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Learning Objectives

After completion of this exercise, the participant will be able to:

1. Contrast the image quality and handling characteristics of point-and-shoot and smartphone cameras with those of a digital single-lens reflex system.
2. Use an intraoral scanner to perform a digital setup and smile design.
3. Compare the effects of two noninvasive accelerative techniques on treatment duration and pain perception.
4. Describe a "surgery first" approach for more rapid treatment of skeletal dysplasia without presurgical orthodontics.

Article 1

Adcox, J.; Shepherd, B.E.; and Messersmith, M.: *Image Quality and Ease of Use of Six Orthodontic Camera Systems* (pp. 139-148)

1. Digital single-lens reflex (DSLR) cameras are optimized for orthodontic use with a high-quality 1:1 macro lens and a:
   a) light-emitting diode backlight
   b) ring flash or combination ring and point macro flash
   c) 1:2 or 1:3 macro zoom lens
   d) all of the above
2. Ease-of-use characteristics evaluated in this study included all of the following except:
   a) autofocus performance
   b) flash performance
   c) data-storage capability
   d) weight and grip
3. After the Canon DSLR, the camera with the next highest overall image-quality scores was the:
   a) Shofu
   b) PhotoMed
   c) Lester Dine
   d) iPhone
4. Overall scores for ease of use:
   a) were significantly higher for the iPhone vs. all other cameras
   b) were significantly lower for the Canon DSLR and Lester Dine cameras
   c) were significantly lower for the Shofu and CliniPix cameras
   d) did not differ significantly among the tested camera systems

Article 2

Battista, G.: *Face Scanning and Digital Smile Design with an Intraoral Scanner* (pp. 149-153)

5. A "virtual patient" is created by using all of the following except:
   a) intraoral scans
   b) cephalometric tracings
   c) cone-beam computed tomography
   d) facial scans
6. One potential disadvantage of facial scanning is that it involves:
   a) additional radiation exposure
   b) additional expense
   c) an additional step in the diagnostic workflow
   d) both b and c
7. In the author's procedure, a scan of the lips and perioral soft tissues was superimposed on an intraoral scan of the dentition using the program:

a) Geomagic Design
b) TRIOS 3
c) OrthoAnalyzer
d) Paintbrush

8. The maxillary and mandibular arches were combined in the original occlusion by importing them into the program:
a) Geomagic Design
b) TRIOS 3
c) OrthoAnalyzer
d) Paintbrush

Article 3

Maurya, R.K.; Singh, H.; Kapoor, P.; Jain, U.; and Mitra, R.: *Effects of Low-Level Laser and Low-Intensity Pulsed Ultrasound Therapy on Treatment Duration and Pain Perception* (pp. 154-162)

9. Low-level laser therapy (LLLT) appears to cause an increase in alveolar bone remodeling by:
a) increased expression of the receptor activator of nuclear factor kappa B and its ligand
b) activation of the bone morphogenetic protein-2 signaling pathway
c) upregulation of the signaling pathway hepatocyte growth factor/Runx2/bone morphogenetic protein-2
d) both a and c

10. This study showed a highly significant reduction in the time needed for orthodontic space closure with the use of:
a) LLLT
b) low-intensity pulsed ultrasound (LIPUS) therapy
c) light-emitting diode (LED) therapy
d) no acceleration therapy

11. Compared with the control group, the duration of space closure in the LIPUS group was:
a) highly significantly shorter
b) significantly shorter
c) about the same
d) significantly longer

12. A significant reduction in patients' perception of pain was associated with the use of:
a) LLLT
b) LIPUS therapy
c) LED therapy
d) no acceleration therapy

Article 4

Aristizábal, J.F.: *Treatment in 41 Days Using a Customized Passive Self-Ligation System and the "Surgery First" Approach* (pp. 171-179)

13. The "surgery first" method offers all of the following advantages except:
a) the profile shows an immediate improvement without the need for decompensation
b) functional orthognathic balance is restored early in treatment
c) new three-dimensional technologies can be more easily integrated
d) the regional acceleratory phenomenon (RAP) can potentially shorten treatment

14. In this case, a mandibular setback was contraindicated because of the:
a) excessive distance between the throat and menton
b) midfacial soft-tissue hypoplasia
c) mandibular macrognathism
d) both a and b

15. The rapid results in this case report were attributed to:
a) digital diagnostic planning
b) customized self-ligating appliances
c) the RAP
d) all of the above

16. Compared to traditional fixed appliances, reports have indicated that mean treatment times using the Insignia system can be:
a) as much as three months longer
b) about three months shorter
c) as much as eight months shorter
d) as much as 12 months shorter