

**fdi**



# 6<sup>th</sup> FDI - IDA JOINT MEETING

Balikpapan International Dental Exhibition 2010

Balikpapan, November 12 - 14, 2010



**PROGRAM**  
**PAPER SUBMISSION**

**CLINICAL EXCELLENCE AND GREEN DENTISTRY :**

**BRING CHEERFUL SMILE TO THE WORLD**

**6<sup>TH</sup> FDI WORLD DENTAL FEDERATION – INDONESIAN  
DENTAL ASSOCIATION (IDA)  
JOINT MEETING**

**&**

**Balikpapan International Dental Exhibition 2010**



*Clinical Excellence and Green Dentistry:*

*Bring Cheerful Smile to the World*

November 12-14, 2010

Gran Senyur, Balikpapan - Indonesia

*7 SKP accredited by Indonesian Dental Association (PDGI)*

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**Welcome message: INDONESIAN DENTAL ASSOCIATION**

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<b>MAIN PROGRAM</b>	
<b>Saturday – November 13, 2010</b>	
<b>Venue: Grand Ballroom</b>	
07.00 – 08.30	<i>Registration</i>
08.30 – 10.00	<i>OPENING CEREMONY</i>
10.00 – 11.15	<b>Dr. Philippe Guettier:</b> Current concepts in endodontic techniques
11.15 – 12.15	<b>Dr. Kevin H-K Yip:</b> A new paradigm shift in the management of worn dentition
12.15 – 13.00	<b>Prof Dr Laura Susanti:</b> New Paradigm of Relationship Between Worn Dentition And Temporo Mandibular Disorder
13.00 – 14.00	<i>LUNCH</i>
14.00 – 14.45	<b>Dr. Sri Lelyati:</b> Management of Dentine Hypersensitivity as Supportive Treatment of Periodontal Disease
14.45 – 15.30	<b>Dr Gatot Sutrisno:</b> Achieving high esthetic restoration with esthetic fiber post
15.30 – 16.15	<b>Dr Bambang Agustono:</b> Direct Composite Resin Inlay/Onlay
<b>Sunday – November 14, 2010</b>	
<b>Venue: Grand Ballroom</b>	
09.00 – 10.30	<b>Prof. F Lakshman Samaranayake:</b> Infection Control in Dentistry: A constant Challenge
11.00 – 12.30	<b>Dr Paulus Januar, Dr Yosi Kusuma Eriwati, Dr Tri Erri Astoeti:</b> Integrated lectures on Green Dentistry as a new paradigm to clinical excellence in dental practice
12.30 – 13.00	<b>Prof. Dr Aznan Lelo:</b> NSAID for acute dental pain
13.00 – 14.00	<i>LUNCH</i>
14.00 – 15.30	<b>Dr. How Kim Chuan:</b> Bone level implant: a perfect complement to tissue level implant
15.30 – 16.00	<i>BEST PAPER AWARDS ANNOUNCEMENT AND CLOSING CEREMONY</i>

<b>SPECIAL SESSION</b>	
<b>Saturday – November 13, 2010</b>	
<b>Venue: Grand Ballroom</b>	
16.15 – 17.00	<b>IDA Dental Continuing Professional Development Commission:</b> Certification, registration, and licensure for dentists in Indonesia

<b>HANDS ON COURSE</b>		
Dr Gilang Yubiliana	<b>Management of Hypnosis in Dentistry</b>	Friday, November 12, 2010 14.00 – 19.00 am Venue: Room 2 Participation fee Rp 1.000.000,-
Dr Gatot Sutrisno	<b>Simplifying the mysteries of direct composites</b>	Saturday, November 13, 2010 10.00 – 12.00 am Venue: VIP 2& 3 Chiang Palace A & B Participation fee Rp 500.000,- Free gift of dental material from Petron Clinical – USA to participants
Dr Gatot Sutrisno	<b>How, when, and why of restorative post-cores</b>	Saturday, November 13, 2010 16.00 – 18.00 pm Venue: VIP 2& 3 Chiang Palace A & B Participation fee Rp 500.000,- Free gift of dental material from Petron Clinical – USA to participants
Dr Bambang Agustono	<b>Direct Composite Resin Inlay/Onlay</b>	Sunday, November 14, 2010 10.00 – 12.00 am Venue: VIP 1 Chiang Palace Participation fee Rp 600.000,- Free gift to participants: 1 syringe Tetric N Ceram from Ivoclar
Prof. Susan Eliaz	<b>One Visit Bridge Using Fiber Reinforced Composite</b>	Sunday, November 14, 2010 10.00 – 12.00 am Venue: VIP 2& 3 Chiang Palace A & B Participation fee Rp 600.000,-

### **Dental Trade Exhibitions**

Both of local and international suppliers will feature the new model and technology in dental materials and equipment. Special offers and attractive discounts will also be brought to you for your convenience.

Twenty three Dental distributors/suppliers in 25 booths have participated in this exhibition to showcase their new technology products of dental materials and equipment.

### **Welcome Dinner**

All participants will be invited to the Welcome Dinner on Saturday October 13, 2010 at The Grand Senyur Ballroom with traditional dance and music entertainment.

### **BEST PAPER AWARDS**

The Scientific Committee of the 6<sup>th</sup> FDI-IDA Joint Meeting will also select for 3 Best Paper Awards for Research Report, Case Study, and Literature Study. The best paper will be awarded Rp 2.000.000,- /paper (excluded tax).

**ORAL PRESENTATION**  
**Saturday – November 13, 2010**

	<b>MERATUS ROOM</b>	<b>ROOM 6</b>	<b>ROOM 9</b>	<b>VIP 1 CHIANG PALACE</b>
14.00 – 14.20	Suzan Elias: <b>One Visit Bridge Using Fiber Reinforced Composit</b>	Irena Winata, Maria Purbianti: <b>The Role of CBCT 3D Radiographic Imaging in Orthodontics (A Literature Review)</b>	Novrinda H, Andreas P, Rahardjo A, Darwita RR: <b>Participation of Midwives in Maintaining Oral Health During Pregnancy at Kecamatan Serpong - A Six Month Evaluation</b>	Adi Prayitno, Muharjo DHA, Poernomo Suryohudoyo, Suhartono Taat Putra: <b>Oral Squamous Cell Carcinoma with HPV Infection Without p53 and Cmyc Mutation</b>
14.20 – 14.40	Tina Anggriany Halim: <b>Creating Beauty and Natural Smile with Composite</b>	Susilowati: <b>Expression of Matrix Metalloproteinase-8 (MMP-8) Gene in Gingival Crevicular Fluid During Distalization of Upper Canines</b>	Anton Rahardjo: <b>Validity and Reliability of Questionnaires as Tool of Severe Periodontal Disease Screening in Pregnant Women Conducted by Midwives or Cadres</b>	Ariadna A Djais, Tut Wuri Andajani, Ria Puspitawati, Pradono Suhardi, Ratna Arietta: <b>The Modified Rapid Identification of Streptococcus mutans of OralBiofilm using Polymerase Chain Reaction (PCR) method</b>
14.40 – 15.00	Angela Evelyn, Bambang Sunendar Purwasasmita, Nina Djustiana, Zulia Hasratiningsih: <b>Self Synthesis Al-Si-Zr Nanoparticle Filler and It's Microstructure Characterization for Resin Dental Restorative Dental Materials</b>	Tita Ratya Utari: <b>The Treatment of Anterior Tooth Crowded Case of Upper Jaw with Dental Transposition Between Canine and Lateral Incisor Tooth by Fixed Appliance (Case Report)</b>	Armasastra Bahar: <b>Tooth Decay Score, Knowledge and Practice of the Children Aged 9 – 15 Years in Kelurahan Ome, North Maluku.</b>	Ria Puspitawati, Aurelia Aurelia, Felicia Kathleen, Inez Hanida, Stefani Pramudita, Lakhsmi A Leepel: <b>Ethanol Extract and Volatile Oil of Curcuma xanthorrhiza Roxb Inhibit Phospholipase Activity and Growth of Candida albicans</b>
15.00 – 15.20	Wita Anggraini: <b>The Anatomical Principles of Bruxism Management</b>	Bintari Eska, Krisnawati: <b>Management of Ankylosed Teeth in Orthodontic Treatment</b>	Sudibyo, Dwi Hariyanto: <b>Personal Soft Skills in Dentistry</b>	Lisa R. Amir: <b>Bone Substitute and Injectable Scaffold-Stem Cell Based Therapy for Bone Tissue Engineering</b>
15.20 – 15.30	<b>b r e a k</b>			
15.30 – 15.50	Yufitri Mayasari, Armasastra Bahar: <b>Dental Caries as an Infectious Disease and Its Relationship with a Window of Infectivity</b>	Hutasoit E, Ismah, Soegiharto BM: <b>The Effectiveness of Sodium Hyaluronate on Healing of Traumatic Ulcer Caused by Fixed Orthodontic Appliances</b>	E. M. Arief, Akram Hassan, Raja Azman Awang: <b>Prevalence, Causes, Problems and Treatment Needs of Gingival Recession: An update</b>	Nila Alya Maulidina, Heriandi Sutadi: <b>Early Extraction of Two Upper Deciduous Teeth Presented With Bilateral Conical Type Supernumerary Teeth on a 7 Years Old (Case Report)</b>
15.50 – 16.10	Wazillah Nasserie: <b>Laminin Imunoexpression as Occurrence Indicator of Dentinal Bridge on Calcium Hydroxide Pulp Capping</b>	Maria Purbianti Indratoto, Laura Susanti Himawan: <b>Occlusion and Temporomandibular Joint on Normal and Asymmetrical Faces in Orthodontic Perspective</b>	Mei Syafrjadi, Siska Yumira, Pratiwi Eka Muhardini, Riza Dwijayanti: <b>Manifestations, Treatment Modalities and Prognosis of Oral Cancer In East Java From 2004 – 2008</b>	Nurlailia DS, Zainul Cholid, Mei Syafrjadi: <b>The Pre-Erupted Study of Mandibular Third Molar Inclination Among 14 to 17 Year Old</b>
16.10 – 16.30	Aries Chandra Trilaksana: <b>Treatment of Periapical Disorders With Aperection</b>	Olivia Pribadi, Erwin Siregar: <b>Bone Density as A Factor That Influence Orthodontic Mini-Implants Stability (a Literature Review)</b>	Dini Iswandari: <b>Medical Disciplinary in Context of Professionalism</b>	Marcia, Gus Permana Subita: <b>Management of Necrotizing Ulcerative Gingivitis Related to Chronic Lymphocytic Leukemia (A Case Report)</b>
16.30 – 16.50	Risqa Rina Darwita, Febriana Setyawati, Herry Novrinda, Iradani Yupitaningrum: <b>Work Stress And Periodontal Disease</b>	E.M. Arief, A.K. Nazirah, A. Rehman: <b>Arterial stiffness in gingivitis: a comparative cross-sectional study</b>	Iwan Dewanto, Medi Septario: <b>Infection Control Implementation at Dental Practice in Yogyakarta City</b>	Adi Prayitno, Widya Asmara, Muharjo DHA, Suhartono Taat Putra: <b>The Influence Of BisindolyImaleimide Gf 109203x and Phorbol Myristic Acetate In Macrophages Phagocytosis Activity Toward C. Albicans</b>

<b>ORAL PRESENTATION</b>				
<b>Sunday – November 14, 2010</b>				
	<b>MERATUS ROOM</b>	<b>ROOM 6</b>	<b>ROOM 9</b>	<b>VIP 1 CHIANG PALACE</b>
14.00 – 14.20	Abdul rochim bafagih: <b>Sex in Dentistry</b>	Henny O. Danan: <b>Behavior Management in Children with Psychological Trauma Due To Dental Treatment (Case Report)</b>	Himawan Halim: <b>Pendulum Appliance as Space Regainer in Orthodontic Treatment</b>	Willyanti Syarif <b>Relationship between Birth Weight and Enamel Defect Probability in Small for Gestational Age Children</b>
14.20 – 14.40	Zahreni-Hamzah: <b>The Local Soy-Milk-Honey As A Good Nutrition For Mandibular Health In Geriatric Patiens</b>	Audiawati, Siti Aliyah P: Erosive Oral Lichen Planus : <b>Clinical Features and Management in Children Patient (Case Report)</b>	Jusuf Sjamsudin: <b>Orthognathic Surgery in Orthodontic, Why &amp; When (Case Report)</b>	Erlina Sih Mahanani, Muhammad Firdaus Mohd Shuimi: <b>The Odontoblast Density in the Crown and Root of Single Rooted Human Teeth</b>
14.40 – 15.00	Kussulistyowati Putri W., Benny M. Soegiharto: <b>Botox Injection as an Alternative Treatment For Excessive Gingival Display (Literature Review)</b>	Helsa Ramelya, Heriandi Sutadi: <b>Management of Radicular Cyst and Fibrous Epulis in a 11-Year Old Girl (A Case Report)</b>	Agnes Sukandar, Nia Ayu Ismaniati: <b>The Role of Autotransplantation in Orthodontic Treatment (Literature Review)</b>	Tetiana Haniastuti <b>Immunohistochemical Study of the Innervation of Human Carious Teeth Using Protein Gene Product 9.5</b>

<b>POSTER PRESENTATION</b>		
<b>Saturday – November 13, 2010</b>		
<b>Venue: Mirror Room</b>		
<b>No</b>	<b>AUTHOR(S)</b>	<b>TITLE</b>
1.	Agi Ardianti, Maria Purbianti	<b>Non-Extraction Treatment of Class III Malocclusion With Anterior Crowding (Case Report)</b>
2.	Amiyatun Naini, Suhartini.	<b>The Ability to Adhere Candida Albicans of Acrilic Resin and Valplast Denture Base</b>
3.	Anna Ferlinasari, Kamizar	<b>Case Report Conventional Retreatment on a Maxillary First Molar with Broken Instrument in Mesiobuccal Canal</b>
4.	Ardo Sabir	<b>Using Flavonoids as a Natural Products With High Pharmacological Potency to Improving Oral Health</b>
5.	Ardo Sabir	<b>Rat dental pulp tissue reaction after capped with propolis derived non-flavonoids extract</b>
6.	Auerkari EI, Adiwirya MSK, Widurini DS, Sandra F, Wicaksono BD	<b>White Tea Extract Reduces the Viability of Oral SCC Cell Lines in vitro by Inducing Apoptosis</b>
7.	Aynie Yunita, Safrida Hoesin	<b>Non-Vital Tooth Bleaching of Discolored-Maxillary Central Incisor: A Case Report</b>
8.	Besse Tenri Awaru	<b>The Therapeutic Properties of Propolis in Conservative Dentistry and Endodontic Treatment</b>
9.	Boenjamin-Partakusuma F, Ibrahim-Auerkari E, Dillon DH, Suharsini M <sup>1</sup>	<b>Anemia and underweight among Indonesian Schoolchildren with Angular Cheilitis</b>
10.	Budi Yuwono	<b>The Effect of Coffe Consumtions on Bone Wound Healing</b>
11.	Budi Yuwono, Abdul Rochim	<b>The Effect of Vital Sign on Adrenalin Addition in Local Anaesthetic on Block Injection of Alveolaris Inferior Nerve</b>
12.	Christine A. Rovani	<b>Intracoronal Bleaching of discolored non-vital anterior tooth with Walking Bleach Technique</b>
13.	Desi Sandra Sari	<b>Calprotectin In Gingival Crevicular Fluids Correlates With Clinical Parameter And With The Count Of Black-Pigmented Anaerobes Bacteria On The Aggressive Periodontitis</b>
14.	Devy Noviana, Ratna Meidyawati	<b>Intentional Endodontic Treatment On Maxillary Second Molar to Prepare the Tooth as an Abutment for Fixed Partial Denture</b>

15.	Dewi Kristiana	The effect of <i>Averrhoa Bilimbi</i> Leaf Extract as Denture Cleanser on The Transversal Strength of Acrylic Resin
16.	Didin Erma Indahyani, Izzata Barid , Ari Tri Wanodya Handayani	Effect of Lemuru Fish oil on Tooth Structure Following lipopolysaccharide-induced Periodontal Infection during odontogenesis in rat
17.	Dini Asrianti	Esthetic Onlay as a Restoration of Choice in Post Endodontic Posterior Tooth (Case Report)
18.	Dwi Prijatmoko	The Role of Body Composition in Determining Bone Maturity
19.	Dyah Juniar Hymawatty	The PFAPA Syndrome in Oral Medicine: Differential Diagnosis and Treatment
20.	Dyah Setyorini, Sulistiyani	Effectiveness of Fluoride Topical Application on the Number of Streptococcus Mutans Colony
21.	Eddy Hermanto, Andri Hardianto	Peripheral Osteoma of the Mandible : a Case Report
22.	Emy Ardana	Resin Based Root Canal Sealer Combined With Self-Etching Bonding Agent
23.	Febriana Setiawati Sugito	The Pattern of Severe-Early Childhood Caries (S-ECC) of Children Under Three Years Old in DKI Jakarta
24.	Febrina Rahmayanti, Yuniardini S Wimaradhani	Aphthous Like Ulcers in Patient with Gastrointestinal Disorder (A case report)
25.	Femmy Riyeni Puteri, Hendrarlin Soenawan	Fiber-Reinforced Composite as A Fixed Space Maintainer : A Case Report
26.	Ferry Jaya, Yosi Kusuma Eriwati	Effect of Surface Treatment On Adhesion to Dentin
27.	Ferry P Gultom	Use Neighbour Joining Technique to Inactivate Gene cdt Aggregatibacter Actinomycetemcomitans Bacteria
28.	Ganesha Wandawa, Dewi Nurul Mustaqimah, Elza Ibrahim Auerkari, Suyanto Sidik	Hyperbaric Oxygen as Alternative Adjunctive Therapy in Treatment of Chronic Periodontitis: Its Effect on Periodontal Pathogens
29.	Hesti Witasari, Mulyati Usman	Case report: Endodontic Retreatment using Retreatment Rotary systems
30.	I Dewa Ayu Ratna Dewanti	Neem leaves ( <i>Azadirachta indica</i> ) Improved Oral Mucosa Defense Mechanism Against <i>Candida albicans</i>
31.	Iin Eliana Triwahyuni	Effect of Immunosuppression and <i>C.albicans</i> Infection to The Macrophage Phagocytosis Activity
32.	Imelda Sriulina Sinulingga, Himawan Halim	Compromised Treatment of Skeletal Class III Malocclusion in Adult
33.	Indah Ekasari , Faruk Hoesin	Treatment of severe crowding case
34.	Immaleny, Nurlan Sumawinata, Dewi Fatma, Marline Abdassah	Acute Toxicity Test of an Analgesic Herbal <i>Jatropha Curcas L. Latex</i> on Animal Models
35.	Isnandar, Kasman Manullang, Hendro S. Yuwono	Marginal Resection of Cemento-Ossifying Fibroma on Mandible Anterior Region (A Case Report)
36.	Jeffrey Limanto, Himawan Halim	Management of Dental Anterior Open Bite with Tongue Thrust Habit Using Combination of Tongue Crib and Manipulation Braket Placement ( Case Report)
37.	Jummyanto Pareang, Andi Sumidarti Anas	Comparison of Antibacterials Activity of Citronella Essential Oil ( <i>Cymbopogon winterianus</i> ) and Cinnamon Essential Oil ( <i>Cinnamomum burmanii</i> ) to the Growth of Bacteria Found in Caries.
38.	Juni Jekti Nugroho	Management of Non Vital Immature Teeth (Case Reports and Review)
39.	Kemala. N	Treatment of Non-Vital Tooth Discoloration using Internal Bleaching Technique
40.	Mindya Y, Hedijanti J, Niniarty Z.D	pBMP-2 Transfection into an Odontoblastic Lineage Cell as a Stem Cell Contribution for Regenerative Dentin Formation
41.	Ratna Farida, Endang Bachtiar , Melissa, Jeng Seriana, Rina Septriani.	The Effect of Gel Containing Anti Streptococcus mutans Serotype-C IgY on the Formation of S.mutans Biofilm (in vitro)
42.	Sarwono AT, Widurini, Andajani TW, Arifa	Anti-Inflammatory Activity of Outer Layer Aloe Barbadensis Leaf Extract on Accelerate Healing Process of Oral Mucous Ulceration
43.	Sri Utami, Sri Rejeki, BM Bachtiar, Purwita Nurwidyastuti	Effect of Xylitol Chewing Gum on Protein Concentration of Salivary Mutans Streptococci
44.	Widurini.DS. Sarwono AT, Septiana NS, Auerkari EI	The Effect of Black Cummin Application to Oral Mucous Inflammation



**POSTER PRESENTATION**  
**Sunday – November 14, 2010**  
**Venue: Mirror Room**

<b>No</b>	<b>AUTHOR(S)</b>	<b>TITLE</b>
1.	Leliana S Devi AP	Management Treatment of Class II Division 1 Malocclusion with Multiple Diastemas in Lower Arch (Case Report)
2.	Leliana S Devi AP, Rina Sutjiati	Corrosion Behavior of Titanium Orthodontic Wire
3.	Lina Handayani	Extirpation of The Tongue Fibroma in Children (Case Report)
4.	Lusi Hidayati	The Increase of Gingival Sulcus Volume and Calprotectin Degree on Abutment Teeth Fixed Partial Denture
5.	Maria Davina, Dewi Anggraini Margono	Case report: Two Types of Endo-Perio Lesions in One Mouth
6.	Marta Juslily, Mita Juliawati	Establish an Emotional Connection between Patient and Dentist to achieve High Performance Dental Practice
7.	Marty Adani, Faruk Husein	Deep Over Bite Correction in Class II Division 2 Malocclusion Using Reverse Curve Arch Wire
8.	Miesje Karmiati Purwanegara	Early Detection of Mouth Breathing as a Bad Habit
9.	Mita Juliawati , Marta Juslily	The Role of Human Resource Management in Dental Practice
10.	Muhammad Nurul Amin	The Role of Osteoclast and Osteoblast in Accelerating Orthodontic Tooth Movement
11.	Novandyta Hapsari, Nila Kesuma	Endodontic Therapy Through Artificial Crown - case report
12.	Palupi Kumara Sari, Agus Nurwiadh, Rama Nusjirwan	Upper Airway Obstruction Caused by Odontogenic Infection (Case Report)
13.	Patricia Iskandar, Haru Setyo Anggani, Retno Widayati	Patient's Knowledge About The Benefits and Side Effects of Orthodontic Treatment in RSGMP FKG UI
14.	R. Indriutami. N. Sumawinata.	Endodontic Retreatment on Weine Type 4 Configuration Mandibular First Premolar
15.	Rasmidar Samad, MS, Ra'idah Bulu, Herman Yapardi	Parents Perception Related to Impact of Children Dental and Oral Health to Quality of Life of Their Children in Urban and Rural Areas in Makassar Municipality
16.	Renta Frianty, Krisnawati	Treatment of protusion and open bite case with extrusion upper molar using transpalatal arch as anchorage
17.	Rina Sutjiati, Iin Eliana Triwahyuni	Decreasing of The Total Number of Cervical Lymph Node Cells Caused By Immunosuppression and Candida albicans Infection
18.	Rizka Kusumah Adriani, Daru Indrawati	Non-vital Tooth Whitening Treatment with the Walking Bleach Technique using 35% Hydrogen Peroxide Gel: Case Report
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20.	Sitti Andi Rahmayanti Laya	Descriptive results of the profile of dental practitioners who use digital dentistry in Malaysia
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22.	Sumintarti, Erni Marlina	Oral Traumatic Ulcer
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# GENERAL INFORMATION

## The 6<sup>th</sup> FDI - IDA International Joint Meeting & Balikpapan International Dental Exhibition 2010

Theme	Clinical Excellence and Green Dentistry: Bring Cheerful Smile to the World
Date	November 12 -14, 2010
Venue	Gran Senyur Hotel & Convention Center, Balikpapan - Indonesia
Official Language	English
Contact Information	PB PDGI Komp. Maissonette Kramat Jaya Baru B15.. Jl. Percetakan Negara II, Jakarta 10560 - Indonesia Phone: +62-21-4253861 / 4257974 Fax: +62-21-4253861 Homepage: <a href="http://www.pdgi.or.id">www.pdgi.or.id</a> Email: <a href="mailto:pbpdgi@cbn.net.id">pbpdgi@cbn.net.id</a>

- **Opening Ceremony**

All Speaker, delegates, accompanying person, invited guest, trades and visitors are cordially invited to attend the opening Ceremony on Saturday, 13<sup>th</sup> November, 2010 from 8.30 – 10 am at the Grand ballroom. All are to be seated at 08.25 am

- **Disclaimer**

Whilst every effort is made to ensure all aspect of the meeting mentioned in this announcement programmes will take place as scheduled, the Organizing Committee reserves the prerogative to make last minute changes should to need arise.

- **Entitlements**

Participants and Speakers are entitled to:

- ❖ Attend the seminar forum
- ❖ Free admission to trade exhibition
- ❖ Attend the opening ceremony
- ❖ Attend welcome dinner
- ❖ Lunch and coffee break coupons will be issued
- ❖ Registration Kit and Programme book

# 6<sup>TH</sup> FDI – IDA JOINT MEETING

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## Balikpapan International Dental Exhibition 2010

### COMMITTEE

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Dr. Yosi Kusuma Eriwati  
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Dr Ida Kurniati

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Dr Tesa K.  
Chairperson of the general affairs section of Balikpapan city local government

**PUBLICATION & DOCUMENTATION**

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- Dr Tesa S  
- Chairpersons of IDA Branches in East Kalimantan

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**REFRESHMENT**

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Dr Ida Permana  
Dr Sekar Dianing

**LEISURE PROGRAM**

Dr I. Budiana  
Disporabudpar of Balikpapan city local government

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# **Effect of Lemuru Fish oil on Tooth Structure Following lipopolysaccharide-induced Periodontal Infection during odontogenesis in rat**

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## **ABSTRACT**

The aim of the study was to analyze effect of lemuru fish oil on tooth formation especially tooth structure that occurred periodontal infection during odontogenesis. Thirty Wistar rat, male, 5 days age, were divided 3 groups. The first group as control did not do anything. The second group rats were injected LPS to trigger periodontal inflammation. The third group rats were injected LPS and administered lemuru fish oil orally/day/1 ml/300-350g body weight. The rats were decapitated on age of 13 and 21 days. Analyze of tooth structure used HHI index. The result of study was known that inflammation of periodontal during odontogenesis product tooth hypoplasia and hypocalcification. Scoring of HHI index was 9 and 8, mean that hypoplasia and hypocalcification involved all of tooth surface. Lemuru fish oil able suppresses tooth hypoplasia and hypocalcification. Rats that were inducted LPS and treated lemuru fish oil have HHI index approximately 5 and 6, mean that tooth hypoplasia and hypocalcification involved one of surface of tooth. In addition there were more rats without hypoplasia or hypocalcification. The conclusions were lemuru fish oil proficient to prevent occurred tooth hypoplasia and hypocalcification.

Key words: Fish oil, Lipopolysaccharide, hypoplasia and hypocalcification, odontogenesis.

## **BACKGROUND**

Odontogenesis is a very complex process involving many factors, bone cells, and tooth. Dentition period beginning with the proliferation of cells and is followed by the process of cell differentiation. At these events, outline form teeth began to appear. The next stage was the stage of apposition. Apposition stage is the stage of secretion and matrix deposition by the formative cells. Teeth were still located in the crest bone. The last step was calcification, which was the deposition of mineral materials in the matrix protein. Phase apposition and

calcification are the most sensitive in the future growth and development. Eruption will occur if the crown has been formed. Eruptive phase is very easily influenced by local factors as well as systemic.<sup>1,2</sup>

Impaired growth and development of the teeth and their supporters can occur during the development of intra-uterine or extra uterine. The disorder is usually caused by nutritional deficiencies, infections, trauma or hormonal disorders.<sup>3</sup> Abnormalities in the development of this so-called amelogenesis imperfecta. Enamel hypoplasia caused by the disruption ameloblast formation, whereas enamel hypomineralization caused by the failure of the process of mineralization. Hypoplasia of enamel is also caused by the interference of matrix formation, so that the enamel is not fully formed. Therefore, hypoplasia be regarded as a deficiency of enamel thickness. In hypocalcification, matrix formation is not disrupted but did not happen mineralization are good, so-called lack of calcification.<sup>3</sup>

Enamel hypoplasia is quantitative abnormalities, while enamel hypocalcification is a qualitative disorder. Both disorders commonly occur together.<sup>4</sup> Hypoplasia enamel looks like a well-wells, which is composed of horizontal and mainly found in the buccal region. In severe conditions, most of the enamel is lost, so hypocalcification manifest in the form of white spots,<sup>3</sup> with varying sizes and shapes. Enamel will fracture more easily at a normal chewing pressure. Abnormalities of the quality and quantity of enamel causing tooth more susceptible to caries and more sensitive because it has calcium and phosphorus content low. In accordance with research Indahyani, et al.,<sup>5</sup> that LPS induction during odontogenesis resulted in tooth enamel hypoplasia and

premature eruption because LPS induces bone resorption surrounding the tooth bud.

Lemuru fish oil containing n-3 PUFA EPA and DHA that is high enough. N-3 PUFAs have been known to reduce inflammatory mediators and cytokines proinflammatori, which plays an important role in alveolar bone resorption. Fish oil containing EPA and DHA which can inhibit the formation and activity of osteoclasts<sup>6</sup> and prevent alveolar bone resorption by increasing the formation of hydroxyapatite.<sup>7</sup> Therefore lemuru oil contains EPA and DHA, so the estimate of fish oil can prevent bone resorption. The purpose of this study was to analyze how the effect of fish oils on the formation of teeth, especially on the structure of teeth in rat that were infected periodontal tissues during odontogenesis

## METHOD

This research was conducted on 30 male Wistar rats aged 5 days, which divided into 3 groups. Each group was divided into 2 sub groups to be observed at 13 days and 15 days. Group I, rats did not receive any treatment. Group 2, rats injected with E coli LPS (Sigma) in the upper left molar region with a dose of 5µl / 0.03 ml PBS. Injection once every 24 hours as much as 8 times. Group 3, LPS injection in the region and the same dose as group 2, and given a dose of fish oil with 1ml/300-350 g / BW / day / orally until euthanasia performed. Data obtained by observing the structure of the tooth under bright light, and stratified by the HHI index.<sup>8</sup>



HHI Index :

1. 0= no hypoplasia or hypocalcification
2. 1 = hypocalcification occur at half the incisal or occlusal tooth crown
3. 2 = hypocalcification occur in the cervical half crown
4. 3 = hypoplasia occur at half the incisal or occlusal tooth crown
5. 4 = hypoplasia occur in the cervical half crown
6. 5 = hypocalcification <half the facial surface of tooth crown
7. 6 = hypocalcification> half the facial surface of tooth or crown which involved more than one tooth surface
8. 7 = hypoplasia <half the facial surface of tooth crown
9. 8 = hypoplasia> than half of the facial surface of tooth or crown which involved more than one tooth surface
10. 9 = hypocalcification / hypoplasia not included above (hypoplasia are diffuse, and confined to a surface other than facial).

The data has been collected, analyzed using the Kruskal Wallis test to determine significance

Result. Administered of lemuru fish oil in the rat odontogenesis suffered periodontal infection could prevent tooth formation disorder. Result of research was in table 1.

Table 1 : Frekwensi of HHI index in each of treatment groups.

Treatment	Scoring of HHI Index									
	0	1	2	3	4	5	6	7	8	9
Control 13 days	5									
Control 21 days	5									
LPS 13 days									2	3

LPS 21 days										4
LPS& fish oil 13 days	2					2	1			
LPS& fish oil 21 days						3	2			

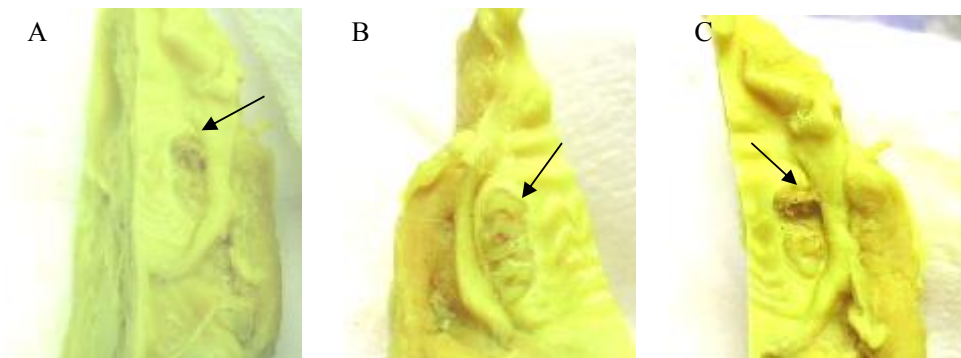
In the control group, rat that did not receive any treatment have the time of tooth eruption, the structure of enamel and dentin is normal. Induction of LPS resulted in hypocalcification and hypoplasia and enamel, and tooth eruption prematurely (premature eruption). The data show that, the control group on days 13 and 21, all rats (5 rat each), have the HHI index of 0, meaning no abnormal tooth structure.

In LPS-induced rats at the age of 13 days, which has the HHI index 8 were 2 tailed, and the HHI index 9 of 3 tails. Index 8 indicated occur hypoplasia in more than half the facial surface of tooth or crown which involved more than one tooth surface, while 9 is hypoplasia occur than half the surface of the tooth crown facial (which involved other than in facial or diffuse). LPS-induced rat, at age 21 days, all rat have an index of 9, meaning that all rats had hypoplasia and enamel hipoklasifikasi difuse. Rats fed fish oil lemuru, have lower HHI index, with scores of 5 and 6, which means impaired rat tooth calcification, even in rats that were 13 days, 2 rats did not experience nor hypocalcification hypoplasia. Kruskal Wallis test, showed significant difference ( $p < 0.05$ ). To find significant differences between groups analyzed using Mann Whitney test.

## DISCUSSION

Induction of LPS caused hypoplasia and hypocalcification tooth significantly. Lemuru fish oil reduced the occurrence of hypoplasia and

hypocalcification on enamel or dentin. The results of this study indicated that LPS induction during tooth growth and development resulting in enamel hypoplasia. Induction of LPS resulted in stimulation of osteoclasts, it could destroy bone tissue. Prism of enamel which deposited at the stage of apposition and deposition would be damaged,<sup>9</sup> this was due to become active osteoclasts. Its activities resulted in the occurrence of resorption. Also ameloblasts cells are the cells most sensitive to environmental changes.<sup>10</sup> Physiological and pathological changes will affect ameloblasts and cause structural changes in an enamel. Usually, the changes are not visible clinically but only visible with a microscope. Disorder or infection can lead to disturbances in the secretion of enamel matrix, or cause death ameloblast. The disorder usually caused clinically visible. Clinical features in hypoplasia and hypocalcification can be seen in Figure 1.



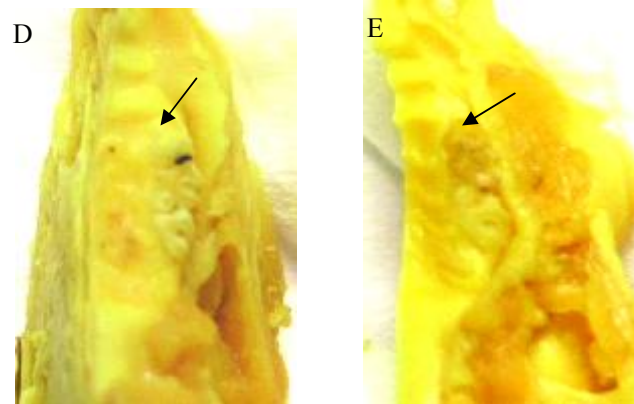


Figure 1. Hypoplasia and hypocalcification on enamel and dentin

A, C, rats induced with LPS, his teeth had hypoplasia and hypocalcification on all surfaces; B. Control, tooth eruption has a good tooth structure, D, E, dental experience hypocalcification or hypocalcification on one tooth surface

Local infection in the periodontal tissues that is acute or chronic, which occurs during tooth development, can cause failure of tooth bud cells to stages of development, ie initiation (bud stage), proliferation (cup stage), histodiferensiasi and morfodiferensiasi (bell stage), apposition and calcification that cause abnormalities in the shape, quality and quantity of tooth eruption.<sup>11,2</sup> In enamel hypoplasia, usually there was a failure in the process of amelogenesis. Amelogenesis (enamel formation) was part of the overall process of tooth development. Amelogenesis process performed after the formation of dentin perfect. There were 2 stages of amelogenesis, the secretory phase (apposition), which involved the formation of organic matrix and matrix proteins and was referred to as enamel. This stage play a role in the process of enamel mineralization. Apposition phase and matrix deposition by formative cells were most sensitive stage in the growth period. Basically molar tooth development in rat and humans showed the same stages in the embryonic period until the eruption. Amelogenesis molars in rats, starting from 20-21 days

old intrauterine and fully formed at age 11 days post-uterine. LPS induction was performed on rats aged 5 days, resulting in interference with the ongoing process of amelogenesis

LPS resulted in increased IL-1 $\alpha$ , IL-1 $\beta$ , IL-6, tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) and PGE 2, leading to increased number and activity of osteoclasts. This caused damage to alveolar bone, and the body fails to stimulate the formation of fibrous wall which would localize the infection, resulting in the spread of infection in the tooth bud. Osteoclasts and odontoclast would continue to degradation of bone matrix and newly formed enamel matrix, and interfere ameloblast.

At 5 days old rats, ameloblast was forming enamel matrix and the deposition of organic and inorganic materials is in progress. Induction of LPS resulted in the death of several cell ameloblast, thus failing formed enamel matrix. In normal circumstances ameloblast cells secreted enamel matrix with a certain thickness.<sup>2</sup> Therefore, did not form enamel matrix, then there was not formed some enamel until the time the tooth eruption. As a result, the enamel became thinner and there are some holes or depressions in the surface. After the thickness of the enamel matrix was considered sufficient by the ameloblast cells, ameloblast function would change and contribute to the process of enamel maturation. During the maturation process progresses, the qualitative and quantitative changed of organic components in enamel. Other changes also occurred in an organic component of enamel, such as increased influx of calcium and phosphate in quick time. This action caused the crystal growth in the gap formed by the loss of organic matter and water.

Striated border and alkaline phosphatase in ameloblast play an important role in the transport of inorganic ions through the cell membrane during enamel maturation. Reduced and the change in cell ameloblast therefore LPS induction, the deposition of organic materials and inorganic were disrupted, so that the process of enamel mineralization was not perfect. Enamel was thin due to disruption of mineralization, resulting in teeth appear yellow brown. Brownish yellow color was due to the dentine would appear transparent and there were some areas that were open dentin. Dentin has more yellow color due to a lower inorganic content than enamel.<sup>2</sup>

Lemuru fish oil would inhibit the occurrence of alveolar bone resorption stimulated by LPS. The content of n-3 poly unsaturated fatty acid (n-3 PUFA) in lemuru oil could reduce the production of cytokines proinflammatory and prostaglandin E-2 (PGE<sub>2</sub>) so that the number and activity of osteoclasts were not as high in rat that only LPS induced. Giving fish oil had led to the increase in eicosapentaenoic acid (EPA) and docohexaenoic acid (DHA) in cell membrane phospholipids. This increase led to increased production in non-inflammatory eicosanoid, such as tromboxan-5 (TBX5), leucotrine-4 (LTB4) and prostaglandin E-3 (PGE<sub>3</sub>), and significantly reduces TXB2, PGE2, interleukin-1 (IL-1) and tumor necrosis factors) (TNF- $\alpha$ ). PGE<sub>2</sub> and PGE<sub>3</sub> had similar stability and structure, but PGE<sub>3</sub> were less efficient in performing the cell proliferation of fibroblasts, stimulated the formation of cytokines and induce gene expression of cyclooxygenase (COX-2) compared with PGE2. COX is a prostaglandin synthase (an enzyme that acts on the synthesis of prostaglandins from AA). COX altered the arachidonat (AA) to PGH2 precursor prostanoid.<sup>12</sup>

The decrease of cytokines was associated with decreased antigen presenting cell (APC) activity, i.e. reduced expression of major histocompatibility (MHC) class II molecules and intercellular adhesion molecule (ICAM).<sup>13</sup> Expression of MHC class II was also a prerequisite for the function of APC and ICAM (a receptor molecule on the APC are macrophages).<sup>14</sup> In addition, EPA and DHA caused a decrease in PGE 2, due to changes in EPA and DHA in cell membranes. Cell membrane rich in EPA and DHA caused an increase PGE3 (anti-inflammatory). APC activity was decreased and the low PGE-2, caused proinflammatory cytokines (IL-1 and TNF-alpha) also decreased. The low cytokine contributed to inhibit the formation of high nitric oxide (NO) and also inhibits the stimulation of protein receptor that was NLRs play a role in apoptosis of osteoblasts.<sup>15,16</sup> Therefore, fish oil would inhibit excessive bone resorption, which could disrupt the growth and development of tooth bud.

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#### REFERENCES

1. Farris. Griffith. The Rat in Laboratory Investigation. New York: Hafner Publishing Co; 1971. p. 124
2. Nancy A. Ten Cate's : Oral Histology (Development, Structure, and Function). 6<sup>th</sup> ed. St. Louis: Mosby Inc; 2003. p. 141-91

3. Schuurs AHB. Moorer WR. Prah-Andersen B. Van Velzen SKT. Visser JB. Patologi Gigi-Geligi: Kelainan-Kelainan Jaringan Keras Gigi. Sutatmi Suryo. Yogyakarta: Gadjah Mada University Press; 1992. h. 61-63
4. Weerheijm KL. Jalevik B. Alaluusua S. Nonfluoride Hypomineralizations in The Permanen First Molars and Their Impact on The Treatment Need. *Caries Res.* 2001; 35: 36-40
5. Indahyani, DE., Santoso, ALS., Utoro, T., Soesatyo MH., 2007, Lipopolysacharide (LPS) introduction during growth and development period of rat's tooth toward the occurrence of enamel hypoplasia, *Dent J (Maj Ked Gigi) FKG-Unair*, 40 (2): 85-88.
6. Indahyani, DE., Pudyani, PS., Santoso, ALS., Jonarta, AL., Sosroseno, W., 2002, The Effect of Fish Oil on Bone Resorption Following Pulp Exposure in Rats, *Dent Traumatol*, 18: 206-211
7. Indahyani, DE., 2008, Pengaruh Pemberian Minyak Ikan terhadap Proses Erupsi Gigi dengan Infeksi Tulang Alveolaris pada Tikus yang Diinduksi Lipopolisakarida (LPS) (*kajian pada ekspresi bone sialoprotein, osteopontin dan fase erupsi gigi*), *Disertasi*, Universitas Gadjahmada.
8. Hargreaves JA. Cleaton-Jones PE. Williams SDL. Hypocalsification and Hypoplasia in Permanent Teeth of Children From Different Ethnic Groups in South Africa Assessed With a New Index. *Adv Dent Rest.* 1989; 3(2):126-31
9. Heiserman DL. Oral and Maxillofacial Pathology. Available from: <http://www.waybuilder.net/free.ed/qlinks03/contct.asp?usr>. Accessed November 28, 2006
10. Navarro LF. Garcia AA. Marco JM. Llana-Puy MC. A Study of the Clinical, Histopathologic and Ultrastructural Aspects of Enamel Agenesis: Report of Case. *J Dent for Child.* 1999; 208-12
11. Osborn, JW., Ten Cate, AR., 1983, *Advanced Dental Histology*, fourth ed., WRIGHT PSG, Bristol.
12. Bagga, D., Wang, L., Farias-Eisner, R., Glspy, JA., Reddy, ST., 2003, Differential Effects of Prostaglandin Derived from  $\omega$ -6 and  $\omega$ -3 Polyunsaturated Fatty Acids on COX-2 Expression and IL-6 Secretion, *Proc. Natl. Acad. Sci. USA.*, 100(4) : 1751-1756,
13. Hughes, DA., Southon, S., Pinder, AC., 1996, (n-3) Polyunsaturated Fatty Acids Modulate the Expression of Functionally Associated Molecule on Human Monocytes *in-vitro*, *J Nutr.*, 126:603-610
14. Seymour, GJ., Savage, NW., Walsh, LJ., 1995, *Immunology: An Introduction for The Health Sciences*, McGraw-Hill Book Co Australia Pty Limited, Australia



15. Gumucio DL, Diaz A, Schaner P, Richards N, Babcock C, Schaller M, Cesena T, 2002, Fire and ICE: The role of pyrin domain-containing proteins in inflammation and apoptosis. *Clin Exp Rheumatol* 20, (Suppl 26):S45–S53.
16. Sutterwala FS, Ogura Y, Szczepanik M, Lara-Tejero M, Lichtenberger GS, Grant EP, Bertin J, Coyle AJ, Galan JE, Askenase PW, Flavell RA, 2006, Critical role for NALP3/CIAS1/Cryopyrin in innate and adaptive immunity through its regulation of caspase-1. *Immunity* 24:317–327.

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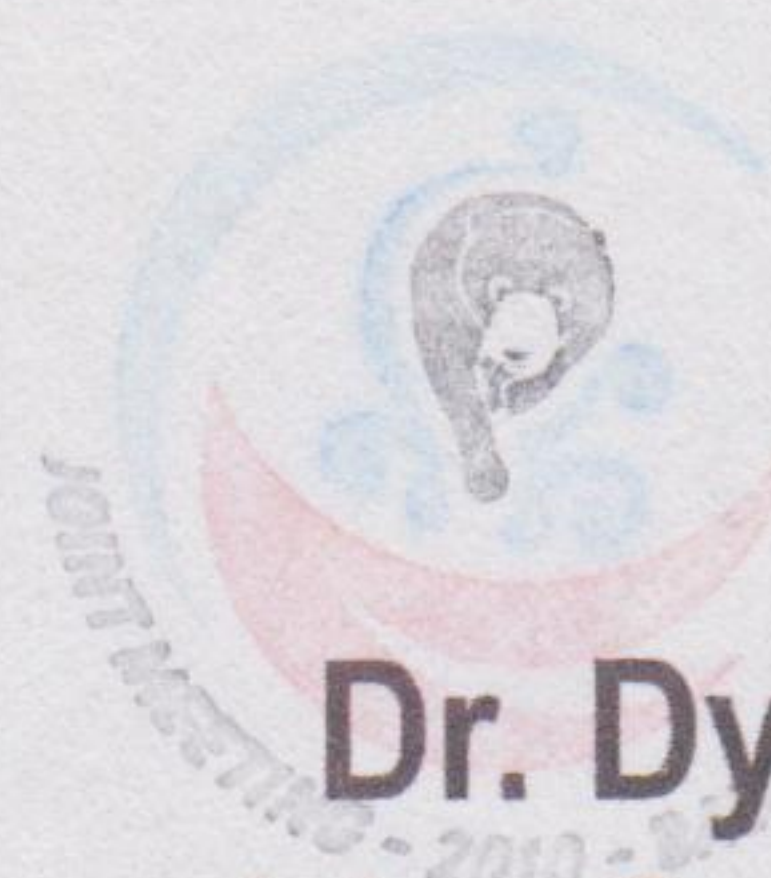
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