

The Newest Generation of Aesthetic Dentistry – Digital Smile Design

By Dr. Natalia De Rábago, Spain

Digital Smile Design is part of the new digital revolution in Aesthetic Dentistry, helping dentists to approach cases more easily and accurately as well as create a better communication between the rest of the team.

Digital Smile Design (DSD)

As dentists, you may often find you have cases that require complicated treatments and aesthetic procedures. A diagnosis from the dental chair is often no longer enough to make a proper analysis and correct diagnosis.

Today, it is necessary for these procedures to begin with the use of digital technology with digital pictures and impressions. You can then transfer everything to the computer and work on the overall treatment procedure from there rather than directly from the patient. DSD allows

you to be more accurate, precise and creative when designing the optimal treatment procedure.

To create an accurate DSD, you will require:

- A digital camera
- Digital records (A strict photography protocol should be followed in every case to keep a concise record and show all aspects of each treatment)
- A computer programme suitable for Aesthetic Dentistry
- Study models for taking real measurements of the teeth.

The following steps can then be used to complete your DSD restorations:

1. It is first-off important that you have a good knowledge of Aesthetic Dentistry basics in order to create a DSD. You should be able to recognise the correct position and proportion of all elements involved in a beautiful smile, including:
 - Teeth exposure during rest posi-

tion and smile according to the age of the patient

- Midline - facial and dental
- Smile line - high smile, medium smile or low smile, ie: how much of and how many teeth show when smiling
- Profile - convex or concave
- Gum exposure – identifying a gummy smile and the correct procedure for solving this problem
- Smile symmetries
- Teeth size, color, texture and proportion
- Papillas – the correct amount of interdental papilla exposure will determine the beauty of each smile

2. Once you have transferred all of the records to your computer, you can then analyse the patient's pictures and work in all of the above parameters, both extraoral and intraoral (See Fig.1a, Fig.1b)



Fig. 1a: Smile analysis

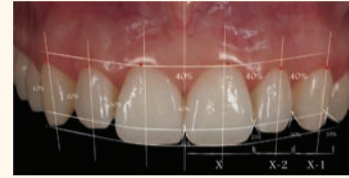


Fig. 1b: Intraoral analysis

3. Using the suitable programme, you can then design the appropriate smile for the individual patient. (See Fig. 2a, Fig. 2b, Fig 2c)



Fig. 2a: DSD



Fig. 2b: DSD and analysis



Fig. 2c: DSD ready to be presented to the patient

4. Once the DSD has been created, you can transfer all of the information to the lab technician allowing him/her to build the wax-up and finally proceed to the mock-up (a prototype of restorations that will be created).



Fig. 4a: Mock-up in place



Fig. 4b: Intraoral picture with mock-up in place



Fig. 4c: Rest position to evaluate the teeth exposure and the lip support

5. After the mock-up has been tested and adjusted as necessary, you should then check that the DSD matches what has been created. You are then able to carry on the restorations as planned.

You will find a DSD is a remarkable tool for planning a treatment procedure digitally as well as creating the wax-up and future mock-up, temporaries and final restorations. It is the best way to work closely with the laboratory (see Fig. 3), saving time and further patient visits and you are able to show the patient actual approximate results with the computer image you have created.

►Page 30



Fig. 3: Communication with the lab



Fig. 5a: Gum recontouring with laser



Fig. 5b: Teeth after gum recontouring



Fig. 5c: Veneer preparation



Fig. 5d: Veneer insertion

ORTHO SPECIALISTS





Positioner



First Class



Fast Track



Sleep Apnea



Quad Helix

www.qualident-online.com

Follow us on:  



Tel. No. +971 4 342 7576
 Fax: +971 4 342 7016
 Email: info@qualident-online.com

◀Page 28



Fig. 5e: Final situation with preliminary design overlapping to check accuracy



Fig. 5f: Initial situation with DSD



Fig. 5g: Initial situation intraoral picture



Fig. 5h: Final situation with Upper 7 veneers and one temporary implant crown



Fig. 5i: Before



Fig. 5j: After

References

1. McLaren EA, Tran Cao P. Smile analysis and esthetic design: "in the zone." *Inside Dent.* 2009;5(7):46-8.
2. Rufenacht CR. Principles of esthetic integration. Hanover Park (IL): Quintessence Pub.; 2000.
3. McLaren EA, Rifkin R. Macroesthetics: facial and dentofacial analysis. *J Calif Dent Assoc.* 2002 Nov;30(11):839-46.
4. Morley J, Eubank J. Macroesthetic

- elements of design. *J Am Dent Assoc.* 2001;132:39-45.
5. Vig RG, Brundo GC. The kinetics of anterior tooth display. *J Prosthet Dent.* 1978;39:502-4.
- Kokich VO, Kiyak HA, Shapiro PA. Comparing the perception of dentists and lay people to altered dental esthetics. *J Esthet Dent.* 1999;11:311-11. California, and Raleigh, North Carolina. 24.
- Disclosure: Mr. Culp receives an honorarium from IVivadent.
6. Stephen J. Chu, DMD, MSD, CDT Dennis, Jocelyn H.-P. Tan, DDS, Christian F. J. Stappert, DDS, MS, PhD. *Papilla Proportions in the Maxillary Anterior Dentition*, 2009 BY QUINTESSENCE PUBLISHING CO, INC
7. Fradeani M. Esthetic analysis: a systematic approach to prosthetic treatment. Hanover Park (IL): Quintessence Pub.; 2004.
8. Lombardi RE. The principles of visual perception and their clinical application to dental esthetics. *J Prosthet Dent.* 1973;29:358-81.
9. Davis NC. Smile design. *Dent Clin North Am.* 2007;51:299-318.
10. Chu S, Karabin S, Mistry S. Short tooth syndrome: diagnosis, etiology and treatment management. *J Clin Dent Am* 2004; 32(2): 143-152
- Edward A. McLaren, DDS, Lee Culp, CDT AACD; Smile Analysis, the photoshop smile design technique: Part I; *J. of cosmetic dentistry* 2013
11. A Biometric Approach to Aesthetic crown Lengthening: part II, Interdental considerations. Stephen J. Chu, DMD, MSD, CDT, Mark N. Hochman, DDS, Paul Fletcher, DDS
12. Esthetics and smile characteristics from the layperson's perspective, A computer-based survey study. A.J. Ker, DDS, MS; Richard Chan, DDS, MS; Henry W. Fields, DDS, MS, MSD; Mike Beck, DDS, MA; Stephen Rosentiel, BDS, MSD ^{DT}

Sharing is caring...



Dubai Dental Program
Coming SOON...

Dubai Dental Program is launching in 2017. The courses will always remain small and hands-on. We believe that it is one of the best ways to learn, so that you are more confident in applying your new gained knowledge and skill in practice.

Register your interest today, email ddp@dradubai.com

LIMITED SPACES AVAILABLE



Dr. Natalia De Rábago
Dr. Natalia was graduated from the "Alfonso X el Sabio" dental school in Spain. Since then, she has been working as a

general and aesthetic dentist. She built her career between England and Spain, before moving to New York to complete a post-graduate program in "Aesthetic and Cosmetic Dentistry" at the New York University, NYU. She is a speaker collaborator in Aesthetic programs at CEODONT, Spain, and has been the director of the NYU international program "Essentials for the Esthetic Dentist", New York since 2013. Natalia was named as an "International Program Director and Leader" by the Linhart Continuing Dental Education Program, New York University, NY, representing her country, Spain. Dr. Natalia is currently working in Dubai, as an Aesthetic and Cosmetic Dentist.