)



PAGE 2

#### SUMMARY OF THE INCLUDED STUDIES

Category	Total Studies	Focus	Key Insights
Anatomical Studies of TMJ Ligaments	12	Structural and morphological details of ligaments (e.g., discomalleolar, sphenomandibular)	Highlights specific connective tissue composition, positioning, and interaction of TMJ ligaments with surrounding structures. These variations impact TMD symptoms and support more accurate diagnosis.
Biomechanical and Functional Studies	15	Ligament load-bearing capacity, stability, and constraints	Studies reveal the role of ligaments in distributing TMJ stress, maintaining joint stability, and preventing excessive mandibular movement. Ligaments also provide a source for reinforcing ligament strength in therapies and surgeries.
Clinical Studies on TMJ Disorders and Ligament Dysfunction	10	Impact of ligament dysfunction in TMD, with a focus on autoimmune conditions like RA and ankylosing spondylitis	Inflammatory degeneration of TMJ ligaments exacerbates joint instability. Therapeutic support treatment approaches like physical therapy and botulinum toxin injections for pain management, especially in TMD patients requiring ligament preservation strategies.
Specific Ligamentous Syndromes and Conditions	6	Syndromes that involve TMJ ligaments, like Eagle's syndrome and stylohyoid complex syndrome	Specific syndromes related to TMJ ligaments, including potential for misdiagnosis. Recognizing ligament-specific syndromes supports accurate diagnosis and management strategies, emphasizing the need for thorough ligament assessment.
Imaging and Histological Studies	8	Use of advanced imaging (cone beam CT, MRI, ultrasound) and histological analysis	Imaging and histology reveal ligament details, aiding diagnostics and pre-surgical planning. Histology also shows collagen and cellular characteristics that affect ligament resilience and susceptibility to dysfunction.
Comparative Studies Using Animal Models	6	Use of animal models (e.g., horses, pigs, rodents) for studying ligament properties	Animal studies confirm anatomical similarities with humans, making them valuable for understanding TMD treatments, including surgical techniques and interventions targeting ligament function.

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#### METHODOLOGY

- A systematic search was conducted using PubMed, Google Scholar, and Scopus databases. Studies published upto 2024 were included.
- Articles were selected based on their focus on TMJ ligaments, their anatomical structure, biomechanics.
- Both original research articles and reviews were included.

#### SUMMARY OF FINDINGS AND CONCLUSION

- **Clinical Relevance:**  
TMJ ligaments play a critical role in joint stability and are directly implicated in TMD pathology. Degeneration or dysfunction of these ligaments exacerbates symptoms and complicates treatment outcomes.
- **Diagnostic Insights:**  
Advanced imaging techniques and morphological assessments are essential for assessing ligament integrity, in complex cases of TMD. Accurate imaging improves diagnostic precision and informs treatment planning.
- **Therapeutic Implications:**  
Non-invasive treatments help in alleviating symptoms for some patients, and understanding ligament mechanics supports surgical and therapeutic approaches to restore function and stability.
- **Preventative and Supportive Care:**  
Targeted interventions for maintaining ligament health are especially relevant for autoimmune patients, to prevent progression of ligament-related TMJ dysfunction.
- **Knowledge Gaps and Future Research:**  
Further research is needed to fill gaps in understanding the long-term effects of ligament degeneration in TMD. Studies should focus on the biomechanical and molecular mechanisms of TMJ ligament degradation, and the ligament regeneration techniques, for sustainable restoration of function and stability.

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#### REFERENCES

- Michele Runci Anastasi , **Microscopic reconstruction and immunohistochemical analysis of discomalleolar ligament** Heliyon.2020 Aug 11;6(8):doi: 10.1016/j.heliyon.2020.e04651
- Cherice N Hill ,**Structure-Function Relationships of TMJ Lateral Capsule-Ligament Complex** J Biomed. 2021 Nov 29;130:110889. doi: 10.1016/j.jbiomech.2021.110889
- F M Weinberg ,**Articular soft tissue injuries associated with mandibular condyle fractures and the effects on oral function** Int J Oral Maxillofac Surg. 2019 Jun;48(6):746-758.doi: 10.1016/j.ijom.2019.01.025
- Katie L. Crockett ,**Anterior disc derangement with reduction of the temporomandibular joint: a case report** Journal of Medical Case Reports volume 12, Article number: 148 (2018)

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THANK YOU