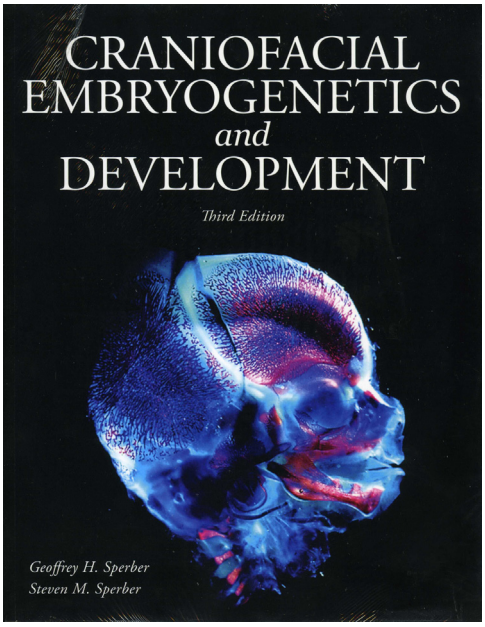
Craniofacial embryogenetics and development

Geoffrey H. Sperber, Steven M. Sperber. Third Edition. Raleigh, NC: People's Medical Publishing House; 2018. p. $65.95; available at www.pmphusa.com

Reviewed by David S. Carlson



This revised book is the fourth (at least) in a series of similar textbooks on the embryology, development, and growth of the craniofacial complex by senior author, Geoffrey H. Sperber, now Professor Emeritus on the Faculty of Medicine and Dentistry at the University of Alberta. The first in this overall series, *Craniofacial Embryology*, appeared in 1973 and went through 4 revised editions through 1993. The second, *Craniofacial Development*, was published in 2001. The first edition of the current book appeared in 2010 and included as coauthor Steven M. Sperber, currently in the Department of Pathology and codirector of the Molecular Diagnostics Laboratory at State University of New York Upstate Medical University. S.M. Sperber is a clinical geneticist and the son of G.H. Sperber, thus representing the next generation of Sperber scientists writing textbooks about the development of the craniofacial region. Collaboration between father and son undoubtedly led to a new emphasis on the genetics of craniofacial development and to a new term, *embryogenetics*, apparently coined by the coauthors. Indeed, as noted in the preface, "By linking genetics with embryology, the rationale for the title change of this book from *Craniofacial Development* to *Craniofacial Embryogenetics and Development* can be legitimized."

The overall layout of the book has changed little over the past 4 decades. As it was in the initial edition, the first third of the current edition (section I) discusses general embryology with emphasis in separate chapters on embryogenesis of the orofacial and pharyngeal regions as well as bone development. The text providing an overview of the orofacial and pharyngeal areas remains well written and succinct. The color figures are excellent and provide an outstanding basis for understanding these areas. The tables are laid out very well and provide succinct overviews of the information discussed. In each area of section I, text and illustrations summarize current information about the genomic factors associated with embryonic development. With the exception of a couple of paragraphs on genetics, the chapter on bone development and growth are unfortunately too elementary given the significant advances in bone biology that have occurred over the past several decades and the needs of dental and postgraduate students.

Section II on craniofacial development comprises 13 chapters, organized according to anatomic units to include all the major craniofacial skeletal structures, such as the calvarium, cranial base, facial skeleton (ie, maxillary complex), and mandible. There are separate chapters on development and growth of the palate and temporomandibular joint as well as odontogenesis. Development of soft tissues, ie, tongue and tonsils, salivary glands, muscle, and special sense organs, also is described in separate chapters. Description of the developmental anatomy of the craniofacial complex throughout prenatal development and growth is excellent; it is clear and nicely illustrated. However, discussion of each structural unit extends to postnatal growth, where the information is insufficient.

The final chapter on craniofacial disorders with known single-gene mutations contains no substantive text or discussion. Instead, it is composed of a comprehensive 12-page table and concludes with a recommendation that the reader refer to the National Center for Biotechnology Information MedGen and Online Mendelian Inheritance in Man websites for further information. Although this table is quite useful, it would have been helpful, especially to students, if this final chapter had provided an up-to-date discussion about the genetics of craniofacial development and anomalies.

The major strength of virtually all the craniofacial biology textbooks by Sperber has been the consistently

succinct and well written description of the prenatal development of the structures of the craniofacial complex. This third edition of *Craniofacial Embryogenetics and Development* is no exception. The text remains readable, instructive, and useful as a reference textbook for predoctoral and postgraduate students in the health sciences as well as for clinicians and scientists. The information provided in the area of genetics as it relates to normal and abnormal craniofacial development is extremely welcome and timely. I sincerely hope it will be expanded even more in subsequent editions to provide more extensive discussion of genomics as the field of dentistry continues to advance with a precision and personalized approach to prevention and treatment of dental and craniofacial disorders.

In summary, Sperber and Sperber have produced an excellent third edition of *Craniofacial Embryogenetics and Development*. The strengths of this broad series of books on the normal and abnormal development of the craniofacial region not only remain intact, but also are enhanced through progressive addition of information on "embryogenetics," summary tables, and improved illustrations. There is no doubt that *Craniofacial Embryogenetics and Development* will remain a go-to textbook and reference for dental students, clinicians, and scientists alike for information about prenatal development of the entire craniofacial complex. In this respect, *Craniofacial Embryogenetics and Development*, would be an excellent, though expensive, textbook for postgraduate students taking a course in craniofacial development and growth if it is considerably supplemented with other materials, especially on postnatal craniofacial growth.

Am J Orthod Dentofacial Orthop 2019;155:897-8
0889-5406/$36.00

https://doi.org/10.1016/j.ajodo.2019.04.001