DIGITALLY EMPOWERED ESTHETIC DENTISTRY
“FUNCTIONALLY AND BIOLOGICALLY DRIVEN DIGITAL SMILE DESIGN”
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INTRODUCTION
The evolution of digital dentistry has resulted in improvements in esthetic standards, beauty, and dental harmony, with the objective of enhancing clinical performance through digital simulations (1).

Digital Smile Design (DSD) is a powerful diagnostic tool that could improve treatment analysis, result predictability, professional patient management, and multidisciplinary communication between specialists (1, 2).

A proper treatment strategy is based mainly on the harmony of white (teeth) and pink (gingiva) esthetics. Therefore, a multidisciplinary approach using digital dentistry is essential for an accurate esthetic diagnosis and to attain an adequate treatment plan in order to achieve satisfactory results and restore oral health pragmatically and conservatively (3).

METHODOLOGY
A female patient of 27 years reported to the Department of Prosthodontics, Faculty of Dentistry, University of Alexandria with the chief complaint of bad esthetics of the anterior teeth. On Clinical examination patient had multiple discolored old anterior composite restorations leading to an unsatisfied smile and was planned to receive esthetic rehabilitation (Figure 1).

The digital models were attached to the virtual articulator using facebow oriented maxillary cast on a semi adjustable analogue articulator (Bioart A7 Plus). Protrusive and lateral angles were transferred to the virtual articulator on Exocad dental software based on its analogue equivalent. After that, all the mandibular movements necessary to create an occlusally harmonized prosthesis could be simulated by the virtual articulator (Figure 2).

The extent of gingival recontouring while respecting biological width was estimated by DSD in accordance with CBCT analysis then a 3D printed wax-up model was fabricated to perform a motivational mock-up (Figure 5).

The designed prosthesis was 3d printed using a castable resin to transform the virtual design to reality. It was then tried intraorally for fit, contacts, and harmony before being pressed into a lithium disilicate fixed restoration. (Figure 6).

RESULTS AND DISCUSSION
Accurate fit of the fixed prosthesis in its place with acceptable contacts, esthetics, occlusion and recontoured healthy gingiva.

CONCLUSION
The predictability of esthetic rehabilitation along with biological and functional essentials could be improved by digital dentistry.

Figure (1): Smile close-up view
Figure (2): Mounting and records transfer to the virtual articulator
Figure (3): Digital smile design using Exocad dental software
Figure (4): Group Function Occlusal Scheme
Figure (5): 3D printed DSD model used for the Motivational mock-up
Figure (6): Final esthetic restorations from designing to production

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REFERENCES