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AND SIMON FELTON

Basic Guide to
**ORAL HEALTH
EDUCATION AND
PROMOTION**
SECOND EDITION



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Love your patients and they will do anything that you ask.

Ann Felton (1942-2007)



Ann Felton made patients smile and their smiles brighter. Ann was a dental hygienist, tutor and mentor, and ran her own oral health education course for dental nurses whom she referred to as 'the darlings of dentistry'.

Ann wrote the first edition of this book in difficult circumstances, yet retained her love of the subject and her sense of humour throughout. This second edition is dedicated to Ann's life and work.

BASIC GUIDE TO ORAL HEALTH EDUCATION AND PROMOTION

Second Edition

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Foreword

Ann Felton and Alison Chapman have between them more than 50 years of experience in the delivery and training of oral health education, and Alison has been a qualified dental hygienist for over 30 years. Ann, together with Simon and Alison, ran an exceptionally successful oral health education course in Bristol for more than 10 years, with a pass rate of over 95% in the UK national examination, before developing an online course with the British Dental Association, which is proving to be very successful.

This has given them great experience and understanding of the subject and the needs of students. The delivery of dental care is undergoing fundamental changes and the need to develop practice teams with skill mix makes this book very timely. Practices need to consider how they can make best use of their staff to help deliver oral care to their patients now and in the future, and oral health educators are an important part of this process.

This book provides a most comprehensive review of the subject. Each chapter has clearly defined learning outcomes that make it easy to read and understand. It is an ideal revision aid and basis for any member of the dental team and other health professionals wishing to know about all the aspects of oral health education. It would also be a good reference book for all practices on the subject.

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University of Bristol

Preface

Oral health is central to our general well-being. The health of the body begins with the oral cavity, since all our daily nutrients, beneficial or otherwise, pass through it.

Knowledge in the field of oral health is changing rapidly and there is a great deal to learn. Patients need trained oral health educators (OHEs) and promoters to help prevent and control dental conditions and disease. It is vital that dental and health professionals consistently promote the same messages to avoid confusion and ultimately improve oral health within the population.

This book covers the theoretical and practical aspects of oral health education and promotion, and is the course companion for UK dental nurses studying oral health education. It is also aimed at hygienists, therapists and dentists who regularly promote and practise oral health and require up-to-date, evidence-based knowledge (including professionals and trainees in developing nations where education has proven to be a cost-effective method of improving oral health). Other professionals such as health visitors, nurses, dieticians and midwives will also find the book invaluable.

Each chapter deals with various aspects of oral health in a logical order, and includes *learning outcomes*, detailing what the reader (particularly students) should have learned by the end of the chapter.

After reading this book, the reader should be able to:

- Confidently educate patients about diseases and conditions that affect the oral cavity; their treatment, management and prevention.
- Set up a preventive dental unit.

- Be aware of the wider context of oral health education and promotion in society.
- Use knowledge gained to help pass a qualification in oral health education.

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Elaine Tilling, MSc, RDH, DMMS, MIPHE, for permission to use some illustrations;

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SECTION 1

STRUCTURE AND FUNCTIONS OF THE ORAL CAVITY

INTRODUCTION

This section looks at the structure and functions of the oral cavity in some detail. It includes the development of the oral cavity *in utero*, the structure of the tooth and its supporting tissues, plus eruption dates for primary and secondary dentitions.

It also includes the functions of the tongue in maintaining oral health and common conditions associated with it, plus the composition and role of saliva in keeping the mouth healthy.

Chapter 1

The oral cavity in health

LEARNING OUTCOMES

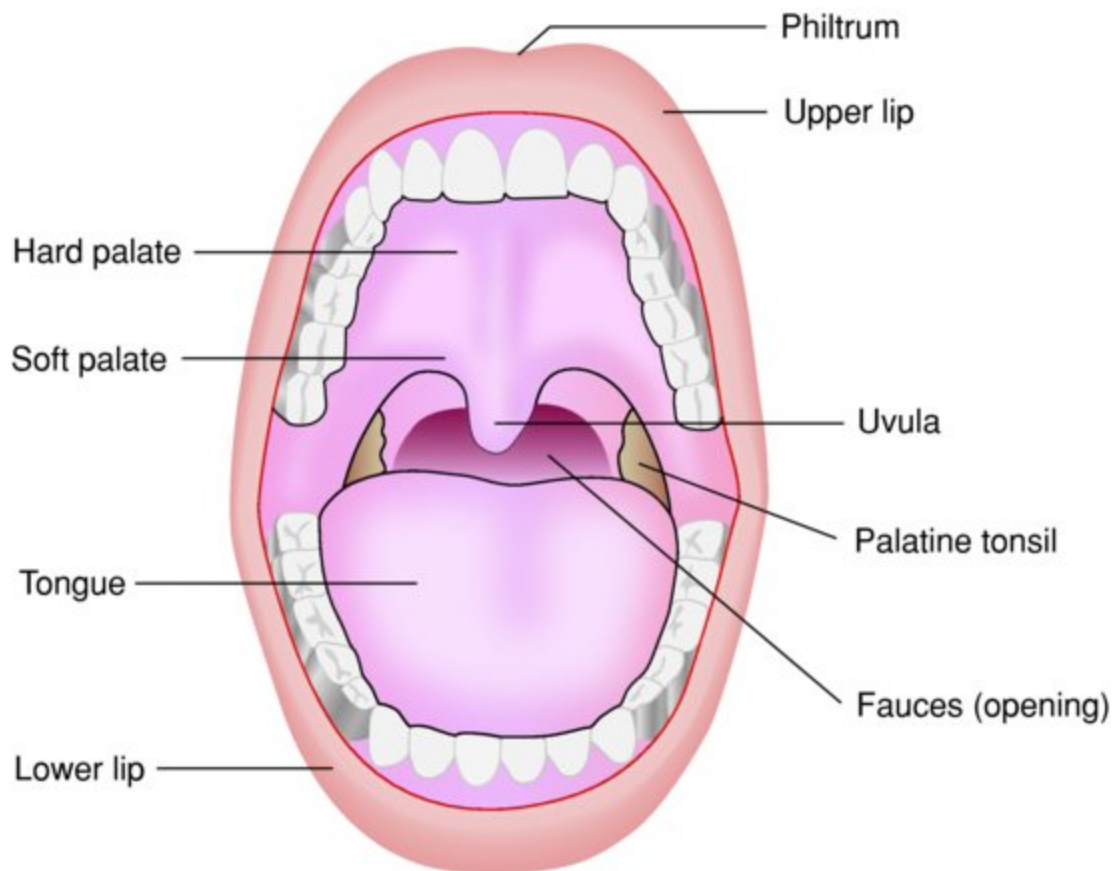
By the end of this chapter you should be able to:

1. Describe how the oral cavity, jaws and face develop *in utero*.
2. Explain the structure and function of the tissues and fluid of the oral cavity, including teeth, supporting structures, the tongue and saliva.
3. List primary and secondary dentition eruption dates.

INTRODUCTION

Before oral health educators (OHEs) can deliver dental health messages to patients, and confidently discuss oral care and disease with them, they will need a basic understanding of how the mouth develops *in utero*, the anatomy of the oral cavity ([Figures 1.1](#), [1.2](#), [1.3](#) and [1.4](#)) and how the following structures function within it:

[Figure 1.1](#) Structure of the oral cavity (© Elsevier 2002. Reproduced with permission from Reference 1)



[Figure 1.2](#) A healthy mouth, white person (© John Wiley & Sons, Ltd 2003. Reproduced with permission from Reference 2)



Figure 1.3 A healthy mouth, black person (source: Alison Chapman)



Figure 1.4 A healthy mouth, Asian person (source: Alison Chapman)



- Teeth (including dentition).
- Periodontium (the supporting structure of the tooth).
- Tongue.
- Salivary glands (and saliva).

ORAL EMBRYOLOGY

A basic understanding of the development of the face, oral cavity and jaws in the embryo and developing foetus will enable the OHE to discuss with patients certain oral manifestations of conditions that stem from *in utero* development (notably *cleft lip* and *palate* - [Figure 1.5](#)). (An *embryo* describes the growing organism up to 8 weeks *in utero*; a *foetus* describes the growing organism from 8 weeks *in utero*.)

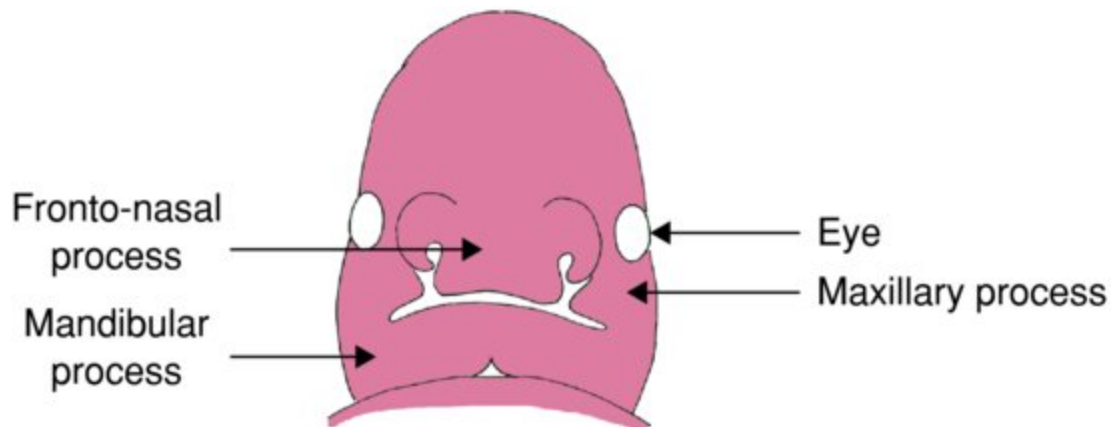
[Figure 1.5](#) Cleft lip (© [iStockphoto.com/April](https://www.iStockphoto.com/April) Anderton)



Development of the face

At approximately week 4 *in utero* ([Figure 1.6](#)), the embryo begins to develop five facial *processes* (projections), which eventually form the face, oral cavity, palate and jaws by week 8 [3]:

[Figure 1.6](#) Facial development at 4 weeks *in utero* (© John Wiley & Sons, Ltd. Reproduced with permission from Reference 3)



- Frontonasal process – forms the forehead, nose and *philtrum* (groove in upper lip).
- Maxillary process (two projections) – forms the middle face and upper lip.
- Mandibular process (two projections) – forms the mandible and lower lip.

Development of the palate and nasal cavities

Week 5

The frontonasal and maxillary processes begin to form the nose and maxilla. However, if the nasal and maxillary processes fail to fuse a *cleft lip* and *palate* will result [3]. A cleft lip can be anything from a small notch in the lip (incomplete cleft) to a wide gap that runs up to the nostril (complete cleft lip). One type of cleft palate (submucous) can be hidden.

There are two types of cleft lip:

- Unilateral – appears on one side of the lip at the philtrum.
- Bilateral – occurs on both sides of the lip, both sides of the philtrum.

Week 6

By week 6, the primary palate and nasal septum have developed. The septum divides the nasal cavity into two.

Week 8

By week 8, the palate is divided into oral and nasal cavities.

Development of the jaws (mandible and maxilla)

Week 6

By week 6, a band of dense fibrous tissue (Meckel's cartilage) forms and provides the structure around which the mandible forms.

Week 7

By week 7, bone develops, outlining the body of the mandible, and as the bone grows backwards two secondary cartilages develop; these eventually become the *condyle* and *coronoid* processes. As the bone grows forward, the two sides are separated by a cartilage called the *mandibular symphysis*. The two sides will finally fuse into one bone approximately 2 years after birth. Upward growth of bone begins along the mandibular arch forming the alveolar process, which will go on to surround the developing *tooth germs*.

Week 8

By week 8, ossification (bone development) of the maxilla begins.

Tooth germ development in the foetus

Tooth germ (tissue mass) develops in three stages known as *bud*, *cap* and *bell*. The developing tooth germ can be affected by the mother's health (see Chapter 20).

- 1.** Bud - at 8 weeks, clumps of cells form swellings known as *enamel organs*. Each enamel organ is responsible for the development of a tooth.
- 2.** Cap - the enamel organ continues to grow and by 12 weeks (the *late cap stage*), cells have formed the inner

enamel epithelium and the outer enamel epithelium. Beneath the inner enamel epithelium, the concentration of cells will eventually become the pulp. The enamel organ is surrounded by a fibrous capsule (the dental follicle), which will eventually form the periodontal ligament.

3. Bell – by 14 weeks, the enamel organ will comprise different layers, which will continue to develop to form the various parts of the tooth.

MAIN FUNCTIONS OF THE ORAL CAVITY

The oral cavity is uniquely designed to carry out two main functions:

- 1.** Begin the process of digestion. The cavity's hard and soft tissues, lubricated by saliva, are designed to withstand the stresses of:
 - Biting.
 - Chewing.
 - Swallowing.
- 2.** Produce speech.

TEETH

Different types of teeth are designed (*shaped*) to carry out different functions. For example, canines are sharp and pointed for gripping and tearing food, while molars have flatter surfaces for chewing. Tooth form in relation to function is known as *morphology*.

Dental nurses and health-care workers may remember from their elementary studies that there are two types of *dentition* (a term used to describe the *type, number* and *arrangement* of natural teeth):

- 1.** Primary (*deciduous*) dentition - consisting of 20 baby teeth.
- 2.** Secondary (*permanent*) dentition - consisting of 32 adult teeth.

Primary dentition

There are three types of deciduous teeth that make up the primary dentition ([Figure 1.7](#)): incisors, canines and molars (first and second). [Table 1.1](#) details their *notation* (the code used by the dental profession to identify teeth), approximate eruption dates and functions.

[Figure 1.7](#) Primary dentition (© Elsevier 2002. Reproduced with permission from Reference 1)