RESEARCH PLAN 2012 – 2017

ESTHETIC REHABILITATION

BEIRUT ARAB UNIVERSITY
FACULTY OF DENTISTRY
The Faculty of Dentistry research plan for the coming 5 years aims to cover topics related to esthetic rehabilitation through six basic trajectories:

1- **CAD/CAM Technology:**
   CAD/CAM technology offers new dimensions for computerized designing and fabrication of precise and accurate restorations for patients with diverse oral problems.

2- **New Biomaterials and Restorative Techniques:**
   New esthetic restorative materials and techniques are now possible with enhanced materials properties, bonding techniques, and restorative options.

3- **Implantology:**
   Restoration of extracted teeth with immediately loaded implants and reconstruction of soft tissue are gaining interest as treatment options.

4- **Oral and Periodontal Health:**
   Health of periodontium and early management of periodontal diseases is of prime importance to preserve health and esthetics.

5- **Orthodontics and Bioesthetics:**
   New advances in orthodontic treatment will be explored to improve function and esthetics.

6- **Tissue Engineering:**
   Tissue engineering and cell biology will cover wide topics of stem cells research, bone grafts, and regenerative medicine.
**Research plan trajectories:**

The research plan will cover six major trajectories illustrated in the attached figure:

| **CAD/CAM** | • Esthetics and shade match using CAD/CAM all-ceramic restorations  
• High translucency zirconia restorations  
• Marginal accuracy of zirconia restorations  
• CAD-on veneering  
• Fracture strength of CAD on veneered crowns |
| --- | --- |
| **New Biomaterials and Restorative Techniques** | • New concepts in adhesion and restorations  
• New concepts in tooth bleaching  
• Biodegradation  
• Endocrowns  
• Management of broken instruments using CBCT  
• Bioactive sealers and infected canals |
| **Implantology** | • Soft tissue reconstruction using implant supported restorations  
• Immediate loading following tooth extraction  
• Integrated abutments  
• Computerized planning  
• CAD/CAM metallic over dentures |
| **Oral and Periodontal Health** | • Survey of oral diseases in Lebanese patients  
• Cone beam evaluation of periodontal osseous defects treated with different bone grafts  
• Non-surgical treatment modalities for various periodontal disease |
| **Orthodontics and Bioesthetics** | • Orthosurgical reconstruction of nose, lips and occlusion in cleft lip and palate cases  
• The orthodontic perception of designing an aesthetic occlusal plane  
• The guidance of normal occlusion in children |
| **Tissue Engineering** | • Cell biology  
• Stem cells  
• Pulp revascularization |
**Strategy:**

Incorporation of required research methodology into students’ clinical requirement cases through splitting of the students into assigned groups, each handling one parameter under investigation.

During the study phase, review of literature will be conducted by research unit team members and updated reference list will be prepared.

Pooling and data analysis will be performed by principal investigator after completion of required number of cases in each research trajectory.

Technical writing of manuscript will be performed after statistical analysis of the data.
External collaboration with academic universities:

Alexandria University
Lebanese University

Collaboration with multinational companies:

Dentsply - Degudent
Amanngirbach
Ivoclar Vivadent

Duration:

5 years (2012-2017)

Expected outcome:

2 international publications in top 10 peer reviewed journals in each trajectory per year.
BAU Dental research unit:

Members:

Research unit director “Dean”
-Prof. Essam Osman

Research unit coordinator
-Dr. Moustafa Aboushelib

Academic staff
-Dr. Hala Ragab
-Dr. Mohammed Rayyan
-Dr. Nayer Abolsaad
-Dr. Roula Abiad

Post graduate students